

A disquisition of the stone and gravel : with strictures on the gout, when combined with those disorders.

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A

DISQUISITION

OF THE

STONE and GRAVEL.

(Price THREE SHILLINGS Bound.)

DISQUISITION

OF THE

STONE and GRAVE

WITH

STRICTURES on the GOVT.

AND on the DISPOSITION of the
Widow's Pension with those Disorders.

By S. PERRY, Surgeon.

STONE and GRAVE

Plus d'un Ombre d'un Ombre

The SEVENTH EDITION, improved and enlarged

LONDON:
PRINTED BY H. REYNOLDS, (No. 21, PICCADILLY, TOR

J. B. W. Pictorialist, J. M. L. A. Y.

Black-Hill; T. B. C. E. T. P. L. L. L.

J. SOUTHERN, St. James's Street;

and RICHARDSON, under

the Royal Exchange

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By S. PERRY, SURGEON.

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PRINTED BY H. REYNELL, (NO. 21,) PICCADILLY, FOR
J. BEW, Paternoster-row; J. MURRAY,
Fleet-street; T. BECKET, Pall-mall;
J. SOUTHERN, St. James's-street;
and RICHARDSON, under
the Royal Exchange

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TO THE
ROYAL COLLEGE
OF
PHYSICIANS,
LONDON.

GENTLEMEN,

IT is usual for authors to inscribe their writings to some distinguished person or society, from whom they expect protection against the malevolent criticisms of the world : and as I am fully persuaded there is no authority whose award in this instance can be more decisive than yours, I cheerfully submit the merit of this little performance to your tribunal,

from a consciousness, that, without your approve, the commendation of others would have no great weight.

As the doctrine respecting the cause of the stone is new, I am certain it will undergo various tests, which, in a manner, will subject it to censure or approbation, according to the prejudices of some or ingenuousness of others: If, therefore, from a candid examination it should meet with your countenance and support, I shall have nothing to fear from the cavils of individuals.

In respect to that part, which treats of the discovery of a *cure* for the *stone*, I flatter myself the world will do me the justice to view it in its proper light, particularly as I have not

not dealt in conjectures, but in matters of fact.—Hitherto lithotomy has been necessarily called in, because no real or safe cure of the stone has been pointed out. When, therefore, the following facts shall be known to you, it is not to be doubted but your humanity will, as far as it may come under your influence, withhold *that* operation, while a cure is likely to be had in a safer and easier way.

The advantage that may accrue to the author from your patronage, and which he has so flatteringly experienced, and continues to do, from some of your most respectable members, is such, as will serve to distinguish him from an *empyric*, under which appellation the favourers of

any arcanum are too likely to fall,
and with which persons, I am sorry
to say, the world (particularly Lon-
don) too much abounds.

I flatter myself it is unnecessary to
say more, than to assure you, that
no one has a greater veneration and
respect for the profession, than,

Gentlemen,

your most obedient,

humble Servant,

S. P.

Argyll-Street,

5th April, 1785.

PRE-

D E D I C A T I O N

P R E F A C E.

IN the whole list of diseases, to which the human frame is subject, none is more dreadful in its consequences to the patient than the *Stone*. It frequently attacks the most robust constitution, in which case, the inflammatory symptoms are carried to a higher degree, making the patient suffer, at once, both pain and imprisonment.

The *Stone* has long been deemed the *opprobrium medicorum*, and the *Knife* the only resource. I shall not pretend to say what proportion have fallen who have sought refuge in the operation; but to the honour and credit of our surgeons,

it must be allowed, that lithotomy in no country was ever more judiciously performed than in this: notwithstanding which, if we consider the number of persons who are excluded even from that resource, inasmuch as the season of the year, age, and constitution of the patient, must all conspire to render it successful; we shall still find its evils but palliated in a small degree: and, however proper the subject may be deemed for undergoing this trial, no one will infer that his life is not in danger; and when he has survived this perilous operation, unhappily for him, he is not insured from a future attack. It should also be observed, that in extracting the stone, nothing is more common than its giving way to, and crumbling under the forceps; in which case, a part may, by eluding the search of the scoop, being a new concretion, and thereby lay him

liable

liable to the same disease in its aggravated state: as at best, there seldom fails to ensue an uneasiness in the part, from the contraction occasioned by the cicatrix of the wound. But even admitting there were no obstacles to the operation itself, yet, considering that many sufferers are out of the reach of able surgeons, it is presumed the public will favourably embrace this discovery, for indeed, at all events, the operation must ever be deemed delicate, and dangerous.

Now, although it is not positively asserted, that the subsequent remedy will do more than remove the disease when present, yet no one will object to the probability of it preventing the return of it, when he considers the nature of its operation. If we remove a disease, by separating or destroying the principles on which that disease is formed, the cure will

will undoubtedly be more permanent than when the effects only are taken away: *sublata causa tollitur effectus.*

Nothing is so difficult to be subdued as opinions formed on common prejudices. There are, no doubt, at this time, persons who deny the possibility of dissolving a stone in the bladder; arguing, that whatever menstruum dissolves a body of a texture so hard, must of course destroy those vessels through which it is conveyed. I do not think it necessary to observe, how far they discover their ignorance of the anatomy and œconomy of the human body, by such a mode of reasoning. In such a case they do not even acknowledge that well-known property many medicines have of acting specifically, or electively. May it not be asked if there are not medicines which strongly affect the last
secretion

secretion of the body, without being felt in any manner by the stomach which first receives them? as in the case of cantharides. If mercury be rubbed into the soles of the feet, will not its effects be first found in the glands near the region of the head, particularly in the salival? with many other instances of the like nature.

It is however certain, that a cure for the stone is not to be found among the medicines which operate by a corrosive power only: there must be an affinity between the dissolver and dissolved, a *specific* and *local* operation on the urine, or the stone itself; otherwise we should expect to find a cure in *aqua fortis*, oil of *vitriol*, *volatile spirits of sal ammoniac*, &c. for either of those will destroy some one principle of the stone, and might therefore, upon that weak foundation, be called *lithontriptic*.

In attempting to convince persons theoretically of the possibility of dissolving a stone in the human body, it will be necessary they admit the two following postulata; first, that there are principles to form a stone in the urine of every one, but that a particular disposition of the vessels, through which that fluid is secreted, is necessary to the putting in execution that promptitude of the urine to run into such concretions; secondly, that the conveying an extraneous body into the urinary bladder, as will hereafter be shewn, may supply the place of that disposition of the vessels to form such concretions. These premises being admitted,—then it must be obvious, that if we can deprive the urine of that property of running into concretions, although we do not change the disposition of the vessels themselves, we prevent the accretion of the stone, and that

that a stone already formed, cannot retain its cohesion where the urine is deprived of its principles, I doubt not of convincing the most incredulous: by the ratiocination deduced from the foregoing premises;—but least the insisting on these premises, might be deemed begging the question; proofs of their position will be given in several instances;—and should all this be insufficient, and a sceptical reader is not to be combated by argumentation, and subdued by a rationale, I shall put an end to the combat by that insurmountable weapon, *proof*, and which cannot fail of making profelytes of all those who have heretofore been persuaded of the insolubility of human calculi.

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A
DISQUISITION
OF THE
STONE AND GRAVEL.

CHAP. I.

SECT. I.

BEFORE I treat of the cause of the stone and its concomitant symptoms, it may not be thought improper by some of my readers, to give a short anatomical description of the parts more immediately concerned in that disease, as it will enable them better to comprehend several sections in the following dissertation.

2 A DISQUISITION OF THE
OF THE KIDNEYS.

A human body contains two kidneys, both placed in the posteriour part of the lower cavity of the abdomen. The right is seated under the great lobe of the liver, the left nearly between the spleen and musculus lumbaris; both under the mesentery or duplicature of the peritonæum.

In man, the right kidney is somewhat lower than the left; but in quadrupedes, the left is generally the lowest.

They have each two membranes, (the exterior of which joins them to the loins and diaphragm) and are fastened to the bladder by the ureters. They are of a glandulous substance, interspersed with an infinite number of small pipes or canals, and in figure much resemble

resemble a bean: whence the name *kidney bean*.

They receive their blood-vessels from the vena cava and aorta by the renal veins and arteries, as they are properly called, whose numberless ramifications extend through the whole substance of the kidneys, and terminate in glands of a globular form, which compose the cortical part of the kidney, of about half an inch thick, and of a liver colour.

From each of these glands issue out the tubuli belliniani, which extend themselves toward the pelvis, or internal cavity of the kidneys, and form the papillæ; adjoining to which, is the canal called fistula membranacea, thro' which the urine is conveyed, that it may be discharged by the ureters into the bladder.

The blood, remaining after the secretion of urine, is remitted to the heart by the minute capillary veins, which arise from the extremities of the arterial branches, being inclosed in the same capfular with the artery that terminates at the cava.

There are likewise a multiplicity of muscular fibres in the structure of the kidneys, which demonstrate, that they are of other uses than that of secreting the urine; *viz.* for assisting in the ejection or expulsion of any concremented substance that might be lodged therein.

S E C T. II.

OF THE URETHERS.

THERE are also two ureters which pierce the substance of the kidneys, and convey the urine from their cavity into the bladder. They are generally of the size of a goose-quill,—are membranous and fistulous, and of unequal diameter; and though they are capable of great dilatation, yet obstructions in them frequently happen, which are of infinite consequence to the patient, occasioning a suppression of urine, &c.

S E C T. III.

OF THE BLADDER, OR VESICA
URINARIA.

THE bladder is composed of three membranes; the exterior common from the peritonæum, the other two, proper to themselves. The middle one is made up of carnosus fibres, longitudinal and circular. By the action of the longitudinal the fund of the bladder is pressed forward towards the os pubis, from the lower part of which they arise, as well as from the fore part of the prostatae; while the circular ones, by lessening their dimensions, excite and procure the discharge of the urine.

The inward membrane is nervous, and of an exquisite feeling: hence is
accounted

accounted for the violence of the inflammation when the urine is become acrimonious by being too long retained, it being proved to be the most putrescent of all known liquors.

The bladder would be subject to many more accidents, were it not defended on all sides by a vast number of glands, which continually emit a mucus that serves to blunt the urine of its salt. When this natural mucus is deficient, a disease of another nature is produced, which can only be remedied by taking freely of balsams and mucilages to supply its want.

It is a kind of reservoir which receives the urine of the kidneys, that it might not be evacuated continually, and against the will; as I once observed in a boy who had no bladder,

and who used to beg among the faculty for his support.

For the more easy emission of the urine, nature has furnished it with a sufficient excretory duct, which is the urethra. This is tender, like the inward membrane of the bladder, and is lined in the same manner, with glands which emit a viscid mucus that defends the passage from being excoriated by the urine.

Both the bladder and urethra derive their veins and arteries from the epigastric and iliac nerves, and from the pelvis of the abdomen; and, by communication or sympathy, are often equally affected in an acute inflammatory disease.

As from the unnatural temperature or ill condition of the urine, proceed the various diseases of inflammation, &c.

&c. I shall treat briefly of its constituent principles, that its nature may be better understood.

SECTION IV. OF THE URINE.

THAT the urine is an elementary fluid, or rather made up of elements, is evidently demonstrated by the frequent experiments made on it by chymists, from which they extract an insipid lymph, a volatile spirit, an acid saline matter, some oil, and a fixed earth.

There is a singular property in the urine, which is, that many medicines affect it even before the stomach, which first receives them: indeed, it
may

may be properly enough said, without any sensible effect perceived in the stomach, intestines, or even in the blood itself, from which the urine is immediately secreted.

We find that a blister will induce a dysury and inflammation of the neck of the bladder, by rendering the urine acrid with its salt, when perhaps no other part feels any inconvenience. The smell of paint, will produce the like in a milder degree, and give the urine when first made, the fragrance of violets; notwithstanding, these affect not the blood or its circulation.

This peculiar property of the urine, was a suggesting motive for my enquiries concerning a remedy for the stone, upon the principle of a specific operation.

This

This is all which need be said in delineation of those parts to which the disease I am treating is confined ; and so much is really required, since it will enable those who are affected with it, the better to conceive its nature, and the more accurately to describe its seat and symptoms when they apply for relief.

CHAP.

CHAP. II.

SECT. I.

OF THE GRAVEL.

WHEN we have considered the nature of the fluids of the human body, particularly the urine, and also, that their circulations and progressive motions may be retarded, as well as accelerated, by various means and accidents, no wonder that the urine will deposit, in the part where it rests, an earthy sediment, which it never fails to do when out of the body.

Heat being generated, and maintained by motion, it is evident, that
when

when this is clogged, or impeded, the fluids will grow cooler, and the urine more liable to let fall its earthy part.

For the actual cause of the *gravel*, the reader is referred to chap. III. sect. 4. which treats of the cause of the *stone*, since both are, in fact, the same disease in different degrees; and the same means which produce the former, must, and do evidently, bring on the latter.

SECT. II.

OF THE SYMPTOMS OF THE GRAVEL IN THE KIDNEYS.

THE symptoms of the gravel are various, according to the degree of violence of the disorder itself; but the most

most common are a dull obtuse pain in the kidneys, or in that part of the loins where they are attached. Sometimes the pain is acute, accompanied with bloody water, which, if retained any time in the bladder, becomes of a darker or coffee colour. A nausea and vomiting will likewise be excited; frequently a total suppression of urine from spasms, induced by the irritation of the particles of gravel in the kidneys, and the pain will extend itself along the ureters to the bladder; in which case an uneasiness is felt in the side, particularly after a full meal, or much exercise, or from any distortion of the body, riding on horse-back, &c.

The pleura is often a sufferer from its proximity to the seat of the disorder, and the patient feels a pain in his side, in respiration, and it is not uncommon to find a pain even in the top of the shoulder.

The

The kidneys, as well as all other organical parts, are subject to inflammation, resolution, and suppuration; which last is not absolutely incurable, as it may sometimes be remedied by balsams that deterge and dispose to heal. Balsams of capivi, turpentine, &c. are of service here; likewise, drinking freely of mucilaginous drinks, as barley-water, marsh-mallow tea, and such like.

That species of rheumatism, called lumbago, has been frequently mistaken for a nephritic complaint; but the former may be distinguished from the latter in this, that the patient may induce a pain by bending his body forwards, the muscles being put on the stretch: on the contrary, if it be the gravel, his pain will neither be increased nor diminished by it.

S E C T. III.

OF THE SYMPTOMS OF THE GRAVEL IN THE BLADDER.

THE same complaints, with a little variation, will affect a person when the gravel is in the bladder. At times a strangury is the consequence of the stimulus of the earthy particles against the sides of the bladder, to which it is liable, from the fineness and number of its nervous branches.

It is necessary to be particularly attentive to the cure of the gravel, as by that means, the formation of a stone may be prevented.

The symptoms of gravel in the bladder are the same, throughout, as those of the stone of the same part, only in a milder degree.

S E C T.



S E C T. IV.

OF THE CURE OF THE GRAVEL IN BOTH BLADDER AND KIDNEYS.

SINCE it will be shewn hereafter, that the gravel and stone are not only produced by the same cause, but are, in fact, the same disease, in different stages or degrees; the cure of the former must of course be much involved in that of the latter, with this difference however, that in the gravel we may venture to give diuretics and stimulants, which we cannot with safety administer in the stone, inasmuch as all stimulants do mischief where the calculus is too large to pass. Every one's reason must inform him, that if the concretion, in such a state, be driven forward, the consequence must be a laceration in the part, and perhaps a

subsequent ulcer, or dangerous hæmorrhage of blood.

This circumstance happened within my observation, some time ago, in a man to whom I was called a short time before he died. As he had been incapable of answering any questions (the loss of blood having thrown him into a deliquium) it was requested, that he might be opened; when it appeared, that a piece of stone, about four grains in weight, had lacerated the left ureter, and brought on the discharge of blood which occasioned his death: for when it had insinuated itself into the ureter, it became a stimulus, and induced such convulsive twitches and contractions in the part, as proved fatal to him.

A case, in some respects similar to this, occurred to a private foldier in the regiment to which I was surgeon last war; he made slight complaints of
the

the gravel at times, but had never neglected his duty on account of it—being at exercise on a field-day, and in the act of grounding his firelock, he was sensible of something slipping into his right ureter, and upon his rising again in taking up arms, the sudden jerk of his body in that motion, gave him the most poignant agony, and he fell out of the rank, and was carried to the hospital, where he passed near three pints of almost pure blood; he continued to make discoloured, or coffee water, for many days afterwards, and as he was of an indifferent habit of body, the wound degenerated into an ulcer and killed him, in spite of all medicine, and even though the stone which occasioned all this was voided.

Stimulating diuretics are, nevertheless, very serviceable in the most simple state of the gravel, when the bladder, by its laxity and inertness, has

suffered the urine to separate and deposit its earthy part therein, in the form of sand. The common diuretics of the shops, and such as have been most frequently used in the gravel, are the *spiritus nitri dulcis*, *sal diureticus*, *lime-water*, and all *terebinthinate preparations*.

Although the symptoms of the gravel are different according to the seat of the disease, yet the cure should be undertaken in the same way, whether it be in the kidneys or bladder: I would recommend a dose of Rochelle salts and manna as a purge to precede the other remedies; sweet spirits of nitre is a most agreeable diuretic, and is attended with none of those consequences to which soap, lime-water, and turpentine are.

Notwithstanding bloody urine is ranked among the symptoms of the gravel

gravel in the kidneys, yet it is always to be doubted whether it be not rather the consequence of a stone; in which case, I would advise every one to avoid stimulating diuretics or forcing medicines; for although such symptom may sometimes be produced by loose gravel; yet, I dare say, nineteen times out of twenty, it is really that of a stone. Indeed at all times the symptoms, whether of stone or gravel in the kidneys, run so much into each other, that it requires a very minute attention to discriminate them. It is a consolation however, to the afflicted, in those cases, to know that although the means we might pursue in curing the gravel, would be highly improper in the stone; yet these experiments have suggested to us, that the same medicine which can cure the stone, must be equally efficacious in the gravel: — for there cannot be a more lamentable state, than a man under the doubt and perplexity of

two diseases, where the treatment of the one must be diametrically opposite to that of the other.

The regimen of the gravel, whether in the kidneys or bladder, should be adapted to the urgency of the complaints. A cooling diet is always proper; and if the urine be hot, and high coloured, plentiful draughts of balsamic liquors should be taken; such as veal broth, barley water, marsh-mallow tea, syrup of capillaire, or orgeat. It will also be necessary to attend minutely to the sediment in the urine, whether it be of an earthy or slimy kind; if of the latter, it indicates great irritation. In this case, violent motion should be avoided; and large draughts of the above diluting liquors be taken every three or four hours 'till it abate.

Let it be observed, that exercise is always to be recommended where the
gravel

gravel is evacuated without pain:—but if irritations, discoloured water, or pain, be attendant on the discharge, rest must be indulged, and the body kept cool.

After the total expulsion of the gravel, it will be proper to have recourse to astringent and strengthening medicines; but above all, the cold bath must not be omitted.

C H A P. III.

S E C T. I.

O F T H E S T O N E.

THE stone, called in Latin, *calculus*, from its resemblance to stones of the earth, is found by a chymical analysis, or decomposition, to consist (as well as urine) of an earth, air, oil, and volatile salt; and that these are capable of forming bodies of the hardest texture, by attraction and adhesion, is clearly proved in the making of glass, which is a combination of earth (or sand) and salt, with fixed air. The human calculi are of very different degrees of density and cohesion; some being so loose
and

and friable as to crumble to pieces between the fingers, while others have been taken from the body, of such a compact and flinty nature, as to strike fire in collision with steel ; from which it is easy to conceive, that the violence of the symptoms of the stone must be various.

It is no wonder that stones so often form in the kidneys, since the disposition of the urine will naturally shew itself as soon as it is separated from the blood ; that is, the stony particles having as strong an endeavour to unite with one another in the kidneys as in the bladder, will, in consequence of meeting first there, be most likely to produce gravel and stone in that part ; where they continue to accumulate till spasms, or convulsive twitches are excited, by which they are sometimes thrown into the ureters, and thence into the bladder.

It is not possible to say how large a stone would grow in the body, provided the patient could live under the torture. They would undoubtedly continue to encrease as long as the bladder could perform its office. We know there have been some cut out of the bladder so large, as to measure eleven inches round, weighing seventeen ounces, or more: and in the Hôpital de la Charité is a stone, which weighed, when first extracted, fifty one ounces.—All stones become considerably lighter, when exposed to the open air.

S E C T. II.

OF THE CAUSES HITHERTO ASSIGNED
OF THE STONE.

