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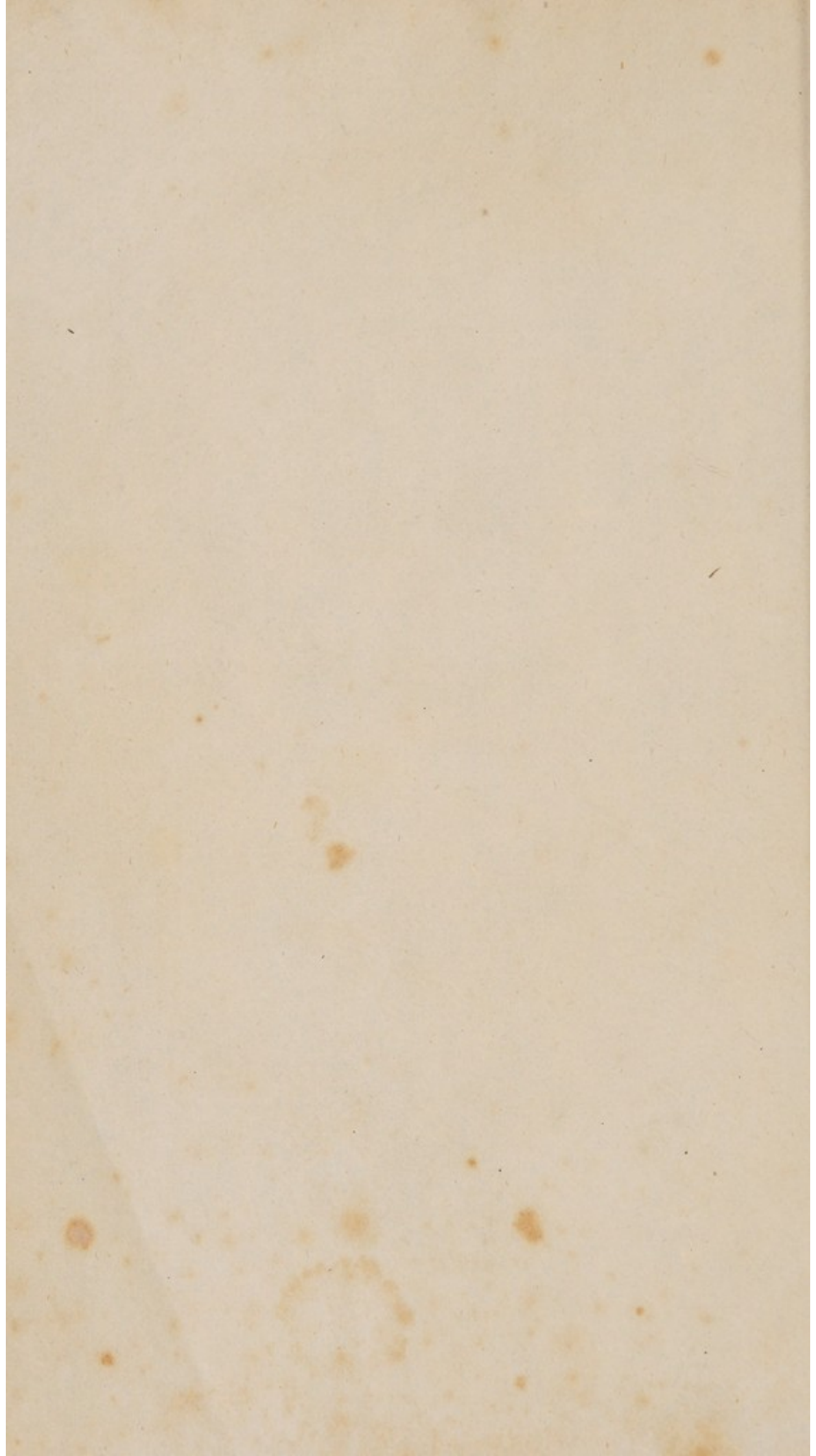
