

An account of the efficacy of the aqua mephitica alkalina; or, solution of fixed alkaline salt, saturated with fixible air, in calculous disorders, and other complaints of the urinary passages / by William Falconer.

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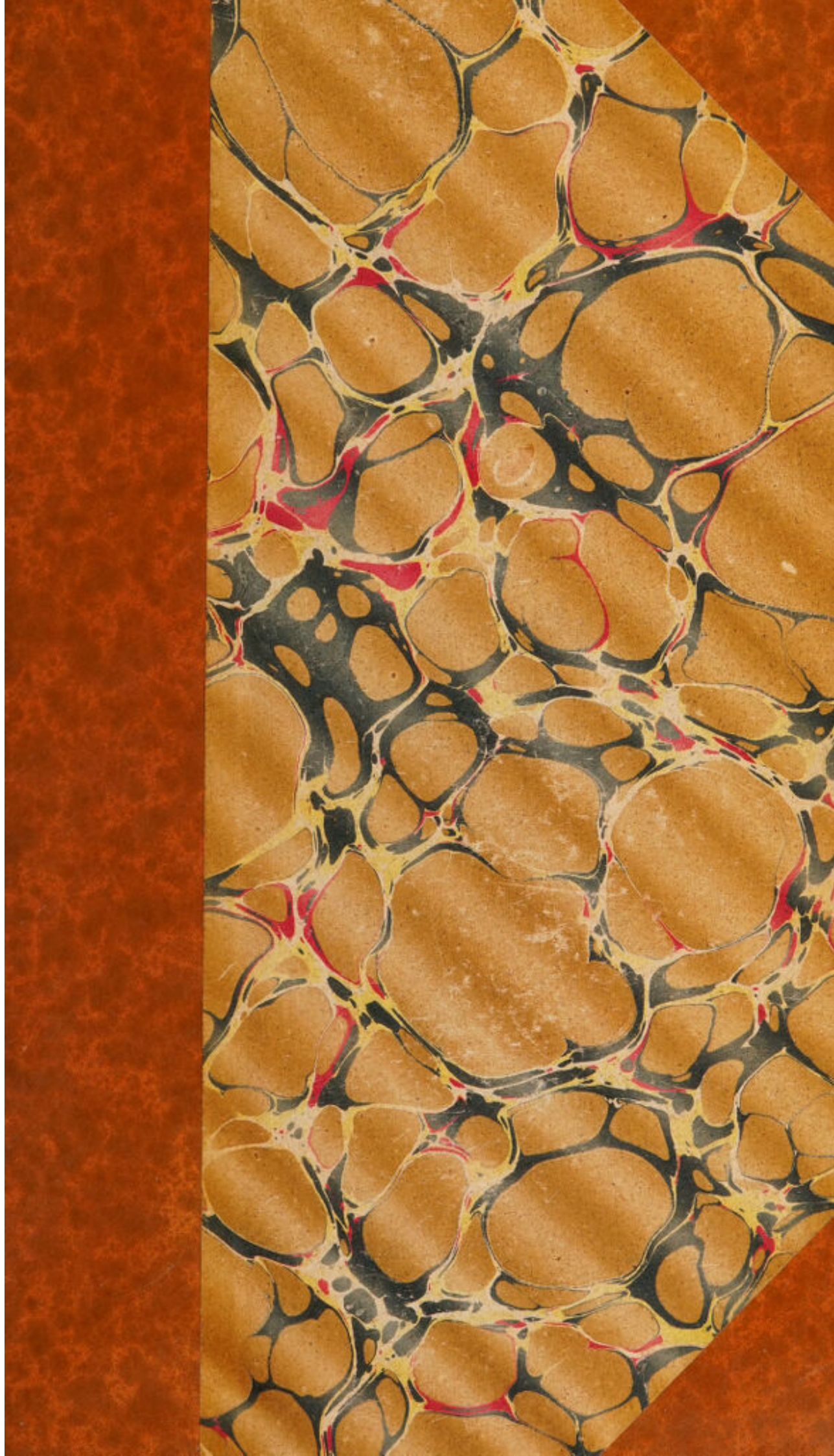
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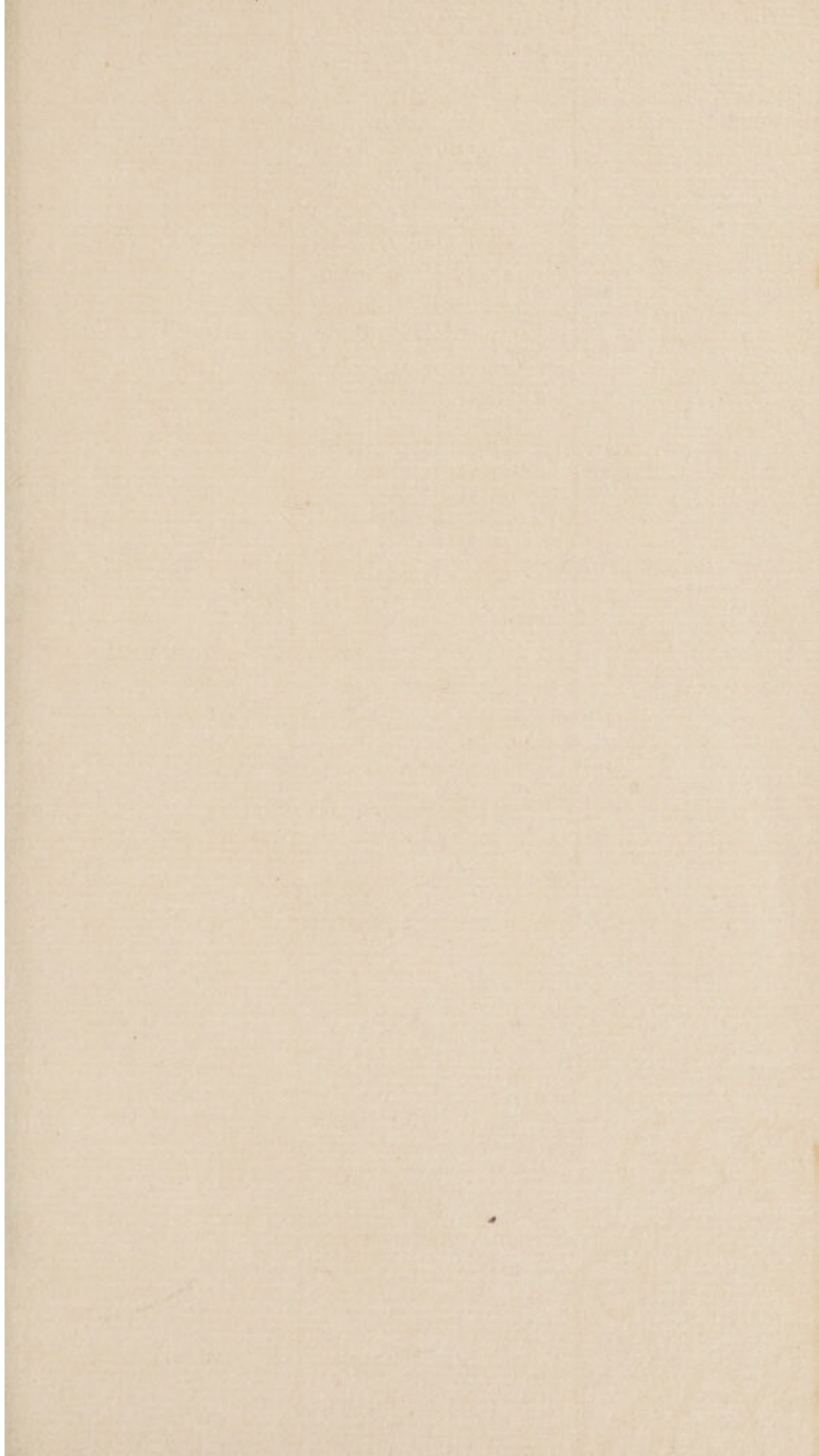
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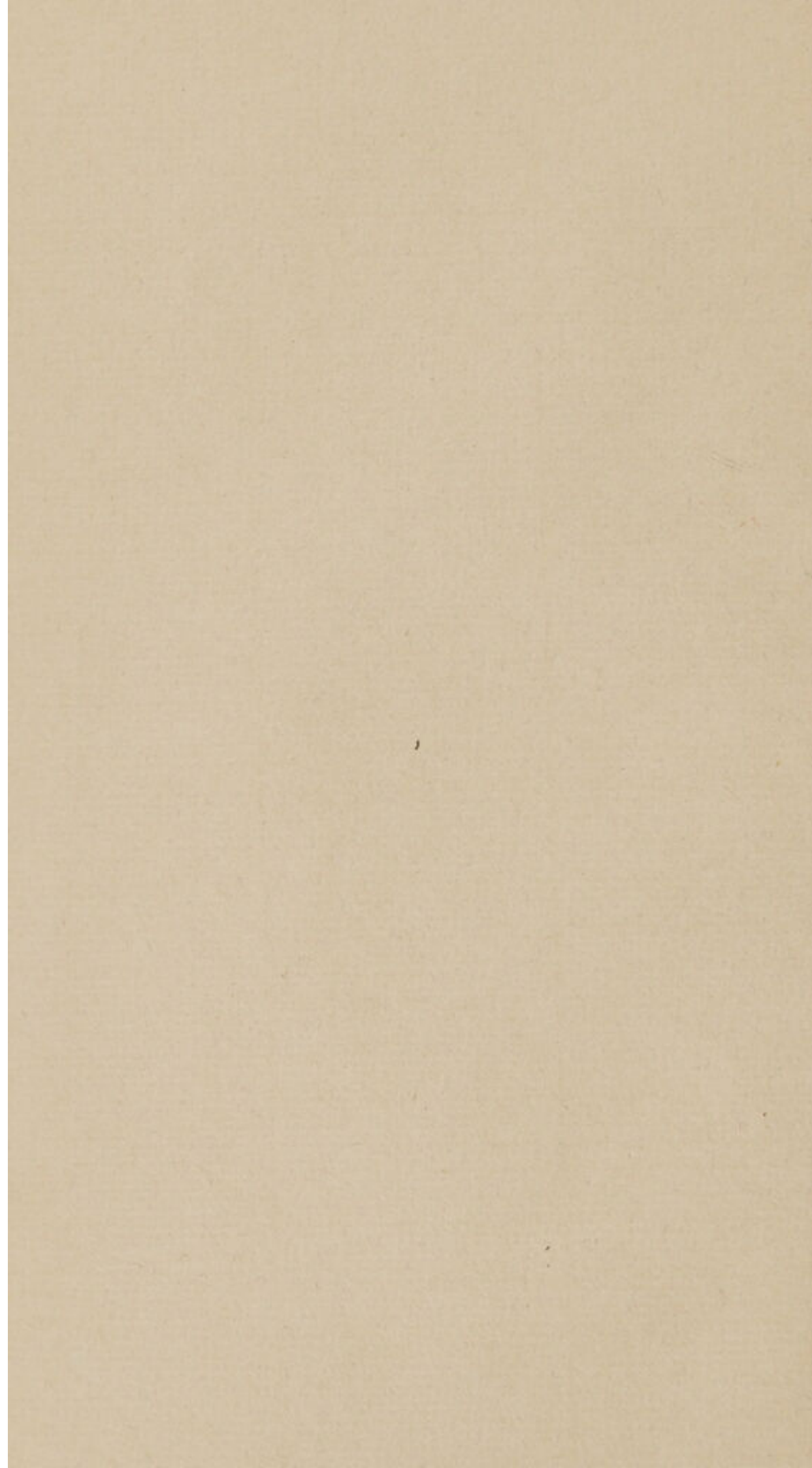


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A N
A C C O U N T
OF THE EFFICACY OF THE
AQUA MEPHITICA ALKALINA;
O R,
SOLUTION OF FIXED ALKALINE SALT,
SATURATED WITH FIXIBLE AIR,
I N
CALCULOUS DISORDERS,
A N D O T H E R
COMPLAINTS OF THE URINARY PASSAGES.

B Y
WILLIAM FALCONER, M.D. F.R.S.
A N D
PHYSICIAN TO THE GENERAL HOSPITAL AT BATH,

THE FOURTH EDITION:

With Additions, Alterations, and several new and remarkable Cases, not
inserted in any former Edition.

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T O
BENJAMIN COLBORNE, Esq.

O F T H E
C I T Y O F B A T H.

D E A R S I R,

P E R M I T me to congratulate you on the increasing reputation of a remedy, whose efficacy you have experienced so fully, and to which your present happy state of health, as well as that of several of your friends and acquaintance, is most undeniably to be ascribed.

The benefits to be imparted to mankind by its publication, have, I know, been your only motives for wishing the information, which these sheets may contain, to be as widely dispersed as possible, in order that by variety of communications its true
A character

character may be ascertained, and the most successful method of administering it pointed out.

I dare not flatter myself with the expectation of being the happy instrument of Providence in bringing to perfection and maturity, an event so much to be wished for; but content myself with the hope, which I trust is not unfounded, that the facts here adduced, whose authenticity is indisputable, cannot fail of contributing largely to so desirable a purpose. With the sincerest wishes for the continuance of your health and happiness, I remain,

Dear Sir,

Your much-obliged

And sincere Friend,

And humble Servant,

W. FALCONER.

*On the Use of the Aqua Mephitica Alkalina,
or Solution of Fixed Alkaline Salt, satu-
rated with Fixible Air, in Calculous Com-
plaints.*

THE merit of the original discovery that alkaline salts were capable of being completely neutralized by Fixible Air, is, I apprehend, due to Mr. BEWLY, of Great Maffingham, in Norfolk; who in some experiments, related in the Appendix to Dr. Priestley's second volume of Experiments and Observations on different Kinds of Air, has fully proved this point. That gentleman has recommended a trial of water thus impregnated in putrid cases, and in others wherein the introduction of Fixible Air in large quantities might be advisable, but does not appear to have had any medical experience of its efficacy. Since that time it has been frequently used by practitioners in place of the common saline draught, and, I believe, with little difference in effect.

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The honour, however, of the discovery of what I apprehend to be its most important quality hitherto known, that of relieving calculous complaints, is due to a gentleman of this city, Benjamin Colborne, Esq. who had formerly been of the medical profession, which he practised many years with great reputation to himself, and service to mankind.

Having been a severe sufferer from this disorder, he was induced to make trial of several of the most celebrated remedies, but was, after long and sad experience, convinced but too well of the inefficacy or danger of most, if not all of the so boasted lithontriptics. He was then led, fortunately for himself, to make trial of the remedy now under consideration; and the event answered much beyond his hopes, and has added greatly to his happiness; not only by the relief he has himself experienced from it, but also by the opportunities it has afforded him of indulging, in the most disinterested manner, his benevolent disposition, by recommending its use to several of his friends who laboured under the same malady.

Mr. Colborne was led to this discovery, partly from observing the dissolvent powers
of

of alkaline salts upon the urinary calculus out of the body, and still more by remarking the changes produced by their internal use on the urine of those afflicted with these disorders, rendering that clear and of a natural colour, which was before turbid and disposed to precipitation. The disagreeable taste, however, of the uncombined alkali, which is moreover so nauseating to the stomach, together with its caustic, septic, and irritating effects on the animal system, the urinary passages particularly, were great discouragements to its use. Could these be obviated by any combination that would still leave the alkaline salt at liberty to unite with the acid that is supposed to contribute to the formation of these calculi, the purpose of preventing their being generated, or possibly of dissolving them when formed, would probably be in a good measure answered.

Fixible Air seemed to him adapted to this purpose in every respect, as it forms with the alkali a neutral salt, perfectly mild in its nature, agreeable to the taste and stomach, and powerfully antiseptic. At the same time their combination is so loose, that the alkali is

easily separated from the air by any other acid it may meet with.

He moreover found by experience, that this combination possessed no inconsiderable dissolvent powers upon the human calculus out of the body. Hence he was induced to make trial of it himself, and to recommend it to others. The accounts of its success here subjoined will, I trust, prove that his expectations were not ill founded.

The most convenient method of preparing the alkaline solution is as follows. Put two ounces and a half troy weight, or, if troy weights are not at hand, two ounces and three quarters *avoirdupois, of dry salt of tartar into an open earthen vessel, and pour thereon five full quarts, wine measure, of the softest water, that is clean and limpid, that can be procured, and stir them well together with a clean piece of wood. After standing 24 hours, carefully decant, from any
indissoluble

* Two ounces and a half troy weight contain 1200 grains; two ounces and three quarters avoirdupois contain 1201 grains and a quarter of a grain.

indissoluble residuum that may remain, as much as will fill the middle part of one of the glass machines for impregnating water with Fixible Air *. The alkaline liquor is then to be exposed to a stream of Air according to the directions commonly given for impregnating water † with that fluid. When the alkaline solution has remained in this situation till the Fixible Air ceases to rise, a fresh quantity of the fermenting materials should be put into the lower part of the machine, and the solution exposed to a second stream of Air, and this process repeated four times. When the alkaline liquor shall have continued about 48 hours in this situation, it will be fit for use, and should then be carefully drawn off into perfectly clean bottles (pints are I think preferable), and closely corked up. The bottles should then be

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placed

* If the salt of tartar be good, and perfectly soluble in the water, every ounce measure of the alkaline solution should contain seven grains and a half of alkaline salt.

† The directions given with the machines sold by Mr. Parker in Fleet-street, or by Messrs. Neale and Bailey, No. 8, St. Paul's Church-Yard, will be sufficient for those who choose to prepare this remedy themselves.

placed with their bottom upwards * in a cool place; and with these precautions it will keep several weeks, and perhaps much longer, very good. The quantity of alkaline solution above directed to be mixed at the beginning of the foregoing directions, is judged to be sufficient to fill the glass machines of the common size twice over, without pouring off the liquor so deep as to hazard making the solution turbid, by stirring up the indissoluble residuum which is precipitated at the bottom † of the vessel. The water in which the alkali is dissolved, should be as free of foreign impregnations as possible, as the alkali, by decomposing them, will not only cloud the water, but form other combinations inconsistent, perhaps, with the effects to be wished for from the remedy. The intention therefore of mixing the salt of tartar with the water the day before, and of the caution recommended in pouring it off, is to allow
time

* A shelf with holes in it to put the necks of the bottles into, such as are commonly used for wine decanters, is convenient for this purpose.

† If the alkaline solution as above directed should be found too irritating, it may be made with a smaller proportion of the salt. See Mr. Melmoth's Case.

time for any precipitation occasioned by the mixture to settle, as well as to separate the indissoluble parts of the salt of tartar itself. Nor is less attention necessary in procuring the salt of tartar pure and in perfection; and on that account it should be got from such places only as can be depended upon. When properly prepared, the alkaline mephitic water should be perfectly clear and rather sparkling, of an acidulous taste, and totally free of that disagreeable impression which alkaline salts make on the tongue and throat*.

About eight ounces by measure appear, from some of the cases, to have been taken thrice in 24 hours for a considerable time together, and to have agreed well with the stomach, appetite, and general health; but I apprehend most people will think this too large a quantity; and I believe that, for most

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cases,

* Those who do not choose, or to whom it is inconvenient to prepare this remedy themselves, may have it, made according to the above directions, of John Killick, No. 7, Broad-way, Blackfriars, near Ludgate-Hill. For the conveniency of carriage, as well as the better preservation of the virtues of the preparation, it is put into small bottles, each of which contains one moderate dose.

cases, two thirds, or a pint of the alkaline liquor in 24 hours, may suffice : should the bulk of the separate doses * be thought too large, the alkaline solution may be made of double the strength ; in which case, half the quantity will be enough. The times of taking three doses in the day have been, I believe, pretty early in the morning, about noon, and about six in the evening. If twice a day, about noon and in the evening ; and if once, which in many cases seems sufficient for a preventive, about an hour and a half before dinner. Common prudence dictates that such a remedy should be taken at such times as the stomach is least likely to be loaded with victuals.

I do not find, from observation or inquiry, that a rigid adherence to any particular regimen of diet is necessary, farther than the usual prudential cautions of moderation and temperance.

The Rev. Dr. Cooper has made use of fruit, wine, and other things subject to aciesency,

* See Dr. Cooper's Case.

acescency, during the time of his taking the solution ; yet no person, as will appear by his very judicious account, has received greater benefit. I, however, think it would be advisable to abstain from acids, and from such things as are subject to become acescent, for some time before, and also after the time of taking the doses of the alkaline solution. I do not find, either from my own observation, or from the accounts of others, that any very perceivable effects, save that most to be wished, the abatement of the troublesome symptoms, followed the taking this remedy. I have inquired of a very sensible person of this city, who has taken the solution in the largest quantity of any that I have known ; and he assures me, that he found no effect from it, save that of gently opening the body.

Mr. Bewly speaks of a dose of it that he took affecting the head (with vertigo I suppose), and proving a pretty strong diuretic. But such consequences have not been observed by all those persons of whom I have had an opportunity of inquiring. The person before referred to, informed me, that though it kept
the

the body gently open, it had no effect in increasing the quantity of urine. Mr. Bewly's dose was indeed large, he having taken, at one dose, such a quantity of the alkaline solution as contained 24 ounces by measure of Fixible Air, whereas the quantity of air taken at a time in a dose of the solution above directed, is not calculated to exceed 15 ounces; but this was repeated three times a day, and no such effect observed. With respect to the diuretic quality, it is well known that the expectation of such an effect from any thing we take, will often prove a very powerful means of producing it.

Should it prove cold or flatulent to the stomach, as I have myself known it to do, though I believe that rarely happens, a small portion of spirits, as rum or brandy *, or any of the other spirituous waters or tinctures, may be used without any diminution of its good effects. A tea-spoonful of rum is mentioned to be taken with each dose of the solution, in one of the cases subjoined; and I have myself directed a small quantity of tincture of cardamoms and of compound spirit of lavender, with

* See Dr. Cooper's Case.

with evident advantage. Mr. Colborne has found hot milk, in the proportion of about one fourth to that of the alkaline solution, to be a very grateful addition, especially in cold weather, and what tended much to reconcile it to the stomach, and this without impairing in the least its good qualities.

If the urinary passages are very sore or tender, and the system very irritable, it will be necessary to use opiates. Five, ten, twenty, or thirty drops of tincture of opium, or a proportionable quantity of the paregoric elixir, must be taken as necessity may require, once or twice a day during the rest of this remedy. The opiate may be taken either just before, or just after the taking the alkaline water; but the quantity of the opiate should be diminished gradually, and at last totally laid aside, when the pain and other urgent symptoms have either ceased, or so far abated, as not to cause any great uneasiness.

C A S E I. *

Benjamin Colborne, Esq. of this city, was, in the year 1760, attacked with a violent nephritic paroxysm, which, after continuing seven or eight days, and being treated with anodyne, oily, and mucilaginous medicines and bleeding, terminated in the discharge, by urine, of a red stone larger than a vetch or tare, after which he continued tolerably well for eight or ten months; often, however, observing small calculous concretions to come away, attended with irritation of the urinary passages. In about ten months after the first attack, he had another, but neither so violent or of so long duration, which terminated like the first, in the discharge of a stone of a similar colour to the foregoing, but of a smaller size. The nephritic paroxysm again returned in about five or six months, but not so violent as at first. During this time he
was

* The Cases before related, are here reprinted as in the third Edition. What has been added in the two last editions is put down in *Italics*, with the date prefixed. Where no addition is made to the Cases before printed, no information has been received of the patient's health.

was in a course of taking mucilaginous and lubricating remedies.