CHYMISTS, and many natural philosophers, as Sir Isaac Newton, &c. have analyzed or decomposed the human calculus,

calculus, and have found it to consist of those principles already described in the preceding section: and although the different authors could not but agree as to the nature of the separate principles which compose the stone, yet almost all of them have entertained different opinions of the cause of conjunction of these principles in forming it.

It may probably be thought presumptuous in me to attempt to account for *that*, which rendered vain the labours of so many men, eminent for their learning and sagacity. After reciting my adopted motto, "*Plus vident oculi quam oculus*," I confess myself indebted to the result of their researches for many particulars, which otherwise, might never have occurred to me. The immortal HERVEY, who discovered the circulation of the blood, left still enough to be done by his successors, in applying it to physic and anatomy: and
although

although the ancient physicians were unacquainted with that part of the animal œconomy, yet in point of learning, may it not be said, they were equal at least to most of the moderns, and that they laid the foundation of many structures which embellish and adorn the present physical age.

This shews the weakness of giving up a pursuit, because it has been fruitlessly undertaken by one or many *great* men. Some of the first physicians have asserted, that the operation of many medicines, in particular *mercury*, was indefinable; and yet I am inclined to believe, there are but few, at this time, who do not know on what *its* specific qualities depend.

Without any further apology than for opposing the opinion of my learned predecessors, I shall appeal to the judicious and candid, how far I have removed

moved the epithet of *occult* from the causes of the stone.

The first who treated of this disease, attributed the cause of it to an error in the non-naturals, particularly an improper choice of food, to which was added, the too free use of crude unfermented liquors. This cannot possibly be the case, since we see all ranks of people, the sober as well as the luxurious, partake of this disease. Climate was then imputed to be the cause of the stone; which can by no means be allowed, as we find in hot as well as in cold countries, the stone exerts an equal influence. It has also been considered as analogous to the tartar in wine, and that it was produced by a too free use of that liquor. This cannot be deemed more conclusive than the former, because, in countries where wine is little drunk, nay, the persons never tasting of it, have nevertheless been tortured with
the

the stone. A petrifying quality in the fluid we drink is said also to occasion the stone; to support which opinion, Paris is mentioned as a place where that disease abounds, from the quantity of stone contained in the river Seine: but from a strict enquiry concerning this matter, I am fully convinced, that there is not an over proportional number cut in Paris than in London; and the greater part of those come from towns and villages where the Seine has no communication.

To satisfy myself how far an attention to the water we drink might conduce to prevent the stone or retard its growth, I set about making the following experiments. I caused a tin kettle to be made in the common form, except that the cover was raised by means of a jetting open rim, to the height of one inch, and being of a larger diameter than the kettle itself, it entirely kept out

out any dust that might accidentally fall down the chimney ; while its construction as readily suffered the water to evaporate. I then set a common alembic to work, in which I distilled several hundred gallons of New River water, and supplied the evaporating kettle from the worm as it ran off. The head of the still had a swan neck, and being slowly worked, nothing but the fluid in its purest state could be drawn off. After thirty-six hours operation, I suffered the kettle to run dry, and examining it carefully, I found a considerable portion of *faburra* or earth, after the manner of the fur or crust adhering to a tea-kettle.

And further to prove the impossibility of obtaining a *strictly* elementary or rather homogeneous fluid, I made an experiment with snow-water in a smaller degree, but sufficient to discover that it also yields a crust after a continued evaporation.

poration. This led me to conclude, that there is no prospect of obtaining a pure water, that does not contain a portion of earth; and I am fully persuaded, that if the evaporated fluid had been again condensed and made the subject of a third coction, there would still have been collected some particles of earth. In a reiterated distillation, I suffered the water, after it had been drawn off, to stand covered over three days, and boiling it the same time as before, a greater quantity of saburra was collected; by which I conceive, that the primary particles of earth had time to attract each other, and consequently, by increasing their specific gravity, were less liable to be carried off in the effluvium. Now, although we should construct a still with a neck of a wonderful height, that much more of the grosser earth might be detained in the bottom, (for I forgot to mention that a great deal more saburra was found in
the

the still than in the kettle, although the water was at first apparently clear) yet that would not be likely to do more than catch the particles in a collected state; for it is obvious that the primary particles of stone are many times lighter than quicksilver; and yet that ponderous body can be so rarefied as to be borne up by a very subtile æther, or fine vapour. It is therefore plain, that although you might distill water until you could no longer discover stony particles in it, it would not prove there were none; on the contrary, it will be found, that after it has been strained, filtered, and distilled, *as it were*, through some of the finest vessels of a human body, (which are a thousand times more exquisite and elaborate than any *art* can invent) I say, that after all this, it will be found to contain these primary particles of stone.

Some time after I had made the foregoing experiments, I was informed that

a gentleman of Lincolnshire had been cut for the stone, and in hopes of avoiding that cruel persecution again, had furnished himself with a still, through which he had drawn, for four years, every drop of water he used; not only as drink, but even to prepare all his victuals in; and yet he was unhappily seized with the disorder a second time in his kidneys. Many other persons have been led to drink only distilled water, from a notion of its being entirely freed from its earthy particles; which indeed, has, at first view, a great deal of plausibility in its favour.

S E C T. III.

INFERENCES DRAWN FROM THE LAST SECTION.

SEEING then that we cannot, by any known operation, free water from a certain

certain quantity of earth, we must conclude, that in it, is contained the essential matter of the disease ; nevertheless, it cannot be said to be the disease itself, because thousands continue in health who drink it without restraint.

Thus much being premised to shew, that no one of those causes of the stone hitherto assigned, is the *true* one, and that it is not in our power to prevent the disease from falling to the lot of some among us, it behoves me to declare what, in my opinion, is that *true cause*.

In order to understand this subject more perfectly, it is necessary to describe by what means the fluids we drink are conveyed to the blood ; from which it will appear, that although a man should swallow a quantity of sand, or powdered stone in his drink, he would be no more liable to have a calculus form

in his body, than if he had taken the fluid in its natural state.

The chyle, or any other fluid, is conveyed to the blood from the stomach, by means of small lacteal tubes or pipes. Nothing can pass from the mouth, or more properly, from the stomach to the blood, but by means of these concoctive strainers, which are the smallest in an animal body. If this was not the case, such particles of matter might be admitted into the blood as could never be discharged again, which would consequently be productive of the most inveterate obstructions. It is equally certain, that the absorbent vessels or recipient lymphatics, which are spread over the surface of the skin, are smaller than the interior ones, otherwise the same mortal obstructions would ensue. Now it is evident, in fact, from microscopic observations, that the largest blood globules do not exceed $\frac{1}{3000}$ part of an inch

inch in diameter: it is also well known, that the diameter of a particle visible to the naked eye, must not be less than the $\frac{1}{100}$ part of an inch, whence it follows, that the magnitude of one of these large blood globules, is less than the largest visible particle in the proportion of 8000 to 1; and therefore, should these blood globules, without any further attenuation or division, be supposed to pass the glandular secretories, they must come off in an extremely thin attenuated effluvium or vapour, the particles of which would be 8000 times less than any sensible or visible particles: but it is certain, that the diameters of the largest secretory ducts or glandular strainers must be less than the least of the blood globules, otherwise these blood globules themselves would pass those strainers, and be thrown off in bloody secretions, which we know cannot happen in a natural state of the fluids and solids.

How much less the smaller globules are than these already taken notice of, cannot easily be ascertained, since they are imperceptible, even by the best microscopes.

It is a fact that Lieuenhoek and others have discovered an infinity of these secretory and excretory vessels, the diameters of which do not exceed $\frac{1}{80000}$ of an inch, and consequently a fluid cannot pass and repass them, until it has been so far rarefied and volatilized, as that its largest particles shall be less than any visible or sensible particle, in the proportion of 512,000,000 to 1.

This great rarefaction of the fluids in their circulation, or emission to and from the blood, may seem strange to some, and yet it is certain, that fluids are capable of being rarefied or effluviated into any assignable degree of tenuity. To make this familiar to us, let us but consider,

consider, how far the most dense and solid substances, as those of metals, may be divided or attenuated by the help of art.—Doctor Halley has proved (see Philosophical Transactions) that one single grain of gold is sufficient to overlay or gild, ninety eight yards of wire; and has also shewn, that the thickness of these *lamellæ* does not exceed $\frac{1}{12 \div 800}$ of an inch, which is less than the diameter of one of these small excretory tubes before taken notice of.

Now, from what has been advanced, it is obvious, that nothing can pass the lacteals, and be taken into the circulation, but in the form of a fine attenuated vapour; therefore, all the powdered oyster and egg-shells, and other insoluble ingredients, in the composition of several reputed lithontriptics, since they cannot be absorbed by the lacteals, can in no way materially affect the urine. This account of the œconomy of the

secretions of the human body may to many, seem very wonderful; but it is a fact, that all the boles, calcined earths, and minerals, commonly prescribed as alteratives of the blood, cannot possibly reach that fluid. If it be asked why impurities of the blood are often removed by cinnabar and other preparations of antimony if they are not absorbed with the chyle, I answer, that by deterging the *primæ viæ* & viscera, and cleansing the orifices of those vessels in their passage through the body, such vessels are enabled to convey a larger portion of chyle into the mass; and consequently, the disease is gradually overcome by nature throwing off through the excretories, in proportion to the additional absorption, and thus they appear to be alterative.

Notwithstanding the surprising smallness of these vessels, we need not wonder how a body so large as that of a man, should

should receive sufficient nourishment
 thereby, when we consider the vast infi-
 nity of them, and that the stomach and
 smaller viscera are capable of absorbing
 and carrying to the blood by their
 means, several gallons in twenty-four
 hours. Nor is it possible to say what
 quantity of urine the kidneys are capa-
 ble of secreting from the blood in that
 time; but, I have (in a case where poi-
 son was suspected to be received into the
 blood) so supply'd a man with diluting
 liquors, that he made seventeen quarts
 of urine in one night's time, the greater
 part of which, from its short stay in the
 body, was evacuated quite insipid — At
 a more convenient time, I shall endea-
 vour further to amplify and elucidate
 this part of the animal secretion, so far
 as concerns the cure of cutaneous erup-
 tions, and glandular obstructions: thus
 much I judged necessary here, as it
 proves incontrovertibly, (contrary to the
 general opinion) that the stone is not
 occasioned

occasioned by an improper diet:—neither can the blood, in any degree, be said to circulate or convey any concreted stony particles to the kidneys; for it has been shewn before, that the glands of the kidneys are smaller than the lacteals themselves; they therefore could not pass, but would, in accumulation, occasion disorders, more immediately fatal, than that of which we are treating.

From the very great difficulty of establishing any new opinion, which militates against a generally received one, I think it necessary to relate the particulars of the following experiments, which, as they may be repeated by any indifferent person, will be likely to exempt me from the imputation of substituting hypotheses for facts.

EXPERIMENT I.

I took a fragment of a human calculus of 5 grains weight, and put it in the
urinal

urinal of a person, who never had had the least complaint of the gravel or stone, and whose water was perfectly pure and transparent:—after continuing it thus for seven days, I weighed it, and found but little alteration; but considering that the motion of the urine on the stone, might dislodge any saburra that should loosely adhere to it, and thereby frustrate the experiment, I removed it into another vessel, and poured the urine gently into it after it was made; by this means it was suffered to be more at rest. At the end of twelve days, I again weighed it and found it had gained more than half a grain. I could observe, by the help of a glass, that the accumulation was principally on the roughest side, which was that broken from the compleat stone. The same experiment I repeated with the urine of a child, and found the same effects in almost an equal degree.

EXPERIMENT II.

A gentleman applied to me to be cured of a stone in the bladder; but as he had at that time another disorder upon him, which required an immediate attendance to, I forbore during a fortnight, to prescribe to the stone, but desired that his urine, during that time, might be poured upon a bit of calculus of exactly eight grains weight: now although its surface was larger than the first fragment, yet, at the end of that time, it was not increased in the smallest sensible degree. I was not however perfectly satisfied with this experiment, suspecting that the medicines he was taking, might have prevented his urine from giving out its share of earth: to clear up this point, I got the urine of two persons, under the same course of medicines in Bartholomew's hospital, into which I immersed a piece of calculus as before;

at

at the end of only nine days, it was increased nearly half a grain; from which it is demonstrably plain, it was not any thing in his course of medicine that with-held the urine from resolving into that earth, which should have increased the piece of calculus, as in the former experiment.

The inference to be drawn from the above is, that the stone, already formed in his bladder, attracted the earthy particles from the urine as soon as it came into the bladder: I was further confirmed in this, by his telling me, that for several years, previous to his attack of the stone, he had voided urine, at times very thick and muddy, or sandy; but that since he had discovered he had a stone formed, his urine had been at all times clear and free from all sand or grit; nay, that it was bright as amber, except when he had taken any violent exercise,

exercise, after which it would be loaded with mucus, or tinged with blood.

After I had made these experiments, and the conclusions from them, I read Dr. Priestley on fixed air, with an attention that writer merits.—Had those volumes fallen into my hands before, I might have saved myself much labour and reflection, in discovering that we cannot prevent the stony atoms from making their way into the urine; since this ingenious author proves, that earth can be converted into air, and even rendered respirable: it is therefore not physically impossible that we receive many of those particles in inspiration, as well as by the work of chylification; for the chyle itself must be subtilised into a vapour before it can pass the lacteals. We may therefore be perfectly assured that no human art can withhold the stony matter from the urine, how far the

the particles may be retarded from running into cohesion, is the subject of a very material and future consideration.

S E C T. IV.

OF THE REAL CAUSE OF THE STONE.

THE first experiment with the evaporating kettle convinces us, that water cannot, by any human operation, be freed of a certain portion of earthy particles, which are in themselves so light as to be carried over the helm of a still with the vapour ; and that this is not only so in fact, but consistent with reason, is evident in the distillation of quicksilver, which although specifically twenty times heavier than the hardest marble, is susceptible of that diffusion.

These earthy particles, for the sake of perspicuity, shall hereafter, be distinguished

guished by the name of *primary particles of stone*; and that these same particles are the only ones capable of forming a stone in the human body, is proved by what has been already said on the nature of the vessels, which convey the chyle into the blood.

The first experiment in the last section as clearly proves, the urine of all persons partakes of those primary particles of stone, which are contained in the fluids we drink; so that the only consideration which remains is, what first induces the concurrence of those primary particles so as to become a nucleus of the stone: for, from the second experiment of the same section we find, that when once a nucleus exists in the body, it collects by its attractive power, the particles about its surface, and thereby accumulates continually.

By

By the œconomy and structure of our frames, it is required we should drink a certain quantity of fluid to assist in assimilating our food, and to convey the nourishment of it to the blood, further to be distributed for the growth and strength of the whole body: now, as it has been proved that water, in its purest state, still contains an infinite number of those primary particles of stone, it is evident, that we are liable, every hour we live, to be attacked with this disease. For it is plain, that the serum of the blood, which yields the urine, contains those same primary particles of stone: they having been conveyed thither with the chyle. The cohesion of those particles however, never takes place 'till they are carried with the urine to the kidneys; the reason of which is, that the particles are kept farther asunder while circulating in the common mass, and consequently out of the power of attraction of each other. The globules of blood,

by their spherical figure, must also have a considerable share in preventing the particles from entering into contact with one another. No sooner then, has the secretion taken place in the kidneys, and the urine concentrated as it were, than the corpuscles are brought nearer to each other, and thus begin their attraction and cohesion. In like manner is the chrysalization of salts obtained, which however, never takes place 'till the fluid is, by evaporation, condensed to a certain degree, nor does this work begin before the liquor in which the salt is suspended, begins to grow cool.

But the most powerful impediment to the attraction and cohesion of those stony particles while with the blood, is the continued circulation of this fluid; since, should they accidentally be brought into contact, the force with which they would be driven, would destroy the attractive and cohesive power,

er, and excite a repellent one. That this is actually the case in both principles, may be illustrated by the experiment of two small globules of quicksilver, which though strongly inclined to take up each other in the moment of contact, yet were they to be driven together with a force equal to the blood's circulation, they would lose their attractive power and would be overcome by the repellent one. This is not only the case with cohesive attraction, but it holds good also, in the other kinds, whether magnetic or electric; for if the propelling force be too great, repulsion is the natural consequence.

Thus a sufficient reason is given why a calculous concretion never can take place in the blood, as life would be extinguished before the circulation could be lessened to a degree sufficient to suffer a cohesion. No sooner then has the secretion taken place in the kidneys, and

consequently, the fluid concentrated in which the stony atoms float, than these atoms or corpuscles are brought nearer to each other, and begin and continue their attraction; and as soon as two of these particles shall have met in contact, their power of attraction is augmented (such power being in proportion to the surface of the attracting bodies) 'till, at length, from their increased specific gravity, they precipitate to the bottom of the fluid, in the shape of sand or gravel; and this is the state of the disorder which should be denominated *the gravel*.

'The circulation of the blood through the kidneys as well as the liver, is naturally languid, which renders them equally liable to obstruction. The jaundice is the consequence of the latter, as the stone is of the former.

Now

Now although the concretion, as has been already shewn, begins as soon as the urine is in the pelvis of the kidney, yet it may not arrive to such a degree as to bring on even the gravel there; but the urine, further disposed and prepared for the concretion, may, and does frequently, finish the work in the bladder.—Should this organ be preternaturally feeble, as well as the kidney, a stone will undoubtedly be formed in a very rapid degree; for as soon as a conjunction of the particles is increased to any material bulk, it not only acquires a multiplied power of cohesion, but likewise attracts from greater distances; so that other aggregate particles will be taken up in its accumulation.—This is manifested in those congeries of small stones, called grape-stones, the interior piece of which is always larger than those around it. It is very usual indeed, to find several stones in the bladder, because, as they are generated in the kid-

neys, they may be thrown over into the ureters so large, that they cannot be further taken up in the way of attraction; for in this case another power, viz. gravity is opposed to it.

The phænomenon of the stone's accumulation I have traced through its various and progressive gradations, and particularly pointed out that which deserves and requires the appellation of *gravel*. The duration of the disease at this stage depends, as has been before observed, on the irritability or inertness of the kidneys and bladder; for under the former circumstance a person may escape the stone a long time, by evacuating the saburra freely with the urine; but, on the other hand, should there be any debility in those organs, it is next to impossible but a stone and its accompanying train of evils ensue—it is therefore clear, that gravel and stone are the same disease in nature and principle, and

and are only differently denominated, according to the degree in which its progress is marked, consequently those persons who suppose them different in their qualities, and that because they have spontaneously discharged gravel with their urine without any inconvenience, are not likely to have the stone, deceive themselves, and will probably be unhappily convinced, too late, to the contrary.

To sum up and bring therefore, into a more familiar point of view, the cause of the accretion of stone, it must be considered that as soon as the urine has been secreted from the blood, and this fluid got into the kidneys, this work begins; for it may be concluded this fluid always circulates primary particles of stone, agreeable to the *mobilis universale*. Now in this continual change of place of those particles, no wonder that they are brought near or into contact with each

other, and agreeable to another universal principle in nature, attract one another; it can therefore be no longer a mystery that some persons should escape the stone and others not, any more than that some constitutions should perfect the work of the stomach's digestion or sanguification sooner than others, or retain the fœces longer; for proportionate to the time the urine remains in the body after its separation from the serum of the blood, is the hazard of contracting the disorder we are treating of.—Exercise, above all things, promotes every secretion of the body, and is therefore the best and most natural defence against the stone. Volition too will have its effect in the excitation to urine.

Thus we see intense study will divert the influence of the *vis excretionis*, whereby the urine and all the other excrementitious matter is retained longer

longer than its due time, and disease may be reasonably expected: this doctrine needs no farther confirmation than to instance the number of Judges, Clergymen, and others, of a sedentary life, who are afflicted with urinary and biliary obstructions and concretions, and more particularly persons of the first class; for from their avocations they are often obliged to oppose the *vis resistendi* to the calls of nature, which cannot but do violence to her functions.