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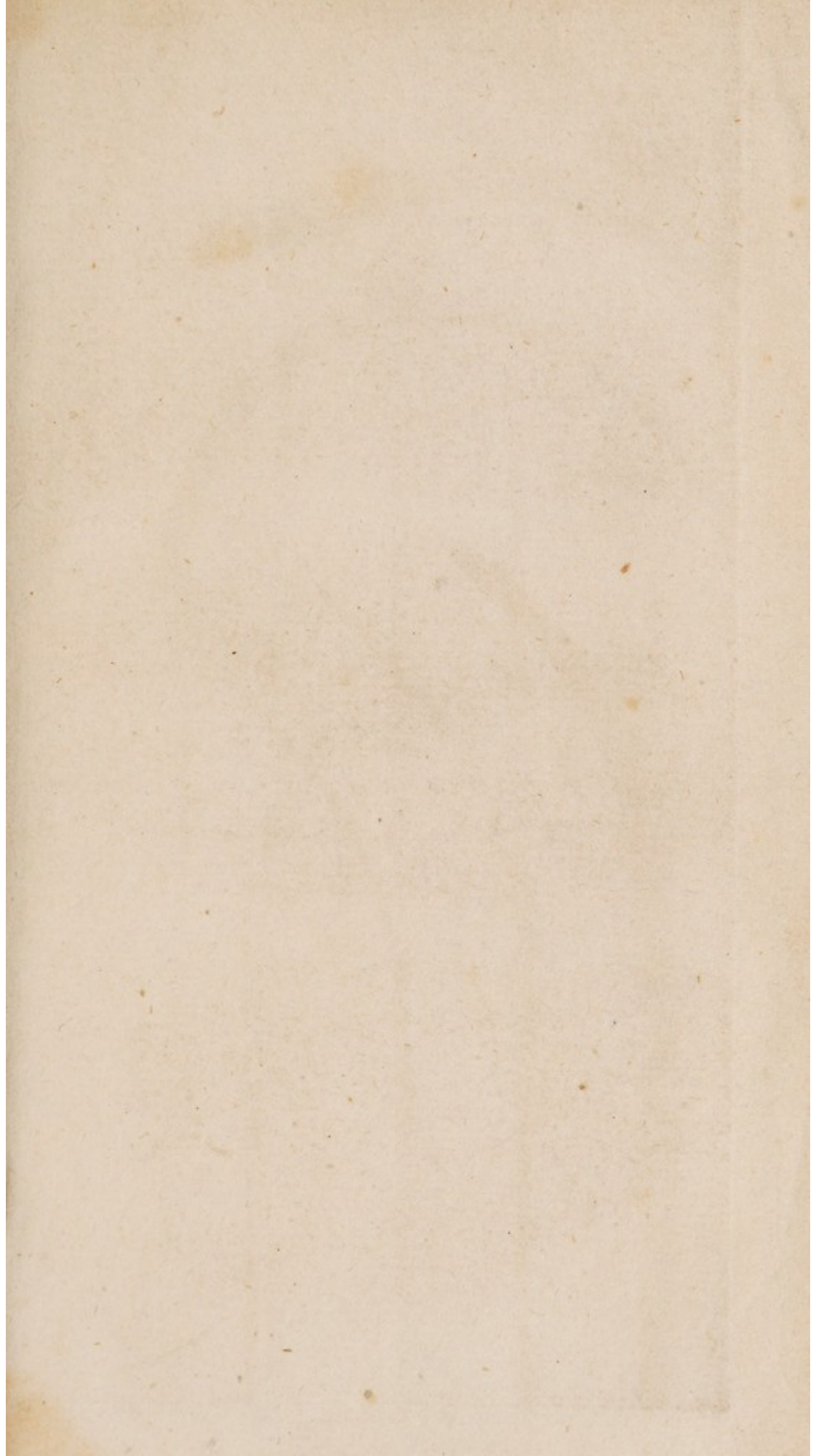