After this he made trial of Mrs. Stephen's remedy, as prepared by Dr. D'Eschernay, of which he took about an ounce in a day, once or twice a week.

After this he continued free of nephritic complaints about a year and a half. That medicine, however, agreed so ill with his stomach, producing nausea, indigestion, and crudities, that he was obliged to leave it off. About three or four months afterwards he had another attack, which returned again upon him every ten or twelve weeks. At this time he was in a course of taking an infusion of the wild carrot seed, and drank distilled water as his usual drink.

In the year 1766, he made a trial of Blackrie's lixivium (or Chittick's remedy); and though it agreed with him rather better than the soap, yet it was so caustic and irritating to the mouth and throat, and produced such painful sensations in his stomach, that he was obliged to leave it off; after which,
his

his nephritic paroxysm returned every eight or ten weeks as before. In the year 1774, he went to Spa for a complaint in his bowels, which he ascribed to the use of his caustic lixivium, and, during the time of his drinking these waters, had no return of calculous complaints; but on his coming back to England he was attacked as formerly.

In the beginning of the year 1778, he made trial of water simply impregnated with Fixible Air, which proved too irritating and diuretic. On March 27th of the same year, he had an attack of the gout, which continued on him until the 14th of April, when he was taken with a violent vomiting, attended with pain in the left kidney. By the help of the warm bath and bleeding, he passed another calculus. After this he had a second attack of the gout, which continued a few days.

As soon as it was over, he began the use of the alkaline medicine with Fixible Air, as above described, of which he took about six or seven ounces twice a day. During the use of this he parted with no gravel, his urine deposited no sediment whatsoever, or discoloured

loured the vessel, though, if it was omitted even for a few days, these appearances took place, and small bits of gravel were perceivable in his water.

From this time he continued in perfect health, and free of all nephritic complaints, until the 26th of August, 1783, when, about three in the morning, he was taken with an irritation in the urinary passages, which prevented his sleep; his urine however was not high coloured: about seven in the morning he had two purging stools; he had but little pain in the kidney, but a heavy obtuse sensation over the os pubis, which continued with some sickness till about two o'clock, when the stone seemed to enter the bladder. From that time he became perfectly easy.

In order to discharge the stone from the bladder, he drank large quantities of mucilaginous liquors, and retained his urine as long as possible. About six in the evening he discharged a red calculus, smaller than what he had before done.

It

It is proper to observe, that he had been at Harrowgate about four or five weeks before this happened, and drank the Harrowgate water, which as it acted not only as a purgative, but as a diuretic also, he was induced to think he might safely omit the alkaline solution. It appeared however, to his great disappointment, that the calculus was generated during that interval. From that time to the present, he has never, for two days successively, omitted taking the mephitic alkaline solution, and has never since felt the smallest uneasiness; no grains of sand or other precipitation in the urine, nor any discolouration of the vessel, except when the medicine is omitted for a day. But, upon taking the solution again, the urine made afterwards dissolves the former discolouration, and still continues perfectly clear. During the time he was subject to nephritic paroxysms, his urine was subject to putrify very soon; but since he has taken the solution, it will keep three or four days in the warmest weather without shewing any signs of that disposition. His general dose as a preventive is about seven ounces daily. His health, strength, and spirits, are all perfectly good; and, as he

he thinks, better than they were twenty years ago.

Since the above account was written, which is now about two years ago, Mr. Colborne has had two fits of the gout; the one slight, the other more severe, which last confined him for a fortnight; both fits, however, went off perfectly well, without any translation of the gout to the head, lungs, or any of the viscera. He drank the mephitic alkaline water, with the addition of a little brandy, during both the fits, and it agreed with him perfectly well. His health, strength, and spirits, are as good now as they were two years ago.

December 16, 1788.

Mr. Colborne has taken the mephitic alkaline water but once or twice in a week for four or five months past; yet his chamber-pot has kept clean from any incrustation or adhesion. He thinks that his appetite has been better upon the days he took the mephitic alkaline water. He has had more of the gout this November (1788) than for three or four years past.

December 1, 1791.

Mr. Colborne informs me, that he has had no return of his complaints for many years past, notwithstanding his having often omitted taking the alkaline water for three or four months together; yet, even during that time, his urine seldom forms any deposit that adheres to the chamber-pot.

C A S E II.

Mrs. Southcote, a lady of this city, was first afflicted with complaints of this kind about the year 1754, when she had an attack that lasted several days; after which, to her great surprise, she voided a calculus, not having before apprehended the nature of her disorder. She continued free from any complaint of the kind for about ten years, when, in the year 1764, she had a return, and from that time the attacks recurred every ten or twelve weeks, accompanied with the discharge of numerous calculi: one, however, she had reason to believe remained, and probably still remains too large to pass, which aggravated her pain, and produced blood on the slightest motion.

motion. The pains in the kidneys, nevertheless, still continued; and the last paroxysm she had of this kind, which was in 1779, was so violent, that her life was despaired of for ten or twelve days. At last, however, after taking large quantities of oily and mucilaginous remedies, the free use of opium, and the warm bath, an oblong stone was discharged, about the shape and size of a large orange seed. As soon as she had recovered a little strength after this severe attack, she began, in the same year, to make trial of the aqua mephitica alkalina, taking six or seven ounces twice a day, which she still persevered in. Since that time she has had no more nephritic attacks, has parted with no calculi, and her urine continues clear and free of sediment. She often feels a sensation of weight, and some uneasiness in her bladder, but has any bloody water, bears exercise well, is able to walk for an hour or two at a time, and uses a carriage almost daily without pain or aggravation of uneasiness. Her general state of health, though valetudinary, has been much better since the trial of this remedy than before.

Since the above case was drawn up, and sent to the printer, I have received the following account :

“ In the beginning of September, 1784, Mrs. S. went into Berkshire, where she continued three weeks. Soon after her arrival she was seized with a feverish complaint, which occasioned her to omit the alkaline solution, which she not only discontinued during her stay in the country, but for a month after her return to Bath. During this interval, she began to feel some uneasiness in her left kidney, on which she again commenced the use of the remedy once a day. On Dec. 27th last, she was seized with pain and other symptoms attending the passage of a calculus; which, after a painful night, came away about nine the next morning. It was about the size of a pea. She soon recovered, and is now well and easy.”

It is her opinion, and appears highly probable, that this calculus was formed during the time of the remedy's being omitted. Mrs. Southcote has had no return of her nephritic complaint, and is able to walk and bear the motion of a carriage without the least pain or inconveniency; but feels sometimes an uneasy sensation in the bladder, and believes she has two calculi formed there. April 30, 1787.

Since

Since the above account was published, Mrs. Southcote had two attacks of the apoplexy, the last of which carried her off, after a short illness, on January 1st, 1788, aged 68 years. Her body was opened by Mr. Symons, an eminent surgeon of this place. Her liver was found in a putrid state; the gall bladder of the size of a hen's egg, and its coats a full quarter of an inch thick. In the middle of the cystic duct was lodged a biliary calculus, of the size of a child's marble, which might be pressed back into the gall bladder, but not forwards. The bladder and kidneys were perfectly sound, and free from any calculous concretion of any kind.

C A S E III.

The Reverend Dr. Cooper, of Sunning, in Berkshire, a most worthy and amiable character, is likewise a remarkable instance of the efficacy of the neutralized alkaline solution.

But this gentleman's case is related by himself, in a letter to my late friend, with such accuracy and propriety, as well as animated description, suggested by the memory of feel-

ings too severe to be erased, that I cannot forbear giving it to the reader in his own words; subjoining also a confirmation of the benefit he had received, and of his present good state of health, extracted from a letter I myself had the pleasure lately to receive from him. One trivial circumstance I will take the liberty to remark, that Dr. Cooper, in one part of his letter to Dr. Dobson, seems to have thought that the aqua mephitica alkalina, or alkaline solution saturated with Fixible Air, was recommended in the Medical Commentary, as a remedy for calculous disorders; whereas it is only recommended there as containing a large quantity of Fixible Air, which was to be set loose by a subsequent addition of an acid, which was directed to be taken immediately after the exhibition of the alkaline solution. It does not appear that Dr. Dobson, at the time he composed the Medical Commentary on Fixed Air, was at all acquainted with the good effects of the alkaline solution thus impregnated in these complaints. Though he recommends its use, it is only with a view to its immediate decomposition by an acid. The remedy, however, from which Dr. Cooper received benefit, was, as appears from his own account, the alkaline solution

solution saturated with Fixed Air, without any other addition; though he occasionally made use of the effervescent saline draught, when a machine for impregnating the water with Fixed Air was not at hand.

The Rev. Dr. Cooper's Letter to Dr. Dobson.

“ Dear Sir,

“ It gives me great pleasure to hear you design taking up the pen again in favour of *Fixed Air*. The efficacy of that volatile principle (when combined with some alkaline salt) in putrid and other disorders, is sufficiently manifested in your very ingenious Commentary on that subject; and nothing now is wanting completely to establish its character, than the making better known to the world its superior virtues in nephritic complaints also. Of this superiority, I am sensible, you have several proofs before you, even in this place, and some of them much stronger than perhaps my case may be; nevertheless, if *that* can in the least degree promote the cause of truth, and assist your benevolent design, it is most heartily at your service. Indeed, I feel myself under so great

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obligations

obligations to the virtues of *Salt of Tartar* and *Fixed Air*, for rescuing me from a state of misery and pain, and restoring me to the full enjoyment of health and ease, that it would appear the highest ingratitude in me to be silent, whenever it is in my power to do justice to their worth.—It was in the beginning of August, 1772, if I recollect right, that I was first attacked with what is called a fit of the gravel, which lasted about twelve hours; *hinc mihi prima labes*. As I had till then been quite a stranger to the nature as well as symptoms of the disorder, I was at a loss how to account for the sickness and pains I felt, till a small stone, which came away, too well convinced me from what cause they arose. The continual apprehensions I now was under, of having a return of those pains, and the dread I entertained of being afflicted with a complaint which I had always heard styled the *opprobrium medicorum*, destroyed every comfort, and embittered every hour of my life. I did not fail, however, you may be sure, Sir, having recourse to the best advice I could find, and took care scrupulously to adhere to every rule and every method of cure prescribed me. I soon perceived, nevertheless,

theless, with great concern, that my disorder, instead of abating, gradually increased, conformable to the just observation of Mr. Pope, that

“ The young disease, which must subdue at length,
 “ Grows with our growth, and strengthens with
 “ our strength.”

I now continually voided great quantities of sand, or rather, of very small stones of a bright red colour; and, at the distance of every two or three months, and sometimes oftener, when a larger stone was formed than could easily pass the ureters, I underwent the most excruciating torments before it reached the bladder. The paroxysms, at these times, lasted full thirty hours, and once or twice much longer, attended with an acute burning pain in the region of the kidneys and round the abdomen, a numbness down my thighs and legs, a constipation of my bowels, with violent sickness at my stomach. Castor-oil, fomentations, emollients, and warm bathing, which used before to afford me ease in common fits, here often failed of success, and nothing but opiate draughts could administer the least relief. Nor did my sufferings always terminate with the stone's being at length safely lodged

lodged in the bladder; for twice, in its endeavours to pass the urethra, the stone unhappily remained fixed there for several hours, and consequently brought on again an intolerable pain, with a total suppression of urine. To attempt giving an idea of what I felt on those occasions, is beyond the power of words; even at this distance of time, while I am now writing, *animus meminisse horret*—it is to be conceived only by those who have had the misfortune to be afflicted with the stone.

“ As I was convinced that the milder remedies, which I had hitherto followed, were unable to prevent a frequent return of these paroxysms, I determined to have recourse to more violent ones, such as *lixiviums* and *solvents*. Of the former, I preferred that recommended by Mr. *Blackrie*, known before by the name of *Chittick's Receipt for the Stone*. This I took regularly for four months, strictly observing the rules laid down with it. I do not remember I had any very violent attack of my complaint, during the course of this medicine; but it sometimes occasioned me to make bloody water, and I continually voided a good deal of gravel. Perceiving, however,

however, that my health, spirits, and appetite began to be afflicted by the septic regimen, enjoined to assist the operations of the lixivium, I thought it high time to leave it off; and soon after had the additional mortification to know, that, whilst every thing else, that could render life an object of desire, was about to leave me, my calculous complaints remained firm and rooted as ever.

“ From this caustic medicine, I turned my eyes to *Perry's Solvent*, which, as I found its character and virtues came strongly recommended to the public under the sanction of many respectable names, I lamented I had not thought of sooner, and considered all the time as thrown away, which I had hitherto bestowed on other remedies. My application, however, to this boasted medicine, was followed by no better success than what had attended me before; for at the end of three months, during which time I took it, I found all my fond hopes and expectations at once destroyed by one of the severest fits of the stone I had ever felt. Willing to give this celebrated solvent the fairest trial, I persevered in the use of it long after I found it by
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no means suited to my constitution ; for it induced such a costive habit of body, as rendered my life very uncomfortable, and sometimes was indeed quite alarming.

“ It would be difficult, as well as tiresome, to endeavour to enumerate the variety of other nostrums, which, during the course of full seven years, I was persuaded to swallow :

“ Non, mihi si linguæ centum sint, oraque centum,

“ Ferrea vox, omnes possum comprehendere formas.”

Let it suffice to say, that finding from none of them any other kind of benefit than temporary suspensions of pain, I quite despaired of ever meeting with any thing that would afford me essential and permanent relief. At length, however, in the beginning of April 1780, a friend of mine put into my hands your publication, before mentioned, on Fixed Air : pleased with the account given in it, of the many cures performed by *that* and *salt of tartar*, on putrid and other diseases, and with the great probability of the success of these combined articles in nephritic complaints, as likewise encouraged by the established character and reputation of its amiable author, I determined immediately to make trial of this extraordinary

extraordinary medicine; and accordingly provided myself with a Fixed Air machine, and apparatus necessary for the purpose.

“ About the middle of the same month I entered on a course of the Medicated Water and Fixed Air, taking it in the form and quantity prescribed as in your pamphlet, and soon had great reason to congratulate myself on my undertaking; for in about a fortnight's time I perceived a very sensible alteration in myself, as well with respect to my complaint in particular, as to my health in general. The latter I found greatly mended both in my spirits and appetite; and the uneasy sensations of the former, about the kidneys, were entirely removed. I no longer voided either sand or gravel; nor did I feel that continual irritation to make water, which I did before; nor was my sleep disturbed by such frequent, yet fruitless, calls to it: in short, from the happy enjoyment of ease and comfort, to which I had so long been a stranger, I now seemed to myself quite a new creature.

“ I pursued this method about four months, when my farther progress in it was
stopped

stopped by a feverish attack, which confined me for three weeks. As soon as that was removed, I had recourse again to the *Salt of Tartar* and *Fixed Air*, and have continued it, with but little interruption, ever since. I can assure you, Sir, with the greatest truth, that from the time I began taking this medicine, to the date of the present writing, I have never had any the least return of my complaint, excepting once, about two years and a half ago, I voided a small stone, without pain, about the size of a little pea, or vetch, quite smooth, and almost perfectly round. I have moreover, in every other respect, enjoyed an uninterrupted state of good health. When I am on a journey, or absent from home, when I cannot be supplied with a Fixed Air machine, I neutralize each dose of the medicated water (sweetened with a little sugar) with juice of lemons, before I take it, which has the same effect as the mephitic acid.

“ With regard to regimen, I confess, I observe none, except the avoiding every thing salted or dressed too high. No other restriction of diet can be necessary with a medicine, whose virtues seem best assisted by those things which are, at the same time,
most

most salutary and agreeable to the nature and constitution of the human frame, such as wine, milk, fruits, vegetables, and the like. On this account, the medicine in question has certainly great advantages over those of the caustic kind; for the same reason, perhaps, it may be supposed to yield to them in *solvent powers*. Nevertheless, if, as experience shews, it *prevents* the *formation* of those substances in the kidneys and bladder, which form the *human calculi*, or the *increase* of them after they are formed, its claim to merit as a *preventative* is equally great; at the same time, when its perfect innocence, nay, even beneficial effects on the constitution, are taken into consideration, few people, I believe, will hesitate to pronounce the *Medicated Water* and *Fixed Air* superior to all other medicines hitherto recommended for nephritic complaints. A fair trial of them for three years, will, I hope, fully justify me in asserting this superiority; and if health, ease, and comfort, are blessings we all covet and desire, the having reinstated me in the happy enjoyment of them, when well-nigh lost, must ever entitle the *Salt of Tartar* and *Fixed Air* remedy to my
sincerest

sincereſt thanks and moſt grateful acknowledgments.

I am, dear Sir, with the trueſt eſteem,

Your very obedient,

and very humble ſervant,

Bath, April 16th,
1783.

EDWARD COOPER.

“ N. B. I forgot to mention, that, in the ſpring of the year 1782, I was ſeized with a fit of the gout in both my feet, which confined me full three weeks ; nevertheleſs, I ſtill continued the uſe of my medicine, adding only to each doſe about half a tea-ſpoonful of rum ; nor did I find the leaſt prejudice or inconvenience from it.”

*Extract of a Letter from the Rev. Dr. Cooper
to William Falconer, M. D. dated Dec. 18,
1784.*

“ All that I have farther to add now, reſpecting myſelf, is, that I ſtill continue as well, and as free from any return of my complaint, as I was when I drew up my caſe in April 1783. I conſtantly perſevere in the uſe of the alkaline ſolution with Fixible Air, drinking once or twice a day, as it happens,
about

about two ounces of the Medicated Water, which never fails acting as a preventative, and keeping me intirely free from every the least symptom of gravel or stone; though I have great reason to think, from the pain I have formerly felt in the region of my kidneys, that a stone is formed in one of them.”—

It may be necessary to remind the reader, that the quantity of alkali contained in the solution used by Dr. Cooper, is double to that used by Mr. Colborne; so that the two ounces mentioned in Dr. Cooper’s letter as his daily dose, are equal to twice that quantity of the solution directed in the former part of this Work.

Extract of a Letter, dated April 1, 1787.

“ My health is, I thank God, full as good as when you last heard from me, nor have I had any, even the least, return of my old complaint, which I can attribute to nothing but my persevering in a course of the above-mentioned medicine. I pursue the same method of taking it that I have done hitherto, excepting that now I have seldom recourse

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to

to it above once a day, instead of twice, which I formerly had. The effects of it as a preventative I find equally powerful as they have ever been ; and long experience has fully convinced me that this medicine is no less innocent, than it is salutary to my constitution. It is true indeed I have had two fits of the gout, the one in September 1785, and the other in January 1787, but in neither did I desist from taking the Aqua Mephitica Alkalina. On the contrary, I continued it during the whole time of both those severe visitations, and, with the precaution of adding a teaspoonful of rum or brandy to each dose, found it sit quite easy and comfortable on my stomach."

The following is an Extract from a Letter I received from Dr. Cooper, dated November 26, 1788.

" To answer more particularly your inquiries concerning my present state of health, I have the pleasure to assure you that it is full as good as when I saw you last winter at Bath, 'bating the somewhat farther advance in age, and its attendant infirmities. I believe I then told you,
that

that for the whole preceding Summer, and great part of the Autumn, I had been afflicted with a very painful and dangerous illness; and that during my confinement under it, which lasted near five months, I was obliged to abstain from the *Aqua Mephitica Alkalina*. I found however no inconvenience from the disuse of it, either by any return of pain in my kidneys, or any other (even the least) hint of a gravelly complaint. Since that time, I have again entered upon a course of that medicine, but neither in so large a quantity, nor so frequently repeated as before, as I now take it once only in the day, and that not regularly. Besides, whenever business or engagements call me from home, I oftentimes omit it for a fortnight together, and find myself justified in this omission by a total freedom from every symptom of, or tendency to, either the stone or gravel. Should I unfortunately find any hints of either of these sufficient to alarm me, I should immediately increase my dose, and be more attentive to the frequent and regular returns of taking it; nor have I the least doubt, but that the virtues of the *Aqua Mephitica Alkalina* would soon disperse every anxious fear and uneasy foreboding."

December 1, 1791.

Dr. Cooper has had no return of his nephritic complaint, though he does not take the Mephitic Alkaline Water constantly.

C A S E IV.

A respectable person of this city, who desired his name might not be made public, aged 65, of a habit of body esteemed to be scorbutic, had been for several years accustomed to the use of medicines that acted upon the urinary organs, as expressed juice of millepedes and tincture of cantharides.

About three years ago he was seized with a considerable degree of pain in the urinary passages, and in the rectum. He likewise voided several fabulous concretions, some of the size of a pepper-corn, or vetch, and had frequent returns of bloody urine, in which the proportion of blood was often so large as to coagulate nearly in the same manner as if it was recently drawn from the arm. Great pain, as may well be supposed, attended these evacuations. For these symptoms he took, by advice,
Blackrie's

Blackrie's lixivium, from forty to eighty drops, thrice a day, in veal broth or onion pottage, and made a large use of onions also in his diet.

His pains and bloody urine increasfing under this regimen, he was induced to make trial of honey, which he took to the quantity of near half a pound daily, still continuing the use of the lixivium. The honey seemed to act as a strong diuretic, and to aggravate his pain so much, as to render it necessary to be laid aside, as well as the lixivium. He then made trial of water, simply impregnated with Fixible Air, for about a month, but without any sensible relief.

He next, by Mr. Colborne's advice, entered upon a course of the Alkaline solution impregnated with Fixible Air, similar to that above described, which he commenced somewhat more than two years from the present time, taking eight ounces of it thrice every day. In less than three weeks after his first taking it he experienced the most essential benefit; his pains abated, his urine became clear and of a natural colour, without any subsidence or precipitation; and his health (some slight pains,

occasionally returning, excepted) nearly restored.

It is proper to remark, that the caustic lixivium appeared to have very bad effects on the system, by disposing the humours of the body to a putrefactive state, which was instanced in several respects, and particularly by frequent hæmorrhages from the nose, that occurred during its use; a thing he was never before subject to, and which has not occurred since the lixivium has been laid aside.

For the last year and half he has made no bloody urine, has had no pain in passing it, and has voided no calculous concretions. For the last six months he has taken only four ounces three times a day, which is but half the original quantity. It has operated as a gentle aperient, giving one motion daily, but no more, and thus supplying the want of an aloetic pill, which he was formerly obliged occasionally to have recourse to. It had not, however, any sensible effect as a diuretic.

His appetite and health in general have been very good since the use of the medicine. He
is

is now of a healthy and ruddy complexion, hale and strong in his body, appetite and spirits good, bears exercise well in a carriage, and is able to walk five or six miles at a time without fatigue, or any other inconvenience, and generally walks as far daily, whenever the weather will admit of it. I had the satisfaction this day (April 14, 1787) of seeing the person whose case is here described. He is in perfect health, and strong and active for his years, and has had no return of any calculous complaints these two years. He has continued, and still continues to take regularly every day, the Mephitic Alkaline Water.