Having, in the clearest manner I am able, elucidated the work of lapidification, I am not willing to leave the subject without offering my opinion of the reasons why a stone accumulates so much faster in one person than another. That animal salt is a necessary ingredient in the composition of a stone has been before declared, and I am as fully persuaded that the growth of a stone is determined by the quantity it meets with

with in the urine; it is equally satisfactory to me, that the quantity of ammoniacal salt is proportional to the longer or shorter time the urine remains in the body, for a pint of urine, newly secreted from the serum of the blood, will not contain a fifth part of the salt in it, the same quantity will, which has been longer secreted, this is sufficiently evident, in a profluvium of urine where it scarcely participates of the saline matter at all: thus it is demonstrably plain that it is considerably in our power to check the redundancy of this salt, by our manner of living, though we could not totally prevent it, or live without it in due quantity, any more than we could any one of the non-naturals. If children abounded with this *sal animalis*, in an equal degree with adults, the stone would be their inevitable lot, from the supineness of their posture in urining: but the all-wise providence has given them a desire for, and appropriated them
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that sort of food which will not yield it but in a small degree : this salubrious aliment is milk, it being formed from chyle in which the principal part of its salts are left behind ; and this exemption from salts is a reason why it is found beneficial in the gout ; notwithstanding which, I do not mean to enforce its use in all cases of stone, gout, &c. for there are many wherein it would be injudiciously adopted ; this discrimination can never be so well made as by proper advice ; for all the general rules I could lay down, would never be able to make the patient the physician, altho' many of my predecessors have undertaken to do it by those means.

The causes of the stone being so plainly demonstrated, it becomes a question deserving consideration, whether no preventative means can be adopted with reasonable hopes of success, especially in those persons cases who devote themselves

selves to study, and are unavoidably obliged to neglect, often for many hours, the excitations of nature; to which I answer, that to those who are considerate enough to think of the danger they are exposed to, a prospect of assurance from this disease is held out to them, by a safe and simple expedient.—If the fæces are retained too long in the body, do we not by laxatives or cathartics stimulate the intestines to reject them? Bile, (so necessary to our health and existence) is often redundant, and thereby occasions a disease, do we not then by deobstruents stimulate the liver and biliary ducts to procure its expulsion? and ought we not to be equally solicitous to purge the kidneys and urinary canal, when their contents have been too long withheld from passing off by the vis impressa, which persons of the before mentioned description are unhappily driven to exert against the calls of nature? The preventional medicine in question

question must, it is plain, possess diuretic qualities, yet it ought not to be of that class which is generally prescribed when the gravel is already formed.—The vague operation of some reputed diuretics and the failure in the effect of others have much discouraged this part of practice, and provoked some professors to declare that no reliance can be had on any medicine of that class: I hope however, to clear this part of the medicinal art from such a general censure, by a very simple prescription, but of infallible effect—it is neither more nor less than this.

When a person has been too long withheld from an evacuation of urine, or by a spontaneous inertia of the secretories that fluid is too languidly secreted, or by an attendance in a cabinet, court of justice, place of worship, &c. and that paralysis of the bladder, stony concretion, or other disorder, may be
the

the consequence of it; he is, when he gets home or into a warm room, to order a bason, or four or five cups of strong green tea to be made, which he has no sooner drank warm than he is to swallow a glass of rum, and repose in a chair or a bed; these means will not fail to produce a necessary and plentiful discharge of urine, and take away all apprehensions of the evils alluded to, as well as the danger of fever, œdematous swelling of the legs, and a train of evils which often succeed the transudation of the urine through the bladder, and which passage the water will certainly seek when deprived of its natural one. The above caution however artless in its appearance, will, I am fully persuaded, if attended to, be the means of exempting many from the ravages of one of the most cruel disorders that torment mankind.

I flatter

I flatter myself, my readers will now be satisfied of the real cause of the stone, which has given rise to so many hypotheses; and that I have as incontrovertibly expounded the mystery of the *nucleus* of the stone, that hitherto inexplicable and undefined production, it being found neither more or less than the conjunction of two of those fixed, or primary particles of stone; those two, when combined, attracting a third, those three taking up a fourth; and so on, *ad infinitum*—how many thousands of those may be necessary to make up a particle visible to the naked eye, cannot be ascertained; but it is certain, that these atoms or corpuscles must be infinitely small, otherwise so many persons could not escape the disease.

To illustrate the disposition of the urine to form the stone, by a nucleus, it may be observed, that any extraneous substance being accidentally introduced
into

into, and left in the bladder, will infallibly generate one, notwithstanding the person, prior to the accident, had never had the least indication whatever of the gravel.

In St. Thomas's hospital the point of an ill-prepared bougie broke into the bladder of a patient, and generated a stone. — In Guy's hospital, a bit of leaden probe did the same. A drop of blood will become the *nidus* of those earthy particles, and cause a stone: from these circumstances it appears, that all extravasations of blood are dangerous.

THE CASE OF MR. C***P***N.

MR. C———N, clerk to an eminent banker of this city, in the year 1774, contracted a disorder which, in the end, obliged him to suffer the frequent introduction of a bougie. This he did for a considerable

considerable time, when accidentally one fell into his hands so ill-prepared, that about half an inch of the point broke off, and lodged itself in the bladder, having passed the sphincter in its introduction. The accident being immediately discovered, he was a good deal alarmed, insomuch that he instantly applied to one of the surgeons of St. George's hospital for advice, who consoled him by saying, "That as the preparation of
 " the bougie was composed only of
 " linen cloth and an unctuous substance,
 " no extraordinary pain was likely to
 " ensue from the circumstance. The
 " plaister part, he said, would be daily
 " wasted, and the cloth might therefore,
 " by conforming itself to the passage,
 " be at one time or other washed out
 " with the urine; for that since he had
 " never had any, the smallest complaint
 " of the stone or gravel, or the least appearance of saburra in his urine, he
 " would,

“ would, in all probability, escape a
 “ disorder of that nature.

After this advice, he persevered as usual for two months in the use of the bougie, at the end of which time he left it off entirely, and remained in the same state for about eighteen or twenty weeks. Soon after the elapse of this period, finding himself indisposed, he came to consult me upon his case, which was as follows; he had for some time suffered an uneasiness at the neck of the bladder, and on that part where the waistband of the breeches compresses;— he had also a frequent desire to make water; and felt an acute pain about the time he had done making it, and even for a few seconds after; and was troubled with an itching or titillation at the nut of the penis. From these indications, I immediately pronounced the existence of a stone in his bladder, and then

then I was informed of what I have related in respect to the broken bougie. Now, though I entertained no doubt of destroying the concrete formed upon the piece of the bougie, yet I told him, that the *solvent* (an account of which see hereafter) could take no effect on the rag itself; I was conscious, however, that by dislodging the concreted saburra, the saline part of the urine would act strongly upon the rag, and its attrition would in time wear it gradually away; and the more to ensure success from this method of procedure, I advised him, even after the stony part should be destroyed and evacuated, still to take *solvent* enough to keep the urine from giving out the principles of a stone, so that the rag would be kept always bare for the urine to act upon it. Mr. C—n scrupulously followed my advice; the consequence of which was, that in five weeks the pain he had complained of left him entirely; and in ten days more,

the sand ceased to come away, and there was every assurance of the piece of bougie being reduced to its natural state. After this he continued to take now and then a dose of the *solvent*, till at length he began to believe that the rag itself was worn to pieces, as he had often discovered part of it in his urine: this expectation induced him to leave off the medicine entirely, but he was soon convinced that there still remained some part of the fragment of the bougie in his bladder; for the same complaints and pain were again revived, though in a slighter degree, and, for the second time, he was obliged to have recourse to the *solvent*, which operated exactly the same as before.—Indeed the certainty of his being liable to the same attack, while any the least part of the extraneous body lay in the bladder, determined him to omit on no account the use of the remedy, till he should be perfectly assured of its being totally wasted away.

away. For this purpose he took regularly three bottles more, which having brought him back to the state of ease he wished for, he then only took a dose now and then, but did not leave it off totally for eight months, at the end of which period he had actually every reason to believe the whole of the rag was expelled the bladder : happily for him he was not mistaken in his conjecture ; for although it is six years since he took any of the *solvent*, he has had no complaint whatever of the kind.

Besides the above case of Mr. C***.***n, I was told of the following, by Mr. Du Fouart, first surgeon to the Marechal Duke de Biron, and surgeon-major of the Hôpital des Gardes, Françaises at Paris.

One of the king's guards had had a gonorrhea, which, for want of timely assistance to expel the virus, had pro-

duced the following evils:—The matter being retained in the passages had formed an abscess through the teguments near the sphincter of the bladder: now, although by proper remedies the virus was totally destroyed, yet the urine was always extravasated through the orifice of the wound, which as it could not be brought to heal, left a *sinus*, that penetrated the perinæum. This cavity formed a kind of reservoir for the urine, which trickled down the passage every time it was made, and gave rise at last to the concretion of a stone, and an incision was obliged to be made thro' the perinæum for its extraction; it being about the size of a hen's egg: a fistula, which the patient will, in all probability, carry to the grave, was the consequence of the operation. It should, however, be observed, that a passage is now made to give an exit to the extravasated urine, which prevents the formation of any new calculus. This man had never
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had the least indication of the stone or gravel, nor can any be discern'd at any time in the urine he makes.

It were to be wished that these melancholy cases of suffering individuals occurred less frequent, or, that the general appearances of good health, added to the solicitude of enjoying the pleasures of life did not disable them from attending to, and resisting those incidents which, if neglected, place them among the most wretched of mankind.—It is with considerable pain that I relate the following case, so much the counterpart of the former, and which so aptly completes the doctrine of animal lapidification.

I was consulted about twelve months ago by Mr. *Dixon*, clerk, in the secretary of war's office, for a complaint as nearly as can be described as follows: He had had a stone in the bladder about

eight years before that time, for which he was cut, and great pains were taken with the scoop to prevent any pieces of calculus from remaining behind, so as to form a new concretion: the excruciating pain he had undergone before the operation had a good deal impaired his constitution, but nevertheless the wound appeared to heal and he was free from any great uneasiness for two years, when the cicatrix of the wound burst open and a fistula was the consequence; through which the urine made its way out of the body: topical remedies were applied to the superficial wound, and it was by those means again healed up; the consequence of which was, that instead of a fistula it became a sinus, where the urine lodged and gave out its saburra for a beginning concretion of stone; as it could no longer find a passage on account of the new cicatrix, for it may justly be conceived that the eruption of that part where the incision

cision had been made into the bladder, took place when the surface of the wound broke open, and of course there was an intire perforation into the bladder; indeed a leaden probe, I was informed, had been more than once introduced therein through the sinus—the continued supply of earthy matter from the urine, soon assumed the form of a stone, and it might be felt with the finger by pressing it on that part where the gorget had entered, in operating for the stone; all this while the patient was not much alarmed, as he could walk with indifferent ease and in most respects was in tolerable good health—but in this way he did not long remain, for the stone encreased rapidly in size, so as to distend the part to a considerable degree, and at length force its way through the teguments of the muscles where it formed a bed for itself—in this pitiable condition, Mr. Dixon contemplated in silence, 'till in fact he could

could not walk but with torture; for the prominence occasioned by the encreased dimensions of the stone, prevented him from putting one leg before the other, and the stone had taken its direction chiefly near the scrotum. My advice was asked by him at this period of the disease, with the circumstance of the stone having burst open the cicatrix again, in short, scarce any water came from him but through this cavity: I examined him with the greatest attention, from which I suspected the concretion adhered, or that it had extended itself in the direction of the fibres of the flesh, for it was as immoveable as a fixed bone. But for this reason I should have immediately advised the cutting it out, as there could be no chance of its being dissolved in any reasonable time, as it appeared to be larger than a duck's egg, besides which, there was another unfavourable consideration, which was, that the urine, though
 impregnated

impregnated with the solvent, could only trickle by a part of the stone's surface, not entirely surround it—however, as something was to be done and the incision could not be safely ventured on at that time; I proposed to give him the solvent by way of stopping the further accretion to the stone, as well as to try if its outward coat might not be smoothed and his pain thereby abated; with the further hope from the same power of the medicine, that the stone might be lessened in dimension, and a discovery effected of it's being attached or not, to the flesh which surrounded it. These promising hopes were fructified to a degree beyond expectation, for in ten or twelve weeks the pain was mitigated in a great degree, and the stone might plainly be perceived to move by pushing contrary ways with the fore fingers of both hands.—When he was assured as well as myself, that the stone was not immoveably fixed in
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the recess it had made, he eagerly pressed me to the operation, by which he might be more suddenly rid of a source of continued misery—his complexion and emaciated condition convinced me that his habit was in a very indifferent state, and therefore I directed him to live better than he had done, to take a glass or two of wine with his dinner, and a dose of tincture of bark twice a day for a month; at the end of which time I would, if he desired it, perform the operation, there being no prospect of speedily dissolving the stone by the medicine, nor of his long pursuing his employment, about which he was extremely anxious. — During this month in which he had lived more generously than before, he seemed in better spirits, and a day was fixed for the operation, on which he was fervently bent. — I had, by his knowledge and consent, appointed for assistant, a surgeon with whom I had formerly dissected, and whose

whose opinion I held in great esteem; I had the satisfaction of finding Mr. C—— agreed with me about the safety of the operation, and I accordingly set about it, when I extracted a stone of an exceeding hard and dense texture, weighing three ounces two drams *avoir-du-pois*; its form in a great measure resembled a longitudinal section of a pincushion, with one of the horns running towards the anus, and the other up the sinus into the bladder; this form obliged me to enlarge the orifice I had first made for its extraction—a suture secured the only arterial branch that was divided and all appeared favourable; I visited him for three weeks with every reason to expect his recovery. At this time I was seized with a tertian fever and under the necessity of removing into a dry air in the country, during which time, though attended by two surgeons, he fell into a low exhausted way and died—the wound which was originally about

about three inches in length had healed to about two, but had never yielded any well digested pus throughout, so that I apprehend the attenuated state of the blood and juices had occasioned his death. I have desired Mr. Morfe (in whose possession the stone is) to allow me to take an exact drawing of it, as it may be deemed a great curiosity.

Mr. Jamison consulted me in a case of the gravel, which he had had for a considerable time to an extreme degree, insomuch that he was no longer able to walk or ride with the least ease, and complained of exquisite pain in his loins, and in the neck of the bladder, with almost an entire stoppage in making water. Although I was convinced his case was gravel only, I gave him no other medicine than the solvent, with a view to check the disposition of the urine to run into those concretions. In a short time he began to void prodigious

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gious quantities of globular pieces of gravel, scarce ever urining without being able to collect half a tea-spoonful. The pain at the neck of the bladder abated, in proportion as the gravel was voided; but he never ceased to complain of a weakness and uneasy sensation about the loins and kidneys. He continued free from pain at the neck of the bladder, and all other but these above mentioned, for the space of about four months, when the gravel began to form again, occasioning the same complaints as at first. This second attack was treated in every respect like the first, during which, he passed such amazing quantities of loose red pieces of gravel, as would astonish the most credulous. The cause of such an hasty and abundant collection of gravel, I considered as deserving particular attention. I found it to be almost universally in one coloured spherical piece, and this gave me reason to suspect that each separate

parate

parate globe might have a nucleus different from the mere junction of the primary particles. I was conscious that an oppressive weakness of the loins augmented the pain of which he complained, for he had this, when the gravel was supposed to have all passed; and that although he had never made what might have been called bloody urine, yet a sediment was often observed at the bottom of it, which had every appearance of fine blood globules, which had now lost their bright colour by lying in the urine. I therefore began to consider, that altho' in a natural state of the kidneys, the blood globules are prevented from passing the secretory glands, yet, should any of those glands be extraordinarily relaxed, some of the fine globules might pass through them with the urine and instantly become nuclei, for those small grains of stone. I was the more inclined to this belief by considering that the reticular gland or membrane

brane of the eye, when relaxed by cold, a blow, or other injury, often suffers an extravasation of the finer blood globules, which gives rise to the name *blood-shot eye*. To satisfy myself, however, of the rationality of my conjectures, I carefully divided several of the round pieces of gravel, after which, with a good microscope, I was able to distinguish a cavity in the center of them, with an appearance that left me not a shadow of doubt, that globules of blood had been the nidi, or rather nuclei of the concretions.——*Frère Côme*, the noted lithotomist of Paris, has made the same remark; — and indeed it would have been difficult in any other manner to have accounted for the myriads of pieces of gravel that would form in so short a time.

The conclusion naturally to be deduced from this is, that if in place of so many globules of blood, detached at once,

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they had all been collected in one mass or drop, instead of the formation of so many grains of sand, there would have been, perhaps, a single stone, which must have increased in a considerable degree, since it would have been supplied from that quantity of particles which were necessarily distributed to so many separate nuclei.

S E C T. V.

OF THE STONE IN CHILDREN.

FROM the early age in which many children have been attacked with this disease, some authors have been induced to pronounce it hereditary; but after the former evidence to the contrary it cannot be said to be the case.

Authors who have alledged the cause of the stone to be a too free use of malt liquors,

liquors, and those who imputed it to an error of the non-naturals, were obliged to pronounce the stone in children hereditary, otherwise they would have contradicted themselves ; because stones have been cut out of the bladder of children, who had but just been weaned from the breast. Children, in this state, being attacked with the stone, are undeniable proofs of those primary particles of stone being inseparable from every fluid we drink.—When we consider the many glands the milk (with which the child is fed) has been strained through, in the mother or nurse, ere it reaches the child's mouth, and the many different fermentations and depurations it has undergone, and yet find it to be the vehicle of earth, what can we expect from the filtrations and distillations of water ; it is really wonderful, but it is equally true, that a stone as large as an almond has been extracted from a child of two years of age, who had lived en-

tirely on a milk diet.—The concretion in such young subjects must be considerably expedited by their supine position. The bladder being not so likely to empty itself in an horizontal, as in an erect posture. If the bladder already contain sand or earth, nothing is so likely to render the formation of the stone rapid, as an inactive life.

S E C T. VI.

OF THE SYMPTOMS OF THE STONE.

It has already been shewn, that the gravel and stone are the same disease in a different degree, consequently, what is only the gravel now, may, in a short time, be the stone. The only line of discrimination between them is, that while the collected particles are still small enough to pass from the kidneys to the bladder, and from the bladder through

through the penis, without preternaturally distending the ureters or urethra, the disease may be called the gravel; but as soon as the calculi have acquired a size too large to be admitted through those tubes naturally, the case can only properly be called the stone. It can no longer be called gravel, when the piece or pieces of calculi are to be felt by introducing the *sound* into the bladder, though it does not follow that the stone shall always be found by that instrument; for it may be so small as that its resistance to it shall not be felt by the nicest finger. It may also, by the particular structure of the neck of the bladder in some persons, lie so concealed, as to elude the search of the most experienced operator; hence the reason why, at some times, it may be felt by the catheter, at other times not: however, very often the sounding will be likely to afford satisfaction, and may, in most cases, be said to be necessary, except when the

stone is of such a size, and the symptoms so indicative, as to leave no room to doubt of the disorder.

It has been said, that in very rare cases, bloody water may be occasioned by the gravel only; in *this* disease, however, it will be a leading symptom, attending a too violent motion of the body, as riding on horseback, or in a coach on rough roads, and in uneasy carriages.— Too much walking, or any sudden distortion of the body will bring it on, and whenever this happens, the patient may certainly conclude that he is unfit for exercise, but of the mildest kind; and although the laceration may not be discovered during the motion, yet it is unsafe. Ulcers generally follow repeated excoriations of the internal coat of the kidneys and bladder. The cause of an ulcer should more particularly be avoided, as it renders the disorder much more difficult of cure; and
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if it happens in a person of a bad habit of body, it generally drags him to the grave; the stone serving to augment the dire effects by its continued friction and irritation against the defenceless, corroded vessels. By its stimulus also, about the neck and sphincter of the bladder, it will occasion frequent irritations, and calls to make water in small quantities; and as it advances in size, a pain will be felt in the neck of the bladder the moment the urine is made, and about the end of making. By a kind of sympathy a pain is felt also at the *glans penis* or nut of the yard, the moment the urine is made; and if the stone be rough, the pain will be exquisite, by the contraction of the neck of the bladder. If this contraction round it be sudden in the emission of the urine, there will be also felt an uneasy sensation in the *anus*, occasioned by the contiguity of the rectum to the neck of the bladder, and a tenesmus will ensue. The stone will

often be carried to the neck of the bladder by the efflux of the urine, and suddenly stop its course, 'till by a change of posture of the body, or by the natural contractile power of the ligaments of the bladder, it be drawn back.—If, after the first flow of urine, there should be a second urgency to make it by drops, the pain will be immoderate, and of longer continuance, and the whole passage will be so heated and inflamed, that the sensation of the patient is described in no better way than by imagining the points of swords, or other pricking and sharp instruments are forcing their way through it. In general, it will be found that the urine may be made easier lying on the back, or on the side, and on any curvature of the body, than in an erect posture.—When the stone has acquired a considerable size, it will be sensibly felt by turning hastily in bed, from side to side, and its gravity will occasion

occasion a pain in that part nearest the os pubis, and even the scrotum and testicles themselves.