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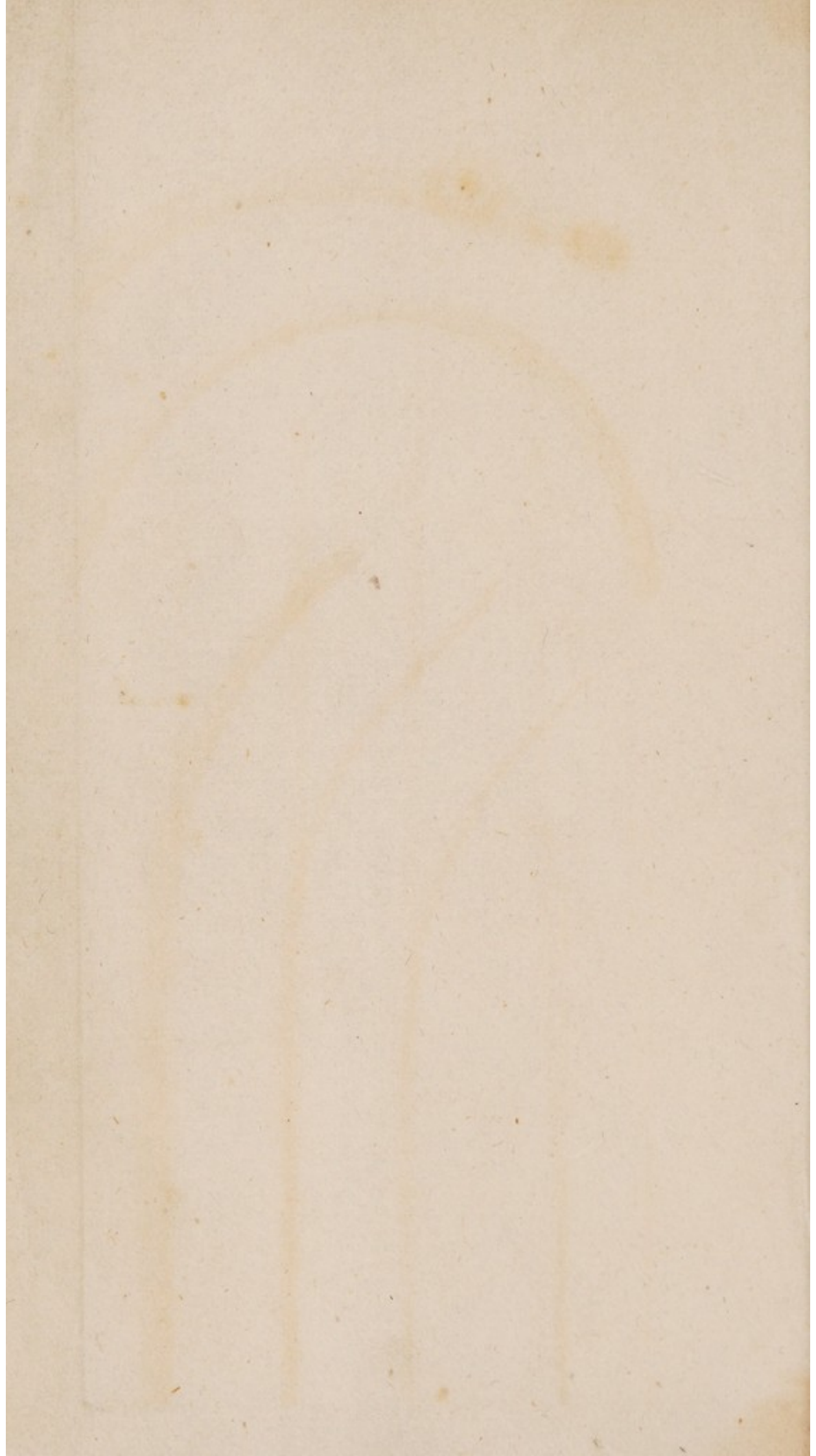