The person whose case is here related, continues to take the Mephitic Alkaline Water occasionally, but not constantly; and is quite free from his former complaints of the calculous kind.

November 25, 1791.

The person here referred to, is, I am informed by his family, free from any calculous complaint at present; but has had one or two attacks, which were but very slight. He has however been far from regular in the use of the remedy, having often omitted it for a considerable time together.

C A S E V.

The Honourable and Reverend G. Hamilton, of Taplow, in Buckinghamshire, a gentleman between 60 and 70 years old, is another instance of the efficacy of this remedy; as appears from the following extract from a letter of his to George Burges, Esq. of this city, and by him communicated, with the consent of Mr. Hamilton, to Dr. Dobson.

“ I had been troubled with a stone in my bladder about five years, during which time I took various solvents without any effect. In the spring of the year 1780, Mr. Pott extracted a stone weighing two ounces; since that time I have been free from pain, but at times perceived gravel in my water, and now-and-then pieces large enough to make me apprehend the forming of another stone. In the winter of the year 1781, I was at Bath, and very fortunately became acquainted with Dr. Cooper. He had been troubled with my complaints, and was taking a medicine he strongly recommended to me. He said, he had taken it near two years, to the best of my remembrance,

brance, during which time he had avoided the usual symptoms of this complaint. It was water impregnated with Fixed Air, to two quarts of which he put two ounces of salt of tartar. He took a small quantity of this twice a day, in which he put some sugar, and about two tea-spoonfuls of juice of lemons. He very kindly treated me with a glass whenever I called upon him; and as soon as I returned to Taplow, I sent to town for a Fixed Air apparatus. I got it in January 1782, and immediately entered on the course prescribed by Dr. Cooper: only that I drink his two doses at once, and put the juice of half a lemon into mine, as my stomach agrees well with acids. Since I have taken this, I have voided no gravel; nor have I seen any fur on the chamber-pot, its usual forerunner.

“ If this account may be of any service to Dr. Dobson, or his patients, he is welcome to make what use he pleases of it; for I may say with Dido,

“ Haud ignara mali,” &c.

Dated Taplow,
Apr. 8, 1783.

The

The following is a Copy of a Letter I lately had the pleasure of receiving from Mr. Hamilton.

S I R,

Taplow, April 10, 1787.

“ YOUR letter of the 7th reached me this morning; in answer to which I can inform you, that I continue taking the Fixed Air and Salt of Tartar, and think I find benefit from it. I this winter had occasion to consult Dr. Warren for some complaints, the chief of which was loss of appetite. He advised me to leave off my medicine whilst I was taking his prescriptions; I did so for some weeks, till I found some ugly pains in my back, occasioned by some very small stones. This alarmed me, and made me return again to my Fixed Air, which soon relieved me. I recommended it some time ago to a Mr. Wood, my hosier in Piccadilly, and to Mr. Charteris at Eton, and they both assure me they have found great benefit from it. I forgot to mention that I voided three of the small stones above mentioned. If what I have said will be of any service, you are welcome to insert my

my letter in the new publication you have in hand.

I am, Sir,

Your obedient humble servant,

G. HAMILTON."

Mr. Hamilton is since dead; but, as I hear, had no return of any calculous complaint.

C A S E VI.

William Ainslie, Esq. of this city, a gentleman between 80 and 90 years of age, accustomed to take much exercise, in hunting particularly, was seized in the year 1780 with a pain and irritation in the urinary passies, accompanied with a discharge of blood. This continued eight or nine days, but without his passing any gravel or sand.

He continued tolerably well (though not without frequent irritations of no great consequence, in which, however, nothing of a calculous nature was voided) until August 1781, when he was again seized with violent pain and irritation, accompanied with bloody urine, which came on after exercise on horseback. After some time his urine became
clear,

clear, but a violent irritation remained for two or three days longer; nothing, however, of stone or gravel came away.

In January 1782, he came from Dorsetshire to Bath in a chaise, the motion of which renewed his complaints, the irritation particularly, to such a degree, as to make it difficult for him to reach the end of his journey. Soon after his arrival at Bath, he was advised to a trial of Adams's solvent, of which he took somewhat more than a guinea bottle; during the taking of which he thought himself somewhat better, the irritation being rather diminished: but towards the latter end of February he was seized with a great bleeding at the nose, which continued 48 hours, with the loss of some quarts of blood.

The physician he consulted on this occasion advised him to leave off the medicine; but from that time the least motion brought on pain, irritation, and bloody urine, so as to oblige him to stir out as little as possible, since even the motion of a sedan-chair brought on the above symptoms.

In this state he continued, although he was still in the course of taking various mild
lubricating

lubricating things, and laudanum occasionally, to abate the pain, until about the beginning of April 1783, when he was advised to begin a course of the Alkaline Solution saturated with Fixed Air, which he took to the quantity of eight ounces twice a day. He had not taken it more than five or six days, before he found benefit: his pain abated, he became able to walk a little; but much motion still brought on a return of bloody urine, and the other symptoms, but less in degree, and of a shorter continuance than formerly.

By the beginning of May he was so well recovered, as to venture to take a journey in a post-chaise into Dorsetshire. The first day of his journey he travelled about 25 miles; and the roads being very rough, and the carriage uneasy, brought on a return of his pain and bloody urine. He however went forward about 15 miles the next day, and the roads being better, and the carriage easy, felt no inconvenience. The next day brought him about 25 miles farther, to the end of his journey, where he arrived in perfect ease and health.

About the twentieth of May he began to diminish the quantity of his medicine, taking
it

it once a day only. From this time he remained perfectly well until the beginning of August, when he had a very slight return of pain, which soon ceased. In October following he was able to ride a horse gently for an hour and a half together without much pain or uneasiness; and his water was then, and had been a long time, of a natural colour, plentiful in quantity, and voided without pain or uneasiness.

Mr. Ainslie died on the fifth of May 1786, aged 87 years, of a peripneumonic complaint contracted by exposure to cold, but without any symptoms that could be ascribed to calculus, or any disorder of the urinary passages.

C A S E VII.

Mr. John Rolfe, of Amesbury, in Wiltshire, was attacked in May 1779 with a fit of the gravel, which lasted near two months, and was at times very painful, and attended with sickness, vomiting, and loss of appetite, which continued until a calculus as large as a vetch came away. He then grew better, and recovered his appetite. Between the
time

time above mentioned, and the year 1784, he had frequent returns of the same complaint, which caused sickness and vomiting in him for a day, and sometimes for two or three days before the gravel came away, which sometimes would be nearly as large as a barley-corn. He drank on these occasions an infusion of marsh-mallow roots, with gum arabic, and other mild softening ingredients, and took castor-oil occasionally. On Saturday Nov. 13, 1784, after being warmed with hunting, he became on a sudden cold and chilly, with aching pains similar to those of the rheumatism in his sides, breast, back, and limbs, which continued several days, and seemed rather to increase. On the 22d of the same month he felt some pain in his stomach and bowels, and applied on that occasion to his apothecary, who gave him some opening physic, which operated very properly downwards, but caused sickness and vomiting. This induced him to think his disease to be of the bilious kind; and in consequence thereof he took some remedies which gave him some relief, but did not remove the pains in his back, breast, &c. Having at that time some business in Dorsetshire, he thought the journey might be of service to
his

his health ; and on Thursday the first of December he went to Salisbury, and from thence to his friend's house in Dorsetshire, which was about thirty miles distant from the last-mentioned city. This journey, which he performed in one day on horseback, increased his pain so much, that it was with difficulty he got to the end of his journey. The next day he was better, but not free from the pains above mentioned ; his appetite also was very indifferent, his body costive, and his stools hard and black. In this state, nearly, he continued until the tenth of December, on the evening of which day he was seized with sickness at his stomach, and a vomiting of blood in considerable quantity: the night following he was again seized with the vomiting of blood, on which Dr. Pultney, of Blandford, was sent for, who recommended to him some medicines, that stopped the bleeding. He continued at his friend's house until the last day of December, when he returned home, with his pains much as before, and his health very indifferent. After he had been at home about eight or ten days, he passed a stone much larger than any he had before done, being of the shape of a barley-corn, but larger. After this he found his health and
appetite

appetite better. After a few days, however, his stomach became again painful, sore, and tender, and often subject to vomiting; and it was with great difficulty he could bear the motion of a post-chaise. His complaint being now judged to be a combination of bile, rheumatism, and gravel, he was ordered to Bath, where he arrived May 5, 1785. Dr. Adair was sent for a few days after his arrival, who directed him some medicines, and a cautious trial of the Bath waters. His health however not improving, his medicines were altered, and a blister applied to the stomach, which soon became easier in respect of pain, but his other pains in the back, breast, &c. remained as before, and his sickness and vomiting continued. Dr. Falconer was consulted about this time, who, in conjunction with Dr. Adair, advised him to try the Alkaline Water with Fixible Air, to be taken in the quantity of a pint a day, divided into three doses, and to use the warm bath twice a week. He had not taken the Alkaline Water above two or three times, before he found his appetite mended, and his pains rather abated. After continuing this course for three weeks, his stomach became settled, his appetite returned, his sickness left

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him

him by degrees, and his vomiting ceased entirely; and from that time he continued in perfect health, and free of all gravelly complaints. During the last illness that he had, his urine was of a deep colour; and notwithstanding he made but a small quantity in the course of a night, it left a great sediment in the vessel. But from the time he began to drink the Alkaline Water, his urine became pale, came away freely, and in large quantity, and left not the least fur or discolouration on the vessel. *The above account is taken from a letter of Mr. Rolfe to me, and expressed as nearly as possible in his own words. The letter is dated from Amesbury, October 19, 1785.*

I have, since the time above specified, had the pleasure of the following account from Mr. Rolfe, dated Amesbury, January 30, 1787:

“ I should sooner have given you a line respecting my health, had it been otherwise than well. It is at present so good, that I do not remember it to be better; though I have voided a stone in the course of the last summer, in a decayed and crumbling state,
as

as it fell to pieces by the pressure of my fingers. I account for my having this stone by my having in April last broken my glass apparatus, and my not being able to get another for the space of a month; and in this interval I apprehend the stone was generated. I still continue the Alkaline Water impregnated with Fixible Air, taking about one third of a pint three times a day."

C A S E VIII.

Lieutenant-colonel Gould, aged 55, formerly of the third regiment of guards, was subject to gouty attacks at little more than thirty years of age, which have, at intervals, attacked him ever since. About nineteen years ago, he was taken with frequent stoppages of urine, that would sometimes continue three or four hours, and were not relieved but by the use of a bougie, which he was obliged frequently to have recourse to, and once even to wear one constantly for two months together. These fits at first had long intervals, but of late years have become more frequent. His urgings to make water were so frequent, that the retaining of it was very difficult, and often impracticable. His urine was mostly

turbid, and had a strong tendency to putrefy, and had an evident fœtor of that kind when voided. He used also to pass a large quantity of mucus in his urine, insomuch that it would stand nearly one inch deep in the pot, when there was no more than a pint and a half of water. He has at times passed red gravel, but never any of such a size as could be called a calculus. He had considerable pain and sensation of weight in the hypochondria, which sometimes extended to the back. At the time of making water he had an inclination to go to stool. When the gout was in the extremities, he was generally free from these complaints. About March last, 1785, he made trial of a vegetable diet of rice milk, mashed potatoes, turneps, &c. and drank no fermented liquor, but barley-water only. After continuing this regimen about three weeks, he was seized with a smarting pain in the urethra, and passed about half a pint of blood daily for two days successively. Opiates, spermaceti draughts, with a change of diet to one of animal food, and the moderate use of wine, relieved these symptoms, which were followed by a slight fit of the gout. During the summer, air, and moderate exercise on horseback daily for six weeks, amended his
general

general health, but his urine still continued turbid and foetid. About the latter end of August last, he had a slight and favourable fit of the gout, which lasted about three weeks; his urine, however, continued as before. On Friday, October 7th, he began, by Mr. Colborne's advice, to take the Aqua Mephitica Alkalina, of which he drinks about one third of a pint twice a day: he takes it with a little hot milk, and it agrees perfectly with his stomach. His hours of taking, are about two in the afternoon, and about six in the evening. It tends to keep the body regular as to stools, but has no farther purgative effects. It has shewn no stimulating effects upon the urinary passages, as his wants in that respect are much less frequent than formerly. In five days time, after he first took it, his urine began to grow clear, and void of mucus or foetor, and to be easily retained. He can now keep it three or four hours, and passes it, though not without pain, with much less than he formerly did. It is of a moderately pale amber-colour, void of smell, and will keep twenty-four hours, and probably would much longer, without suffering any change, and leaves no fur on the chamber-pot. His health and ap-

petite are much better since he took this remedy, and his strength and ability to walk much improved. His regimen of life has been fish or plain meat, with half a pint of red port wine, or perhaps more, and it has agreed well with him. He has taken fruit at times, but thought it disagreed with him.

The above account was taken down from Colonel Gould's own mouth in the month of January 1786. But although the Me-phitic Alkaline Water gave great relief from pain by abating the acrimony of the urine; yet it appeared that the bladder and urinary passages, and indeed the constitution itself, were so injured and weakened by so many repeated attacks in a long course of years, as to be irremediable. He died of an internal mortification at the latter end of 1786.

C A S E IX.

Mr. Francis Loftus, of Market-Weighton, in Yorkshire, a person of sixty-seven years of age, and good constitution and general state of health, except with regard to this particular complaint, had been twice cut for the stone, the last of which operations was performed

formed somewhat more than eight years previous to the writing of his first letter to Benjamin Colborne, Esq. which bears date Jan. 27, 1786. He there mentions that he is satisfied that another is formed in his bladder; and though he does not there mention the symptoms that induced him to be of that opinion, it may reasonably be presumed that he must, from sad experience, be sufficiently qualified to decide upon such a question. Having seen in one of the monthly publications an account of the success of the Aqua Mephitica Alkalina, he made trial of it according to the receipt there put down, which by mistake directed two ounces of salt of tartar instead of one, to be dissolved in two quarts of water. This he tried for near six weeks to a pint and half daily, but without any abatement of his symptoms, save that his water, which was before turbid, and deposited a sediment that adhered to the vessel, became almost clear.

Mr. Colborne, however, having informed him of the mistake in the printing the receipt, and advised him to make trial of a solution of half the strength only, he in his next letter, dated March 7, 1786, gives a

more favourable account. His pain in passing his water was abated, and he was able to retain it longer. He adds in this letter, that the stone was an hereditary complaint in his family, that his father had it, but did not live to be cut. His next letter, dated June 7, 1786, contains little more than an account of his farther amendment in general terms, and a confirmation from examination of his having a calculus formed in his bladder. His urine, he adds, is still rather foetid. His next letter, dated July 25, 1786, gives a much more favourable account. He there describes his pains as having subsided, his urine having lost its foetor, and his health being perfectly restored. He adds, that he could then walk three or four miles *with a great deal of ease*. He had also left off his opiate, as being unnecessary. The Mephitic Alkaline Liquor, he says, never purged him, but kept his body moderately open,

His next letter, dated October 6, 1786, confirms the opinion of the efficacy of the medicine. He there says that his health is strong and good, and superior to what could be expected at his time of life, and that he had just walked four miles without the least inconve-

inconvenience. A subsequent letter, dated January 9, 1787, is to the same purpose. He expresses himself as being “in great good health and spirits, and surprisingly strong, quite free from pain, and able to walk three or four miles with pleasure.” He adds, that he now takes the water only twice a day, and finds that to answer his purpose perfectly well.

In a Letter to Mr. Colborne, dated December 6, 1788, Mr. Loftus expresses himself in the following manner :

“ I have never neglected taking the Alkaline Water one day since you heard from me, but have diminished the dose to half a pint taken once a day. You will say then I am strong ; and so I am, as I can walk four or five miles a day with pleasure, and can also ride on horse-back. I never see any fragments in the pot ; but something like small rags, and a red sharp sand sticks to the bottom and sides. I am wonderfully strong, and in good health, and am seldom troubled with any pain.”

It appears, by a letter from Mr. Loftus to Mr. Colborne, dated May 17, 1789, that his complaints

complaints had returned, and that he was sounded nine or ten times at York by a gentleman of eminence in the profession, but that no calculus could be discovered. It was, however, conjectured that he had an ulcer in the bladder, from the white sediment in his urine. In a second letter, dated June 8, 1789, he says, the white sediment in his urine is diminished, but that he is no easier: since that time I have heard no account. It is no wise remarkable that an ulcer of the bladder should happen after the operation of lithotomy being twice performed.

C A S E X.

William Melmoth, Esq. a gentleman now at an advanced period of life, was, many years ago, subject to violent pains in the back on much walking, which he attributed to weakness induced by profuse discharges of blood by the bleeding piles; a complaint under which he had laboured several years. During the time of his being subject to the above-mentioned disorder, he once or twice, after exercise on horseback, made some coffee-coloured urine. About sixteen years ago, he had an attack of a gravelly complaint, accompanied with calculous discharges. This re-
curred

curred at longer or shorter intervals, and attended with more or less pain, until a period of about 15 months preceding the present time, when he first had recourse to the Mephitic Alkaline Water. Of this he took about half a pint daily, of the strength mentioned in the former part of this work, and persevered in this course for about a month or six weeks. During this space he always discharged with his urine pretty large and numerous particles of coagulated blood, but without any pain. This appearance caused him to suspect that the medicine operated upon the urinary passages with too great violence. On this presumption he gradually reduced the strength of the solution, and at last found that three drachms of salt of tartar, dissolved in two quarts of water, was the proportion that agreed best with him. Specks of blood are scarcely now ever to be seen in his urine. Of the preparation above mentioned he takes, and has for some months taken, about half a pint daily, and often a less quantity. Mr. Melmoth's health is much better now than it had been for several years previous to his trial of the above-mentioned remedy, and his strength much restored. He is also at present able to walk about the town without exciting

exciting any gravelly symptoms, which formerly were excited by very slight motion, in-somuch that he could scarcely stir out of doors without using a sedan chair, which is now no longer necessary on that account.

Mr. Melmoth has always taken, as well during the use of the Mephitic Alkaline Water as before, a moderate proportion of vegetables, and such other acid substances as are usually eaten with animal food, and has used for drink at meals two or three glasses of wine, and now and then a little ale or porter. He has never found the Mephitic Alkaline Water to disagree with his stomach in any respect. In very cold weather he sometimes puts into his cup a single tea-spoonful of brandy.

December 14, 1788.

I this day received an account from Mr. Melmoth, in answer to an inquiry after his state of health, in which he says, "that it continues in the same good state it was when he gave the account inserted in the former edition; that he has continued to use the Mephitic Water prepared in the same manner, and taken in the same small quantities as before described; and that,

that, since he first had recourse to it, he has never felt the slightest return of his complaint."

December 3, 1791.

I am informed by Mr. Colborne, that Mr. Melmoth continues perfectly free from any complaint of the urinary passages, and in a good state of health in other respects, notwithstanding his having omitted the use of the Alkaline Water for six or seven months together.

C A S E XI.

Mr. Patrick Westoby, of Gainsborough, in Lincolnshire, a person now advanced in years, was, one day in the summer of 1776, seized with a sudden stoppage of urine, whilst he was passing his water freely. This continued a few minutes, and was not attended with much pain. To relieve this he took, as soon as it could be got, an infusion of Burdock, with the addition of some milk, and a little honey, which passed off freely in the night following by urine, and brought with it a small round calculus, flat on one side, and with a little rising on the other, and about 1-5th of an inch diameter. He then continued

tinued free from any complaint of this kind about a year, after which interval he was again attacked with frequent urgings to make water, which he passed in small quantities at a time, and with some, though but little pain. For these complaints he had recourse again to the infusion of Burdock root, but did not find the same ease from it as before. That year and the following he took a considerable quantity of Adams's Solvent, but did not experience any relief from it. For the two or three years next succeeding, he usually had, in each, two or three attacks; but they were moderate, and relieved by gentle diuretics with the addition of opiates. During the two years immediately preceding his last attack, his paroxysms were less frequent, but more urgent, and attended with more bloody water, and more frequent excitings to pass his water, and greater pain in the urinary passages, which continued to be very troublesome for some nights, but went off in the space of two or three weeks. On the 3d of February 1785, when the frost was very intense, he had a smart attack, attended with many urgings to make water, which he did about thirty times in the course of the night, and passed his urine tinged with blood. In a few days however these symptoms abated,
and

and his urine flowed freely and plentifully, and became of a good colour, and passed without pain. During the time he was in bed he was subject to a flow of pale clear water, which caused such quick returns of inclination to pass it, as interrupted his sleep very much. The bark in infusion, and opiates, removed this symptom, and in about a month all his complaints ceased.

In the month of August following he had another attack, which continued about three weeks, and another towards the latter end of the month of October, which continued, with two intervals of 12 days each, to the 18th of January 1786. The weather was then very severe, and his disorder never more troublesome; his urine bloody, with frequent urgings to pass it, pain and irritation in the urinary passages, and no sleep but with opiates. He began that day, about noon, to take the mephitic alkaline solution, and continued to take it regularly, according to the directions in the Appendix to Dr. Dobson's work, for four five days, but without any perceptible alteration in his symptoms, except that his urine became a little clearer. On Sunday, January 22, he passed the day and night in great pain; but
on

on the Monday and Tuesday after, he observed a brown powder at the bottom of his chamber-pot, in quantity nearly sufficient to cover a shilling, which, he thought, proceeded from the dissolution of a calculus. He then became somewhat easier, but remarked, during two or three of the evenings preceding, that he felt some pain in the back, os pubis, and thighs, a little below the hips, all of which were new symptoms. From Wednesday morning his symptoms began to decline; his water passing freely, and being of a good colour, his irritations of the passages abating, and his urgings to pass it returning less frequently. During this time he observed in his urine what he took to be fragments of a calculus. Before he took the mephitic alkaline solution, he took a diuretic pill of oil of juniper, gum arabic, and uva ursi, during the use of which his urine was red, thick, and turbid, and deposited a sediment that adhered closely to the pot. His disorder continued to abate until February 7, 1786, when he had another attack, attended with pain and some bloody urine, which lasted a few days. His urine after this attack became again pale and clear; but nevertheless was voided in small quantities, and attended with some pain.

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He then, by Mr. Colborne's advice, diminished the quantity of the solution that he took daily, and added a few drops of laudanum to each dose; which abated his sensations of irritation in the passages, and his urine soon became clear, and void of mucus or blood, was voided without pain, and easily retained. In June 1786, he was so far recovered as to be able to walk three miles a day without pain, feeling nothing more than a slight obtuse sensation at the time his last drop of urine came away. His urine deposited, on standing, a considerable quantity of a white adhesive sediment, and sometimes small bits like broken shells. From this time to April 1787, he went on taking the Mephitic Alkaline solution in about two-thirds or one-half of the dose directed in the Appendix, and has felt no return of his complaint, except once, which he ascribed to the breaking of the machine, which prevented his taking his remedy for about seven weeks, after which he had a moderate fit, attended with frequent excitements to pass urine, but not much pain. The Mephitic Alkaline Water being again procured, abated these symptoms, and carried them all off in about a fortnight. At present, April 4, 1787,

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he is free of all pain and irritation, or other symptoms of calculus.

C A S E XII.