There are no pathognomonic signs of the stone, but these are the common ones of it in the bladder; some, or all of which, attend the disease in its different stages; but it is plain, that if the stone be but small and smooth withal, the symptoms and pain will be milder than if large and rough.— If the stone attack a person of a feverish habit, he will be frequently liable to violent fits of it, attended with such strangurious pain as will occasion an almost incessant desire to make water, and that by drops only. It will also, bring on raging thirst, and even delirium. These are symptoms that must be palliated by balsamics, warm bath, and if the habit be plethoric, *venæ section*, and repeated as occasion may require :

require : cooling laxatives are also proper ; as manna and oil, with barley-water and emulsions of almonds. A person of a warm temperature should abstain from all inflammatory things, keep his body rather loose than otherwise, and particularly avoid violent exercise of every kind.

If the case be that of the stone in both bladder and kidneys, he will, besides the foregoing symptoms, be liable to the following ones, which are peculiar to the disease when in the kidneys ; viz. a dull obtuse pain in the region of the loins where the kidneys are attached, together with a sense of heat and uneasiness after motion ; — an uneasy weight and pressure in the part after a full meal, which will often occasion a nausea, and even a vomiting ; in general, the patient will conceive an aversion to exercise from the uneasiness that

that accompanies it.—The stone when seated in the kidneys, (as well as in the bladder,) is liable to lacerate the smaller blood vessels, and occasion a discoloured or bloody water, which, if made fresh after the extravasation, will be florid; but if it be retained some time in the body, it will acquire, by means of the urine, the colour of coffee-grounds. — Inflammation will also be frequently excited in the kidneys, which will impede the secretion of the urine; and if it happen to *both* at one time, will be dangerous.

The wisdom of providence is peculiarly conspicuous in the provision made against the consequences of this dreadful disease, by furnishing the human body with two kidneys; since it is now proved (by a subject I dissected at Mr. Clarke's) that one would be sufficient to secrete the urine from the blood.

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Though the stone in the kidneys may be more difficult of cure, from its not being surrounded with the urine, yet it is not so immediately dangerous; since a kidney has been found entirely blocked up with the stone, inasmuch that, when taken out, its configuration was like the trunk of a tree, with the branches severed a little distance from it: this shape it had taken from the great distension the pelvis of the kidney had sustained during the growth of the stone.

C H A P. IV.

OF THE DIFFERENT DEGREE OF
DENSITY IN STONES.

IT has been shewn in the instances of sections of stones, that they are not only liable to be very different in their textures and colours, but that the various laminæ of the same stone will be of different degrees of cohesion.—This accounts for the irregularity of the discharge of earth during the operation of the solvent, as the *outside* laminæ may be less firm and cohesive, consequently, the solution or separation of its parts will be more quickly brought about.

The *second* may be denser, and therefore it will not be operated upon so soon; the *third* may again be like the first, and so on. This being the case, it is worthy our consideration what is the occasion of this change in the habit, so as to effect the formation of a *harder* or *looser* compacted stone. According to our success herein, we may be able to lay down a rule or regimen for those who are either under the influence of a *present* disease, or are fearful of an attack.

I believe no one who has read the preceding part of this treatise, will be unconvinced that the same earthy particles are conveyed to the urine of every person whatever, in an equal degree, to the quantity of fluid received in the body.

To account, therefore, for the difference in the colour and density of the
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same stone, it behoves us to consider, that there are *two* kinds of primary particles; the one spherical or globular, the other of an oblong figure, inclining to a flat: now, as it is highly probable also, that the smallest particles seen by the very best microscopes, are still manifold aggregates of those simple particles, we can do no more than judge of the *first* figure by the shape they assume in the state they are first visible. The harder stones, as crystal, &c. are found to be made of fine *striæ* or *lamellæ*, nearly equal to each other: when, therefore, these lamellæ meet or enter into contact (from what cause so ever) in a sufficient quantity, the conformity of their separate figures determines their arrangement equally in the whole, and leaves the homogeneous body transparent, by reason of its admitting a free passage to the rays of light equally every way.

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Thus we may account for stones of the earth being opaque and porous, in proportion as their component particles approach nearer to a globular figure. If a stone be made up of both kinds of particles, it will be of a mixed nature, neither transparent nor fully opaque. Stones of the human body, however, never approach to a perfect transparency, owing to the quantity of fixed salt contained in them; for salt tends to increase opacity, unless it has undergone a heat sufficient to vitrify it. The particles of all kinds of sand, when viewed through a microscope, appear pellucid; so that the colour of human stones being lighter or darker, seems to depend upon the quantity of ammoniacal salt contained in the urine, which serves to fill up the interstices between each lamellæ. The closer and firmer the cohesion of those particles is, the lighter is the colour of the stone, and *vice versa*.

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If we consider the nature of light, and the manner in which the rays are refracted by saline bodies, conformable to Sir Isaac Newton's experiments, we may easily enough account for the variety of colour of stones, according as they abound more or less with salt: hence the reason why a stone, or one or more laminæ of a stone, are different in colour from the rest. It is not however to be understood, that the saline part of the stone has no other than the *mediate* property of giving transparency or opacity to stones, according as it more or less abounds: it absorbs air, either fixed or rarefied, more than all other bodies.—Now if a stone contains a greater quantity of fixed air, its particles will be kept farther asunder; consequently, the rays of light cannot pass freely out of one particle into the other, but are in part refracted by the air, which is a denser medium than light itself. From the same cause the most transparent and

brilliant glass becomes opaque when reduced to powder, by the component particles of it being separated from each other, and made to admit the air between them, which cannot be excluded again but by the operation of fire.

To prosecute this matter to the utmost extent, would be to run through the different doctrines of light and air, and consequently swell this tract beyond its intended compass: however, as I have made several experiments on stones, the result of which may tend to throw some new light upon the nature of air, gravitation, and attraction; I may be prompted hereafter to publish them separately. I shall content myself for the present, with collecting from these experiments, what regimen will be most compatible for those who take the solvent, with a view of dissolving the stone. This requires a two-fold consideration, the first; what

what is consistent with the disease itself, the next, what is least likely to frustrate the operation of the medicine intended for its cure.

In order to be more particularly successful herein, I made a number of experiments of the nature of those in chapter vii. with a mixture of solvent and different juices of animal and vegetable substances, kept in a proper degree of heat, in which were infused different pieces of calculus of equal weight and of an uniform consistence throughout, which was cut from a boy of eight years of age. This was made choice of, as preferable to one taken from a man, the laminae of which might differ in cohesion from the variety in his manner of living.

It may be asked in this place, how it comes to pass that since the urine is in-

cessantly charged with the stony particles, the concretion goes on so slow at one time and so rapid at others.—To which I answer, that a variety of circumstances may concur in the one person, or at one time, to bring about an hasty accumulation, and which, in others, may only operate in part.—First, for instance, should a stone be already formed in the body, and the urine be retained a very considerable time, there is no doubt but the earthy corpuscles will be more generally attracted by the stone.

Another cause of the various degrees of growth of stone may be deduced from the following observation. Altho' there is at all times an aptitude in the primary particles to enter into cohesion, yet there must be an interposing medium, which medium is proved to be a saline substance; now that this saline substance

substance is to be found in greater abundance at one time in the urine, than at another, is a fact, and therefore the corpuscles of stone may be more or less furnished with this necessary medium according to the state of the constitution.

I have remarked, that scorbutic habits generate stones quicker than others. This may suggest to some a plausible reason for living in such a manner as to prevent the fluids from affording this animal salt in any abundance ; but when we consider that a certain quantity of it is necessary to the due concoction of the fluids, we might, by following the dictates of this reasoning in too scrupulous a manner, destroy the action of the fluids upon the solids, and bring on leucophlegmatias, dropsies, and other disorders more immediately alarming in their natures.

Lastly, since the primary particles of stone are different in their figures, should the first junction of them be of the nature of the lamellæ before-mentioned, the nucleus, or first foundation, will be of the harder kind throughout that lamina; as those particles have, no doubt, a greater affinity to each other than to other particles.—As soon then as one lamina is compleated, the concretion is at liberty to begin a new lamina, either of the same nature of particles, or of those approaching to a spherical figure according to chance. If of the latter, this second lamina will be less compact and dense, consequently more easy of solution;—so that each lamina must preserve an uniformity of cohesion and texture, although the lamina, may be different from each other. If it were to happen that an intire stone was made up of those former particles, it would be hard indeed, and in its nature

nature dreadful. — This, however, is scarce likely ever to happen in the human body, from the continued motion of its several parts : — but in stones of the earth it is different, as no motion there interrupts the natural and specific force of attraction that one particle exercises towards another of the same intrinsic property.

C. H. A. R. V.

S E C T. I.

THE METHODS HITHERTO PURSUED IN
ENDEAVOURING TO CURE THE STONE.

THERE is no doubt but the disorder we are treating of had its origin with our first fathers, since no climate nor manner of living can grant us an immunity from it.—As soon therefore, as its nature became in part known, by means of that prying and restless curiosity ingrafted in man, it was looked upon as pre-ternatural, and owing to some extraneous body having found its way into the habit. This opinion was seemingly corroborated from there having been found foreign substances in the heart

heart of trees, stones, shells, &c. so that without considering fully the nature of its composition and accretion, expedients were formed for relieving the unhappy creatures afflicted therewith.—Pharmacy was but little known in those days, surgery and operations were their only resource, these being of very early date.—We have, nevertheless, no account of the operation for the stone 'till the time of Celsus, though it is more than probable lithotomy was performed long before.

However imperfect his method might be, it was pursued 'till after the time of Johannes de Romanis, when no doubt the ill success and fatal consequences attending it, suggested the idea of improvement.

That scarce one in twenty escaped the operation is evident, from the forms and ceremonies observed before the knife was

was applied ; infomuch that the miserable victim was considered as devoted. The work was, therefore, only justified upon this ground, that his torments were worse than present death ; for in those days the patient derived not the least consolation from palliative remedies. As the mind became more and more enlarged and expanded, every means were devised for lessening the fatality of the operation, and new instruments and new methods of applying them were invented, till, by the several improvements and the dexterity of the operators, it is brought to a degree of perfection, infomuch, that at this day, lithotomy is not apparently susceptible of further improvement.

Now, though this was the real case, and that some wonderfully survived the knife, yet many were rejected as improper subjects for its decision, since a due age, habit, &c. were requisite to derive
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from it any hope of success. Humanity, therefore, dictated the necessity of seeking relief in medicine for those who were by no means likely to meet with it from the instrument; accordingly we find chymists and philosophers at work in analysing the human calculus. In its decomposition it was found to yield a considerable quantity of fixed air, which, from the result of some of their experiments, was deemed the principal cement of the stone. On this account lime-water being judged most likely to deprive it of that part of its composition, was, in consequence, recommended by the first and ablest physicians. Soap, also, as an universal dissolver of animal substances, was called into aid, and, by some, was prescribed and taken with lime-water, but with what success the following instances will demonstrate.

I shall adduce two of the cases quoted by an eminent physician, in favour of their

their operation and effects, and leave the judicious reader to form his opinion from the consequences produced.

It may be urged that, granting these cases do not convey any very favourable idea of their power, yet they are instances of their not being so noxious to the constitution as they are reported, to which I answer, that the constitutions of men differ very materially; that to some you may administer the most drastic medicines without injury, while the lives of others would be endangered by them; but these examples of the former kind are by no means sufficient to overturn absolute established facts.

That soap is a great destroyer of animal substance is evident from the bloated, fallow countenance; offensive, cadaverous smell of the breath, and bad digestion of those who are under a course of it, and from the history of the plague of

of London; as soap-boilers, washer-women, and all those who had commerce with soap, were found to die sooner, and with more visible marks of putridity than others. With them, all alexipharmics and antiputrescents were thrown away; none of them scarce escaping. Every tryal shews that soap has this destructive tendency, and that it breaks down the *crasis* of the blood; for which reason, it is absolutely forbid in all diseases tending to putridity. To demonstrate this more sufficiently, let a piece of flesh, such as beef, or mutton, (ever so newly killed) be immersed, or suspended by a thread in a bottle half full of water, in which a small quantity of soap has been dissolved, and let the bottle be placed in a warm situation; in fifteen hours, or, if the weather be hot, in less time, it will begin to throw up air bubbles; and in fifteen hours more, will emit a putrid stench, and bear all the marks of approaching corruption:

tion: if the mixture be kept by the thermometer, of the heat of the blood, the corruption will take place much sooner.

It is not uncommon to meet with a person who has taken soap a long time, but as the cases of persons in a conspicuous situation of life, are wont to make a greater impression on the minds of the public than those of others, I have selected the two following from them.

THE EFFECTS OF SOAP AND LIME-
WATER IN THE CASE OF HORACE
WALPOLE, ESQ. AFTERWARDS LORD
WALPOLE.

His lordship was taken suddenly ill when at Hampton Court. His case being by his physicians mistaken at first for the cholic, he was treated accordingly; but in a little time a stone was observed to pass through the left ure-

ter

ter into the bladder, which for the present, gave him perfect ease.—Sometime after, by turpentine glysters, and internal lubricating medicines, it was evacuated through the urethra, being about the size of a barley-corn.—Notwithstanding, he was frequently afterwards troubled with gravelly complaints, for which, he took cream of tartar whey, and great quantities of mucilages, which, though they kept him tolerably easy for two years, were found, nevertheless, to increase the accumulation of the stone: for at the end of that period being in the house of a friend, he had a sudden and urgent inclination to make water, when he was greatly surprised to find that the basin contained a pint of almost clear blood, which he made with the greatest pain he had ever felt. This convinced him of the inefficacy of his former regimen, and he resolved to be sounded; when, the stone being found, he was immediately put under a course
of

of soap.—Accordingly, (July 1748) he began, and took an ounce of it every day, with three pints of lime-water, which he continued to do 'till the beginning of the year 1757; from which it appears, that his lordship took no less than one hundred and eighty pounds weight of soap, and twelve hundred gallons of lime-water! a quantity so prodigious as might stagger the faith of any one, if not authenticated by his own hand writing, and further corroborated by the testimony of Sir John Pringle, Bart. F.R.S. in the Philosophical Transactions.

With what little success his lordship took these nauseating medicines for so long a time, may be learned from the continuation of his case. It may reasonably be presumed, that his lordship could not have been prevailed upon to continue in that disagreeable course, if he had not believed these medicines were the only ones which could be of
 advantage

advantage to him, and if he had not been flattered to the last, with hopes of a cure. It is from this we find that he was elated with joy whenever he could bear the motion of his own carriage, which however, he could do but very seldom, although of the easiest construction. He was obliged to have a litter made for the purpose of carrying him to town from his seat at Wolterton, which journey took him up five days, though but of one hundred miles. He was all this time debarred the use of his ordinary food, and every other enjoyment of life, in order to assist, as much as possible, the power of the medicines.—He died, however, in that year, without any particular cause being assigned by his physician and apothecary, though they both gave their opinion that he did not die of the stone.—Mr. Ranby and Mr. Hawkins were present at the opening of him, and found in the bladder, *three* stones; two were about the size of a

spanish nut-kernel, the third smaller, which seemed to be a part broken off one end of the largest stone : they were described to be smooth, and of a polish as fine as a boy's marble.

Although the above case was looked upon as favourable to the effect of soap, yet I hope the reader will agree with me in the following particulars : that there was but little reason to suppose the stones were wasting, as there was no discharge of sand nor fragments of stone; and although his lordship might have intervals of ease, it was nothing more than could be expected from his low, temperate diet, and abstaining from much motion : besides, it must appear very strange that the stones should have been of that size at his death, since he began to take the soap and lime-water so soon after he found any symptoms of the disease : neither can it, with the least colour of reason, be supposed that
the

the accumulation could have reached so far before taking the soap and lime-water, without his lordship being apprised of it by some leading symptoms: whence it therefore follows of course, that, in spite of the enormous quantity of those reputed lithontriptics he took, the stones continued to augment.

It was remarked by those who advised his lordship to take the soap, &c. that the smoothness of the stone's surface must have been occasioned by the effect of the medicine; this, in my opinion, is not at all probable; it might with more propriety, have been imputed to the friction of the stones one against another, which we know will produce the like effect.

Although the case above related will, without doubt, be sufficient to convince the world of the inefficacy at least of soap and lime-water in the stone, yet, as

that of Mr. Hay's is still more remarkable, from his having taken it in larger doses, I cannot omit quoting it; nor must I forget to mention, that the very writer of it had then an opinion of soap and lime-water as lithontriptics.

In the following case mention will be made of a Mrs. Stevens's medicine, it therefore cannot be thought improper in this place, to acquaint the reader how it came to be so much known.

That the world in general, and the legislature in particular, thought a discovery for the cure of the stone of the highest importance to mankind, is evidenced, in the parliament voting Mrs. Stevens, in the year 1739, 5000*l.* for disclosing the preparation of her medicines against this formidable disease.— This was done in consequence of her petition to the House of Commons for that purpose.

But,

But, although the virtue of the ingredients of which these medicines were composed, should be such as would justify the account given of them, yet the manner of taking them, in quantities so large as almost to fill the stomach, together with the regimen to be observed in the administration, were such as rendered them of very little use; as but few persons were able to take them, from their prodigious nauseating quality; and those who did take them, indicated the utmost reluctance.

I have by no means drawn a more unpleasing picture of these reputed lithontriptics than they require. The facts are well known to all those acquainted with their nature; and too well by such as have experienced their effects, which circumstances have been the sole means of bringing them into disuse.—
The description of their virtues is, in a
I 3 measure,

measure, accidentally involved in the subsequent case of Mr. Hay, otherwise I had passed it over in silence.

THE CASE OF WILLIAM HAY, ESQ.
BEING AN EXTRACT OF A LETTER
FROM DR. RUSSEL, OF BRIGHTHELM-
STONE, TO HENRY PELHAM, ESQ.

“ *November 25th, 1755.*

“ MR. HAY took three ounces of Mrs. Stevens’s medicine in a solid form every day for five years, never leaving off, except for a few days, to observe the effect of the omission.

“ About five years ago he left off the use of these medicines, and afterwards pursued, with the same constancy, castile soap and lime-water, mixed with milk. At first he took three ounces every day; but about two years before his death, he reduced the quantity to one ounce.

Under

Under this method he grew so easy, that riding in a coach, or walking, seemed to give him but little pain. This inclined him to get on horseback, which he had not done for eleven years : but he found an inconvenience from it the first time, and after the second time (which was a little before his last illness) he was heard to complain that his old distemper was likely to return again as before. He is reported to have died apoplectic, having neglected to use the necessary evacuations.

Two days after his death, Dr. Ruffel was desired to attend the surgeon on taking the stone out of the bladder, which was empty of urine, and grown quite callous from the stone's rubbing against it.

The stone weighed three drachms, two scruples, and eight grains; was flattish and oval; of a shining chestnut

colour, perfectly polished and smooth to the touch in every part: the outward laminæ were separated, one of which was thick and friable, the other still thicker, and of a brown loam colour, as well as the stone to which they adhered; and was covered over with very rough asperities.

From this short account of Mr. Hay's case, the doctor observed that Mrs. Stevens's medicines, or soap and lime-water, may give relief to patients, and make them pass through life easier, even although they should have little or no effect in dissolving the stones; and as Mr. Hay, as well as the bishop of Landaff, continued to discharge red gravel in spherical pieces, he remarked, that that gravel seemed to be what is generated in the kidneys, where consequently the lime-water, &c. have no power; tho' he thinks they will hinder the gravel, when

when fallen down into the bladder, from uniting or growing into a stone.

From the above declarations, it appears, that the doctor began to doubt their power in dissolving human calculi, as they certainly had the fairest trial given them in the above cases, as well as in that of the bishop, and many others.

The case which Mr. Hay received in the latter part of his days, does not seem to have arisen from the effects of the medicines, but rather to the bladder having become callous by the stone's friction against its sides, and consequently it was less susceptible of pain.

CHAP. VI.

SECT. I.

OF A REAL CURE FOR THE STONE
BY A NEWLY DISCOVERED SPECIFIC
SOLVENT.

ALL those who have so peremptorily asserted the stone incurable, can have little reflected on its constituent principles. They must have looked upon it as of one uncompounded nature, immutable as its primary particles: yet they agree, that it is possible to prevent the urine from running into further concretions, which is, in fact contradicting themselves, and allowing it curable, though in a slow degree.

To

To admit that a medicine should prevent the urine from giving out those principles which form a stone, and yet not act upon the stone itself, is not intelligible to me; however, if a medicine shall, as an eminent physician observes, by destroying the petrifying quality of the urine, hinder any new accretions to the calculus, it must necessarily, in time, have its surface washed down, and worn away by the urine (now rendered more simple) and the coats of the bladder acting upon it on all its sides;

Quid magis est saxo durum? quid mollius unda?
Dura tamen molli saxa cavantur aqua.—Ovid.