A servant of Charles Sheppard, Esq. of Castle Godwin, near Painswick, Gloucestershire, was, about the month of October 1785, taken with a suppression of urine, and obliged to have recourse to a catheter, in the passing of which a stone was discovered in his bladder. This necessity recurred two or three times during the winter; and the poor man, in consequence of this complaint, was rendered incapable of labour, and even unable to walk a very few yards without making bloody urine. He had also a constant discharge of mucus by the urinary passages. In May 1786, he began to take the Mephitic Alkaline Water; and before he had taking it a fortnight, he found relief, and in about six weeks could walk or ride on horseback without any discharge of blood, and the mucus discharge was much lessened. During the course of last winter he had one or two attacks, which were apprehended to proceed from his drinking cyder; his state of health is now easy and comfortable; he

he has walked ten miles, and rode eighteen with much ease; can work whole days in the garden, but is cautious of any violent exertion, as he sometimes feels the stone as a weight, and has frequent calls to make water, and sometimes has a mucus sediment in his urine.

Taken from a letter of Charles Sheppard, Esq. dated Castle Godwin, April 11, 1787.

C A S E XIII.

The Rev. Arthur Evans, about 50 years of age, and of a scorbutic habit of body, has been for some years afflicted with frequent nephritic complaints. In November 1785, he was seized, in a most violent manner, with repeated vomitings and pains in the kidneys. In December following he came to Bath; and having the pleasure of Mr. B. Colborne's acquaintance, he consulted him, who kindly gave his advice, and recommended the immediate use of the Mephitic Alkaline Water, advising three or spoonfuls of boiling milk to be mixed in the water till the stone had passed; half a pint was drunk every day, according to this direction. In a week from the first drinking, an oblong stone of the size of a

F 2 small

small kidney bean was passed with little pain ; it was three weeks and five days from the first seizure to the passing of the stone. Mr. Evans persevered in taking the same quantity of Mephitic Water daily (without milk) till June 1786, when he left Bath, and soon had the misfortune to break his machine, which deprived him of the Mephitic Water full three weeks ; the consequence was, that towards the latter end of August he had a return of his nephritic complaint, but no vomiting : in a few days afterwards he voided a few calculi ; when these had passed, he soon became easy, and remained perfectly free from that complaint till February last, when he was suddenly seized with frequent vomitings and pains in the kidneys : these nephritic symptoms came on in the evening, and early in the subsequent morning a small stone was passed, which Mr. Colborne, on examining, thought was rather a fragment of an old one than a new concretion ; as Mr. Evans had not omitted drinking daily half a pint of Mephitic Water from August to February last, from which last period Mr. E. has had no complaint of a nephritic nature.—The foregoing account is given in Mr. Evans's own words.

Bath, April 23, 1787.

Mr.

Mr. Evans is since dead; but the disorder which carried him off, had, I am informed, no connexion with any complaint of the urinary passages.

C A S E XIV.

The following Case is that of M. S. Branthwayt, Esq. of Taverham near Norwich, as related by himself.

“ In June 1785, I was seized with a slight fit of the gout; and during the time the gout was upon me, I felt a violent pain quite round my body, but more particularly in my right kidney, attended with a frequent inclination to make water, which passed from me very slowly, and with much pain. At this time Mr. B. Colborne, of Bath, came to visit me, and upon inspecting my chamber-pot, found that my water was coffee-coloured, and, from my description of the symptoms I had felt, suggested to me that I had the stone. Fortunately Mr. Benj. Colborne had a small travelling apparatus with him to make the Aqua Mephitica Alkalina: he made me some, and

after I had taken 4 or 5 doses, my urine passed more freely, and with less irritation, and became perfectly clear. When he left me, I was without the Aqua Mephitica Alkalina three weeks, in which time I voided a small stone, and some red gravel, and my urine became turbid, and gave me infinite pain in passing. In the space of two or three days after, I began again to take the Aqua Mephitica Alkalina; my water became clear, and passed without irritation, and I continued entirely free from all symptoms of the gravel, and was in better health than I had been for some time before. Indeed, feeling so perfectly well, I left off the water for 5 or 6 months, when I was again attacked with a violent pain in my right kidney, attended with fever and sickness, which lasted two or three days; but not suspecting it was the stone, and finding myself very well again, I did not take the Aqua Mephitica Alkalina till after I was a second time attacked in the same way, but more violently. I then took the water again, and was perfectly well till September 1786, when I voided a stone about the size of a vetch; and since that time I have never left off the Aqua Mephitica Alkalina, nor have I
had

had any symptoms of the gravel or pain in my kidney.

Taverham, near
Norwich.

M. S. BRANTHWAYT.

“ Finding so much benefit from the Aqua Mephitica Alkalina, I recommended it to a poor woman in my parish (by name Kidd), who has been afflicted with the stone and gravel at different times between 20 and 30 years, during which time she has voided many small stones. This poor woman being always an invalid, passing by her door, I called to ask her how she did, and found her very ill with a nephritic complaint. I made her some Mephitic Alkaline Water, and after taking a few doses she was much relieved, and continued mending for three weeks, when she voided two stones, one near an inch long, the other about the size of a pea, weighing together 24 grains. She continued drinking the water some time after, during which time she had no return of her gravelly complaints, and thought herself in better health than she had been in for many years. I tried to persuade her to continue the Aqua Mephitica Alkalina; but she said she had no symptoms

of gravel, and was very well; therefore I could not succeed.

M. S. B."

Extract of a Letter from M. S. Branthwayt, Esq. dated December 14, 1788, from Taverham, near Norwich, to Benjamin Colborne, Esq.

"In answer to your letter respecting the Mephitic Water, I must inform you, that I have very constantly drank a large glass every morning, when at home, before breakfast. I have been perfectly well in health except gout, and have not had the least return whatever of my gravelly complaints."

December 5, 1791.

I was this day informed by Mr. Colborne that he had received a letter from Mr. Branthwayt, dated November 30, 1791, in which he says, that he has not taken any of the Alkaline Water for ten months, and has not felt any symptoms of gravel. He has, however, had a fit of the gout more violent than he had before experienced.

CASE

C A S E XV.

Adrian Abbot, cabinet-maker, being in London in the year 1775, and employed in his business, whilst he was carrying a coffin, it being high above his head, it struck against a building, and strained him in the small of his back. Three days after this accident he passed a considerable quantity of blood as he went to make water. From that time to the year 1783 he had frequent inclinations to pass his water, and a constant pain in the small of the back, and frequently a mucous discharge of a light yellowish colour, if he exerted his strength to any considerable degree. Some time afterwards he was seized with a total stoppage of his urine, for which he was bled by the advice of a surgeon, and took medicines, and in about a week his urine passed easily. About six months afterwards he had another attack of the same kind, which, when it abated, was attended with a large discharge of blood, which became from that time a frequent symptom. At this time it was the opinion of two surgeons who attended him, that he had a stone in his bladder.

der. He continued in this state, with great pain in his back, and frequent inclinations to pass his urine, until December 14, 1786, when, being worse, he applied to a surgeon, who directed him some medicines, but without success. He then applied to another gentleman of the profession, who advised him to submit to be cut. His urine at this time was foul and turbid, and changed the vegetable blues to a red colour.

On the 27th of January he was directed to Mr. Benjamin Colborne, who gave him some of the Mephitic Alkaline Water, with directions how to take it. His urine soon became clear and transparent, and he could retain it a long time, and for many nights had occasion to make water once only. The pain in his back ceased, and at present (April 20) he has no complaint of any kind.

This person is, since the publication of the above case, removed from Bath to Bristol; but Mr. Colborne has very lately received information, that he is quite well, and has had no return of his complaint, but still continues taking the Mephitic Alkaline Water.

C A S E XVI.

A tradesman of this city, of the name of Ralph, had for many years been troubled with a stricture, occasionally, of the urethra, which caused frequent obstructions to the passage of his urine, for which he was obliged to use bougies, which gave him great pain without producing any permanent relief. During the spring of the year 1785, his complaints returned so frequently, and with such violence, that it was not practicable to pass a bougie. In this melancholy condition nothing but opiates afforded him any relief, which were obliged to be large in quantity, and frequently repeated. In the month of May in the same year, he had an abscess in perinæo formed, which discharged a large quantity of matter, and healed in about a month's time. His difficulty however of passing his water continued, and his urine was loaded with mucus. Nearly in this state he continued until the eleventh of December 1786, when he began to take the Mephitic Alkaline Water.

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At that time his urine came from him drop by drop, and was so overcharged with mucus that it adhered to the pot in such a manner, as not to fall out when the vessel was turned with its mouth upwards. Its smell was also so rank and foetid, as scarcely to be borne, and was so alkaline with the putrefaction, as to ferment with oil of vitriol, and to change paper stained with juice of turnsole to a blue colour. His pain was likewise so great as to oblige him to take opiate pills every three or four hours. He began the use of the Me-phitic Alkaline Water by taking it with milk as before directed, and with some drops of laudanum in each dose. He took it every eight hours, and in the space of twenty-four hours he passed his water much easier, and his irritations were less frequent and violent, and his urine came away in larger quantities at a time. By continuing his medicine he was able, in three or four days time, to take it without the laudanum, and to go about his business, which is that of a shoemaker, and to work at it much better than he had been able to do for several years. Since the above-mentioned time, he has had little or no return of his complaints, and is in every respect better in health than he has been for the last seven

seven years. Before he took the Alkaline Mephitic Water, he was not able, even when he thought himself tolerably well, to work at his business for two days together. Although this man has taken the Alkaline Mephitic Water for four months, it seemed to have very little effect on a fragment of the same calculus, mentioned in the experiments before related to be made with urine. Yet it appeared to be of an alkaline nature, by its changing paper stained with juice of turnsole to a blue colour.

Mr. Ralph continues perfectly well, but still uses the Mephitic Alkaline Water, which is now become very agreeable to his palate. He grows fat under the use of it, and his complexion becomes florid.

December 1, 1791.

Mr. Ralph is now quite well, and has not taken any of the Alkaline Water for the space of ten or twelve months.

CASE

C A S E XVII.

——— Telling, a glazier of this city, had been for two or three years subject to strictures of the urethra, which produced frequent suppressions of urine. About ten months ago from the present time, May 1, 1787, he was taken ill in the last-mentioned way, and continued without passing any water for two days, in which he suffered the most excruciating pain. A bougie was passed, which produced a discharge of urine for the time. He had frequent returns of pain of this kind, but not so violent, and was never easy two days together. When he went to make water he had in general a tenesmus, and in the morning his urethra used to be greatly clogged by viscid mucus, which delayed his urine passing, and frequently produced a temporary stoppage. His urine was foul in appearance, and of a wheyish colour, with gravel in it, and made in small quantities.

After taking the Alkaline Mephitic Water for three or four days, his urine began to pass more freely and easily, and his complaints mended

mended daily. He has now taken the Mephitic Alkaline Water for two months, has no tenesmus on passing his water, can retain it well, and pass it in large quantity, and the mucus is but little, and that of a thin consistence compared to what he formerly voided. He eats, drinks, and sleeps well; is able to labour in his business, and is upon the whole in better health than he has been for several years.

This person continues perfectly well, although he has left off taking the Mephitic Alkaline Water.

December 1, 1791.

This person continues quite well, and has left off taking the Alkaline Water near two years.

C A S E XVIII.

The Reverend Henry Wilson, Vicar of Heversham, near Kendal in Westmoreland, aged 69 years, had been for some time afflicted, principally at intervals, with a complaint of the urinary passages. This was much aggravated by wet or cold, and even by moderate exercise

exercise or motion. He could not walk a quarter of a mile without passing coffee-coloured water, and frequently little besides blood. This was accompanied sometimes with great pain, and always with much uneasiness. His water encrusted the chamber-pot, and deposited besides a quantity of loose red sand. Sometimes filaments resembling bits of skin, might be seen floating in it. His appetite was but indifferent. In this state he began, on the 10th of May, 1788, to drink the Mephitic Alkaline Water. Of this he took at first a pint and half daily, divided into three doses; one of which he took an hour before breakfast, a second at eleven o'clock in the forenoon, and a third at six in the evening. This he soon afterwards reduced to a pint daily, taken in divided doses at the periods above mentioned. He took it at first with hot milk, as directed in this work: this he changed for raisin wine, and this again for ginger wine, but again returned to milk. He pursued this course for three months, with some, though no great alleviation of his symptoms. His appetite was amended, and his urine left no crust on the chamber-pot. The above was the state of this gentleman's health, as described by him

him in a letter I received from him in the beginning of September last. His last account, however, is much more satisfactory.

In a letter dated November 7th, 1788, he says, “ Every disagreeable circumstance attendant on my complaint, has now left me. I find my appetite greatly improved, my health extremely good. I am as equal to any exercise of walking, &c. as I have been for several years, though entered upon my 70th year.

“ Cold and wet were ever inimical to my disorder; Sunday duty, therefore, or a funeral, or being a few minutes in a shower, brought on my complaint, which continued troublesome for three or four days before it left me: but I feel no inconvenience at present by being confined in my church for more than an hour and half at once; nor in being exposed to a storm of wind and rain for the same space of time.

“ I must own it requires a strong resolution, and no little faith in the efficacy of this medicine, to continue the use of it long together; and I drank it for more than three months, before I perceived any benefit from

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it; but it was extremely cold to my stomach most of this time, and disagreeable; nor would I attempt to warm it with brandy, or any spirits, all the while. However, the Bishop of Llandaff, and yourself, bad me persevere. I did persevere, and am it this time enjoying the fruits of this obedience; and I could not excuse myself, did not I here offer you my sincerest thanks for the blessing of the freedom from pain, &c. which I now enjoy."

*Extract from a Letter, dated December 24,
1788.*

" I have for some time past been returning visits on foot, at the distance of two or three miles, and twice or thrice a week. On Friday se'nnight I was celebrating the birthday of a lady in this neighbourhood, from whence I returned about three o'clock in the morning of Saturday, without being in the least disordered with sitting up, or my morning walk.

" I can with the greatest truth and pleasure assure you, that my health and appetite are both of them now, and have been for some months past, remarkably good; for
which,

which, under God, I think myself indebted to the Mephitic Alkaline Water.

Extract of a Letter from the Rev. Henry Wilson, dated October 22, 1791.

“ With the greatest truth and pleasure, dear Sir, I now assure you, that, since my last to you, near three years ago, I have, thank God, remained entirely free from calculous complaints, my health perfectly good—cruda mihi viridisque senectū. Yet I have continued the use of the Aqua Mephitica Alkalina regularly, about half a pint at eleven o’clock in the morning every day. However, about a year ago, I was prevailed upon to omit for a month the use of the Mephitic Alkaline Water; but I suffered, alas, for my credulity! All my former complaints returned, seemingly with redoubled pain; yet, by resuming immediately the use of the water, I was quite free from all my complaints in two or three days. At this time I passed a stone of the size of a common apple-pippin, and of a light brick colour; it had lain in the pot some hours, and had lost part of its weight and size. If you, Sir, can make the above of use in this your fourth edition, it is very much at your service.”

C A S E XIX.

“ The Rev. Robert Burton, of Oakingham in Berkshire, aged 67 years, of a robust habit, and temperate in his way of living, though subject to the gout, had been used to pass red gravel in his urine, and sometimes small calculi, about the size of a large pin's head. About eight years ago, he had a violent attack of the bleeding piles, to which he had been before subject. About this time his water often came away resembling coffee-grounds, and, if he took any exercise, appeared to be no other than pure blood, but without much pain. These bleedings, however, were moderated by a course of the bark. He had in the beginning of August (1788) a fit of the gout, which he had not had to any great degree for ten years before.

“ After this, his pains in making water were very great; the calls frequent, and the quantity small, attended with shiverings, and an exceedingly troublesome irritation backwards, except when he was lying down in bed. At this time he was supposed to have
a stone

a stone in his bladder, and was sounded, but no calculus was discovered. He passed every morning a large quantity of viscid mucus, of a dark colour, and sometimes mixed with a little grumous blood, but not more foetid than common urine. The acid and alkaline draughts (as recommended by Dr. Hulme) were then tried; but as no effect was observed from their use in the space of three weeks, they were laid aside, and lime-water made from oyster-shells substituted in their room. The patient, however, growing worse, the lime-water was left off, and an infusion of the red bark advised and persisted in until a severe flux obliged him to lay aside all medicines except astringents and opiates. When this ceased, he returned again to the bark, which he took thrice a day, with five drops of laudanum in the last dose. He had, at this time, a continual thirst, though no fever, and almost every other symptom incident to such complaints, to a very distressing degree."

The above state of the case was sent to me, dated September 23, 1788, desiring my opinion. I advised a continuation of the use of the bark in smaller quantity, and to try the alkaline water with hot milk, as directed

above, to the quantity of half a pint daily, taken at two doses, and with a few drops of laudanum, and a little manna to be occasionally taken if costive.

In a Letter, dated the 22d of November (1788), I received an account of the effects of the remedy as follows :

“ Of three dozen of Killick’s half pints, I have taken twenty-one in hot milk, with laudanum, as well as the red bark, as directed ; only the last proving too astringent, and the means to counteract it throwing me into the contrary extreme, I left it off. Whilst costive, I had several bloody stools, though no bloody urine as usual with me in that state ; and to be lax, is always distressing, and heightens my sufferings : so I now take the medicated water only.

“ As to my present state, my appetite is good, and my sleep comfortable, and as sound as may be with so many interruptions from urinary calls, which, though much less frequent than they were a fortnight ago, are frequent enough to require the urinal in bed ; the use of which obliges me to lie nearly on
my

my back. In this posture, my water passes so easily, that, on waking, I often find the vessel quite full. At other times, the passage of my urine requires efforts, but now seldom occasions any troublesome irritations backwards. For about a week past I have moderately succeeded in keeping my body regular; my urinary calls have not been near so frequent as formerly; and there has been some diminution in the quantity of mucus, though enough of it yet passes every night to shew that the cause of the complaint still exists. Whatever this is, it seems to be seated about the neck of my bladder; for there the feeling is at one time like what one would expect from a sore exposed to the passing urine; and at another, a kind of itching like that of a healing wound. I have watched attentively to find some fragments or gravel, but in vain. My general health is far better than it was three weeks ago, though the gout or rheumatism, for it is not yet swelled, has fallen upon my knee. Such is my present state."

I have since received another Letter from Mr. Burton, dated December 15, 1788, in which he says, that about a fortnight after

he wrote the letter of November 22d, he passed a thin gritty substance, of the size of a silver penny, which he thinks to be a fragment of a calculus. At present (December 15, 1788), he says, that his urine is very clear, and that he retains it sufficiently to make the intervals between his calls about an hour and three quarters in length: his sleep is comfortable; his appetite and digestion good; and his health in general (as he thinks) in a fair way of being re-established; and himself restored, as he expresses himself, to a capacity of enjoying a good share of the comforts of life.

C A S E XX.

James Clayton, Esq. of Cavendish Square, London, was first attacked with the gravel about the latter end of the year 1785, and had fits of it once or twice a week, attended with great and frequent irritations of the urinary passages, and often brought away small stones about the size of pins heads, and some much larger, of different shapes and colours; some of them being yellowish, and others white; all which were attended with great pain when they came away. He tried many medicines for the above complaint, but
without

without much effect. He drank marsh-mallow tea with the seeds of the wild carrot, and barley water with gum arabic, but without benefit.

On the 30th of July, in the year 1787, he began to drink the Mephitic Alkaline Water, of which he took seven ounces daily. In the first three months after he began to take it, he had but six or seven attacks, which was not above half the number he had before in the same space of time. About the middle of October 1787, he had several attacks in the space of two days; and in one of these, which was very severe, he voided five or six calculi at once; and in the space of six hours, seven or eight more; some of them as large as, and resembling in shape, half cherry-stones, and others rough and triangular; but most of them concave or convex, as if they came from a stone as large as a small walnut. During his pain, he was frequently obliged to have recourse to emollient clysters, and sometimes to laudanum, which he took from 30 to 60 drops when in extreme pain; but was desirous to avoid it, as it injured his appetite, which, if the laudanum was not taken, appeared to be amended by the Mephitic Alkaline Water,
which

which agreed also well with his health in every respect. In the beginning of November 1787, he discharged seven more calculi, larger than any he had brought away before, and of a whitish colour, and convex and concave in their shape, and as large as cherry-stones. These, as might be expected, produced great torture in their passage, and great soreness of the parts for some time after, and a sensation of weight at the neck of the bladder. One day towards the middle of the month (November 1787), he was seized with great pain in the right kidney; and in an hour or two found a calculus coming forwards, which about three in the morning came away, and proved to be the largest he had ever passed. In half an hour's time after the first came away, he passed seven others of a smaller size. These were followed with such pain in making water as was even greater than when the stones were passing. His urine was cloudy and mucous, and deposited a red sediment on the pots: about this time he was accustomed to use occasionally a warm bath, and a fomentation of camomile flowers in a flannel bag, which gave temporary ease. Before he took the Mephitic Alkaline Water, the stones he passed were yellowish and hard; but since he drank it, they

they have become smaller in size, white, and crumble on pressure between the fingers. In January 1788, he passed two smooth stones, one as large as a vetch, and the other the size of a barley-corn, without much pain. Since January 8th, 1788, to this present time (December 2d, 1788), he has not had above twice a little irritation in passing his water, which did not last an hour each time; and since February last, has been perfectly well. He is now able to travel in his chariot for twenty miles together without pain, and to walk a mile and half; whereas, before he took the Mephitic Alkaline Water, he could not walk across the room. He has taken the quantity of half a pint daily, with about half a tea-cup of warm milk in each half pint of the Water, since January last (1788).

The above account is literally true.

Cavendish-Square,
Dec. 2, 1788.

JAMES CLAYTON.

December 1st, 1791.

Mr. Clayton is since dead, but of a different complaint from that which was the subject of the foregoing Letter.

CASE

C A S E XXI.

Copy of a Letter from Lieutenant-Colonel Williamfon, of the Royal Regiment of Artillery, to a friend, on the subject of the Stone and Gravel, with which he was afflicted, and the surprising benefits derived from the use of the Aqua Mephitica Alkalina.

Shooter's Hill, Oct. 15, 1788.

“ Dear Sir,

“ It is with great readiness that I sit down to give you an account of my complaint (the stone and gravel), as also the important services which I have received from the use of the Aqua Mephitica Alkalina.

“ In the latter end of the year 1781, when at Barbadoes, I was seized with a violent strangury, and pain in my kidneys, which confined me to my bed near a week : fomentations, and warm-bathing, afforded me temporary relief ; but from that period I was scarcely a fortnight together free from pain. In July, 1782, I had another most violent attack, attended with
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an acute pain in my kidneys, a numbness in my thighs, with great sickness at my stomach, and an head-ach; here my former treatment failed, and the medical gentlemen advised me to embark for England, which I did; my disorder continued with little intermission from pain to the 24th of September, when on my passage home, and after six days torture, there came from me a stone about the size and shape of a lemon-seed: from this time until July 1787, I was never ten weeks free from pain, and passed above one hundred and fifty stones (exclusive of small gravel); some larger than the first which I passed, and few smaller than an hemp-seed. I had the best medical advice whilst in England, and adhered strictly to their directions for some years; soap-lees, four and five pounds of honey in a week, wild carrot, and flax-seed tea, and numberless other experiments I tried, but without relief; bloody urine, loss of appetite, and continual pain, had so much debilitated me, that I could scarcely walk, stand, or ride; and I almost began to despair ever of meeting with any thing that could give me ease, or remove my complaint: but early in June 1787, fortunately for me, a gentleman who resides mostly at Bath did me the honour of a visit, and strongly recommended
Mr.