The primary particles of earth, so often mentioned as attracting each other in the formation of a stone, never fail to take up certain other relative principles as a *medium*, not only to assist in their junction and cohesion, but as necessary to fill up the interstices formed by the apposition

apposition of those irregular figured particles;—without which medium they certainly could not form a concrete substance in any degree tenacious. Now if a medicine is formed, which, by its affinity with any one of those principles, deprives the stone of that principle, will it not in part destroy the tenacity of that stone and render it liable to fall into powder, or moulder away by the common attrition of the urine? And is not that medicine as perfect a dissolver of the stone as *aqua fortis*, or Glauber's spirits of nitre, since they do no more than destroy the tenacity of it, without being able to change the nature of its component primary atoms.

—That there is a specific property in several fluids, is what no sensible man will deny. It is what has been always understood by the term affinity, and is manifested in the simple experiment of dissolving a lump of sugar; the most
natural

natural menstruum of which is water: for, if alcohol or brandy (though so strong in comparison with water) be poured upon the sugar it will not so readily dissolve it. Again; resins are soluble in alcohol, but not in water;—and so on of many other specific menstrooms, well known to those who are in the least acquainted with that part of chymistry which relates to the doctrine and laws of affinity and absorption.

That there is also a property in some medicines of operating locally, or, as it were electively on part of the body, or on one of the fluids of the body, without affecting the whole, the greatest caviller must allow; and every day's experience furnishes facts for its confirmation:—witness, the effects of cantharides and mercury, of which mention has been made heretofore.

It

It being allowed then that there is a specific power and local effect in several medicines, it only remains to shew how far these operations take place in the administration of this solvent, so as to answer the end of disuniting the principles of the stone, and thereby exonerating the body from that cruel disease.

The chymical elements or principles, to which all bodies may be ultimately reduced, are these five: 1st, *Water*, or *Pblegm*: 2dly, *Air*, which escapes unseen in great quantities from all of them, so as to constitute half the substance of some of them: 3dly, *Oil*. 4thly, *Salt*, which is either *volatile* or *fixed*. 5thly, *Earth*.

The natural elements being thus blended together in the formation of a body endued with tenacity, of what consequence is it whether, in order to decompose and destroy its adhesion, we
deprive

deprive it of either the water, or air, the oil, or the salt; since it will be equally disunited in excluding from it any one of its principles or elements.

Although it has been said that *earth* may be converted into *air*, conformable to a learned philosopher's experiments, no doubt by that it will be understood, that the earth is resolved into its primary particles, which primary particles may be, and in fact are, light enough to be borne up by the air.

That this is the case is demonstrable by a chymical process, where a quantity of earth may be collected from the air: but although by the help of chymistry we can resolve bodies into their pristine, constituent principles, nature has here put a *ne plus ultra* upon our curiosity; otherwise should we be able to alter or annihilate the first principles of bodies, we should undoubtedly create
great

great confusion in the world, and order of things.

It should therefore seem plain, that although in the strict philosophical sense of the word, there is not in nature a dissolvent, yet, whatever decomposes the constituent parts of a solid body, or resolves it into its primary particles or atoms, has a right to that title, according to the acceptation of the word.—Salt is not only a predominating principle of the stone, it is also the cement of other compositions, as glass, mortar, &c. Now we all know, that if the lime with which the mortar is made, were to be deprived of its salt, it will no longer be fit for the purposes of building; for although it should be mixed with sand, and tempered as in the usual way, it will never become firm, but continue a calx, which, if used to build with, would expose the work to sudden decay. The
adhesive

adhesive property may nevertheless, be given to it again by the addition of a *fixed* salt: hence the reason why mortar made with sea-water is more durable than any other. That the specific solvent operates upon more than one of the principles of the stone, is probable from the hasty solutions of some stones by its use. Indeed, the diversity in the quantity of the several principles which compose the stone, will be a cause of its operation varying as much as the difference in the nature of the primary particles themselves.

This is one of the most material circumstances in the consideration of the cure of this disease, and to which one's attention is forcibly arrested, under a hope that if the exact proportions of the component parts of a stone could be ascertained, it would enable one to apportion the several ingredients in the composition of the remedy, so as to

meet with less resistance to its power in its operation. With this interesting regard I have made many experiments on calculi of various natures and textures, and I find an essential difference in the arrangement of the several principles which compose the whole: I have also, where opportunities afforded, compared those differences to the urine of different persons, from which I am persuaded that there is, in this respect, an exact conformity in stones, to the urine in which they are generated, for where the ammoniacal or volatile salt is abundant in the urine of any person, the stone which may be formed therein, will assuredly participate of that abundance, and so on of the other principles into which the calculus may be resolved, or of which the urine is made up. From hence I have been induced in some cases to vary the adjustment of the several ingredients in the composition of the remedy, and have fancied I have discovered

covered advantages thereby; but the experience in that respect is not hitherto sufficient to warrant a positive assurance of it.

I believe it would be thought superfluous to draw any comparison between the operation of the solvent, and the remedies hitherto proposed for the cure of this disease. The experience of it for these several years render that altogether unnecessary; and I have only farther to add, that I am firmly persuaded a person might take it his whole life, even though no stone existed in the body, without being injured in his constitution: several of the following cases sufficiently authorize that declaration.

C H A P. VII.

S E C T. I.

OF THE REGIMEN NECESSARY IN THE
CURE OF THE STONE.

WHEN a patient finds himself attacked with the stone, either in the kidneys or bladder, it behoves him to lay aside all violent exercise, especially riding on horseback; as it may endanger an hæmorrhage of blood, which, if often excited, would be likely to terminate in an ulcer.—There are people notwithstanding, who are inconsiderate enough to advise every species of motion, with a view of forcing out the stone: a procedure however, to which none should agree or advise.—It has cost many their
lives,

lives, while others have thereby incurred inveterate ulcers.

J—D—, Esq. near Richmond, fell a sacrifice to this preposterous advice, the which, reflects as great a censure on the judgment of the surgeon who gave it, as it does unhappiness on the minds of this young man's friends for his loss: nor is it more surprizing that such absurd notions of the disease should be entertained by a man of the profession, than that a patient of the best understanding should implicitly yield to a doctrine which, at first view, militates against common reason, and occasions daily uneasiness in reducing to practice; but it is left to physic to exercise its unbounded sway over the faculties of even great minds, as it is that of superstition to tyrannize over weak ones.—I was informed, that in the beginning of the disease the sand which used formerly to pass freely with his urine, had stopped, and

was supposed to have concreted, or at least to have collected in a quantity at the neck of the bladder, and began to occasion frequent irritations and even obstructions in urining:—he had recourse to laxatives and warm bath at times, which generally abated the heat and tension about the region of the bladder, and procured a plentiful evacuation of water—but this complaint would return at distant periods, and soon assumed a more formidable appearance, for now he had total stoppages of making water, and sometimes it would be coffee coloured, or tinged with florid blood, with pain invariably succeeding the making it.—It was about this period that this young gentleman began to be seriously alarmed, and consulted the person before alluded to, who gave for his opinion, that there was no stone (notwithstanding the bloody water and consequent pain) but that it was gravel which was making its efforts to pass but could

could not for want of proper exercise, he was therefore directed to take mucilaginous draughts and ride on horseback daily, if the weather permitted.—This hazardous experiment, like many others, flattered but to destroy; for the discharge of some loose sand following the first day's extraordinary motion, seemed to confirm the opinion entertained of the disorder, and to point to a certainty of its removal: but alas! these illusive appearances soon changed their dress, for as they had seemed to prognosticate advantage by persisting in the means that produced them; the horse was brought out in all weathers, and even a hint given, that a hard trot must of all other paces be the most likely to expedite the sought-for relief. It is a melancholy astonishment to observe with what resolution he persevered in this course, in spite of the acute pain he felt at every uneven step of the horse; insomuch that he was obliged to dismount at Ham

Common once, and fainted away: every person about him (to some of whom he was known) were under the greatest apprehension of immediate death, for in this syncope, the urine had involuntarily passed, and of so strong a tinge of blood that it was conceived to be wholly of the latter; he was now, after a few hours recovery, carried home in a coach, and gave up the practice which had in its outset promised so much good, but in its progress had created so much pain and difficulty.—There was now no time to be lost, he therefore came to town, and was, by Mr. P——, founded, who peremptorily declared a stone in the bladder; for the removal of which, he recommended him to go to Bristol, and take the lixivium with the waters: the disorder being now ascertained he resumed his hopes, and with his wonted assiduity took the above medicine under the most abstemious diet: a more than common attention was paid to his urine

to

to endeavour to discover any part of the stone which might pass, but unhappily that deficiency was made up by a discharge of abundance of mucus, mixed with a purulent consistence, which would, if kept two or three days, yield a smell that indicated more mischief in the bladder than the mere stone—he had always inclined to be scorbutic in a small degree, which was considerably aggravated by the lixivium, for at this time he grew fallow in his complexion and bloated in his countenance, and he shewed all the marks of bad habit, this prevalency, and the depraved state of his fluids from continued pain and rigorous diet, had occasioned the laceration, or excoriation (which the stone's friction had made in the part) to degenerate into an ulcer, of the existence of which there was not the least cause to doubt. Not finding relief from pain by the lixivium, but experiencing gradual symptoms of extreme relaxation

and

and putridity from continuing its use, he betook himself as a *dernier resort* to the solvent, to which he was strongly recommended by Sir N*** T***** his physician: the operation had never been recommended to him, doubtless from the small prospect his habit afforded of a recovery, and therefore the giving him the solvent could only be suggested by the necessity of his trying something, for he had the strongest apprehension he should languish under the daily drain of such a profuse suppuration of pus, which even at times had an ichorus appearance when first evacuated—he took the medicine long enough to collect a small quantity of the outside lamina of the stone, in the form of small shell-like pieces, but he grew weaker and weaker from the strength of his stomach having been destroyed, and in taking a ride from Bath a short time ago in order to see him, I learnt he had died three days before.—I have been the more particular

lar

lar in detailing this case, as it is attended with more unhappy consequences than many, and which, from the plausibility in the commencement might be the fate of some others, if not better advised.—Such instances cannot be learnt but with the greatest concern, since examples of recovery from exulceration of the bladder or kidneys occur too seldom to encourage the sufferer with promises.—Much exercise, therefore, can never reasonably be recommended but in a case of the simple gravel, where we are sure there are no calculi too large to be driven through the passages with safety; nay, even in this case, it is more advisable to desist from all violent motion.

The most salutary exercise is walking on smooth ground as long as the strength of the patient, or state of the disease will permit. It should never be continued so long as to change the urine to a coffee-colour, or to appear tinged with blood.

If

If there be no reason to suspect the stone to be large, or rough and hard, gentle motion in a carriage may be allowed: but this will be judged of by the frequency of making water, and by the pain attendant on the bladder's contracting round the stone after the urine is made.

The intention of cure by means of the solvent, is assisted by retaining the urine in the bladder as long as can reasonably be done: whence it is obvious, that all violent motion defeats this end by inducing a frequent stimulus to urine.

Our next consideration respects the diet, which should also be adapted to the strength of the patient's stomach. In common cases, unaccompanied with other disorders, it will be sufficient to attend to the following rules; in others, it is presumed the patient will seek for particular information, as, in a complication

cation of diseases, it may be necessary to make exceptions.

It is compatible with the nature of the disease, and the operation of the solvent, to incline as much as possible to a milk diet, especially when the stomach is enfeebled, or the whole habit emaciated. It may be eaten in its natural state, or made into porridge, rice-milk, custards, or puddings. There is no fluid less apt to form stony concretions than this; nor any more likely to prevent feverish or irregular heats in the habit, which are great incentives to the stone: but as there are constitutions attacked with this disease, which have been always used to a more unrestrained diet, I have thought proper to arrange a certain number of articles by way of breakfast, dinner, and supper, that the patient may be left to make choice of such as best agree with his stomach and inclination. He will, by these means,

means, be prevented from being cloyed with the same food, and, consequently, his regimen will be thought less severe.

For breakfast, milk, boiled or not; rice-milk, or milk-porridge; tea, coffee, or chocolate, with dry toast, or toast and butter, or bread and butter.

For dinner, plain broth; boiled fish of all sorts; any kind of butcher's meat, not salted; but lamb and veal are preferable, and all boiled meats are more to be advised than roast, though the latter are not absolutely to be excluded; all kinds of poultry, except geese and ducks; rabbits, boiled or roasted. Of game, the feathered kind are preferable.—The prohibition of venison, turtle, and all made-dishes with strong gravy, must be dispensed with in most cases; puddings, particularly of almonds, are highly proper. The following vegetables may be eaten of, with
or

or without melted butter; *viz.* potatoes, turnips, cabbages, cauliflowers, spinage, pease, beans, and french-beans. The following are to be avoided; *viz.* artichokes, raddishes, asparagus, onions, and all raw sallads; also, cucumbers, unless eaten with salt only. The patient should at all times avoid eating too much, as, if the stomach be furcharged, digestion is imperfectly carried on; whence flatulencies, want of sleep, &c. are produced, and the disease is heightened by the urine becoming crude and ill-prepared.

The best kind of malt liquor for those who live in London is porter, reduced with water to the strength of table-beer: in the country, choice should be made of the finest and best fermented ales, or table beer.

In respect to wines, (which should be drunk only at, or after dinner,) the
quantity

quantity cannot be prescribed with propriety, as that must depend upon custom and other circumstances, and the table at the end of this chapter, will shew which are the least liable to reduce the power of the solvent: the same in regard to fruits, which should be eaten only at dinner, either in tarts, or with or without sugar, by way of desert.

In the afternoon, tea or coffee may be drunk, with bread and butter, toast, or biscuit.

In regard to supper, the greatest caution is necessary that it may not (by its being taken so near the dose of the solvent) militate against its operation. It is wished that the medicine should be absorbed with as small a quantity of chyle as possible, and that it may avoid all hasty fermentations in its passage from the stomach; for this reason, panada, water-gruel, milk-porridge, dry-toast,

toast, or biscuit are to be preferred to other things; or at most an egg and spinnage, or a boiled egg, drinking rum or brandy and water; or wine and water. Where a thirst prevails, it is proper to have recourse to a draught of barley-water at any time in the day.

To those who can be persuaded to relinquish suppers entirely, more may be promised from the power of the solvent, it is nevertheless to be understood, that this is merely to avoid fermentation in the stomach, (so inimical to the solvent,) and not to reduce the patient's strength, for should it do so, no peculiar good can arise from it; 'tis hoped therefore, that with one meal a day (a dinner) and not leading an active life, he will neither lose strength or flesh, or at least but in a moderate degree.

Concerning the quantity of fluids that should be drunk in the course of the day,

it should not be less in the whole than about four English pints of 16 ounces each. By this is meant the broth, tea, barley-water, and all the liquids drunk throughout the day; but in cases of fits of the strangury, attended with a more than common irritation, it may be necessary to reduce or enlarge that quantity, by interposing draughts of veal-broth or almond emulsion, water-gruel, &c.—Let it be particularly remembered, that acids, and all strongly aced-lic liquors, should be forbidden during the use of the solvent, especially near the time of taking it; so that fruit and tarts at supper, cannot but be highly improper.

Many persons are inclined to be co-
 sitive during the first ten or twelve days
 of taking the solvent: this is by no
 means an unfavourable omen; it is a
 proof that the latter secretions of the
 body

body are moderated, and that the medicine will not pass off too precipitately.

Now, although this costiveness will generally go off spontaneously at the end of the above time, yet it is very necessary to loosen the belly with some gentle aperient medicine, such as any of the following; *viz.* magnesia; manna; infusion of fenna, or Rochelle salts: Half an ounce of the latter taken in half a pint of water-gruel, never fail to procure the desired effect, leaving the bowels cooled and refreshed. These laxatives are not however, to be used but from necessity, and even then a frequency of stools is not desirable, since it would lessen the power of the remedy.

Many and reiterated observations have convinced me, that the surface of the stone is often rendered clammy and unctuous by the effect the solvent takes upon it. This clammy substance is of

the same nature as that discharged with the urine, of a clay colour.—Now I have found that this gummy matter, when it furrounds or envelopes the stone, defends it, in a measure, from the full operation of the solvent; and that when it is detached, the stone is again laid open to its power, and the cure is thereby greatly accelerated.—To bring about so desirable an event without the preposterous and dangerous effect of strong exercise or motion, has been the object of my consideration; and I find nothing so advantageous as the following.

At the distance of about every three weeks, one may reasonably presume that the outside lamina of the stone has been reduced to the consistence above described, in which case I recommend the patient to take in the day 2 or 3 half pints of new cheese whey, observing an interval of five or six hours from each half pint, this is to be done for three days.

days successively, during which time the patient is requested to walk about gently on smooth ground, as often as shall be found consistent with the state of the disease. This method, is to be pursued at the end of every three weeks while taking the solvent, and the diet for these three days may, in every respect, be as before.

This course will also be attended with another good effect, which is, that should any costiveness predominate, the whey will remove it, for which reason the solvent is to be omitted while the whey is taking.—There can be no difficulty in procuring whey where-ever new milk can be had, as the manner of making it is universally known.

A TABLE SHEWING THE PROPORTION
IN WHICH SEVERAL WINES AND
JUICES OF FRUIT REDUCE THE POW-
ER OF THE SOLVENT ON THE HUMAN
CALCULUS.

THE standard for the following experi-
ments was that of one part solvent and
three parts simple water, this being the
most natural vehicle for its operation.

That mixture, as well as the rest, was
kept in a regular, and nearly a blood
heat, by the thermometer, for twenty-
four hours. The result of these experi-
ments, therefore, points out which of
these articles ought to be more abstained
from than the others.

The

The power of the standard mixture on a piece of calculus of four scruples weight was, for a scale of comparifon, marked at the de- gree of	40
With the fame quantity of juice of ripe melon, in the fame ratio, it was reduced to only	29
With pine apple juice	27
With peaches, apricots, and necta- rines, nearly alike	25
With mulberry juice	21
With codlings	17
With red goofeberries	14
With red currants	12

WINES REDUCED THE SOLVENT AS
FOLLOWS:

With madeira	29
With mountain and frontiniac	28
An old burgundy and claret	27
Old red port	26
Vin de grave, lifbon, malaga, <i>nearly</i>	25
A light florence, or carminiano wine	24

From the fore-mentioned table we see the difference is very trifling with regard to the several wines, only it behoves one to be careful that they have a certain body, good age, and free from tartar, otherwise they are more susceptible of fermentation in the stomach.

The same caution is equally necessary, if not more so, in respect to malt liquors.

CHAP.

C H A P. V.

S E C T. I.

STRICTURES ON THE GOUT, SO FAR AS
CONCERNS A COMPLICATION OF IT
WITH THE STONE.

THE gout is another of the dire evils to which human life is heir; and when it falls to the lot of a person already afflicted with the stone, must of course, render the patient's existence a scene of affliction.

This is by no means intended as a dissertation on the gout itself, since much more might be said upon its cause, indications, and cure, than can be necessary in this place; and yet as much ought to be said as may concern an individual
who

who should suffer under a complication of the two complaints.

From the great number of persons afflicted with both these disorders at the same time, I was led to conclude that one of them must have a considerable influence in bringing on the other: how far this is the case, I shall leave the judicious to determine by the reasons hereafter given.

Now supposing a person to be first attacked with the stone to any degree, of course he is prevented using *exercise*, the most powerful and successful means of keeping the blood and juices in a due and healthful temperature. For want of that exercise, the blood becomes dense, and the juices of the body vitiated and ropy, consequently, more likely to form, and less able to throw off, any morbid concretions or obstructions in the vessels.

That

That nothing can be more likely to do this than a deprivation of exercise, is obvious to every one; it is even the first thing recommended as a remedy in a lentor of the fluids. In the stone (particularly of the bladder) the patient has generally a good appetite, so that it is no wonder the juices of the body should degenerate and run into the crude state before mentioned, when no exercise can be used to carry off the feculencies of the fluids.—When the several juices of the body have acquired that unnatural viscosity, daily experience evinces their circulation is lessened in proportion to their increased consistence.

The formation of those chalk-stones of the joints is exactly analogous to the stony concretion in the kidneys and urinary bladder, since a languid circulation is a cause of the former, as a diminished action of the vessels upon the fluids is that of the latter; nor is the cause of these

these two disorders, the only analogical part of them, since their paroxysms, and the efforts nature makes to obtain a relief from them, are exactly similar; for as soon as the constitution becomes sensible of a stony concretion having formed itself in the kidneys or bladder, the consequent irritation of such concretion brings on a symptomatic fever or paroxysm, which is called a fit of the stone, and if the concretion has not proceeded too far before the habit is alarmed, it will, if in the kidneys, be thrown into the ureter, and from the bladder into the urethra.—

Now let us advert to the progress nature pursues in the other disease. As soon as the gouty matter is formed from the serum of the blood, the same heat and fever are excited, and by means of an increased circulation the morbid matter is thrown from the more vital parts to the extremities or joints, where the resistance is less; an extraordinary heat and partial fever take place from the

part

part having become the depository of the foreign matter, and a violent sweat from the relaxed mouths of the vessels ensues, and frequently proves the present cure of the disease.

I shall not even enter into a detail of the method of cure to be pursued in this disease, since without doubt if any one should be adventitiously attacked with it during a course of the solvent, he will apply to a physician for proper assistance; but it is necessary to observe that it will be adviseable to omit the solvent during the administration of other remedies ordered for the gout, as they would militate against the operation of the solvent; for instance, should the disorder attack the stomach, warm cardiac medicines would undoubtedly be prescribed, which would considerably weaken or destroy the effect of the solvent:—again, if the disorder should be seated in the extremities, diaphoretics would be resorted to, which

which would, in an equal degree, frustrate its operation, since its power which should be exerted in the bladder would, by the sudorifics, be directed to the superficies of the body.

In habits long accustomed to the gout, it is highly probable they may not escape an attack at the usual time ; but it has been remarked to me by many under complications of these disorders, that since taking the solvent, the fits they have been seized with, have been more moderate, and of shorter duration than before. I have therefore only to add, that gouty persons are by no means precluded taking this medicine, since it will not in any respect aggravate their arthritic complaints, nor will the remedies given in the gout be attended with any other consequence to the stone, than retarding its cure, by the course being intercepted during the taking of such medicine.

It is now high time to hasten to the most important part of this subject, and on which the hopes and recovery from sickness and pain of numbers are involved.—The practice of physic more than all the other sciences, admits of much speculation and abstruse reasoning, and the theorist who is fond of indulging his fancy, has in it, an ample field for dazzling his own and his reader's eyes, by displaying a subject, which, in its clearest point of view, is ever clouded with much doubt and uncertainty; nevertheless, we often see a notional physician theorise with a plausibility and ease upon disorders, as if nature had laid open all her mysteries to the professor, and nothing remained to be investigated. But medicines operate in most cases with obscurity, and whenever their powers are directed beyond the *primæ viæ* we trace them in the dark, and often confound them with the works of nature herself: hence false inferences
are

are deduced, to prove what can never be established.—Such is the case in fevers and many other acute and chronic diseases. The subject of this little discourse stands alone on this ground, it being almost the only disorder which preserves distinguishing manifestations and criterions, and in which the operation of a medicine can be accurately scanned: I therefore disclaim all advantages from speculation, and rest my pretensions to indulgence on what will ever be of more consequence in physic, *facts*. Every acquisition of this kind will always meet with a more welcome reception to the real lovers of the art (however simple in narration) than the most brilliant theory, decorated with the most refined language.

The following cases of cures effected by the solvent are selected from numberless other, either for their variety or from the distinction of the persons on
whom

whom they were performed ; and the author has no fear of being thought prolix or unnecessarily diffuse, since each case is a sort of comment on the medicine's operation, and will throw some additional light on the disease itself, they will render any encomium on the remedy unnecessary; as it will be allowed that no instance can be given of any discovery being more respectably distinguished, and established, in testimony, and reputation.

C A S E I.

OF THE RIGHT HONOURABLE LORD
 VISCOUNT SACKVILLE, LATE ONE
 OF HIS MAJESTY'S PRINCIPAL SE-
 CRETARIES OF STATE, AND OF HIS
 MAJESTY'S MOST HONOURABLE PRI-
 VY COUNCIL.

IN December 1774, I was desired to
 meet Sir John Elliot at Lord Sackville's,
 to consult upon his lordship's case,
 which I found had at one time been
 treated as a calculous one, at others, as
 a laxity in the kidney, and which was
 supposed to give rise to an extravasa-
 tion of blood.—Under the supposition
 of the latter being his disease, he had
 been prescribed balsamics and astrin-
 gents; such as *bark*, &c. These medi-
 cines, although they lessened the bloody
 water, did not abate his pain; on the
 contrary, his disease was found to grow
 upon him.—In a short time his suffer-
 ings

ings increased to such a degree, that his lordship has been known to take upwards of a hundred drops of laudanum in a night. He informed me, that at frequent times the hæmorrhage of blood was so great, as to threaten the most alarming consequence. It may be supposed, that his lordship had consulted the most eminent surgeons, as well as physicians, upon his situation, which was not, after all, deemed the stone, because he had not been sensible of having passed any sand or earthy matter in the urine. After he had, in the most accurate manner, related the progress of the disease, I did not hesitate to pronounce his case *stone*; and recommended the immediate use of the solvent. His lordship began it that day with the greatest readiness, particularly as he had been strongly prepossessed in its favour, from the accounts he had heard of its effects.—I waited upon his lordship the next day, when he told me, that the solvent agreed perfectly

fectly well with his stomach, and was not disagreeable to his taste.—In a few days I found his urine began to assume its natural colour, and the violent pain about the region of the loins decrease. I attended his lordship at the distances of two or three days, until I had the pleasure to find he was exceedingly mended in health. I had also the further satisfaction to discover a discharge of fabulous matter in the urinal, which removed every doubt of the nature of his disorder. This in about a month after, was farther cleared up by the evacuation of a piece of stone, which was exceedingly hard within, and had all the evident marks of having been acted upon by the solvent.—By this time (which was March) the bloody water had entirely ceased to come away, and only the slightest tinge was observed in it upon any extraordinary occasion or fatigue. His lordship continued to take the solvent regularly 'till it was concluded

cluded the calculous concretions were entirely brought off; but he had suffered so much from the disease, that he chose, nevertheless, to continue taking the solvent in smaller doses, although the necessity of it was no longer enforced. This caution he has observed ever since, having taken three or four bottles a year for these eight years, during which time he has not only kept off the stone, but confesses to have enjoyed as good health as at any time of his life: his lordship is therefore a happy testimony, not only of the power of the solvent in removing the stone when present, but also of its preventing the return of the disorder; it being now so many years that he has enjoyed uncommon good health.

The benevolence of his lordship prompted him to desire that his case might be published, for the benefit of those who may unfortunately suffer under this severest of diseases.

C A S E II.

THE CASE OF — ALLANBY, ESQ. RE-
CEIVER GENERAL OF HIS MAJESTY'S
QUIT RENTS IN THE ISLAND OF ST.
JOHNS.

MR. ALLANBY was seized with every symptom of the stone while in the island of St. Johns, on which account he came over to England in expectation that the operation would be necessary; one of the surgeons he consulted on his disorder advised him to try the solvent previous to any other step;—he very readily acceded to the proposition and immediately began a course of it, in which he regularly persevered 'till he voided several pieces of stone, after which he evacuated a good deal of fine sand and mealy powder in his urine, in this way he continued several months, growing easier as
the

the stone diminished in size; for at first he suffered such extreme pain as made him unable to walk, or even ride in a coach, except with great difficulty; his urine also, upon any exertion of the body, would be at times bloody, and at others of the colour and consistence of coffee grounds, as Mr. Allanby's intention was to have been cut for the stone when he first came over, he had not taken measures for any considerable stay in London, so that I was desired by him to represent his case professionally to his majesty's secretary of state, in order to obtain permission for his stay so long here as might be necessary to complete his cure.—His majesty was pleased to give him leave, and he continued incessantly to take the solvent in the usual quantity 'till the pain entirely ceased, and there was not an indication of the least part of the disorder remaining: however he determined still to take it for a time by way of totally expelling any

loose sand that might otherwise adhere to the neck of the bladder; as he now remained perfectly well and divested of any uneasiness whatever in the bladder or kidneys, he wished to be sounded, for satisfaction, so that he might be convinced the stone was totally dissolved; for this purpose I introduced a sound into the bladder, and scrupulously searched therein, when it appeared there was not the least cause to suspect a particle of the stone was left behind, he accordingly omitted, in part, the solvent from that time, and has nevertheless been well ever since.

C A S E

C A S E III.

THE CASE OF THE REV. MR. FOWKE
MOORE, AS TRANSCRIBED VERBATIM
FROM HIS LETTER TO THE AUTHOR.

To Mr. Perry, Surgeon, &c.

S I R,

I flatter myself it will be unnecessary to apologize for the trouble occasioned by this letter, which gives you an account of the success of your solvent for the stone, &c. Enclosed I send you the state of my case, as I had it printed in different news-papers, and which you are also at liberty to make use of as you please.

I have the pleasure to inform you, that I have had many applications made to me since my cure; some from persons
with

with whom I was entirely unacquainted, desiring to be informed of every minute particular, which I have not failed to answer. I have taken the utmost pains to do justice to your medicine, which is no more than my duty ; and yet I am largely recompensed for any trouble I have, in the pleasing prospect of being the means of relieving many miserable people, and at the same time increasing your emoluments by the sale of your truly valuable solvent.

I hope you will take care to have this kingdom always properly supplied with it ; and I think it would be adviseable to have it in several of our best country towns, particularly in this northern province, viz. Belfast, Derry, Newry, &c. which are full of people.

I request you to pardon the liberty I take in giving you this advice unasked, as it proceeds from my fellow-feeling
for

for my unhappy countrymen, who labour under that dreadful disorder, and from an earnest desire to be serviceable to you, who have been the happy instrument, under God, of rescuing me from the jaws of death.

I should be glad to have it in my power to do you any service, for I am, with great truth and sincerity,

Dear sir,

your much obliged,

and very humble servant,

FOWKE MOORE.

IRELAND, Dungannon,

November 4th, 1776.

THE ADVERTISEMENT.

“The REV. FOWKE MOORE, of Dunganannon in the county of Tyrone, having been cured of a stone in the bladder by the above medicine, thinks it his duty, both in gratitude to Mr. *Perry* the discoverer of the medicine, and in compassion to all those who labour under that excruciating disorder, to publish his case, which is as follows :

“In the beginning of December last, 1775, he was founded by an eminent surgeon in Dublin, who immediately found a stone of a middling size ; upon which, by the advice of physicians, Mr. Moore went under a course of soap-leys, which he continued from the beginning of December, to the 23d of May last, during all which time he had a most violent complaint in his bowels, and found not the smallest relief in the pain
of

of the stone : he was so emaciated, that it gave him pain to sit without a cushion, and so weak, that he could not step into bed without assistance.

“ On the 23d of May, he began to take the *solvent*, and in a fortnight afterwards, he found a change for the better. From that time he began to discharge gravel, sand, and glutinous stuff in great quantities, which continuing for about three months, then gradually decreased ; He has now no complaint of any kind, and is convinced that the stone is entirely dissolved. He has recovered his flesh and his colour, and is able to ride a hard trotting horse five miles an hour.—Any person who is desirous to be informed of more particulars, may apply to Mr. Moore in Dungannon.”

Dungannon, Oct. 10, 1776.

The

The case of Mr. Moore, not only evinces the power of the medicine in dissolving the stone, but also its salutary operation. Nothing can more effectually prove it to be of a nature opposite to *lixiviums*, or *soap leys*, than this case; as it is obvious to every one, that, if the quality of the solvent was in the least similar to those, so far from removing the sickness of his stomach, broken crasis of the blood, and emaciated habit (which were plainly the effects of those medicines) it would have aggravated them.

C A S E

C A S E IV.

THE FOLLOWING LETTER CONVEYS
THE CASE OF A LADY AT TWICKEN-
HAM, TO WHOM THE KNOWLEDGE
OF THE SOLVENT WAS COMMUNI-
CATED BY THE LATE LADY GEORGE
GERMAINE.

S I R,

I was greatly afflicted with the stone and gravel for at least twenty years, during which time I voided a great quantity of gravel, but no stone, I was last June seized with violent pains in my right hip and groin. To describe what I felt, is impossible; and 'till December, I never enjoyed one moment's ease, night nor day, except when asleep, which rest itself was of short duration. I then took your excellent solvent, which, in less than a fortnight, began to bring away the stone by dissolving it to a fine sand. It is judged, when whole, to have been as large as a pigeon's egg: I took
the

the solvent but about six weeks, which, with the blessing of God, has, I believe, quite cured me. I have taken none since November last, and yet I continue very well. May God still give his blessing to your medicine, by which, I hope, numbers will be relieved as well as your very humble servant,

Twickenham, *March* MARY LOVE.
8th, 1776.

From the rapid dissolution of the calculus in the foregoing case it may be fairly concluded, that besides the advantages that sex derive in this disease, from the different structure of the seats of it, over that of men; that their more temperate diet also prevents the stone from acquiring that firmness of contexture which is usual in the other sex:—this observation will appear more than conjectural in the recital of the following case, which, for its singularity, is retained in this edition though published in the former ones.

C A S E

C A S E V.

THE FOLLOWING CASE WAS TRANSMITTED TO ME BY THE FAVOUR OF RICHARD PHELPS, ESQ. OF DUNSTER, NEAR MINEHEAD.

MRS. BARNES, of Taunton, in Somersetshire, had been afflicted more than seven years with the confirmed stone and gravel, to a very violent degree, during which time, she consulted the most eminent in physic, even those who were at a great distance; and altho' she had taken almost all the medicines common in these cases, she daily grew worse, infomuch that she was at length given entirely up, and her death every hour expected. In this melancholy condition, she was informed of the solvent, and was prevailed upon, even in that languid state, to begin a course of it. She was soon sensible of ease, and began to discharge some gravel; and was now sufficiently convinced of the safety of its operation, of which before, she

N

had

had entertained some doubt, by the suggestions of some physical neighbours; she took the solvent regularly to the ninth second size bottle, by which time she had voided such a quantity of sand and gravel as could scarcely be credited, being, it is averred, not less than half a pint. By this favourable discharge of gravel, together with the cessation of many disagreeable symptoms, she had reason to hope her disease was about to leave her; but she was suddenly surprised by an attack of the most acute pain she had ever felt, the irritation of which had abraded and forced away the mucus of the bladder, &c. in a great degree. In this situation she consulted me by letter; and as I had not the least doubt but there was a stone endeavouring to pass, I recommended her to take the solvent in full doses, and advised her to desist from much motion, 'till she was better: she did so, and before a third part more of a large bottle was taken, she

she passed, with very moderate pain, a stone about an inch long, and very near as much in circumference; this was followed by *two* more, very little smaller, which very considerably lessened her uneasiness. She continued the solvent to the end of two bottles, by which time she had voided near a hundred small stones, the largest of which were of an uncommon shape, almost flat, resembling in figure, small dried garden-beans. The pains now entirely ceased, and before she quite left off the solvent, her water, which before had assumed every morbid colour and consistence, now became entirely clear; and she recovered her strength and appetite to the astonishment of all who had known her before. The progress of this cure is so truly wonderful, that the world might justly suspect its reality, if it was not authenticated by many reputable persons in the neighbourhood, her situation having been universally known.

C A S E VI.

THE FOLLOWING LETTER CAME TOO
LATE TO BE INSERTED IN THE FOR-
MER EDITION, EXCEPT IN A FEW BY
WAY OF APPENDIX.

To Mr. Perry.

SIR,

WE the minister, church-warden,
overseer, and other the principal inha-
bitants of the parish of Elsenham, in
the county of Essex, join with James
Clark in returning you our most hearty
thanks for the very remarkable cure of
him by your most valuable solvent. He
is a very sober, honest, poor man, who
has no less than seven children: he had
been greatly afflicted with the stone and
gravel for many years, and for several
of the last, to such a violent degree,
with

with such excruciating fits, as to render him quite incapable of stirring out of his house for four years together.

Your solvent brought from him, great quantities of gravel and pieces of stone, and now, by the blessing of God, with that excellent medicine, he is so well restored to health, from that disorder, which had baffled the power of all other medicines, that for above a year past he has been able to go to his daily labour as another man, and has gone through it with far more ease and pleasure than could possibly be expected; to the great astonishment of every body who knew his case.

Your generosity and goodness to this deserving object of compassion, in sending him the solvent, time after time, *gratis*, cannot fail to yield a true satisfaction to, and reflect the greatest honor on your liberal mind; and we beg leave

to assure you, that we are ever ready
to authenticate this very singular and
extraordinary cure, in justice and grati-
tude to you, and as a duty we owe to
the public.

Signed by order of the said pa-
rishioners,

By, fir,

your most obliged

humble servants,

John Canning, minister,

John Mumford, church-warden,

John Pamphillon, overseer.



C A S E VII.

THE FOLLOWING IS THE CASE OF HUGH STEVENSON, ESQ. A SURGEON AT EGHAM, SURREY, BEING AN EXTRACT OF A LETTER FROM HIM TO MR. HOME, SURGEON OF THE SAVOY, AND PUBLISHED IN A SMALL WORK OF THIS LAST MENTIONED GENTLEMAN.

“ ABOUT twelve years ago, from want of rest, and continual pain (which was daily encreasing, in spite of the many powerful medicines taken to relieve me) my flesh was wasted, my appetite decreasing; night sweats, with swelled legs came on. I could not walk a quarter of a mile, could not ride on horseback, could not bear the motion of a coach, except on turf, or very smooth road, without severe pain and making bloody water. I could not lie in bed above a

quarter of an hour at a time, from an irritation to make water, then did not make above half an ounce at a time, and that by drops, with very acute pain; when turning in bed, which I was obliged to do every time I awoke, the sensation from the stone rolling in the bladder, made the whole surface of the body so irritable, that, if any part of the sheet or bed cloaths touched me, it felt like cutting with an edged instrument; so that Mrs. Stephenson was always obliged to support the cloaths while I was turning.

Thus circumstanced, I was told of much benefit being received by taking, Mr. Perry's medicine known by the name of *Adams's Solvent*; having an opportunity to taste it, and discovering nothing corrosive or unpleasant in it; tempted by the smallness of the quantity necessary to be taken, I determined, though without faith, to give it a few weeks trial.

I took

I took it nearly in the manner and quantity directed in the printed paper wrapped round each bottle, viz. two tea-spoonfuls night and morning in veal broth, barley water, milk and water, &c. which I encreased in a fortnight to three tea-spoonfuls at night.

I had not taken more than two of the smallest bottles, when I thought some of my severest symptoms were not so acute; by this encouraged to persevere, in three months I felt sensible relief, made water with less pain, and at longer distances; in six months I could sleep sound an hour and a half at a time without irritation to make water; could walk a mile, and bear the motion of a carriage moving gently.

At the end of twelve months, still continuing the use of the solvent, I could bear the motion of a hackney-coach over the streets of London, with but
little

little inconvenience; could lie in bed for two hours and a half, without irritation to make water; could turn in bed without pain, or even feeling the motion of a stone. My health was by no means hurt by the use of the medicine, but on the contrary, I eat, drank, and slept better than before; and though I by no means could call my then situation a perfect cure, yet I felt myself comparatively happier than if I had never been ill.

I for two years afterwards continued the medicine in smaller quantity, and am at this time, I thank God, in perfect health; and what little difficulty remains in making water, I impute to a diseased state of the neck of the bladder and adjacent parts, from the injury they had received from the stone, when so many years irritating and lying on them; as well as from the frequent returns of tumid and inflamed bleeding piles.

From

From a tendency to make costive, and rather heat, I have when taking the medicine, abstained from every heating cause, by meat, drink, exercise, &c. and if from cold, or any other accidental cause, fever came on, I discontinued its use, 'till these symptoms by proper medicines and regimen were removed. Castor oil, soap, and rhubarb, and large glysters, &c. were occasionally used to counteract its astringency.

Throughout the taking of the solvent, nothing has come away in the form of a stone, but for the first seven months, the water was turbid when made; and immediately deposited a quantity of impalpable powder. When dry, this powder shewed no saline chrystals, nor did it dissolve in warm water, but immediately subsided. Does not the above appearance give reason to suppose, that the impalpable powder was a part of the stone dissolved? As by a continuance
of

of the muddy discharge, the pain decreased and gradually disappeared; is there not some reason to suppose the stone is dissolved, or at least rendered smooth, so as to give less pain? If only lessened or made smooth, would it not sometimes fall upon the neck of the bladder, or obstruct the discharge of urine, which is not the case? If the stone is not dissolved, (which I flatter myself it is) it must have adhered, or is confined in a sac, and so not felt.

But let me not *theorise*, only return thanks to *Almighty God!* for the happiness I now enjoy, in being restored from a state of the greatest misery and distress, to a state of perfect health.

I most sincerely wish that you,
Egham, Sir, &c. &c.”
Dec. 20th, 1782.



C A S E VII.