Mr. Colborne's Alkaline Solution, impregnated with Fixed Air, from which I have derived the happiest effects. It is now more than sixteen months since I have adopted the above preparation, during which time I have been totally free from my disorder; my appetite is returned; I can take my exercise as usual, and I indulge myself in several favourite things in eating and drinking, from which I was before debarred, by advice of physicians. I allow the solution to be exposed to the Fixed Air for sixty hours, instead of forty-eight, (as mentioned in the printed instructions delivered at Parker's glass-shop, in Fleet-street,) which agrees better with my stomach; and I restrict myself to half a pint of the Water on rising in the morning, and the same quantity on going to bed. I hope that the above statement of the effects of the Alkaline Solution, impregnated with Fixed Air, upon my disorder, may induce your friend to make an experiment of it; and that he may receive the same benefit with myself from it, is the sincere wish of,

Dear Sir,

Your most faithful,
humble servant,

JOHN WILLIAMSON."

Letter from Colonel Williamson, to Benjamin Colborne, Esq.

Shooter's-hill, Nov. 29th, 1791.

“ Sir,

“ I am happy to have it in my power myself to acknowledge your Letter addressed to Mrs. Williamson; and still more happy, that the account which I can give of my health is such as is extremely gratifying to myself, and I trust, from the interest you take in those who have been benefited by your exertions, will prove highly satisfactory to you. In June 1787 I first attended to the Mephitic Water. In my statement which appeared in the last edition of the *Virtues of the Aqua Mephitica Alkalina*, I expressed the advantages I had derived from it: since that period I have been perfectly free from even a distant symptom of my former disorder, with only one exception. In a long passage of seventeen weeks (1790) from the West Indies, I was under the necessity of being an economist of the Water, which I had bottled, and discontinued my usual practice of half a pint of it in the morning, for about three weeks: nearly at the expiration of that time, I was sensible of some alarming symptoms;
I instantly

I instantly had recourse to the few bottles I had in reserve, which dispelled every uneasy sensation; and landing shortly after, I had an opportunity of recruiting my stock. I am now, and have been ever since my arrival in England, perfectly well; still adhering to the Water, but taking half a pint only in the morning. Permit me to subscribe myself, what I really am,

Dear Sir,

Your very obedient

and obliged servant,

JOHN WILLIAMSON."

C A S E XXII,

Communicated by Mr. Perry.

A lady of this city, who wished her name might not be mentioned, aged fifty, of a thin habit of body, for many months has been afflicted with great nausea, loss of appetite, violent pains about the region of the kidneys, frequent and forcing pains to make water, which comes away in very small quantities at a time, and, on settling a few minutes, deposits a viscid mucus, and sand. A great variety of mucilaginous and oily medicines have been
taken

been taken to no effect. On being informed of her symptoms, I recommended two ounces only of the Alkaline solution, impregnated with Fixed Air, to be taken three times a day. It agreed perfectly well with her stomach: in the course of a week she found herself sensibly better in her general health; the urine became clear, and the remaining nephritic symptoms left her. The lady has continued the solution one month, and is exceedingly well without taking any other medicine.

C A S E XXIII.

Communicated by Mr. Perry.

Thomas Shell, of this town, aged 13 years in September 1787, applied to me, at the request of Mr. Colborne, to be sounded for the stone. He had great pain and difficulty in making water, which came away by drops. He also complained of a bearing weight at his fundament, where nothing uncommon was to be perceived. From his symptoms, I sounded him, and found a stone in his bladder. I desired him to inform Mr. Colborne of this circumstance; which he did, as I was informed, by the gentleman, who humanely and generously took him under his care, and administered the solution with more than usual good effect.

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fect. I believe the medicine was used for twelve months, at times. Within these ten days the lad called on me, with the greatest pleasure, to sound him again, which I did repeatedly, and could not perceive any stone, nor did he complain of the least symptom of it, December 4, 1788.

He took the water two months before he found any benefit.

December 1, 1791.

This patient has not taken any of the Mephitic Alkaline Water since December 1788. He is now in perfect health, and has been so ever since the time before mentioned.

C A S E XXIV.

John Fuffell, of Bath, about 13 years old, who had been cut for the stone in Bristol Infirmary, six years before, could never retain his urine in the day time, from the time of his being cut. He began taking the Mephitic Alkaline Water November the 29th, 1787, and drank in two days a quart bottle of it, with 30 drops of laudanum and some hot milk. This was continued for about a month, and then

then the laudanum and milk was omitted. He had not taken the water above a month or six weeks, before he retained his urine perfectly well; which he continued to do, whilst he took the water; but on leaving off the use of the water for a few days, his disorder returned, and continued as before mentioned, for a month, till he began again taking the water, which had the same good effect as it had before for three or four months. But by leaving off the use of the water a second time, his disorder returned as before. About the beginning of October 17th 8, he began again on the water, and in five or six days time he could retain his urine again, and did so till December 2, 1788; and then, by his own neglect in not continuing to take the water, though but for four or five days, his disorder returned a third time; but now he promises not to omit it for the future, and is likely to do well.

December 1st, 1791.

Whilst John Fussell was in a course of taking the Mephitic Alkaline Water he retained his urine perfectly well; but he has not taken any for seven or eight months. He now says, that whilst he continues at his work in a sitting posture he can retain his urine; but that, if he uses much walking exercise, it comes from him in small quantities.

C A S E XXV.

*Copy of a Letter from Dr. Bourne, Physician at
Oxford, to William Falconer, M. D.*

DEAR SIR,

Oxford, May, 6th 1790.

“ I read your “ Account of the efficacy of the Aqua Mephitica Alkalina in calculous disorders, &c.” with much satisfaction ; and having met with an instance of its good effects, I think it proper to send the case to you, that you may make what use you please of it in a future edition.

“ Mr. Goswell, the subject of the following case, is a respectable, plain, sensible man. His good understanding enables him to describe his symptoms clearly, while his want of science is a security that he does not bend circumstances to any medical notions of his own. With regard to myself, I cannot be suspected of exaggeration, as it will be seen that I was entirely unconcerned in directing the means which relieved the patient.

I am, dear Sir,

Your obliged

and faithful servant

ROBERT BOURNE.

January 23, 1790.

“ Mr. William Goswell, dealer in timber, of Woodstock in Oxfordshire, now fifty years of age, had, previous to the year 1786, been several times afflicted with pain in the neighbourhood of the kidneys, which was sometimes attended with difficulty in making water; twice, when thus affected, the pain was so considerable as to induce him to submit to the exhibition of a clyster, which immediately relieved him; and he formed no other opinion of his complaint than that it was cholic. In the autumn of the year 1786, he was suddenly seized with a violent pain in the right kidney, extending from thence across the lower part of the abdomen towards the bladder: the pain brought on vomiting, and lasted forty-eight hours, without intermission; the water, during this time, came away in drops, and was bloody: at the end of forty-eight hours he became easy, the urine then passed freely, and was no longer bloody; he continued easy for seven or eight days, when, riding on horseback, he had a sudden call to make water, but found, when he attempted to obey this call, that he could void scarcely any, and the attempt brought on considerable pain in the urethra.

He returned home, and drank an infusion of the garden parsley, refraining as long as he could from any effort to make water, thinking that the fuller the bladder became, the more force he should be able to exert against the obstructing cause; by and by, on straining hard, he forced away a stone from the urethra, shaped like an orange-feed, and nearly half an inch in length.

“ From this time to the summer of 1787, he continued easy, and made water freely; at the time last mentioned he was again suddenly seized with a pain in the right kidney; this lasted about an hour, and then went off: he kept still for many hours; the pain did not return while he kept still, and he made water with ease; but, on attempting to move about as usual, the pain in the kidney returned, though with less violence. He had frequent calls to make water, made but little at a time, and that of a coffee colour, from which blood subsided on standing. From this period exercise on foot or on horseback constantly brought on the painful sensation in the right kidney, a pain extending from the hip down to the knee on the right side, a sensation of weight across the upper part of the ossa pubis,
a frequent

a frequent inclination to make water, which was always on these occasions voided in small quantities at a time, and exhibited the appearances above mentioned: he was easy no longer than while he kept himself in a state of rest.

“ In this situation, a very distressing one to a man of an active mind and in an active business, he remained more than a year and half; in which space he had good medical assistance, gave a fair trial to many medicines, and observed great regularity in diet. Among the medicines were lime-water and the infusion of the wild carrot seeds. The limewater- induced an unpleasant state of costiveness; but he did not think that it at all relieved his complaint: of the infusion of the wild carrot seeds he speaks more favourably, and is clearly of opinion that at times it gave him considerable relief. He observed that during this period, his chamber-pot was always covered with a pretty thick fur, and that he sometimes voided bits of gravel.

“ About April 1789, when his complaint had rendered him more thin, weak, and dispirited, Mr. Knipe, a clergyman who served a church

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night without using his chamber-pot; whereas before his amendment, even when easy, he was obliged to use it four or five times in the course of a night. He cannot help thinking that the quantity of urine has been greater since the taking of this medicine than it was before his indisposition, though the quantity of liquids, which he drinks is not greater. He was disposed to costiveness before he took this medicine; that disposition is now removed, and the body is kept regularly open by it. He has recovered his flesh and spirits; his appetite is good; but he says, that did not fail him much during his illness.

“ He took a pint of the water daily for six months; since that time he has taken two thirds of a pint only.”

*Copy of a Letter from Mr. William Gofwell,
to Dr. Bourne, Oxford.*

SIR,

Woodcote, Nov. 28, 1791.

“ Since I had the honour of explaining my case to you in January 1790, have had no return of my old complaint. I have sometimes observed some sandy sediment at the bottom of the chamber-pot, but felt no pain or uneasiness

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I think will appear to the world to be as wonderful, and as strong a proof of the efficacy of the medicine, as any you have yet published.

“ It will be proper, in the first place, to let you know, that from my early youth I have always been of a tender and thin habit of body, still rendered more so, by having the small-pox in a very bad way ; but though I am now upwards of sixty, I have, till the last sixteen or seventeen years (except being frequently troubled with the piles) had tolerable health, so as to be able to follow my business, which was not indeed of a kind that required any violent exertions, except riding pretty long journeys ; and as I had sufficient leisure from my business, I had also spirits to enjoy several amusements, particularly bowling in the summer, and going out with my greyhounds in winter, and could follow them most part of the day without fatigue. And I must also add, that I was very careful, not to indulge in any excess in eating, and more particularly in drinking.

“ About the time I mentioned above, I had frequent rheumatic complaints, and my health began to decline greatly ; I was often much
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out of order, had frequent shiverings attended with feverish and hectic disorders, with pains about my loins, and often so very weak and low, that I fell into fainting fits after using the least exercise; so that I was obliged to decline both my business and several of my amusements. I frequently found quantities of small red sand in my chamber-pot, but did not then think that the gravel was my principal complaint; though I afterwards found, that a calculous disorder grew upon me every year: the gravel that came from me grew larger, and I often parted with stones about the size of a vetch; and whenever I got a cold, the calculous complaint came upon me with greater violence.

“ I continued much in the same way till the spring of the last year, 1789, when I grew so bad that nothing which had used to relieve me gave me the least ease. I had the advice of the medical gentlemen in the place where I live, and all the usual remedies were tried, but without success; and though I followed their prescriptions with the greatest exactness, my pains continued with the same violence, attended with all the aggravating appendages to that terrible complaint; I was not able to
ride

ride out a little way, though I went the most gentle pace possible; and I could not walk in the garden without my water being most part of it blood, and it would even be so if I did but walk about in the parlour; I had besides such frequent urgings and irritations to make water, though it was only for a few drops, that they came upon me ten or twelve times in a quarter of an hour; and the acrimony was so great, that after the last drop the pain was almost death to me. I was often obliged to change my shirt for a dry one, and that would be in the same wet condition in five minutes time; so that for some weeks I was even offensive to myself; and at last I was as bad as ever any person could be, and my pains as intolerable; and as calculous disorders have been hereditary in my family, and proved fatal to some of my ancestors, I began to give myself up as incurable: when (happily for me) the lady of the nobleman who franks this letter, hearing of the deplorable way I was in, sent me your book of cases, with the directions for making the Aqua Mephitica Alkalina; and as I saw some cases in it nearly similar to my own, particularly Dr. Cooper's, I immediately sent for a glass apparatus from Parker; and as I had, among other

other acquirements, some knowledge in chemistry, I soon got into a way of making the medicine, so as to be perfectly saturated with the Fixed Air; and I am happy to inform you, that after I had taken the medicine twice a day for about a fortnight, I began to find benefit: the first appearance of amendment was in my water, which began to get clear, and more free from mucus; and after some time I made no more bloody water: I could however still perceive I had stones either in the neck of the bladder, or the urethra; but though they continued to feel uneasy, the sting of them was gone. The first time I ventured to go out, after I was better, was about five miles in a post chaise, to return thanks to the lady who sent me your book of cases; and the day after, I parted with a stone, about the size of a large pea, one side of it much corroded, and it came from me without the least pain: I parted with several more afterwards still more corroded, so that they crumbled betwixt my fingers; which, I think, proves the efficacy of the medicine beyond a doubt: but the last stone I parted with, which was about three months after I began with the medicine, had all the inside entirely wasted away, being nothing more than

than a stony cave, intersected with fine fibres in every direction, like a cobweb; but in attempting to wrap it up in paper, in order to preserve it, I broke it to powder.

“ I began to take the medicine about the 18th of July last year, and I took a quarter of a pint tumbler of it twice a day till the 1st of January; and since that time I have taken it only once a day, which I find keeps me perfectly free from pain, as also from any symptoms of my former sufferings: I have no more those urgings, irritations, and acrimony, and I can now hold my water from three to four or five hours; and I can now take my morning walks into the fields as usual before breakfast, and my rides for ten or twelve miles betwixt breakfast and dinner; and I do not think I have any particles of calculi remaining; and the medicine not only gives me spirits, as much as if I drank a glass of Champagne, but agrees with me so perfectly well in every respect that I have recovered my flesh again, so much so, that I have been obliged to have all my cloaths let out.

“ I should have wrote to you sooner, to have informed you of the benefit I have happily received

received from the medicine, but I waited till I had given it one whole year's probation, which is now more than completed. I am rather in doubt whether I should continue so well, if I was to leave it off entirely; so I take a little tumbler of it once a day, and shall do so for some time longer, as it agrees with me so perfectly well.

“ Please to accept of my most grateful acknowledgments, and my sincerest thanks for the infinite service your remedy of the Aqua Mephitica Alkalina has been of to me; and I am, with the truest esteem,

Dear Sir,

Your highly obliged

And very humble servant,

S. BENTLEY.”

Extract of a second Letter from Mr. Bentley.

“ S I R,

Uttoxeter, 24th Nov. 1791.

“ I think myself honoured by your favour of the 13th inst. I was anxious to get a frank, that I might take the first opportunity of answering it, which I now do with the utmost gratitude to you for being the means (through the goodness of Providence) of restoring me
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to that greatest of all blessings health, from a state of such deplorable misery, which none can conceive, who have not been in the same sad situation; and I must also inform you, that the benefit I received from the Alkaline Water has proved permanent, with respect to my calculous complaint, and so every way beneficial to my constitution, that it has relieved me from the faintings I was so subject to, hectic heats, &c. And I now write to you in joy and gladness of heart, being in better health, except sometimes a common cold, or rheumatic complaints, than at any time of my life; I both ride and walk about with ease and pleasure to myself; my complexion, from being pale and wan, is become florid; and, from being thin and emaciated, I am got plump: but I still continue taking the medicine; for, as I have suffered so severely, I cannot yet venture to leave it off. I began to take it in the summer of 1789, and I took a quarter of a pint-tumbler twice every day regularly till the 1st of January 1790; and as I was then much relieved, I took it only once a day till January 1791; and from that time I have omitted taking it one day in a week; and if I find I continue well, I shall omit it farther, from the beginning of the next year."

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C A S E

C A S E XXVII.

“ In the year 1779 I was attacked with a strangury and total suppression of urine for several hours, without being able to assign any cause; but, after taking emulsions and mucilages, I was enabled to pass urine again: I had many returns of the complaint; and in particular, one time I was advised to drink some gin and water, which I soon found to increase my pain, and cause greater irritation to make water. I was put into a warm bath, without any good effect; and a surgeon drew off my water by a catheter; and he so wounded the passage near the prostate glands, that a great quantity of blood passed off with the urine. He told me I had a stone in my bladder: being rather alarmed, I then consulted the late Mr. Else, who, on passing a bougie, told me my complaint was not calculous, but from a stricture. I also consulted Mr. John Hunter, who likewise told me I had a stricture, and advised me to wear bougies: I did so; but not being able to indulge during my wearing them, they frequently irritated the diseased part very much. Here I must observe, that, on my introducing the

the bougies, they have seemed to rub against some very hard rough substance near the neck of the bladder; but, on withdrawing them, I never could observe any impression had been made on them. During my wearing bougies, from 1779 to 1786, I had many total stoppages of urine, from which I could always relieve myself during the first part of the above period, by introducing a catheter; and afterwards the passage became too narrow for the smallest catheter I could get, and I made use of a small bougie. From 1786 I left off the use of bougies, and continued to make urine with difficulty; but had not any total stoppage until December 1790, when, having drank one evening rather freely of some very strong brandy and water, I had frequent irritations to make water, which I then passed with some difficulty; and the next evening being again engaged in company, I very imprudently retained my urine a long time (though irritated to pass it), until I felt the usual symptoms of suppression. I had no sleep during the night; and being obliged to go from home five miles, I went on horseback; and being a very wet and cold day, I felt a chill on my skin, made many attempts to pass my urine, but without effect. I returned home,

ordered a warm bath to be got ready, and sent for a physician and a surgeon, who, by the use of the warm bath, bleeding, anodynes, by the mouth and clyster, and other remedies, relieved me from the most distressing painful spasmodic efforts to void my urine, during the suppression (which continued twenty-eight hours), I had ever experienced; when the urine began to flow by drops, and my bladder was emptied in about six hours. Here I must mention that different-sized catheters and bougies were attempted to be introduced, but without effect. At the end of a month from this time, I was recovered from the weakness and irritability consequent on the suppression of urine; when I found the stricture and irritability of my urethra in the same state as previous to this attack. By the suggestion of a medical friend, who was then at Bath, my urine was tried with paper, stained with litmus, and found to be surcharged with acid; and by his recommendation I began taking the Alkaline Mephitic Water (prepared according to the directions in Dr. Falconer's pamphlet); from which I soon found my urine pass with more ease, and the stream rather fuller. By repeated trials of my urine during my taking this water, I have found it has effectually prevented
my

my urine being acid (for the litmus test-paper is not altered in colour when dipped in it), which I, as well as the medical gentleman who attended me, think was the principal if not sole cause of the pain and inconveniences which have at various times been the consequence of the stricture.

“ I continue to drink the water from $\frac{2}{3}$ to a pint in a day, and have the happiness to think I now pass my urine with as much ease, and nearly with as much freedom, as I ever did in my life. I abstain from no food whatever; I drink mild beer and wine at dinner; and only avoid spirits, fruit, and acids. I have not ever found the Aqua Mephitica to disagree with me. I have a good appetite, and am well in health.

“ P. S. When I have been in London for a short time, and have omitted to take the Water, I have felt a return of the stricture; but on going into the country, and again taking the usual quantity of the Water, it has been always immediately relieved.”

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cept a more frequent irritation to make water, which I attributed to my age (being then in my 71st year), I voided a round stone with little pain. This alarmed me; but, as I was in a tolerable good state of health, considering some infirmities, and no troublesome calculous symptoms, I was unwilling to have recourse to medicine.

“ November 15—I voided three more small round stones, one after another, at one time.

“ December 11—Another about the same size.

1787.

“ On January 1—I voided two small stones.

30—A larger round one.

“ February 3—A small round stone in the morning—a large round one in the afternoon.

27—A large round one.

“ March 9—A little stone, not larger than a vetch.

10—Another, thrice as large.

23—A round stone, the size of a large pea, and very turbid urine after it.

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“ May

“ May 10—A small round stone.

23—Two small round ones.

“ September 6—A large round stone.

“ Oct. 12—A large round stone.

18—A middle-sized round stone.

“ During this year I kept my body open by soluble medicines, such as manna with oil, small doses of rhubarb, and occasionally with castor oil; and when in pain, as I sometimes was, I took oil with liquid laudanum, or pills of solid opium, barley-water with gum arabic; and I drank Bristol water on the spot.—My diet, chiefly white meats, or fish; abstaining from every thing salt, and hard of digestion. My general breakfast and supper was half a pint either of milk or chocolate, and which I shall scarcely ever alter.

1788.

“ January 12—A very large round stone, which passed with difficulty. From this time to April I was sometimes in pain, particularly about the neck of the bladder, and now and then made water with pain at the end of the urethra, and turbid urine. I took softening things occasionally, as barley-water
with

with gum arabic, and linseed tea sweetened with honey, &c.

“ In the month of April I communicated these circumstances to Dr. Fothergill at Bath, being then on a visit to my son-in-law, Mr. Vigor, at Bathford, and in a good deal of pain, seemingly about the *right* ureter: he advised me to try the warm bath, which I did twice with a degree of ease: he advised me likewise to use anodynes freely, and strongly recommended the trial of the Mephitic Water. On April 13 I began to take it, and took at four times two quarts of it, which did not disagree with me: but as I soon returned to my living at Chesel in Wiltshire, 22 miles from Bath, I could not procure any more till May 5, when I received an hamper with four bottles of it, of which I took regularly half a pint a morning, and the same at evening. On May the 21st I received from Bath two quarts more: the whole therefore I then took, amounted to no more than eight quarts. Finding myself *easier*, and a difficulty in getting a supply of the water fresh and fresh from Bath, which must be conveyed in bottles, I determined to desist from a medicine I could not procure without

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interruption, nor in perfection: I took *that* in quart bottles, but afterwards I had half-pint bottles made, each to hold only a single dose.

“ June 10—I made urine tinged with blood, as I rode in my carriage, and a turbid urine, but nothing passed.

“ From this time to Sept. 5 I was tolerably well, rarely in pain, and voided no stones: but this temporary relief I cannot attribute to the small quantity I took (and with interruptions) of the Mephitic Water at that time; the only apparent effect of which, as I then perceived, was, that it was rather too diuretic.

“ September 5—Great pain in the night, for the first time, seemingly about the right ureter.

“ Sept. 21 and 25—Returns of the pain, more or less violent, and generally in the night; sometimes sick with the pain, but not much so.

“ November

“ November 5—The night and next day in great pain. I fomented the parts with bladders of hot water, and supplied it well with oil and liquid laudanum, and took large doses of opium an hour or two before bed-time.