MR. SCURRIER, at Mr. Stone's, Park-Street, Grosvenor-Square, upwards of 85 years of age, consulted me in a disorder under which he had suffered for several years. The questionable shape it had assumed, prevented him from deriving even palliative relief, as at one time it would appear like inflammation, at another like a relaxation of both kidney and bladder; it put on however at last, a less equivocal appearance, for he had a call to make water eight or ten times in an hour, with such excessive pain during, and after the making of it, that his neighbours often heard his cries, and he now passed urine almost as high coloured as blood, under these symptoms, I did not hesitate to pronounce the complaint the stone, and he immediately began a course of the solvent,

which

which he unremittingly took for five months with but faint appearance of advantages, he nevertheless was resolved to continue it, from the warmth with which it had been recommended to him, and in three months more, he brought away several shell-like pieces of calculus which appeared to be flinty and of the colour of yellowish marble;—in the mucus was also a considerable quantity of earthy powder which could not well be separated therefrom, and his pains now began to abate in a great degree; so that he could walk out of doors and hold his water two hours.

With short intermissions from a cold, or from taking an opening mixture, he persevered in the use of the solvent 'till the pain had entirely subsided, and no more of the pieces of stone or sand could be traced to pass, nor was his water either charged with mucus, or morbid in colour—notwithstanding all this, and
there

there being no apparent necessity for it, yet he thought it prudent to continue the medicine once a day for a time longer, as an additional assurance from a return of the complaint; this end was fully obtained, for although it is now four or five years since he took any of the solvent, he has remained quite free from the complaint.

With those intermissions from a cold, he from taking an opening mixture, he recovered in the use of the solvent, till the pain had entirely subsided; and no more of the pieces of stone or sand could be traced to pass, nor was his water either charged with mucus, or morbid in colour—notwithstanding all this, and there



C A S E IX.

The reason for not publishing at length, the name of the gentleman, whose case is here related, will be obvious; but it is at his particular request it is made public, and he will make no scruple to communicate with any gentleman whose similitude of situation may render him desirous of information.

J— S—, Esq. inherited calculous complaints, from his father; for the latter died of the disorder at Bristol, in the forty-sixth year of his age; he says that as long as he can remember he passed considerable quantities of gravel, but that daily exercise and the constant use of honey which was his father's receipt, he believes prevented the formation of a stone, to which he apprehends his habit tended strongly. At the age of twenty-five he begun his travels on the continent, where for the most part he

he enjoyed tolerable health except some flight attacks of strangury, which he imputed to particles of gravel irritating the neck of the bladder in their passage; upon those occasions he had recourse to opiates venæ section, and warm bath, and he usually grew easy in a few hours after. He embark'd in the summer of 1773, at Marfeilles, for Smyrna, which voyage proved much more tedious by bad weather than could be expected from the shortness of the passage, and from this confinement and inactivity he dates the commencement of the *stone*, for in a month after his arrival in Turkey he was seized with a violent fit of the stone accompanied with bloody water and feverishness.—He was left wholly to his own management in that country, and he found his inflammatory symptoms considerably relieved by drinking freely of goats milk, but he now grew sensible of weight in the bladder, and could trace the motion of the stone in turning from side to side.

His being so well convinced of the existence of a stone in the bladder determin'd him to return with all convenience to Europe, without visiting Egypt, altho' almost his whole baggage had been sent in a turkish ship to Cairo. In his way home he stop'd at Cyprus, where at Nicofia, he fell into company with a greek merchant of some learning, who inform'd him after being acquainted with the nature of his complaint, that if he would consent to accompany him to Aleppo, he would introduce him to an armenian physician who would undertake to cure him. After some consideration he resolv'd to put the professor's skill to the trial, and in ten days he had an interview with him, after which he was put into several unnatural postures with a view of founding his feelings, as to the reality of there being a stone.—This circumstance being placed beyond a doubt, an injection was made into the bladder with a fluid mixed with a portion of melted

ed fat from a sheep's tail, through a tube which Mr. S. describes to have the appearance of an animal's gut dried, for it was flexible when first introduced, and after the warm fluid had been passed through it was quite flaccid, this operation he submitted to, forty-six times, with considerable pain and difficulty, but he says with such success that he offered a considerable sum for the secret; which was refused, after which he learned that a Jew at Constantinople had been cured of a stone in the same manner. This happy event determined him again to resume his travels, and he visited most of the islands in the Archipelago and Mediterranean, and did not return to England for three years, where he took up his residence for some time in the neighbourhood of Litchfield, from which place he dates the unhappy re-commencement of the stone, having never since his quitting Asia suspected more than the lodgement of a little sand for a short

time in the bladder. The symptoms of coffee water; frequency to urine; tenesmus, &c. returned as bad as ever; and after some ineffectual remedies he determined to seek out his armenian benefactor once again, and renew his efforts to bring him to England; but by the time he reached Paris he was so worn with the pain, that he was persuaded to suffer the operation under Frère Comê the younger, who extracted 3 stones, the largest of which I have by me, this took place in the year 1775, and it was not till that of 1778 that he consulted me for a third attack; the symptoms of his disorder at this time were nearly similar to those in his former illness, and he lost no time in beginning the solvent. A part of that summer he passed at Southampton where he escaped another danger; apparently as imminent as that under the hands of the french surgeon, for being out of the medicine, he

He employed a needy bookfeller of Winchester to supply him with it, who by some means procured a spurious substitute, the first dose of which occasioned a vomiting from 9 o'clock in the evening to 2 the next morning.—The imposter was obliged to quit the place, and application was made to me for the genuine solvent, which he took unremittingly, till the February following, during which time he had collected 2 ounces and 3 drachms of a whitish sand, after repeated ablutions with warm water had dissolved every thing saline or gummy which might be passed along with it in the urine. About this time he returned to town, when he communicated the particulars of his amendment; but as he still felt a pain after having made water, and a titillation, or rather uneasy sensation at the glans p—s, I persuaded him to continue the solvent, under a certainty that the nucleus remained still to be voided. About this period he unfortunately contracted

tracted a L— v—— which obliged him to undergo a different regimen for 6 weeks, at the end of which time he was thrown back into his calculous complaint, with the serious addition of a discharge of a purulent matter in his water, which made me apprehensive of an exulceration at the neck of the bladder, more especially as he now complained for the first time that the solvent encreased the warmth of the urine and heat throughout the urethra, it was difficult to determine what course to take, as we were persuaded the virus of the new disorder was fully conquered, and terebinthinate medicines proved strongly diuretic, without shewing any signs of healing the ulcer. The solvent was his sheet anchor, so that there was no possibility of remitting it entirely. I therefore as a *dernier resort*, gave him twice a day, a bolus of a scruple of sperma cæti, and one grain of calomel, with 3 spoonfulls of the solvent every night, I had the satisfaction to observe

serve in ten days, that the quantity of mucus and pus diminished every time of making water; and that it was less offensive to the smell than it had been; I continued this course for three weeks longer, even till he complained of a foreness in the gums and till there was no appearance whatever of matter: he then took the solvent twice a day during the use of three large bottles, in the last of which, he passed five fragments of stone which composed a compleat nucleus: and he has never since taken the solvent regularly, but a few doses at the distance of a fortnight or three weeks, which have effectually defended him from any appearance of gravel, &c.

I have been the more particular in the detail of this case by Mr. S.—'s desire, he being assured in his own opinion of the two following facts, that drinking the ale in Staffordshire brought on the stone for the second time, and that the

calomel saved his life in the last instance, may it not be in this case as in old ulcers in the legs, and other parts of the body, that calomel disposes as an alterative the erosion to heal faster, and with more certainty, even where there is no suspicion of a venereal taint remaining? and may it not be fairly concluded, that the solvent does more than remove the disorder when present since Mr. S— has remained well and free from sabulous urine for eighteen months, without taking any of it, altho' his habit was naturally disposed to form it all his life time before.

CASE

C A S E X.

J. BENNETT, Esq. of New Ormond street, consulted me in a disorder whose indications were of that ambiguous kind that he had at different times for 5 years been treated as under spasmodic constrictions at the neck of the bladder; at others as having inflammation there, and lastly, the cortex peruvianus was administered him in all shapes, as the complaint was observed to return periodically; none of these methods of treatment succeeding, he suggested of himself that it might be stone, as he felt the most excruciating torture in, and after making water; insomuch that it would often throw him into convulsions on the floor or couch, from which he could not be removed till the pain subsided, during these fits, the tension of the whole abdomen

domen would be considerable, accompanied with violent sickness, head-achs and languor, for which 60 or 80 drops of laudanum would be administered with but slight effect, and at some times none at all would be produced.

It was impossible at this time to pronounce his disorder stone, for the contraction of the whole urethra was so great, as not to allow the introduction of the *sound*, nay even bougies were with much difficulty passed therein; and as has been mentioned the fits returned periodically; the stricture prevented a further trial of bark; but I determined to join some antispasmodics with the solvent, which I proposed to give him for two reasons, the first, because his disorder could not be ranked under either of the before mentioned classes, and therefore by reasoning *à priori*; I concluded it might be stone, the other reason was, that

that whatever the disorder might prove to be, the solvent could not hurt him.

I lost no time therefore in giving the solvent; to each dose of which; I added 3 grains of musk, and a drachm of tincture of castor, in 20 days he was sensible of the fit being less strong, the water less morbid, and red, and the tension of the lower belly considerably abated.—In this way he continued so far to mend, that in two months, he could walk with indifferent ease, and more than once called at my house, nevertheless there were no further signs of a dissolution of stone than a fine sediment in the urinal as light as flour.—I ventured now to give him the solvent without the antispasmodics, and he continued the use of it incessantly for 6 months, before the completion of which time, he had indubitable proofs of the cause of all his sufferings, for he had passed several intolerable rough fragments of stone, after which an impalpable powder

powder succeeded to it, and he grew so perfectly well that he only took the remedy at distant periods.

This cure may be called so radical, that he has not for 4 or 5 years had any symptoms of it whatever.—Altho' he daily walks to the India house and back, at the age of 70 years and upwards.

CASE



C A S E X I.

The two following cases afford every reason to suppose that stones in children are less compact than in adults; from which it is as natural to conclude, that the more our diet (while the calculus is forming) approaches the simplicity of theirs in its quality, the less likely is it to acquire the density and hardness which is remarked in many.

MASTER THOMAS, son of Josiah Thomas, Esq; of Guinea Street, Bristol, had been afflicted with the stone seven years, and at so early an age, that it was not considered as that disorder, but treated at times as cholic, at others as spasmodic : the complaint however as he grew, acquired additional strength, 'till at last he was unable to walk for the pain, and a very considerable

rable quantity of foetid pus was evacuated with his urine, which plainly indicated an ulcer in the bladder; he was now founded, and a stone of a considerable size discovered; upon which a consultation of the most eminent physicians in London was had, upon the expediency of his being cut, and which might have taken place but for his extreme weakness and emaciated condition.—Sir Noah Thomas therefore advised the trial of the solvent, and he was accordingly carried back into the country to make trial of it, but without any great hope of advantage. He had left school some time before, on account of the violence of the disorder, and in the last year of his being there he had not from that cause, made any progress in his learning.—By the time he had taken the solvent a month, a prodigious quantity of purulent matter and mucus passed, and in a month more some earthy substance was plainly seen in every making,

of

of water, and the urine was become almost clear of that thick jelly-like matter which it had before abounded with: his pain now lessened greatly, insomuch that he could walk about, and he began to recover his flesh surprisngly, and in two months more, near a quarter of a pint of sand was collected from the urinal, after repeatedly washing the sediment with warm water: at the end of about six months he appeared to be totally cured of the stone, and to have recovered his strength and flesh, so that he was again put to school, with the caution of continuing to give him the medicine once a day for a time longer: in three months more it was quite laid aside, and this last autumn, in my way from Bath, I called to see him at Keynsham Academy, when, instead of the most emaciated puny youth, I found him in the highest appearance of good health, and learned, that he advanced in his education with the greatest solicitude and success.

C A S E

C A S E XII.

THO. GALE, Esq; near the four-mile stone at Hammer-smith, called upon me in November last, and acquainted me, he had a son (a child, about five years old) who had been ill for a considerable time, before he was suspected to have the stone; nor was it 'till he was found-ed, by Mr. Chafy, of Berners Street, that they were convinced of the reality of it. He had at times, suffered the most excruciating torture, in making water, which, by fits, would be every half hour, in small quantities, and he would throw himself into all manner of postures and cry out in the most affecting manner.—Upon this representation, I advised him to lose no time in putting him under a course of the solvent, and he began with the dose proportioned to his age.—In a month, or thereabouts, I went to see him, when I learnt that the fit had returned at the usual

usual period, but with less violence.—He had for a considerable time had a weakness at the neck of the bladder, which occasioned his water to run from him insensibly, this, no doubt was brought on by the pressure of the stone on the neck of the bladder, and which would as probably leave him, upon the removal of the disease itself.—The second time I saw him, I found his fits of stone but of trifling concern, and he could make water without much pain; by the time he had taken the solvent four months, there was not the least reason to apprehend any remains of the disorder, for his urine (which had had a considerable quantity of mucus and sand in it during the use of the remedy,) now became clear and in all respects healthy in appearance; it therefore remained only to strengthen the sphincter of the bladder, for which I recommended him to leave off the solvent, and use the cold bath.

C A S E XIII.

THE RIGHT HON. LADY L*****
 had suffered very considerably with the
 stone for six years, in which period she
 had, at different times, been under the
 care of three of the most eminent phy-
 sicians, and taken every medicine usu-
 ally prescribed in that complaint, which
 not only gave her no relief, but proved
 hurtful to her stomach.—Her ladyship
 says that she had not taken the solvent
 a month, before she was easier, and her
 stomach strengthened; and that in the
 course of time it had all the good effects
 I had reason to expect, the particulars
 of which, cannot, from considerations
 of delicacy, be mentioned. Her lady-
 ship has taken it for five years and up-
 wards, occasionally, as a preservative,
 and that instead of its being found in-
 jurious to her, she has often declared,
 that

that she not only owes her ease to it, but her life.—Her ladyship is pleased to add, that if any person is desirous of particular information about her case, I have liberty to mention her name at length, and that she will take the trouble of relating her progress with the medicine.

1. 2

CASE

C A S E XIV.

OF THE HONOURABLE MR. CHARLES
HAMILTON.

IN his first letter, December 1777, he remarks, that he suspected a stone had formed, or was forming; that he had taken soap pills twice a day for a year, and then blackberry conserve, without removing the complaint, for that in a little time he discovered, upon taking a long walk, his urine to be bloody, on which account he began again with the soap pills, but they were so forcing to his urine, that he was obliged to leave them off; soon after this, the tendency to make water grew frequent, with strangury and uneasiness (almost a pain he said) at the g—s p—s, and particularly after making water, and which he observed from reading my disquisition, was occasioned by

by the neck of the empty bladder touching a stone:—he further says that, having been accustomed some time before this, to void numerous bits of sand or gravel, and none having lately come away, he apprehends they are in a state of *aggregation* in forming one large one. He adds, that tho' there is no assurance of this being the case, yet as he is informed the solvent will do no injury, he is determined to take it, and wishes to know how he might be certain of having it genuine, as he has heard of a spurious medicine dispensed by people in the country:—his next letter to me was dated the 12th of April, 1778, in which he says,

“ SIR,

YOUR solvent has had a very extraordinary effect upon me, and seems to have more apparently shivered the calculus to pieces, than I find described in either the first or fifth edition of the *disquisition*.

P 3

Jan.

Jan. 10, 1778. I began to take the solvent, two large tea-spoonfulls at a time, night and morning, and finished the bottle the middle of February, during which time I voided much sandy sediment and mucus in the urine.

March 6. I voided a large piece of calculus, in shape like a quarter of an almond at the pointed end; that very night I began the second bottle, taking two large tea-spoonfulls night and morning as before.

March 8. I voided another piece of the same calculus, twice as big as the former, insomuch that it stopped in the urethra 'till I made a more than ordinary effort, which forced it out, with some blood, as the pointed parts had just scratched the urethra near the glans.

March 9. I began to take the full dose, three large tea-spoonfulls night and morning.

March

March 12. I voided another piece of the same calculus, less than the last, but larger than the first.

April 2. I voided a small piece of the same calculus.

April 6. I voided a very small piece of the same calculus, and the same day I finished the second bottle.

The above eight pieces, manifestly of the same calculus, look to me as if the points of all of them terminated in the center of the nucleus, if that conjecture is right, one may form some judgment of the present diameter of the stone, and in what proportion it has diminished. I am sensible I have voided other pieces at the water-closet, for I felt no pain upon voiding any of these, and which is very extraordinary, ever since I have begun voiding calculi, I have never felt the least pain any where; except

except an uneasy sensation after making water, which I had just before I took the solvent, and which has quite left me from the first taking of it.

There is still some sediment in the urine, but very much diminished; I have desired Mr. Eddie, who sent me the last, to send me two more bottles, which I propose going on with immediately; I will never be without some in the house, and shall, as I ought, strongly recommend it. I suppose I should take it as long as any sediment shall be found in the urine, but should be glad to know what rule I am to observe in leaving it off, supposing my cure compleated.

I am, sir,

your much obliged

humble servant,

CHARLES HAMILTON.

EXTRACT

EXTRACT OF ANOTHER LETTER.

July 12, 1778.

“ SIR,

THOUGH my cure is not yet compleated, I would not defer any longer acquainting you with the wonderful effect your solvent has had upon me. I have not yet taken half the last bottles you sent to me, for as it has a purgative quality with me, I have been obliged to take it in smaller doses than usual.—I am however, in hopes that, by the time I have finished the solvent I have, I shall have brought away all the calculi. I imagine what I have before taken in large quantities (for I took it at first, at the rate of eight, and sometimes twelve spoonfulls in the twenty-four hours: I imagine I say, that it has so impregnated the calculus that it now easily dissolves; for it is amazing what I have voided, since the nineteenth of

May,

May, twenty large pieces of calculus, besides many midling sized ones, and a quantity of very small pieces like eggshells, as you describe, and many pieces of the nucleus, and a vast deal even of fine dust must have passed unobserved, at the water-closet and elsewhere, and which is very extraordinary, no pain now, for the pain I had after urining has left me since I have taken the solvent. — It is now six months since I began to take your solvent; in two months time I began to void pieces of calculus, and had yesterday the curiosity to weigh all I have preserved, and they weigh exactly one drachm and a quarter; if I could get a parcel of them joined together where they tally (which I will endeavour) I could guess at the size of the stone, or if there be more than one; which I suspect.

If any friend of yours, or any medical gentlemen are desirous of seeing them,

them, I shall be very willing to shew them, and vouch to them what I have written; I think it is but justice to you. I believe my experience in your medicine has removed all the prejudice the physical people have entertained against it, as the lady you have before heard of is well; I met her at an assembly, not long ago: I have told Dr. C——, her physician, of the good effects of it on me, at which he seemed much surprized.

I am sir, &c.

CHARLES HAMILTON."

ANOTHER

ANOTHER LETTER FROM THE SAME
GENTLEMAN.

Crescent, Bath, Sept. 20, 1778.

“SIR, YOUR solvent continues to do wonders for me, for though the state of my bowels obliged me to take it very sparingly, yet, notwithstanding, I have voided a much greater quantity of calculus and nucleus than before; from July 10th, to August 10th, I voided forty-eight grains, from August 10th, to September 10th, thirty-nine grains; the whole quantity voided (that I could save) is (from the 6th of March, when the solvent first began to operate) above half an ounce.

As soon as I found my bowels grew stronger, I increased the dose gradually, and from the 9th of this month have taken the full quantity, night and morning:

ing: I am now apt to think it was some particular weakness in my bowels made it disagree, for now, besides finding no inconvenience from the encreased quantity, I have taken the first sort you sent me, since the 16th inst. which agrees as well as the other; I must desire you to send me two more bottles. I should be glad to know how long it will keep perfectly good; I have very little left now, as I gave almost all the bottle I am now drinking, away, to poor people, who could not afford to buy it, which I shall continue to do as long as I live, for your sake as well as that of my poor fellow sufferers. I have talked over the solvent with several medical gentlemen, as well as many others, and have surprized and converted many; Dr. Moisey, my physician, after I had taken it some months unknown to him, upon my telling and shewing him the effect, advised me by all means to continue it, but with caution as to my bowels, and that he should

should recommend it himself to his patients in similar situations ; yesterday I shewed it to a very ingenious man, Mr. Blifs, your neighbour, in Oxford-Street, an old acquaintance of mine, who was much surprized.

I apprehend by the different sized concaves of the pieces of calculus, and convexes of the nucleus, that mine is not all one very large stone, but several middle sized ones, and that the solvent is acting upon them all at once. As the quantity voided decreases, I suppose I shall come to the bottom of the quarry at last, but propose taking it 'till I have been three weeks without voiding either calculus or sediment, then I suppose I may reckon my cure compleated.

I am, sir,

your very humble servant,

CHARLES HAMILTON."

Bath,

Bath, Dec. 13, 1778.

“ SIR,

I HAVE now taken five bottles in all, the rest I have given away with success; it continues to do wonders with me; I have voided above five drachms in all, and continue voiding, but in much less quantities; only twenty-four grains last month: some months I have voided above sixty grains. I take two tea-spoonfulls night and morning, without purging for some months, and propose taking 'till I have ceased voiding any thing for above a fortnight.

I have mentioned, to many of the faculty and others, and shewn them what I have voided, and without any inconvenience, which astonishes them all; and I believe my case will operate as strongly in favour of the solvent, as any you have published.

I shewed

I shewed them to the Duke of Northumberland, to his great amazement, but he says it wo'nt do for him, as he has reason to believe one large stone almost fills one of his kidneys, and if it was broke to pieces, like mine, it might kill him in endeavouring to pass the ureters.

I believe mine is not one, but several largeish stones, by the shape of the pieces, both of calculus and nucleus, which I keep separate, and which look as if they had been broke to pieces with a hammer.

I should be glad to know what is the largest quantity any body has taken to effect a cure, and am, sir,

your humble servant,

CHARLES HAMILTON."

Bath,

Bath, Jan. 19, 1779,

“SIR,

I void great quantities still, chiefly nucleus, so I hope it is drawing to a conclusion; last month I voided a whole drachm: I think it impossible that what dissolves the stone, can permit any new ones to generate whilst I am taking it, if so, unless I have a quarry in me, it cannot last long; I continue perfectly well in other respects, except a dull obtuse gentle pain about the loins, which has come lately; perhaps there is a stone in the kidney.

I am, sir,

your humble servant,

CHARLES HAMILTON.”

Q

Bath,

Bath, May 11, 1779,

“SIR,

I THINK I am almost cured of the stone in the bladder; was in hopes to have wrote you word long ago that I was quite so, but my bowels have lately, contrary to their usual custom been in so lax a state, I have been forced to desist from taking the solvent; I have taken but two tea-spoonfulls in all, since the first of April; it always purges now, so it did about a year ago, yet since that time I have taken the full dose for a continuance without inconvenience, hope I shall again.

Though I have disused it so long, I feel no uneasiness at the neck of the bladder after urining; void very few pieces, chiefly small shells and crumbs, and the quantity decreases so much, I suppose the bladder is pretty nearly cleared: last month I voided but eleven grains;

grains; the month before, thirteen; and the month before that, twenty; before which I generally used to void from forty to sixty grains per month: all the pieces and crumbs I have preserved since I began the solvent, weigh one ounce wanting seven grains; much must have escaped my observation.

I am not without apprehension of something being in the left kidney, from an uneasiness I feel there upon quick motion, and even turning in bed, or lying long on that side, so think it prudent to abstain from going in a carriage; and my scheme is, if you don't disapprove, whenever my bowels are strong, to take one tea-spoonfull of solvent every day, as long as any the least particle of stone is voided.

Lord Stormont, to whom I am very nearly related, was here lately; I was telling him what wonders your solvent

had performed with me, he told me he knew you well, and I was very glad to have an opportunity of proving to him the efficacy of your medicine, as I shall never lose any opportunity, where I think it may be of service to you, to give it its due praises;

I am, sir,

your humble servant,

CHARLES HAMILTON.³

Bath,

Bath, March 16, 1783,

“SIR,

I SHOULD have sent you earlier a further account of the great success of your medicine with me, but waited 'till my stock was out, so now desire you to send me two bottles more as usual, for which I shall desire Mr. Eddie to pay you, next time I write to him.

As I am quite free from pain or inconvenience of any sort, though I continue voiding stone almost daily, at the rate of from twenty to forty grains a month, (for I keep an exact account) I have taken for the last year, not above seven or eight tea-spoonfulls a month; and have now in my possession above four ounces of calculus which I have voided, and, in all probability, above an ounce more must have escaped me. I have not, for this year or more, voided

any pieces that seem broken or split, like those I formerly described to you; I hope all these large ones are gone; I now void some very large, but entire and rough, for I imagine the small quantity of solvent I continue taking, prevents their coming to their former size, and I hope, by taking it in that manner all my life, to keep the disorder under.

Though I cannot call mine a radical cure, I think my case as extraordinary as any you have quoted, and you are at liberty to make what use you think proper of it, but I apprehend my habit of body generates stone so fast, that nothing can prevent its existence in me, only a growth to a troublesome bulk.

I am sir,

your humble servant,

CHARLES HAMILTON."

BATH, *March 16th*, 1783.

REMARKS

REMARKS ON THE BEFORE-MENTIONED
CASE.

THIS case of Mr. Hamilton's must be allowed the most singular of any I have recited, since the solvent has all along reduced the stone in so desirable a manner, and enabled him to void it without pain, or any alarming symptom whatever: in September last I called upon Mr. Hamilton, in my way thro' Bath, and was greatly surprized to see him in such perfect health and spirits, and to observe his activity, he having done me the honour to walk with me over all his new made lawn and gardens, in which I cannot (though foreign to the subject) help remarking, that I never saw such perfection in building and laying out ground, in the display of which, no signs appeared of his disorder having either impaired his discernment, or hindered his taste from manifesting itself to the utmost, by an application of judgment

judgment, which his time of life makes one reflect on with equal surprize and pleasure.

Though any further testimony of the solvent's innocency may not be necessary, yet an additional proof of its not aggravating gouty or bilious complaints, will not be thought superfluous; since these complaints (particularly the latter) have furnished some phycal people with pretensions for suspending the use of the solvent, than which, nothing can be more wrong, for it is an undoubted fact, that it is beneficial in gouty and bilious cases, as being stomachic, and it may be added, that bile is often symptomatic of the stone, so that the solvent is absolutely the only medicine likely to relieve in that situation of the disease—but least it might be suspected that partiality may in some degree incline me to consider a medicine as a *panacea* because it has done wonders

in

in one disorder; I shall add, with permission of the writer of it, the confirmation of these facts, by a letter I received from J. Call, Esq; member of parliament for Callington, and in whom it is only suspected the nucleus of the stone remains to be dissolved.

Queen-Square, 3d April, 1785,

“ SIR,

HAVING taken your solvent at intervals for some time, I think it necessary to acquaint you of its effects on the object for which I took it, as also on my constitution in general.

In June, 1781, having rode on horse-back pretty smartly, I made a considerable quantity of bloody water, without having previously felt, or feeling at the time, any pain or extraordinary sensation.—Not knowing from whence, or
from

from what cause it proceeded, I dined in company, and making no more such water, I paid no regard to what had happened, but returned to London from Portsmouth, where I then was, and afterwards went into Cornwall—whence I rode again only five miles, and then made bloody water as before——this alarmed me—I consulted a surgeon and physician, who pronounced it the gravel, and prescribed, soap pills, lime-water, and some other medicines, which I took at times during the autumn of 1781, but on riding or walking much, always made bloody water, though without any pain or considerable sensation.—In the beginning of 1782, I came to London, having at times experienced severe irritations in the bladder, and frequent urgings to make water; and being very unable to bear the motion of the carriage on the first part of the road—I was soon after sounded by Mr. Young, surgeon, who found my complaint to be
a stone

a stone in the bladder, which I could feel with the found myself.—I had before, taken a bottle or two of your solvent, but now resolved to take it regularly, and to observe the regimen prescribed pretty exactly—neither eating meat, nor drinking wine, except at dinner, and never to any excess—but having been accustomed to drink as far as a pint, I have seldom taken less at and after dinner than five or six glasses—my supper, if any, has always been according to your regimen.

From the spring of 1782, I took the solvent pretty constantly 'till the summer of 1783, but only at intervals, during the year 1784. I began to bear travelling better towards the end of 1783, but I could not ride an horse, except in a walk.—In 1784, the travelling up and down to Cornwall in a carriage became very easy, and latterly the motion of a carriage over the London pavement

pavement is not troublesome.—I also last autumn, rode out with the harriers, and often trotted, without making any bloody water, (but did not venture to gallop) and I can walk many miles in a day without the uneasy sensations I formerly felt.—In short, though I am at times sensible that there is a nucleus still in the bladder, yet I trust it is not large, as I feel no sensation in jumping down, nor any frequent urgings to make water; on the contrary, I often go four or five hours without evacuation, and am seldom disturbed in the night. I mean to go on regularly again with the solvent this spring, and hope to obtain a total relief.

With respect to the effect of the solvent on the constitution in general, I think I am clear, as to myself, that it has been very beneficial, for though when I began to take it, or before I felt any sensations of the stone, I was at times,

times, of a very bilious habit, had frequent head aches, and strong symptoms of the gout (which my father fell a martyr to) yet I do not remember, for twenty years past, to have been so free from all the above complaints, as I have been these three or four years past, nor to have enjoyed a better state of health, except with regard to the complaint for which I took the solvent.—I have enjoyed a constant good appetite, and more particularly so the days I take the solvent.—My body has always been open, as it always was, constitutionally; and I never have had the least nausea at the stomach, or disinclination to any kind of food.—So far I can speak with certainty as to what I have experienced, and I mean to persevere in hopes the effect will be as certain in relieving me wholly from a complaint, which, though very tolerable at present, is not agreeable in prospective.

I am, sir, &c.

JOHN CALL."

C A S E

C A S E XVI.

THE CASE OF JOSEPH BELL, ESQ. SUR-
GEON, AT WYCOMBE, BUCKS. AS
DRAWN UP BY HIMSELF, AND EN-
CLOSED IN THE FOLLOWING LET-
TER.

“ DEAR SIR,

INCLOSED I send you a
simple narrative of facts, as they occur
to my recollection, you will be so oblig-
ing, if you think it may be of use to
the world, to put it in proper form;
and I assure you, that I shall at all
times, be ready to give the most ample
satisfaction to every one who may be in-
duced to apply to me on the subject, as
I feel it a duty I owe the public, so to
do. The obligation I am under to you
for your attention to me during the
course

course of the solvent's trial, will never be effaced from my memory.— The relief I have experienced will always incline me to keep a bottle or two in the house, for which reason I beg the favour of you to send me two before you go to Paris—'till your return therefrom, permit me to subscribe myself

your obliged and devoted

humble servant,

JOSEPH BELL."

The 6th of December, 1783, on my road to Kingston upon Thames, I was seized with a severe fit of pain in my left kidney; I had been for four years back too well and too repeatedly acquainted with the kind of pain, to mistake that which I then suffered; however as I had only five or six miles to ride I pursued my journey; at the end of which, on getting off my horse, and calling for a cham-

chamber pot I passed a very considerable quantity of bloody water, my pain by this time was so considerably increased, that I was under the necessity though at an inn, of having recourse to the warm bath and laudanum, of which I took between eighty and a hundred drops.—The relief I experienced was very little in proportion to the quantity of opium I took, and my night was a night of torture. By the persuasion of a friend who was with me, I the next day returned gently home, in a chaise.

Having taken the solvent for a month previous to this fit, my friends and Mr. Rose a very eminent surgeon of this town, advised me to send for you, the state in which you found me I need not describe, suffice it to say, that from the time of my being taken ill, to the evening on which I apprehend the stone passed from the kidney into the bladder (being a space of near three weeks) the
 pain

pain I underwent is beyond all possibility of description. Dr. Bates, an eminent physician in this neighbourhood, and Dr. Parsons, professor of anatomy, in Oxford, were likewise called in to my assistance, particularly as you were at such a distance from me.—The methods used during the fits of pain, you are perfectly acquainted with, I shall therefore content myself with informing you, that as soon as the stone had passed, I again by the advice of those attending me, had recourse to the solvent, and from persisting strenuously in the use of it for twelve months, I have the greatest reason to flatter myself, that it has rendered me every benefit I could possibly hope or expect, without feeling any one ill effect from persisting so long in its use. For the first two or three months, during the taking the solvent, I passed a considerable quantity of large rough gravel, attended at times with pain, when, for three or four months more, I

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passed

passed a pretty large quantity of very fine sand; since which time, I have hardly experienced a twinge, or passed a particle, at least in comparison to what I had suffered, or what I had passed before, and am now, thank God, pretty well able to go through the fatigues of my profession.

REMARKS ON THE ABOVE CASE.

It remains only for me to add, that upon being desired, by express, to attend Mr. Bell, I got immediately into a chaise, and reached his house about two o'clock the next morning, when I found him in a high fever, in the most excruciating pain, and at times delirious, his vomitings I learned, had been violent, and his urine, I found, was bloody to the highest degree.—I immediately ordered copious bleeding, but was informed, attempts had been fruitlessly made with the lancet, and as I apprehended his life in some danger, I determined to renew
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the attempt myself, and was so fortunate as to succeed, by which I drew off 16 or 20 ounces of blood. His fever began now to subside, and he grew sensible, so as to describe his feelings, balsamics and anodynes, were alternately given him, and I had the satisfaction to leave him in a fair way of recovery.—The piece of stone soon after passed, and he took the solvent without interruption 'till hopes were entertained that there remained nothing to be feared. It may be proper to add, that Mr. Bell remarks that the stone has all the evident signs of being operated upon strongly by the solvent, by reason of its specifical lightness for that a calculus of the same dimensions and figure not operated upon by the solvent weighs nearly three times as much, viz. 25 grains, whereas his own weighs but nine grains.

It may be observed that the ages of the patients are not given as a circumstance

in the detail, nor is it a material consideration in the cure of the stone; for after a person has attained to maturity, the state of the fluids cannot be very different whether of 25 or 65. Several of the before recited cases were of persons in an age still further advanced, so that no unfavourable obstacle threatens the solvent's operation on that account; and it may be fairly concluded that nothing can exceed (as a medicine) the benignity and salubrity of its quality, since these patients are all still living altho' 'tis ten years since some begun the use of the solvent; which they continue at intervals to this day, as a preventative remedy, with this extraordinary remark on it, (viz) that it operates as a stomachic and strengthener of the viscera, and therefore account for its keeping back in a measure those fits of gout, which they may have been before accustomed to be attacked with.

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The success and importance of this discovery to the world being now confirmed beyond the power of infidelity, or prepossession, it will be unnecessary to address myself either to the sceptical or prejudiced reader: but it may be proper to say something to those who may (while they admit its utility and benefit) argue, that its usefulness is but partially dispensed, whilst its secret is retained to the emolument of the discoverer: insisting that all improvements or discoveries in medicine, should be at once revealed for the universal and equal benefit of mankind. I should be sorry if I was insensible of the philanthropy of this remark, but at the same time I cannot think it incumbent on me fully to adopt those sentiments, without the least regard to my own situation. I should be ashamed of myself if the possessing an arcanum was capable of exciting any the least tincture of vanity in me, and still more so if I could be mercenary enough

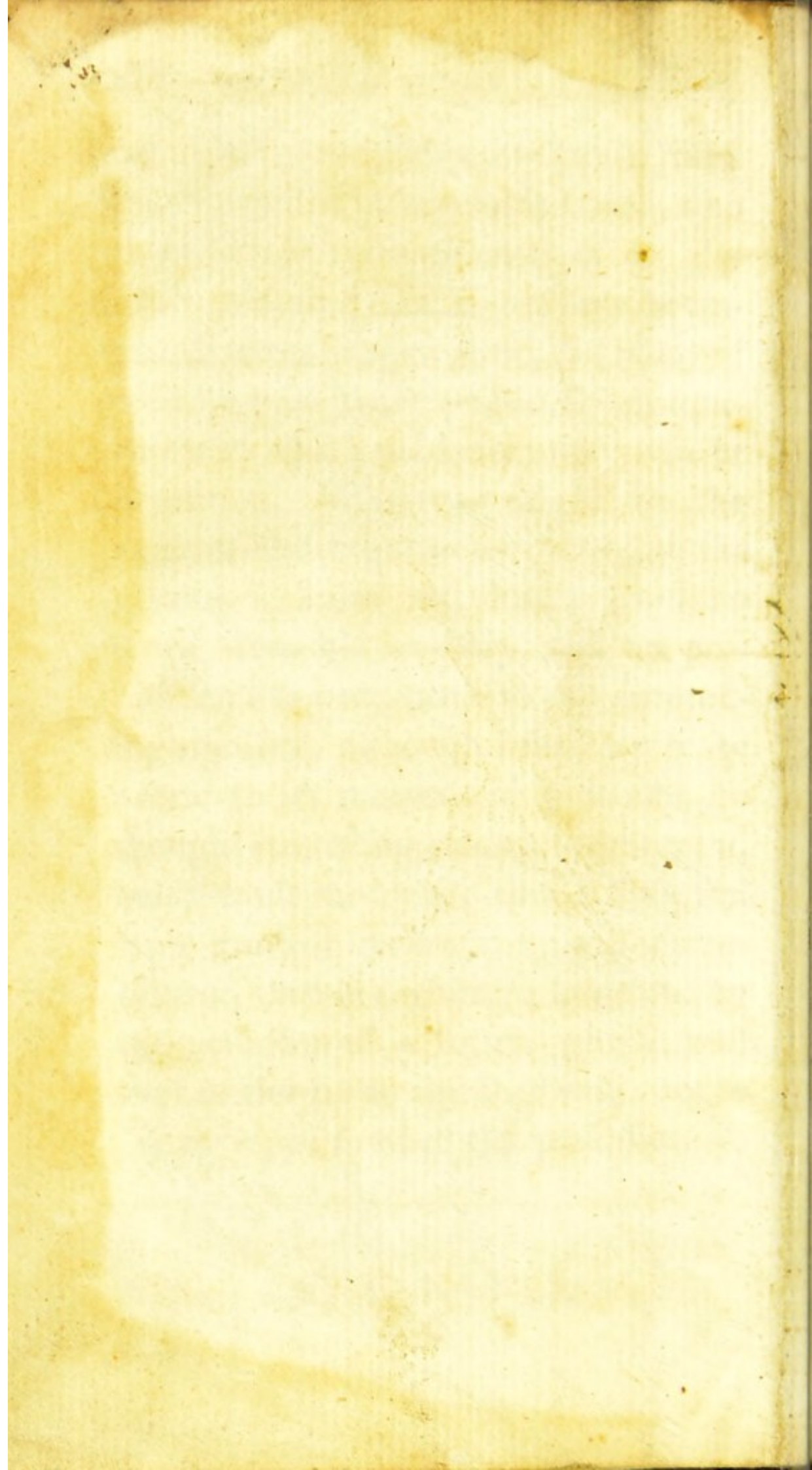
enough to make that use of it for enriching myself, which avarice and opportunity might enable me to do; disclaiming therefore the illiberality of such a conduct, I hope for the candour and indulgence of the world, as long as I continue to make no other use of the discovery than I have hitherto done, and which I have the pleasure to find has secured to me the approbation of the public, and the esteem and friendship of many of the most distinguished of my profession.

And now having said so much in my defence of not making a disclosure of this new remedy, I cannot in justice to my feelings, forbear mentioning how far I have endeavoured to do away the imputation of selfishness or want of public regard. This vindication drives me necessarily into the most unpleasant task, which can be assigned to me, viz. to egotize, but as self-commendation is not
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the motive, but self-justification, I rely on my readers indulgence, and for which I shall adopt all possible brevity. About seven years ago, when the success of this medicine rendered it an object of particular attention, I gave up my surgical practice, in which I had been engaged nearly as many, in order to attend better to its effects and to improve its composition should it admit of it, so as to render it as safe in the hands of a patient at a distance, as under mine own eye; soon after this, concerns of a military nature, called me away, so that my patients sought my advice with some uncertainty and trouble, and it was then that a right honorable friend advised me to open a correspondence with Lord N——, that he might give me a recompence for the secret of the solvent, my terms were asked, and my answer was a place for life of the value of my profits at that time, I added also, that I was not averse to the duty of such a place as
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my capacity was competent to: in this I was counsell'd by my noble friend, who enforced the reasonableness of my demand by saying, that it could not be improper to exchange a place, the salary of which is paid by the public, for an equivalent in which the community will be benefitted. Whatever might be the cause of this negociation falling to the ground I know not, but I heard no more from his lordship, and no proposition has been made to any succeeding minister, although I shall never be averse to its renewal, if it should be thought interesting enough to deserve it, being ready to declare that I shall feel more gratified even with a smaller emolument, than in deriving a large one by the possession of a secret, which must ever render me an object of envy, not to say more, of some of the profession.

F I N I S.



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