“ Nov. 11, 24, and 29—Violent pain, seemingly in the right ureter; but as I had had no certain symptom of the stone for some time, nor passed any since January 12, I question whether this violent pain might not have been *spasmodic*, especially as I have been subject to dreadful spasms (or cramps) in my legs, and sometimes on the right side of my breast.

“ December 2, 18, 19, 22, 28, and 31—Violent pain, seemingly about the right ureter, which would last for some hours, and go off gradually; leaving neither bloody urine, difficulty in making it, or perception of any stone passing: it might therefore be *merely spasmodic*, for the reasons I have suggested.

1789.

“ January 4, 6, and 8—Great pain, and occasionally sick with it, but to such a degree
as

as to vomit. I took solid opium, but not with the relief I expected.

“ Jan. 10—Pain returned: I fomented the parts with bladders, filled with warm water; embrocated it with oil and laudanum, drank emulsions, emollient infusions of rad. alth. coltsfoot, &c.

“ Jan. 23—Pain returned with great vehemence, and lasted longer than usual. From this day I rarely have had any complaints of *that* kind; but now and then voided turbid urine; the sediment of which was sometimes so hard at the bottom of the pot, as to require a scraper to get it off.

“ On Wednesday, June 3, I had a farther conversation with Dr. Fothergill, and told him that, as he had some time ago recommended the Mephitic Water to me; and as, being then at my livings in Wiltshire, I found it inconvenient to procure it, especially as it must be brought in bottles, and not caring to be at the trouble of making it myself; I had by no means given it a fair trial. The Doctor was of opinion, that it would be right in me to renew it; especially as the
summer

summer was advancing, and as I could have an uninterrupted supply from Mr. Becket, in Corn-street, Bristol, who makes it in the greatest degree of perfection. I then desired the favour of Dr. Fothergill, as he was acquainted with Mr. Colborne, to introduce me to him, that I might relate the whole of my case to him, and have his sentiments, whether he would have me enter on a regular course of the water. Accordingly I waited on Mr. Colborne, June 3, 1789: no one could be more obliging to me than he was; shewed me various experiments he had made on the human calculi; and gave me satisfactory reasons, approved by the Doctor, why I should *immediately* enter on such a course. He supposed I had some small stone, or calculous yellowish sand at the neck of the bladder, which had not come away, and which occasionally brought on pain and irritation to void frequent and small quantities of urine. He was so kind as to supply me with a few bottles of the water, during the three or four days I staid at Bath, and on *that* day and the next I drank half a pint in the morning, and the same in the evening, with two table spoonfuls of hot milk in each dose.

“ From

“ From June 3 to 25 I took it without any *visible* effect, except being rather diuretic.

“ On June 25, 26, 27, I made urine tinged deeply with blood on walking, but without pain.

“ I then wrote to Mr. Colborne from Bristol Wells (where I now live), to know if he thought I might safely persevere in the use of the medicine, as I had for three days successively made bloody urine, on no other motion than gently walking. On his answer in the affirmative, I continued it for six months regularly.

“ July 2—Urine again tinged with blood, and some drops of pure blood (previous to it); but with little pain.

“ From July 3d to the 15th, for several days there was suspended in the middle of a glass of urine, what appeared to *me* a kind of mucus.

“ July 16—I voided a small fragment of
a stone,

a stone, very hard; as indeed were *all* the stones I had before voided.

“ July 22—Another small fragment of a stone, which appeared like a small stone divided into two parts.

“ From the 15th to the 22d, I had a little of the mucus suspended in the glass of urine. No stone passed from the 22d to the 31st of this month, nor any mucus appeared.

“ August 1—Some mucus suspended.

6—A little yellowish sand, evidently of the calculous kind, appeared at the bottom of the pot yellowish: most of the remaining days of this month, either sand or mucus, or both, came away from me.

“ From September 1 to no 16 sand, and, except for two days, no mucus.

“ September 15 to 18, no sand, except one day only.

“ September 19, voided half an hard small stone, like the half of a cockle-shell.

“ From

“ From that day to September 30, only a little mucus now and then ; but on this day I was sick, and in great pain at the end of the *urethra*.

“ From October 1 to 9, free from sand or mucus, and quite easy ; but on that day I voided some harder sand than perhaps I ever voided before.

“ From October 9 to 24, only a little mucus ; and on that day a little sand, not so hard as in general.

“ October 26—The splinter of a stone, which came away with some pain.

“ To the 31st, quite easy.

“ November—This whole month quite easy, no sand, and only now and then a very little mucus.

“ December—Quite easy all this month.

“ My complaints being seemingly removed, I *desisted* from taking the Mephitic Water.

1790.

“ From January 1, 1790, to May 14, 1791 (a year and four months), I continued free from my complaints, except more frequent irritations to make water, than when in a state of health; nor had walking or riding any bad effect on me, even though I disused an *hollow* cushion, which I *before* used, to prevent the neck of the bladder from pressing on the seat.

1791.

“ In the month of April, 1791, I was confined to my bed by a fever, and a very formidable cough, with large discharges of thick phlegm; during which time I had for several days an excruciating pain at the neck of my bladder, and such a pain in making water, as was very grievous indeed; scarcely many minutes without calling for the pot. During this terrible situation I drank three or four quarts of the common emulsion of the London Dispensatory in the four and twenty hours; soon after which I had two very large jagged stones, adhering to each other, came from me, with inexpressible torture, and bloody urine. Mr. Lowe, of Bristol, my

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surgeon,

surgeon, could scarcely believe they could have passed through the urethra.

“ I then found I had acted very imprudently (and severely indeed I suffered for it) in leaving off the Mephitic Water for so long a time ; during which interval these stones, I presume, had generated: whereas, in all human probability, had I omitted the Water for a few months, and then taken it once in a day only, I should have had no return of my complaints, no future generation of the stones.

“ Five days after this, in the month of April, the soreness of the *urethra* was so great, that I voided my urine with an inconceivable degree of pain. As soon as the part was healed, after so great a laceration, I had immediate recourse to the Mephitic Water: a few days after taking this, I voided the fragment of a small stone with little pain, in the month of May; and on the 30th of May, another fragment of it: neither of them so hard as any of the former stones that had passed.

“ On June 1st, I voided a rough stone, of a middling size, with some pain and blood.

“ I continued

“ I continued the Mephitic Water during the months of May, June, July, August, and September; was free from pain, or stone, but now and then (though seldom) a little yellowish sand, and a little suspended mucus.

“ As I found it *in my constitution* rather more diuretic than formerly, and as I had been so long in a manner easy, I had determined *gradually* to omit it, and to return to it again after a short period.

“ But, to my surprise, on October 12th last, I voided a small angular stone with very little pain; since which, to this present day, November 23d, I have been quite free from any complaint of the *calculous* kind.

“ Query?—Was this *small angular* stone left behind in the bladder from June 1st, since which day none had passed till October 12; or was it generated under a course of the Mephitic Water, during the many months I took it?—It seems to me most probable, as it does to Dr. Fothergill, that the stone, being small, remained in the kidneys, or bladder, and was not generated during the course of the Mephitic Water.”

Bristol Wells, Nov. 23d, 1791.

*Copy of a Letter from John Ingen-Houfz, Body
Physician to their Imperial and Royal MA-
JESTIES, to William Falconer, M. D.*

“ Dear Sir,

“ You will always find me ready, both as a man and as a physician, to contribute, as far as lies in my power, to the relief of human misery, and to second your disinterested views, directed to so laudable an end, as that of communicating to the public one of the most valuable, and perhaps the most beneficial remedy ever discovered against the most excruciating of all diseases, the Stone and Gravel : a remedy which, having been presented to the world in the most liberal way, as soon as it was discovered, reflects immortal honour on that worthy and truly philanthropic man, Mr. Benjamin Colborne, the inventor of it.

“ I will first describe you some cases, which my learned friend Dr. Van Breda, physician at Delft, in the province of Holland, communicated to me in different letters, since I made him acquainted with this important discovery ; after which, I will give you some account of
my

my own case, and of some others, which fell occasionally under my observation since my present residence in your happy Island.

“ A youth about 15 years old, subject from his childhood to symptoms of the gravel, was all on a sudden seized, in the middle of June 1790, with a very acute pain in the left kidney, accompanied with an almost total suppression of urine: those symptoms being by proper treatment much abated, a troublesome pain remained for some days in the region of the left kidney, after which the pain descended gradually lower and lower towards the bladder, where, in the course of a few days, it fixed itself, extending through the lower and left part of the abdomen. The pain being fixed at that place, was soon accompanied with a pain in making water, principally at the time when the bladder was nearly emptied. Dr. Van Breda, not doubting that some gravel or stone was formed in the left kidney, and that in its descent through the left urethra it stuck towards its orifice, which opens into the cavity of the bladder, gave him a pint of the Mephitic Alkaline Water daily, which contained one drachm of salt of tartar. In the space of four or five days the urine came forth

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pearance in his urine, which being examined by the test of Mr. Colborne's blue paper, was found to have an acid predominant in it. Dr. Van Breda advised him, on this, to begin again a course of the Mephitic Alkaline Water, which removed in a few days every appearance of that kind. The patient still continues to take one dose every day, and has remained free from every morbid symptom to the present time, namely, March, 1791.

“ Since the communication of the above case, Dr. Van Breda related to me the history of several other diseases affecting the urinary organs, cured by the same remedy; among which I will describe two of the most remarkable.

“ A lady of a corpulent habit of body, and past the meridian of life, inclined to a dropical disposition. Her urine came in small quantities, and was at last almost totally suppressed; scarcely any being secreted by the kidneys. In this alarming state she took the advice of Dr. Van Breda, who prescribed for her the use of the Aqua Mephitica Alkalina. She had scarcely taken two pints of it, before she found herself much relieved; the urine began to be
secreted

secreted more and more copiously; and she was in a few days almost well; and her appetite increased. She continues still the use of the medicine.

“ In a letter of the same physician, dated Delft, July 4, 1791, the following very remarkable case was communicated to me:

“ A patient labouring under the stone applied to Dr. Van Breda, who advised him to the use of the Alkaline Water: by the use of which he soon began to pass a number of small stony concretions, generally about the size of a small cherry-stone, which were easily broken by the fingers, and proved to be laminated white covers, or shells, containing another kind of small stones, very smooth, brown, and much harder than their covers, and of different sizes, some being no bigger than a small pin's head; besides these laminated stones or shells, he passed also a great deal of the same kind of stones, already broken into two, three, or more pieces, and a proportionable number of the brown smooth stones; which it was evident had been, whilst in the bladder, shut up in the laminated white stones; of which covers or shells the laminated fragments were

evidently the broken remains. His urine became also charged with a whitish sediment, which, not being dissolved in urine, was only swimming in it as an heterogeneous matter, which was in appearance cretaceous, and of the same nature with the shells or covers of the small smooth brown stones. At the time this letter was written, the patient had voided so many of these small stones or nucleuses and their shells, that, if they had been put together, would have been as large as a pigeon's egg. Dr. Van Breda sent me some of these calculi. I was farther informed that this patient, after having passed a great quantity of these calculi, and of the apparently cretaceous matter, grew daily better, and was, October 13, 1791, quite free from pain in making water. Though his physician thought he was not yet radically cured, yet he himself was so far satisfied, that he left off taking the Water, contrary to Dr. Van Breda's advice. That physician found the white shells above mentioned dissolved easily in the Aqua Mephitica Alkalina, but that the brown smooth kernels did by no means dissolve so easily in the same Water; they however at last grew spongy in this Water.

“ By examining the stones myself, I found that neither the white covers, nor the brown
nucleuses

nucleuses effervesce, either with vitriolic acid, or with salt of tartar.

“ On breaking some of the hard brown kernels, and observing them with a microscope, I found they had about their centre a small smooth cavity, in which, very probably, there had been another original nucleus, though I did not actually find it: or perhaps it flew away, or broke by the blow, by which I broke the brown kernel; or perhaps it escaped my sight by its smallness.

“ The same physician cured also lately a patient labouring under severe rheumatic pains in his hands and feet, accompanied with occasional swellings. Six bottles of the Aqua Mephitica Alkalina performed a complete cure. I will now give you a short account of my own case.

“ After having passed, since the year 1780 (when I returned to Vienna, after an excursion to France, Holland, and England), an almost constant contemplative and sedentary life, contrary to my former active manner of living, I found myself at last afflicted (being then at Paris, 1788), almost at the same time, with
both

the gout and the gravel. The pain beginning in the left kidney, went down to the bladder, where a stone, half an inch long, and one sixth part of an inch in diameter, remained for some days, and gave me very excruciating pain, principally in making water. I at last got rid all at once of these ominous symptoms, by passing the stone without any difficulty or strain. Soon after this period I began to pass now and then one or two small stones, all very hard, reddish, and crystallised: my chamber-pot was very often lined with a red sandy fur, and I found myself at the same time afflicted with symptoms of biliary concretions. I got three or four times, in the space of three or four months, the jaundice; which was always preceded by a very troublesome pain at the upper part of the abdomen. I took the advice of several of my medical friends at Paris; but none gave me more satisfaction than that which I received from my old friend Count Carbury, a very learned man, and who for many years had been honoured with the place of body-physician to their Royal Highnesses the Count and Countess d'Artois. He advised me to take every morning, two hours before rising, the expressed juice of a whole lemon, sweetened with sugar or honey, and
mixed

mixed with about two chocolate-cups full of warm veal or chicken broth.

“ The Count mentioned to me several patients who were cured by this remedy, among whom was the late Doge of Venice, to whom it was prescribed by the late celebrated Baron Van Swieten. I continued the use of this remedy for about eight months, and also took daily about four or five ounces of honey. Although I was not cured by the use of what I have just mentioned, yet as I had no return of the most painful and alarming symptoms, after having taken it some time, I have reason to believe that it had some salutary effect in checking the violence of such a complicated indisposition.

“ I left off, indeed, with some regret, the use of the lemon-juice, when I began to take the Aqua Mephitica Alkalina; because I had some degree of confidence in the remedy, and partly because it was to my palate the most agreeable thing I ever tasted; exciting, besides its truly delicious taste, a most enchanting sensation when it reached the stomach, which, like a true *nepenthes Helenæ*, pervaded all my limbs, and produced a new and durable

table sensation of the most pleasurable kind, and such as I could never have imagined was possible to take place. I am not, however, certain that the same sensations would be produced in every person by the same means. I continued, after this, the use of honey, but in less quantity. The first information I received concerning the Aqua Mephitica Alkalina was at Rotterdam, in the month of October, 1789, from my friend Dr. Becket, secretary to the philosophical society of that city; a truly learned man, as well as an excellent and successful practitioner.

“ This gentleman lent me your book on the subject, and communicated to me several cases, in which the Aqua Mephitica Alkalina had been successful.

“ I proceeded soon after on my journey to London; having never been, since I first perceived any symptoms of the stone, free, during a whole month, from passing some small gravel or sand, or from some uneasiness or other that denoted a calculous disposition. I was alarmed by new pains in the left kidney, when, travelling between Harwich and London, and the day after I arrived in that metropolis,

metropolis, I voided in the morning two small stones, very hard, and of a reddish hue, and composed of shining crystals. The next day I found my chamber-pot lined with a red fur, sharp to the touch.

“ I went the same day to visit my old and respectable friend Sir George Baker, physician to the King, who, on being made acquainted with my case, advised me to begin immediately a trial of the Aqua Mephitica Alkalina, and gave me on the spot a pint bottle of it, which he happened to have in his house. I took immediately half of it, and the remainder towards night, and ordered immediately some bottles to be sent to me from the shop to which Sir George Baker directed me; and have continued the use of it from that time to this day, taking regularly, every day, one drachm of salt of tartar, neutralized by Fixed Air, as in the Aqua Mephitica Alkalina. I take one half of my daily quantity about two hours before I rise, and the remainder on going to bed; and have the pleasure to inform you, Sir, that, since the very day I began the use of this remedy, I have remained quite free from every symptom of that dreadful disorder.

“ My

“ My health, which was not a little impaired by such a complicated indisposition, has been constantly improving ; I have had no return of the gout, even in the smallest degree, and during a whole year no symptoms of biliary concretions.

“ After this account, you will readily believe, that among those who owe their happiness and comfort to this remedy, and who ought to manifest a sincere gratitude towards the benevolent inventor, I must place myself in the first rank ; and I should be unjust if I did not take this opportunity of acknowledging publicly what is due to you, Sir, as the principal and disinterested promoter of the use of this truly wonderful remedy.

“ Before I finish this letter, I will give you some account of a few cases, to which I was myself a witness.

“ A man, eighty years old, a common labourer, had been afflicted for the last twenty years with a calculous complaint in the bladder. Although he suffered a great deal, he had not been prevented from working so much as to procure him a livelihood, except during

during the two last years; in which space of time he had remained almost in continual pain, especially when making water; arising from a frequent and almost perpetual discharge of sand, small calculi, and sharp urine. About the beginning of last summer he began to take the Aqua Mephitica Alkalina, and in a few weeks found so much benefit from it, that he could work again as before; his urine passed without trouble, and free from any calculous concretions. The large stone, which he has still in his bladder, gives him pain, only at intervals, and in certain situations or postures of his body. This case, and some others, which fell under my examination, have suggested to me a more probable reason than the one usually given, for the great relief which persons labouring under the stone in the bladder have experienced from the use of the Caustic Alkali, or the Aqua Mephitica Alkalina, although the stone remained undissolved in the bladder.

“ It has been said by some, that the use of Alkaline substances (though experience has shewn such effect to be contrary to their nature) produced upon the surface of the stone a covering of mucus; but I think it more

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rational

rational to suppose, that Alkaline substances produced this effect, by neutralising the predominant acid acrimony of the urine, and preventing the farther concretion of calculus.

“ A gentleman of my acquaintance, aged about forty, was troubled with difficulty and pain in making water, which was of fifteen years standing; the original cause of which was an inflammation and abscess in the prostate gland from a venereal cause: the difficulty in making water increased at times, so as to amount to a total suppression, and greatly endangered his life. A hollow bougie, which however could not be introduced without great difficulty and pain, saved him more than once from death.

“ The principal seat of his pain was about the neck of the bladder. An acid being discovered to predominate in his urine, he was advised to the use of the Aqua Mephitica Alkalina; this relieved him in a short time, so much as to enable him to pass his water freely, and with very little pain; though there is no doubt but that the prostate gland remains
still

still in a morbid state. He perseveres in the use of the remedy.

“ I can assure you, that among those who have continued the use of the Aqua Mephitica Alkalina for a long time together, I have not observed that any indisposition whatever, which could be ascribed with any degree of probability to the use of the medicine, had taken place. On the contrary, the digestion and strength of the patients, which in many (among whom I may reckon myself) had been impaired by long and severe sufferings, have been in general remarkably improved.

“ Several cases besides, in which a perfect cure was obtained, in complaints of the calculous kind, by the use of this remedy, have been communicated to me in different letters, since I dispersed the information concerning its efficacy upon the Continent, which I did in two papers inserted in the two first parts of a new chymical journal, published in Holland, and entitled, *Scheikundige Bibliotheek*. But as the particular circumstances of these cases were not accurately described, I can only say in general, that the use of this remedy prevails more and more abroad in pro-

portion to its becoming more known, and its effects experienced. I leave you perfectly at liberty to make what use you think proper of this letter, and remain,

Yours, &c.

JOHN INGEN-HOUSZ."

Bath, November 25, 1791.

Many other accounts of the good success of the remedy have been received both by Mr. Colborne and by myself; but several of them were so similar to those already related, that it was judged unnecessary to augment the bulk of this pamphlet (perhaps already too large) by the insertion of them, and others were not permitted to be authenticated with the names of the persons who had received the benefit. It was at first my intention to insert none but such as had the name of the person annexed, as a voucher for the truth of the narrative: this, however, is departed from in a few instances; but in those I can testify that the accounts came from authority that cannot be doubted, though it is not permitted to be vouched.

I would

I would farther mention, that I have been informed from the most unquestionable authority, that the Mephitic Alkaline Water has been of the greatest service in a case of violent strangury, without any suspicion of calculus, which returned about every ten or fourteen days. It prolonged the intervals to several months, abated the violence of the pain, and diminished the heat of the urine.

Left it should be alledged that the cases above recited, however truly and candidly described, may, notwithstanding, be a selection only from a number of others, in which this preparation may have been found unserviceable or hurtful, I think it necessary to assure the public, that no case has fallen under my personal observation, wherein the Mephitic Alkaline Water has appeared to be in the smallest degree prejudicial; nor have I ever heard that it proved so from the report of others. One case only has occurred to me, wherein it was of no service whatsoever; and in this the principal symptom was a frequent and painful urging to pass the urine, which came away in small quantities, but with little alteration in colour, save that a few specks of blood were sometimes visible, but no

gravel or mucus. As this seemed to be owing to the acrimony of the urine, the Mephitic Alkaline Water was advised; but it was not successful, though it no ways aggravated the complaint.

EXPERI-

E X P E R I M E N T S.

*On the solvent Effects of the Alkaline Solution,
saturated with Fixible Air.*

By BENJAMIN COLBORNE, Esq.

A FRAGMENT of a calculus, of an ochrous colour, and rough on the outside like a mulberry, weighing fifty-one grains, was put into about two ounces and a half of the Mephitic Alkaline Solution, and corked up. After two days standing, the solution was poured off, and a fresh portion put on; and this was repeated every day, or every other day, for thirty-one days successively.

At the end of that time the stone was again weighed, and found to have lost thirty-six grains of its original weight.

Another fragment of the same calculus, weighing 41 grains, treated in the same manner, lost in thirty-seven days thirty-two grains.

Another fragment of the same, weighing fifty-four grains, treated as above-mentioned, lost in thirteen days thirty-two grains.

Another fragment of a calculus, of a light ochrous colour, and close texture, weighing forty-one grains, lost by the same treatment, in thirty-three days, eleven grains only.

A smooth white calculus was sawn into two pieces, one of which, weighing 29 grains, was put into the alkaline solution, but imperfectly saturated with fixible air; the other, weighing twenty grains, was put into an equal quantity of the solution perfectly saturated: after standing twenty-eight days, the first had lost six grains, the other eight grains.

A human calculus was divided into four parts; the first, No. I. weighing twenty grains, was put into the saturated alkaline solution, made of the common salt of tartar of the shops; the second, No. II. weighing nineteen grains, was put into a similar solution made with a proportionable quantity of the oleum tartari per deliquium; the third, No. III. weighing 18 grains, was put into an alkaline solution made with salt of tartar,
procured

procured from Apothecaries Hall; and the fourth, No. IV. weighing 18 grains, into an alkaline solution made with the caustic lixivium, neutralized by means of fixible air, and as nearly as possible of the same strength with the others. After standing 45 days, No. I. had lost 13 grains; No. II. 13 grains; No. III. 14 grains; and No. IV. 11 grains.*

A piece of calculus, weighing 51 grains, put into the neutralized alkaline solution, made with lixiv. tartari, lost in 18 days 29 grains.

Another piece, weighing 56 grains, put into an alkaline solution made with fossil alkali in the same proportion, and neutralized in like manner, lost in 18 days 13 grains.

Another piece, weighing 55 grains, put into a neutralized solution made with salt of tartar, lost in 18 days 11 grains.

Another

* N. B. These different alkalies were tried, to discover if one alkali had a greater power than another.

Another piece of calculus, weighing 41 grains, put into a neutralized alkaline solution, lost in 31 days 30 grains.

Another piece, weighing 49 grains, put into a neutralized solution made with salt of tartar, lost only four grains in the same time.

A piece of calculus, weighing 56 grains, was put into a neutralized solution made with fossil alkali: in 31 days it lost 18 grains.

Another piece that weighed 64 grains, put into a solution of only half the strength, made with lixiv. tartari, lost in 31 days 42 grains.

The calculi above mentioned were corroded in holes like a worm-eaten piece of wood, but externally preserved their original figure, till they all at last fell to pieces.

ADDI-

ADDITIONAL EXPERIMENTS.

By the Same.

EXPERIMENT I.

October 16, 1786. A fragment of a hard, close-grained human calculus, weighing fifty-five grains, was put into a large wide-mouthed vial, and upon it was poured *daily* the first urine that was passed, after taking a dose of the Mephitic Alkaline Water, by a person that was in a course of taking it every day. The vial was set in a moderately cool place, and the urine regularly changed.

	Loss of Weight.	Weight of the Remainder.
From the 16th of October to Nov. 16, it lost - - -	2 gr.	53 gr.
From Nov. 16, to Dec. 16	7 gr.	46 gr.
From Dec. 16 (1786), to Jan. 16 (1787) - - -	10 gr.	36 gr.
From Jan. 16, to Feb. 16.	10 gr.	26 gr.
From Feb. 16, to March 16	4 gr.	22 gr.
From March 16, to April 16	4 gr.	18 gr.

EXPERI-

EXPERIMENT II.

Another fragment of the same calculus was put into a wide-mouthed vial, and upon it was poured every day the urine of a healthy person who never had any signs of gravel, and who was not in the habit of taking any medicine whatever. The calculus weighed, when the urine was first put upon it, 45 grains.

	Loss of Weight.	Weight of the Remainder.
From October 16, 1786, to Nov. 16 - - - -	0	45 gr.
From November 16, to December 16 - - - -	0	55 gr.

About the latter end of December, the urine was neglected to be changed, and the same urine remained upon the calculus until January 26th, in which time the fluid had become more fœtid and alkaline. The calculus had, during this time, fallen into three pieces, and had lost in weight ten grains. From that time the urine was changed regularly every day. On the twenty-sixth of January, the fragments of the above calculus weighed 35 grains.

From

	Loss of Weight.	Weight of the Remainder.
From January 26, to Feb. 26 - - -	0	35 gr.
From February 26, to March 26 - - -	Gain of Weight. gr. 1fs.	$36\frac{1}{2}$ gr.
From March 26, to April 26 - - -	$2\frac{1}{2}$ gr.	$37\frac{1}{2}$ gr.

EXPERIMENT III.

January 24th, 1787, an entire calculus, of a white colour, and sixty grains in weight, was put into a wide-mouthed vial, and on it was poured every day some of the urine of a person who was in the habit of taking the Mephitic Alkaline Water in the same manner as is mentioned in Experiment I. and the urine renewed daily. In the space of two months, the calculus was diminished in weight eight grains, and in another month the whole diminution was twenty-five grains. The laminæ that form the calculus also began to separate; and it appeared, that the action of the solvent had penetrated much deeper in one part than another.

EXPE-

EXPERIMENT IV.

A fragment of another very hard red calculus, which weighed fifty-four grains, was treated in the same manner, and for the same time as in the last Experiment. It lost in that space of time seventeen grains.

Observations on the Symptoms attending Persons afflicted with Calculus, and on the Effects of the Mephitic Alkaline Water.

By the Same.

Urine in general will change paper stained with juice of turnsole to a red colour, which will be permanent; but the urine which is first made after taking the Mephitic Alkaline Water, in those persons who have taken it for some time, will change the turnsole paper to a blue colour. This will take place even if the the Mephitic Alkaline Water be taken not more than a quarter of an hour before the discharge of the urine.

If the Mephitic Alkaline Water be saturated with fixible air, it will not produce any immediate

mediate change on the turnsole paper ; but after a short exposure to the air, the paper will become blue, as the superabundant quantity of fixible air flies off.

The urine of almost every person in health, if suffered to remain for twenty-four hours in the chamber-pot, forms more or less incrustation on the bottom and sides. This, however, I believe, never takes place in the urine of those who are in the habit of taking daily a competent dose of the Mephitic Alkaline Water.

The urine of people subject to the stone or gravel is generally of an acid quality, and will then turn paper, stained with the juice of turnsole, to a reddish colour ; and if so, the person generally finds relief by the use of the Alkaline Water. But, if the urine turns the paper blue, it is mostly fœtid and putrescent : in such cases the Alkaline Water will take off the fœtor, and abate the general symptoms, but must not be depended on for a perfect cure.

Persons subject to the stone or gravel, ought accurately to observe the state of their chamber-pot,

ber-pot, whether it keeps free of fur, or other adhesion to its bottom and sides; this being the principle criterion by which the increase or amendment of the complaint can be ascertained.

If no discolouration of the vessel appears after the urine has stood in it for some time, and particularly if the urine clears away any former adhesion, we may rest assured the urine is of a proper kind; but if the sides of the vessel grow foul, and this foulness accumulates, it indicates a state of the urine that tends to produce or increase calculus.

Six or eight ounces by measure of the Mephitic Alkaline Water, taken daily, will be found sufficient to keep the urine in a proper state by the generality of people; others may require double that quantity.

The effect of the Mephitic Alkaline Water in dissolving the incrustations formed by the urine, affords a strong presumption in favour of its dissolving power on the calculus; therefore whoever voids any calculous fragments during the time of drinking the Mephitic Alkaline Water, has great reason to think that they
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are parts of an old concretion mouldering away, provided however a sufficient quantity of the remedy be taken to prevent any further concreting on the chamber-pot.

As the Alkaline Mephitic Water is so efficacious in obviating the acrimony of the urine, it seems likely to be of service if given immediately after the operation of lithotomy has been performed; as it is well known that the healing of the wound is often much retarded by the irritation of that discharge, which is more likely to be troublesome in this way, as it is in its own nature more acrimonious.

Schirrosities of the os uteri and of the prostate glands, by retarding the passage of the urine, often produce symptoms similar to those that arise from calculus. One difference however may be remarked, which is, that people who have such schirri, bear the motion of a carriage or of a horse better than is done by those who have calculus; and if they void mucus, it generally comes away with the last drops of their urine, and the pain they feel lasts in much the same degree, during the whole of the time the urine is passing, which is seldom the case in calculous complaints; as

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the pain in them is generally most acute, just as the last drops are discharging.

People who have ulcers in the urethra attended with stricture, generally void purulent matter previous to the coming away of the urine, which last, by being long retained, sometimes causes abscesses in the perinæum and suppressions of urine.

I have known persons, of both sexes, advanced in life, complain for many years of frequent urgings to make water, which comes away by little at a time, and is generally of a wheyish appearance, and, after standing twenty-four hours, deposits a large mucous sediment. Sometimes a suppression takes place. All the cases of this kind in which the Mephitic Alkaline Water was tried, found more or less relief, one only excepted, which on examination proved to be a schirrus of the os uteri.

In violent paroxysms of the stone or strangury, I have advised the use of opiates combined with the Mephitic Alkaline Water. Fifteen or twenty drops of the thebaic tincture may be taken in a quarter of a pint of the water, and occasionally repeated. A bag of
oats

oats heated in boiling water, I have experienced to be a convenient and safe method of applying a fomentation to the os pubis, and what generally gives ease. A clyster also of two ounces of olive oil, and forty drops of the thebaic tincture, may be injected and retained for several hours. If nevertheless the Mephitic Alkaline Water should prove too stimulant to be repeated during the fit, which seldom happens, barley-water with gum arabic, may be substituted in its place; and when the pain has subsided, recourse may again be had to the Mephitic Alkaline Water.

*The following Experiments were made by myself
on the same subject.*

Two calculi of a similar appearance, of a whitish colour with a pink tinge, and of such a consistence as to be easily scratched with the point of a knife, the one weighing five grains, and the other two grains and a half, were put into six ounces of the alkaline solution, as above; in 38 days, during which time the solution was changed six times, they were diminished in weight five grains and a half, but the apparent size was little less than at first;

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they

they were however so friable as to fall to pieces on slight touching.

Two other small calculi, similar in appearance to the others, and both weighing six grains and a half, were treated in the same manner. In 38 days they were both of a scaly appearance on the outside, and of a hollow worm-eaten texture within, and withal so shivery, as to fall to pieces on slight pressure. The pink tinge on the outside was much diminished, but was retained within. The weight was only gr. i fs. so that they had lost 5 grains.

Six small calculi, similar to the foregoing, and weighing gr. iv. fs. were treated as above. In 38 days they had lost three grains and three-fourths, and were so fragile as to fall to powder on being touched.

COM-

COMPARATIVE TABLE

*Of the solvent Power of the Alkaline Solution,
saturated with Fixed Air, with Water
simply impregnated with Fixed Air.*

Mr. Colborne's Experiments with the Mephitic Alkaline Water.

Original weight of the calculi.	Time they conti- nued immerfed.	Weight loft oy the calculi.
51 grains.	31 days	36 grains.
41	37	32
54	13	32
41	33	11
20	28	11
51	18	29
55	18	11
41	31	30
49	31	4
64	31	42

Mr. Colborne's Experiments with the Urine
of a Person who was taking the Mephitic
Alkaline Water.

Original weight of the calculi.	Time they conti- nued immerfed.	Weight loft by the calculi.
55 grains.	182 days.	37 grains.
60	90	25
54	90	17

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EXPE-

EXPERIMENTS I made myself with the
Mephitic Alkaline Water.

Original weight of the calculi.	Time they conti- nued immersed.	Weight lost by the calculi.
$7\frac{1}{2}$ grains.	42 days.	$5\frac{1}{2}$ grains.
$6\frac{1}{2}$	48	5
$4\frac{1}{2}$	48	$3\frac{1}{2}$

EXPERIMENTS made by Dr. Percival on the
dissolvent power of Water, simply impreg-
nated with Fixible Air, on human Calculi.

See Percival's works, Vol. III.

Original weight of the calculi.	Time they conti- nued immersed.	Weight lost by the calculi.
152 grains.	2 days.	$2\frac{1}{2}$ grains.
$165\frac{1}{2}$	2	11
$126\frac{1}{2}$	2	gr. $\frac{1}{2}$
$68\frac{1}{2}$	2	$3\frac{1}{2}$

EXPE-

EXPERIMENTS I myself made on the solvent power of Water, simply impregnated with Fixible Air, upon human Calculi.

See Experiments and Observations on Fixible Air, London, printed 1776.

Original weight of the calculi.	Time they continued immersed.	Weight lost by the calculi.
6 grains.	5 days.	$4\frac{1}{2}$ grains.
7	3 ¹	4
$4\frac{1}{8}$	3 ¹	$2\frac{1}{2}$
5	3 ¹	$2\frac{1}{2}$

EXPERIMENTS

On the antiseptic Qualities of the Alkaline Solution saturated with Fixible Air.

Three pieces of lean mutton, a drachm each in weight, were, on Dec. 21, 1784, severally put into eight ounces of spring water, into the same quantity of water saturated with Fixible Air, and into the same quantity of the Alkaline Solution, and all closely corked up, and placed in a room wherein a constant

fire was kept. The weather being very cold, no change was perceived for several days.

On Dec. 29, the vial with the simple water began to look cloudy, but scarcely any smell was perceivable.

The others continued clear and sweet.

On Jan. 2d, 1785, the smell was more perceivable, but still faint, in the vial with simple water; some little of a musty smell was perceivable in the vial with water saturated with Fixible Air; but the Mephitic Alkaline Solution still continued free of smell, and the fluid clear.

Jan. 3d. The vial with the simple water had acquired a smell evidently putrid. That with the water simply with Fixible Air had the musty smell much increased. That with the Mephitic Alkaline Solution was perfectly sweet.

EXPE-

EXPERIMENTS

To determine the comparative Quantity of Fixible Air contained in Salt of Tartar, and in a proportionable Quantity of the Mephitic Alkaline Water.

EXPERIMENT I.

Two ounces, by measure, of the Mephitic Alkaline Water were put into a vial about three ounces contents, and exactly counterpoised in a nice balance. This with the corresponding weight being set aside, I mixed forty drops of oil of vitriol with one ounce, by measure, of water, and counterpoised that also, together with the vial that contained it. I then added the acid fluid to the Alkaline, drop by drop, until all effervescence ceased; after which, I again weighed both the vials with their respective contents.

The acid liquor had lost one hundred and sixty-seven grains and the Alkaline had gained only one hundred and fifty-eight; so that nine grains of air were dissipated. Hence it appears, that fifteen grains of Salt of Tartar in solution, was capable of containing nine grains of Fixible Air, which, if we suppose Fixible Air to
be

be in weight to common air as three are to two, amount to about thirteen ounce measures.

EXPERIMENT II.

Twenty grains of dry Salt of Tartar were put into a vial, and accurately counterpoised, as was another vial containing diluted vitriolic acid; I dropped the acid upon the alkali until all effervescence ceased. On weighing each of them again, the acid was found to have lost fifty-three grains, and the alkali to have gained forty-seven and a half—difference, five grains and a half. The dry Salt of Tartar therefore appears not to be half saturated with Fixible Air, being in this respect to that contained in the Mephitic Alkaline Water, as eleven to twenty-four.

According to Dr. Dobson's Experiments on this * subject, the Salt of Tartar he used contained a smaller proportion of Fixible Air than that here employed, two drachms being computed by him to contain only twenty-eight grains of Fixible Air, whereas, in the above experiments, that quantity is reckoned to contain thirty-three grains.

R E.

* See his Medical Commentary.

R E M A R K S U P O N,
A N D
I N F E R E N C E S F R O M,
T H E F O R E G O I N G
C A S E S A N D E X P E R I M E N T S.

THE Cases above related, which are all described, either by the parties themselves, or from the accounts of professional persons who attended them, whose veracity is unquestionable, will no doubt have their due weight with the reader.

Case I. exhibits an instance of a complete cure performed on a person considerably past the meridian of life, who had been for eighteen years afflicted in the most grievous manner with this complaint, and who had tried almost all the boasted remedies, without their affording any abatement of his sufferings, and with manifest injury to his general health. In this instance, the Mephitic Alkaline Water seems not only to have proved a specific remedy

medy for the calculous complaint ; but also to have repaired, to a degree far superior to what could have been expected, the injuries done to the constitution both by the fatigue and distress incident to the disorder, and by the violent remedies which were used previous to his becoming acquainted with the efficacy of the Mephitic Alkaline Water. Time, the only test of trust, in such instances, seems to have ascertained the fact of his recovery beyond any possibility of doubt. Upwards of thirteen years have now elapsed since he began to make trial of this remedy, and during that time he has had no other interruption of ease than what might, as clearly as we can trace any occurrence in medical practice, be ascribed to the omission of the remedy before the tendency of the system to generate calculus was subdued. That time, however, appears to be now arrived, as far as such a thing can be determined ; he having been able to lay aside the use of the remedy for several months together, without enduring any symptoms of his former complaint, which had before recurred with considerable violence on a much shorter interruption. I am happy, that at the interval of three years I am able to repeat the account given in the
last

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culus, no calculus was found either in the kidneys or bladder, both of which were found to be in a perfectly sound state; a circumstance scarcely to have been expected, even supposing no calculus to have been present, if we reflect on the dreadful sufferings which she had formerly undergone from the diseased state of those organs.

Case III. requires very little comment, as it exhibits a full and even minute account of a complete recovery, from as painful a state as we can well conceive to exist. It is worthy remark here, that the tendency of the system to generate calculus seems nearly, if not altogether, subdued, as appears from his being now able to intermit with impunity the use of the Alkaline Water for a long time together.

Case IV. is a notable instance both of the efficacy and innocence of the remedy, and indicates, as well as the foregoing cases, that the tendency to generate calculus may, by the long continued use of the Alkaline Water, be subdued.

Case V. is a remarkable example of the
powers

powers of the Mephitic Alkaline Water, in a habit of body strongly disposed both to generate and to accumulate calculous concretion.

Case VI. evinces in the most satisfactory manner the safety, as well as the efficacy, of the remedy. A person of 84 years of age commenced its use, and continued it for three years without the smallest inconvenience to his health, and with the general alleviation of all his complaints.

Case VII. is an instance of the speedy relief which is afforded by the use of this remedy, and of its actually possessing powers of dissolving the calculus, or at least of diminishing the cohesion of its parts.

Case VIII. is a remarkable instance of relief being gained, when the organs that secrete and transmit the urine were probably in a very diseased state. Though no cure was alledged to be performed, and indeed not, in all probability, was any cure possible to be effected by any means; the symptoms that had been the most distressing, particularly the foctor of the urine, were so much abated as to
give

give little uneasiness in comparison with what had been before endured. Had the remedy been discovered earlier, it is probable, from the effects mentioned to be produced by it in Cases XVI. and XXVII. that it might have wrought a perfect cure.

Case IX. is an instance where a great temporary advantage was gained; but his complaint proving at last to be an ulcer of the bladder, no unlikely thing to take place, after a repetition of the operation of lithotomy, the Alkaline Water, though it afforded much alleviation, was unable to work a cure.

Case X. proves that in some cases a very weak solution of the Alkaline Salt, and taken but in small doses, may prove an efficacious remedy, even in a case wherein all the symptoms were of the most painful and urgent kind.

Cases XI. XII. XIII. XIV. afford the most satisfactory proofs of benefit received in such disorders; but are nowise particular, save that in one of them (Case XII) all the uneasy symptoms were removed, although

there was every reason to think that a calculus remained.

Case XV. affords a remarkable proof of the efficacy of the Mephitic Alkaline Water, in a complaint of the urinary passages resembling calculus, which was originally owing to external violence.

Case XVI. The person whose case is here described, appears to have laboured under a highly diseased state of the urinary passages, and perhaps of the secreting organs; yet these complaints have been totally removed, and the general state of health, as we have every reason to think, much improved.

Case XVII. is in a good measure similar to that immediately preceding.

Case XVIII. This case varies from most of the others, in that the relief gained thereby was slower acquired than in the others. The cure nevertheless appears to have been as complete and as permanent as could possibly be expected; a circumstance somewhat (at first sight) extraordinary, at so advanced

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a period

a period of life, were it not instanced in other cases. An important practical caution results from the consideration of this case, which is, that those so afflicted should not despair of relief, and even of cure, even though the painful symptoms should not abate so soon with them as they appear to have done in most of the histories here related.

Had the gentleman who is the subject of the narrative here under consideration, not been possessed of great patience and steadiness, he would have failed of a cure, and his case might have been adduced as an instance of an *unsuccessful* trial of the remedy.

Case XIX. is a fair instance both of the efficacy and innocence of the remedy; but affords occasion for no particular remark, save what had been before observed, that an advanced age is no objection, even in the smallest degree, to the trial of the Alkaline Water.

Case XX. besides exhibiting an instance of the greatest relief being afforded in a truly calculous case, shews also that the Alkaline
Water

Water possesses a power of dissolving calculus.

Case XXI. affords a satisfactory instance of the efficacy of this remedy, after most of the things usually administered (soap lees particularly) had been tried without affording even temporary relief. The benefit this gentleman has received does not appear to have been influenced or obstructed by change of climate, sea voyages, or the attention requisite to an active military employment.

Case XXII. contains nothing particularly worthy notice, save the shortness of the time in which relief was procured.

Case XXIII. This case, as well as the foregoing, was communicated by Perry, an eminent surgeon of this city. It shews in the most satisfactory manner that the Alkaline Water possesses a power of dissolving urinary calculus. What degree of a lithontriptic it is endued with, does not appear; but we are informed that the solution of the calculus took place in less than twelve months.

It seems highly probable from the last ac-

count, which states that the patient has continued well, notwithstanding his leaving off the Alkaline Water for three years, although the whole time he used it did not exceed one year, that the disposition to generate calculus is sooner overcome by this remedy in young subjects than in those who are farther advanced in life.

Case XXIV. shews the efficacy of the Aqua Mephitica Alkalina, in a complaint evidently arising from the nature, and probably from the stimulant qualities of the urine.

The repeated good effects that followed the taking the medicine, and the return of the complaint on its being laid aside, amount to as full proof that such relief was owing to the remedy, as the subject is capable of affording.

Case XXV. which the reader can scarcely fail of observing to be drawn up with great accuracy and propriety, is a notable instance of the efficacy of the remedy, which does not appear to have been weakened in its efficacy, or to have had the benefit arising from its use,

use, protracted by the exercise of travelling, both on horseback and in a carriage, which was necessary in an active business.

Case XXVI. is perfectly satisfactory with respect to the benefit received in a very severe complaint of the calculous kind, which appears to have been hereditary in the family.

Case XXVII. is of a disorder of the urinary passages, attended with great pain and stricture, probably some disease of the prostate gland, but probably without any formed calculus. This case seems to evidence clearly, that the pain was caused by the acrimony of the urine, and the disease kept up, and probably produced at first by it. When this acrimony, which evidently appears to have been of the acid kind, was neutralized by the Alkaline Water, both the pain and stricture abated, and returned when that was omitted.

This case is important, as it proves that the Alkaline Water is capable of giving permanent relief, if not of effecting a cure, which is very probable, in complaints of the urinary passages, not proceeding from calculus, pro-

vided a trial be made before any irreparable injury be done to the parts.

Case XXVIII. is a very circumstantial narrative of the case of a gentleman well known in the medical world, and who is now far advanced in life. The case is evidently calculous; and the efficacy of the Mephitic Alkaline Water is proved beyond a doubt, by the absence of the painful symptoms during its use, and their recurrence when it was laid aside.

The last Case here adduced, is that of Dr. Ingen-houfz, contained in a letter to me from that gentleman, which contains many interesting remarks on its nature and efficacy, not only in calculous cases, but in other disorders in which no trial has been made of it in this country that I know of. I am peculiarly gratified in being able to confirm from my personal acquaintance the account this learned and worthy physician gives of his own state of health, which seems as happy as an advanced life seems capable of enjoying. It must afford comfortable reflections to persons afflicted with calculous disorders, to find from the above Cases, that, although the
Aqua

Aqua Mephitica Alkalina undoubtedly has a power of dissolving the calculus, and thereby striking at the root of the complaint; yet, that relief may be expected before any material dissolution of the calculus can take place, and even whilst we know it is actually subsisting. Several of the Cases shew this, which can only be ascribed to the change produced by the remedy in the nature and qualities of the urine itself.

It is observed of this discharge, that in calculous paroxysms, especially if accompanied with great pain, it is almost always caustic and irritating, like other fluids secreted from inflamed parts. The mucus of the nose, which is in general mild and bland, becomes frequently, by a catarrhus inflammation of the vessels that secrete it, so acrid, as to excoriate those parts of the nose and lips upon which it falls. A similar change takes place in the urine, which, under such circumstances, generally feels scalding and painful to the ducts through which it passes; and this irritation constitutes no small part of the misery of the sufferers.

I would not, however, by any means deny that the mechanical action of calculous sub-

stances is often sufficient to cause great pain. Experience proves that this is frequently the case; but it is equally certain, that large calculi both of the kidneys and bladder have remained there many years with little trouble or uneasiness, and that even the pain produced by passing them is by no means proportioned to their size. A pretty large concretion, compared with the diameter of the urinary ducts, is mentioned, in one of the Cases above recited, to be discharged without pain; whilst others of a less bulk were often accompanied, in their passage, with great torture, and large effusions of blood.

The particles of sand, that come away, are often too inconsiderable to cause the uneasiness that is experienced, were not the membranes that line the ducts in a state of inflammation, and constant irritability. This acrimonious condition of the urine is almost constantly accompanied with a disposition to precipitation. Hence the turbid appearance of this discharge in such paroxysms, which the sufferers often vainly flatter themselves to be the crisis of their disorder, when in reality it is no more than an indication of its prevalence. Both these circumstances the saturated alkaline solution

lution is very efficacious in removing, neutralizing as it were the acrimony of the urine, and restoring to it, together with its natural colour, its power of retaining in perfect solution those substances which it was intended by nature to discharge.

Another circumstance much in favour of a trial of this remedy, is, that it acts without any violence of operation. The first effects, observed in all the instances above related, seem to have been the abatement of the pain and uneasiness, and the restoration of the urine to its natural colour and other properties. It is found to act but mildly as a stimulus on the urinary secretion; and though in one case it may appear to have exerted some aperient effect, this was so inconsiderable as to render it a matter of doubt if it was to be imputed to the qualities of the medicine, or to the taking in an additional quantity of watery fluid, which, it is well known, will often produce that effect. It no where appears to have injured the appetite, digestion, or general health. It has manifested no septic qualities in itself, nor produced any upon the system; nay, those which took place from the use of the caustic alkaline lixivium, ceased during the trial of
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this remedy. The persons I have seen, who tried it, have exemplified its innocence respecting the general health, as strongly as its particular efficacy in this complaint.

It appears that the use of this medicine is not necessary to be superseded by slight indispositions. It has been taken in place of the common saline draught, and no very observable difference found in the effect; and one of the Cases shews, that it may be continued, without any apparent injury, during the course of a common gouty paroxysm.

I would not, however, assert, that the indiscriminate use of this remedy is admissible in all states of health. The quantity may often be an objection to some; the taste may prove disagreeable, and perhaps in some complaints (though I know of none at present) it may be specifically injurious. Experience, joined with prudence, is the only guide we have to direct us in such circumstances.

But although I think it probable, that the principal advantage derived from this remedy is owing to the change it produces in the urine; yet the experiments shew, that it possesses

less considerable powers as a solvent of the calculus. That its efficacy in this point of view may be compared with that of water simply impregnated with Fixible Air, I have formed the foregoing comparative table of their effects respectively. The difference in their solvent powers is inconsiderable; whilst the operation of the alkaline saturated solution is much milder, and, as I think, of a different kind from that of the simple impregnation of water with Fixed Air.

From examination of the effects of the two menstrua, it should seem that the action of the latter was principally upon the animal gluten or mucus that connected the sandy particles, which it gradually disunited, until they fell into powder; whereas, from the corroded and worm-eaten appearance of the calculi immersed in the alkaline solution, the sandy particles themselves seem to have been acted upon. How this is brought about, is matter of difficult investigation.

From Bergman's experiments, it appears, that the acid of sugar and calcareous earth, which probably form the stony part of the calculus, bear a stronger attraction to one another.

another than any body does separately to either; so that the addition of no simple substance, at least any that we can introduce into the body, will separate them. But we should consider, that many bodies are capable of decomposition by a double elective attraction, that are not so by any other means. Thus vitriolate tartar may be decomposed by solution of silver, though neither of the separate ingredients would have any effect. This may possibly take place here, the alkaline salt attracting the acid of the sugar, and the Fixible Air the calcareous earth; and as the former of these compounds is soluble in a watery fluid, and the latter so when the Fixible Air is redundant, this may account for the clearness of the urine, and its freedom from precipitation, which the taking this remedy induces. The compound of the acid of sugar with calcareous earth is scarcely soluble in water.

I make no doubt that the change in the *qualities* of the urine may be in part owing to the same cause. It is true, the saline substance formed by the union of the acid of sugar with calcareous earth, does not appear very acrimonious to the senses; but we should consider, that our senses are very imperfect judges of specific stimuli.

stimuli. Tartarised antimony and calomel, whose operation on the stomach and bowels is so violent, betray no such effects in their sensible qualities; and we frequently find that clear, pale, and insipid urine is retained with greater difficulty than what appears much more saline and acrimonious. It is possible that this compound may possess some specific stimulus on the bladder and urinary organs.

The alkaline solution has exerted various degrees of a solvent power upon the different calculi; some resisting its operation more than others; but none have totally withstood its influence. This difference may be owing to several causes; such as the calculus having remained exposed a longer time to the air, which increases its hardness, as it does that of several kinds of stone; its having been slower or quicker produced; or its containing a different proportion of animal mucus; and probably other circumstances, which we do not at present, and perhaps never may, understand.

It appears pretty plain, I think, that diuretic remedies, merely as such, have no good effects in calculous complaints. Independent of their stimulus, which I believe always to be

be injurious, it is found, that a quick secretion of urine has no effect in preventing the generation of calculi. A gentleman whose case is related above, had a stone generated evidently during a course of the Harrogate waters, which acted powerfully as a diuretic.

The experiments made with the saturated alkaline solution, as an antiseptic, confirm the observations of Mr. Colborne, on the effects it shewed on his urine; and we may infer from both, that no danger is to be apprehended from any putrefactive tendency, which, as an alkali, it might be supposed to produce.

In the former editions of this work it is mentioned as a probable conjecture, that a solution of the *fossil* alkali saturated with Fixible Air, might prove equally efficacious with the *vegetable* in the relief of calculous complaints. Mr. Colborne's very judicious experiments, which shew that it possesses the same solvent powers upon the gravelly concretions out of the body, together with the great similarity it bears in its chemical properties to the vegetable alkali, first led me to adopt this opinion, which has been since confirmed, by considering
what

what did not before occur to me, that this remedy in form of a mineral water had long been in use, and even high reputation, for the cure of similar complaints.

The waters of Carlsbad in Bohemia, so called in honour of the emperor Charles IV. who in the year 1370 discovered their medicinal virtues, are celebrated by Hoffman for their good effects in calculous complaints. "In cases,"* he says, "where the kidneys, ureters, and bladder, are clogged with tartarine mucus, and gravel, or where a calculus is actually formed, and by remaining fixed in the urinary passages excites

* Sive enim renes, ureteres et vesica muco tartareo et sabulo obfideantur, sive calculus et lapidosa materia in ureterum cavo subsistat et diros dolores suscitet, tam præclara Carolinarum est facultas, ut copiosius ad renales tubos delatæ, intus contentas sordes et materias alienas aliquando et fluxiles reddendo ejiciant, spasticis autem stricturis ureterum resistendo, eosdemque ampliando et laxando humoris ope obhærescentem in eorum alveo lapidem protrudant et elidant. Quin ipsam autem generationem calculi ejusque incrementum anteverunt; dum humores diluunt et falsedinem et acrimoniam eorum contemperant, quo minus mucosæ et falsæ materiæ coire et concrementum lapidosum exoriri possit. Accedit et illud quod thermæ hæ aquæ si urina cum ardore et dolore stillet, exoptatissimam spondeant opem. *Hoffman de Thermis Carolinis*, § XIV. Cap. V.

cites the most direful agonies, the virtues of the Carlsbad waters are particularly serviceable, by loosening the adherence of such matters to the urinary ducts, and washing them away, and also in abating the spasmodic strictures of the passages, and thus procuring a free discharge for the calculous concretions."

"They moreover," as he says, "prevent the generation or increase of calculi, by their diluting qualities, and by their moderating the saline acrimony of the humours, by which the saline and mucous matter is prevented from acquiring a hard or stony consistence. These waters likewise produce the happiest effects in abating the heat and pain that accompany the passage of the urine."

The good effects above mentioned to be produced by the Carlsbad waters, are almost exactly the same with those which proceed from the use of the Mephitic Alkaline Water, which is by no means extraordinary, if we consider that the two remedies resemble one another so nearly. The water of Carlsbad contains, as its principal

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line matter is always lost in such experiments, it not being possible to recover from a solution of this kind, as much of the salt as we are assured it contains; part of it being dissipated by being changed into volatile alkali, by being united with phlogiston, and part lost by crystallizing on the filtre, and by other inaccuracies unavoidable in such trials. It is therefore certain that the Carlsbad water contains a larger proportion of alkali than is stated by Hoffman, though at the same time the impregnation is not strong. To make amends however for its weakness, the Carlsbad water is drunk in much larger quantity than what the mephitic alkaline water is taken. Hoffman speaks of from 15 to 18 cups, as the daily quantity for rather* weakly people to begin with, which, says he, is increased by most of those who use it to thirty, and by some few to forty cups a day.

How much the cup or *ollula*, as he calls it, might contain, according to our measure, I cannot determine; but I think we can

* Proinde tutius est primo die XV. tantum vel XVIII. ebibere ollulas, nisi majorem dosin firmitas, minusque mobilis corporis constitutio suadeat. Insequenti vero tempore, plurimis ad XXX. usque quotidie ollulas, paucioribus ad XL. ascendere conducit. *De Thermis Carolinis*, Cap. VII. § VI.

can scarcely suppose that a mineral water could be given out in cups of less than a quarter of a pint contents. The middle dose then, at this rate, must be three quarts and three half-pints daily, which would contain, according to Hoffman's calculation, which is unquestionably below the mark, 112 grains of the alkaline salt, which is not very different from the quantity contained in a pint of the Mephitic Alkaline Water above described, which holds 120 grains, which is to the quantity daily taken in the Carlsbad waters as 15 to 14.

The same celebrated writer ascribes nearly the same virtues to the Selters water, "which," according to his account, "has a wonderful efficacy * in complaints of the kidneys, bladder, or ureters, when these organs are either obstructed by tartarine mucus, or calculous matter, or in a corroded and ulcerated state. Whilst it abates the acrimony of the humours,

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* In renum, vesicæ et ureterum morbis, qui vel a tartareo muco et calculosâ materiâ has vias obstruente, vel ab erosâ et exulceratâ ipsarum substantiâ proveniunt, admirabilem habet virtutem. Dum enim humorum acrimoniam temperat, mucum dissolvit et eluit, renesq; vesicam et ureteres a materiâ ipsius inhærente repurgat, non modo ad calculum præcavendum, aut
jam

it dissolves and washes out the mucus, and clears the kidneys, ureters, and bladder, from any matter of this kind that may be lodged in them, and tends, not only to prevent the generation of a calculus, or to stop the increase of one already formed, but also affords the most desirable relief in the strangury, and when the urine is voided with pain and difficulty, and is thick and turbid in its appearance." The Selters water, as well as that of Carlsbad, is impregnated with the *fossil alkali, but in larger proportion, two quarts of the Selters water containing four scruples of alkaline salt, whereas the same quantity of the Carlsbad water contains no more than three. The alkali however here, as well as in the other, appears to be fully saturated

jam præsentis incrementa impedienda, præsentis est efficacix, verum etiam in stranguriâ difficilique ac dolorificâ urinæ crassæ ac turbidæ mictione, exoptatissimas affert suppetias. *Hoffman de Elementis et Viribus Fontis Selterani*, § XIV. Cap. II.

* Selteranarum libras duas medicas super leniori igne, quem carbonēs subministrarunt ardentes, evaporationi commissimus, et en! materiæ albæ salinæ tenuissimæ, drachmam unam cum duodecim granis obtinuimus.—Idem residuum in aquâ liquatum et per chartam colatum bibulam, præbuit lixivium, ex quo, lenioris exhalationis ope, alcalini salis scrupulos duos obtinuimus. *Hoffman de Element. et Viribus Fontis Selterani*, § V. Cap. II.

rated * with Fixible Air. I do not know in what quantity the Selters water is taken ; but if it be drunk as largely as the Carlsbad water, about 150 grains, or two drachms and a half of the alkaline salt will be the daily dose, if we compute each *ollula* or glass at a quarter of a pint contents. Milk appears to be commonly joined with Selters † water in disorders of the kidneys, the milk of asses especially ; and spices ‡ and other aromatics are also occasionally combined with it, much in the same manner as is advised in the present work.

Dr. Nooth, a gentleman whose knowledge and sagacity in philosophy, as well as in medicine, are well known, suggested to me the probability that the alkaline salt, saturated with Fixible Air, and crystallized,

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* Sicuti ergo singula hæc experimenta planum atque testatum faciunt fontem Selteranum affluentem salis alcalini puri copiam in complexu suo alere, ita pariter ex variis a me observatis phænomenis evictum esse credo, eundem instar omnium aquarum salubrium maximeque acidularum, purissimo illo volatili et minerali spiritu esse imbutum. Ibid. § VI. Cap. II.

Nec dubitare amplius licet, quin eidem spirituosio minerali ingredienti, salubris harum aquarum facultas quod maximam partem tribuenda est. Ibid. § IX. Cap. II.

† Ibidem, § XI. XII. XIII. XIV.

‡ Ibidem, § XIX.

might perhaps be equally effectual as a lithontriptic, and in abating the acrimony of the urine, as the mephitic alkaline solution, whilst it would be more convenient, as being easily portable, and also as it would be free of any stimulus, which the superabundant quantity of Fixible Air might produce on the urinary passages.

Not having made a trial of this preparation, I cannot answer for its effects in this way, but should think it not unlikely to succeed, especially when we reflect that a salt of a similar nature, crystallized from the Carlsbad waters, is recommended by Hoffman * in such complaints. If such a preparation

* Et cum ob absorbentem suam facultatem, acidum, cujus cum terrâ connubium gignit calculum, cicurare et in medium sal convertere valeat; hinc tam ad aver-tendam tartarei coaguli genesin, quam exturbandum minorem calculum insignis est efficaciz. Quo nomine etiam iis commendari vix potest, qui, vel ob nativam, vel ab alio qualicunque errore diætetico, contractam renum et urinariæ vesicæ imbecillitatem, ejusmodi calculosis concretionibus et generandis et fovendis sunt idonei. Quemadmodum pariter singularum ejus experiuntur efficaciam, qui vehementes a calculo in arc-tum et nervosum ureterum cavum intruso, dolores sentiunt, quibus, præ omnibus aliis medicinis lithontrip-ticis, tam resolvendo, præsertim si recens fuerit tar-tarei mucî concrementum, quam exturbando illius co-piam egregiè et citò, opitulatur sal Carolinarum. *De Sale Medicinali Carolinarum, § XXII.*

ration be attempted, it will be necessary to use the greatest caution in previously saturating the alkaline solution with Fixible Air to its fullest extent, and of carrying on the evaporation as gradually, and of course with the least heat possible, and frequently removing it from the fire, and suffering the salt to crystallize, which last process also should be gradual; and therefore, when the liquor is removed from the fire, it should cool very slowly, and when cold be carefully poured off from the crystals that are formed, and again evaporated in like manner. I apprehend that it would be proper, when the liquor is evaporated pretty nearly to the point at which crystallization would begin to take place, when the liquor should be cold, to put it again into the glass machine, and impregnate it a second time with Fixible Air; which will probably, by supplying the Fixible Air that may have been dissipated by the heat, accelerate the crystallization, and ensure the neutralization of the alkali. The mephitic alkaline solution, when meant to be evaporated, should be made much stronger than when it is meant to be drunk, yet should not be so much loaded as to impede or clog the tubes through which the Fixible Air rises. About four ounces of salt of tartar

to a pint of water, seems likely to prove a proper quantity. It should be noticed that the stronger the solution, the longer time it would require to be neutralized by the Fixible Air.*

Perhaps the fossil alkali might be more convenient for this purpose, as it crytallizes more easily than the vegetable; but it must be observed also, that the fossil alkali will crytallize before it be perfectly neutralized by the Fixible Air, and on that account more caution will be necessary in saturating it perfectly before any evaporation be commenced, and of conducting the evaporation itself as slowly as possible.

Experience will best ascertain the dose in which such a remedy may be taken. Perhaps one drachm daily might be sufficient to begin with, which might be gradually increased to two, three, or more. Hoffman says, that the Carlsbad salt is taken to six drachms, or an ounce, without producing any other effect than that of proving gently laxative.

To

* Should any person be inclined to make a trial of the Aerated Alkali, either the Vegetable or the Fossil, it may be had, ready prepared, in great perfection, of Mr. Thomas Willis, at the Hermitage, Wapping, a most ingenious practical chemist.

To what the wonderful propensity, in certain habits and constitutions of body, to generate urinary calculi, is owing, is yet undiscovered. Various modes of life, and regimens of diet, have been assigned as causes, and many facts have been adduced as proofs; but these accounts are all so ambiguous, inconsistent, and contradictory, that little can be concluded from them. Hard waters are at one time believed to produce them; at another, they rather tend to prevent their generation: wine is at one time preventive, and at another productive, of calculi; and malt liquor, which some condemn, is by others as extravagantly recommended*.

It appears highly probable, that the cause originally consists in the structure or nature of the secreting gland itself. By what means this can change the quality of the fluid, so as to render it at one time apt to precipitate its contents, and at another to hold them in perfect solution, is to us inconceivable; but not more so than the generation of blood from the chyle, or of bile from the blood, the mechanism or process of which is probably among the secrets of nature too deep for our comprehension. It is at least certain, that confinement to a certain posture will in
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* See Medical Commentary, p. 128.

some instances produce this complaint. I have seen it originate from sitting long at a sedentary employment, as writing; and from long confinement to bed, by an illness no ways connected with calculus. Ramazzini makes the same observation of persons whose way of life requires a standing posture; which he instances by that of the attendants at the courts of princes, those of Spain especially, among whom disorders of this kind were particularly frequent.

Whether these theories be true or false; whether the remedy acts by means of the chemical combination with the fluid secreted, or by any still more obscure means upon the secreting organ itself; the facts still remain unimpeached. The cases above related evince, beyond a doubt, that the painful symptoms in calculous disorders have been removed, and ease procured, by the use of this remedy, and this without any ill effect on the general health; but, on the contrary, with great amendment of it in most cases. To account for these, is the province of philosophical investigation; and with that view I have, however imperfect they may be, offered my sentiments: but whether the opinion I have here adopted be well or ill founded, the facts are equally

equally valuable, and will, I trust, encourage the farther trial of a remedy, which, in a manner the most easy, and favourable to the health in general, bids fair to relieve, in a degree hitherto unexperienced, one of the most excruciating disorders that is incident to human nature.

P O S T S C R I P T.

THE following Case, which did not arrive until the work was sent to press, is too important to be omitted, as it points out the use of this remedy in a complaint of the urinary passages, unattended with calculus, and probably owing to a peculiar acrimony in the secretion itself. This case is attested by a gentleman of great eminence in his profession, and whose candour in the narrative does him the highest honour.

A young woman in her 29th year, and who had hitherto enjoyed very good health, began in the month of March, 1789, to have
frequent

frequent dull pains in the region of the bladder, and to pass her urine frequently, and in small quantities, attended with acute pain and symptoms of stone. On this account she was sounded; and no stone being found, her complaint was supposed to be occasioned by a schirrhus at the neck of the bladder, and this opinion was strengthened by her always describing a sense of weight there. The weather being unfavourable for a mercurial course, it was thought expedient to give her the *Cicut*a till the summer advanced; and that medicine was persisted in for two months without any relief: her stomach then began to reject it, even in the smallest dose; and it consequently was discontinued. She now was confined to a regimen of milk, farinacea, and marshmallow tea, in which gum arabic was dissolved: for a few days she thought herself rather better; but at the end of a fortnight a new appearance took place, she began to pass large quantities of mucus with her urine; and from this period her pain increased to that degree as to require the occasional use of large doses of opium. In the middle of July she began a mercurial course, and substituted a pill of the *Extractum Hyoscyami* at bedtime for one of opium; which was continued to October; without producing any other change

change than a great diminution of strength. Being now tired of medicine, she requested to desist from every thing of the kind, except the pill with opium, which *alone* afforded a temporary suspension of pain. In the middle of October she went to pass the winter with her friends in the south, and did not return till the May following. The appearance in her urine was now changed: instead of large quantities of mucus, she passed little or none; and once in four or five days she evacuated bloody urine; and this evacuation was constantly preceded by lancinating pains and a sense of weight at the neck of the bladder; which sensation left her after the discharge took place, and she then remained tolerably easy for a day or two. The disorder now appeared very analogous to the piles: and Sauvages, in his *Nosologia Methodica*, under the title of *Hæmaturia Hæmorrhoidalis*, refers to apparently similar cases, noticed by practical writers. On account of this new symptom, she was directed to take small doses of the vitriolic acid, by taking two ounces of the tincture of roses every four hours: but this medicine, after a short trial, producing no effect, she requested to take the Mephitic Alkaline Water, which had been strongly recommended to her by a friend, who had experienced

experienced very great relief from it in a case of gravel, producing occasionally bloody urine. On considering the various means that had been hitherto unsuccessfully employed for her recovery, it was thought advisable to consent to her request, although, upon the strictest examination of her urine from time to time, not the smallest particle of sand or gravel had ever been discovered: accordingly she began to take it as directed in the Treatise on Aqua Mephitica Alkalina, by Dr. Falconer; and in a few days she was sensible of a great abatement of pain, and some decrease in the appearance of blood in her urine; and thus she continued gradually to recover, and in six or seven weeks became perfectly well, and has continued so, notwithstanding she has left off the use of the water for some time.

WILLIAM INGHAM.

Newcastle, Dec. 21, 1791.

The following Case came too late for insertion, unless where it is now placed.

It is a notable instance of the lithontriptic powers of the Aqua Mephitica Alkalina. It is highly probable that the great number
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of fragments which the patient voided in December last, were once concreted into one or more large calculi, and that the dissolvent power of the remedy separated them into portions, so small as to admit of being discharged by the urinary passages. The softness of consistence of the last which he passed seems to put this supposition nearly beyond a doubt, and to establish this quality of the remedy on the most reasonable grounds.

Norwich, 24th February, 1792.

Mr. G. Harwood, an eminent attorney of this place, had for some years been troubled with such complaints as clearly indicated either the retention of sabulous matter in the kidneys and bladder, or the formation of a calculus in the latter. About the midsummer of the year 1789 these complaints were much increased, and he was recommended to try the Alkaline Mephitic Solution. After he had taken this rather more than twelve months he passed eight stones, all with smooth surfaces, the largest of these about the size of a common pea: from this time he regularly persevered in the use of the solution, and in December last was seized with a most violent

violent attack ; and in the course of rather more than a week he voided nearly one hundred and fifty pieces of stone, and at last one small stone so soft that it would have broken to pieces with the slightest pressure.

Since this time he has had no return of his complaint ; nor has he made any bloody urine (which before this the gentlest exercise used to promote), although he sometimes walks three miles.

He still continues to take the solution ; as, before the last attack, he used at times to void small *pieces* of stone, *but no whole one*, which he altogether attributes to its use.

WM. ATTHILL, SURGEON.

GARD. HARWOOD.

F I N I S.

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