Fig. 3.

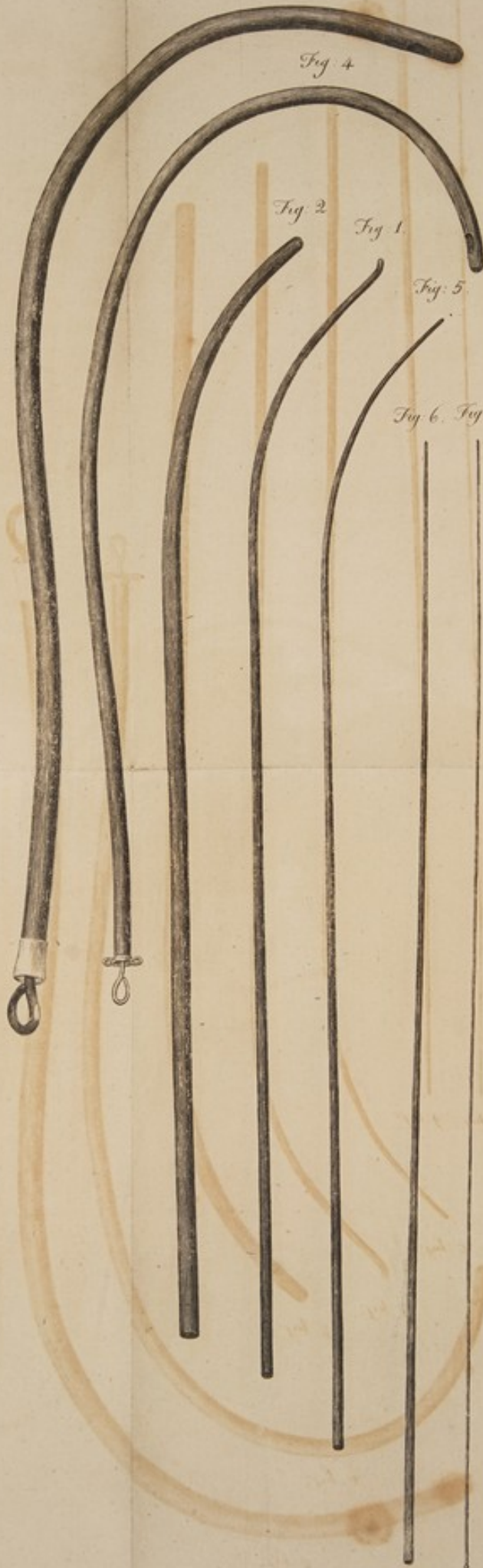
Fig. 4

Fig. 2

Fig. 1

Fig. 5

Fig. 6. Fig. 7.



AN
IMPROVED METHOD
OF
TREATING
STRICTURES IN THE URETHRA.

BY
THOMAS WHATELY,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON.

“ Truth, as Lord Bacon has said, is not the child of authority, but of time. And
“ were we to allow ourselves to suppose, that nothing more, or new, could be taught,
“ it is pretty clear, that nothing more, or new, would be learnt.”

“ I therefore hope, that the freedom which I have used, either in relating the
“ opinions, or in objecting to the practice of others, will not be attributed to an invi-
“ dious disposition to find fault; but merely to a desire of being serviceable to mankind
“ in that way, in which, I flatter myself, that I may be in some degree capable; and of
“ improving, as much as in me lies, the very necessary and universally useful science
“ of SURGERY.”

POTT.

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IMPROVED METHOD

TREATING

STRICKURES IN THE URETHRA

THOMAS WENTLEY

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON



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EXPLANATION OF THE PLATE.

Fig. I. See page 20.

REPRESENTS a bougie bent at the point, for the purpose of being passed through an irregular stricture. The bent point should be passed down the urethra on that side of it to which the aperture of the stricture is supposed to be situate.

Fig. II. See page 35.

Represents a bougie having the proper degree of curvature given to it, before it is armed with kali, in order to be passed through a stricture at seven inches distance from the orifice of the urethra.

Fig. III. See page 66.

Represents a large flexible gum catheter, with a thick iron wire inserted into it, and of a proper degree of curvature, in order to be passed into the bladder with the wire, in cases of an enlargement of the prostate gland.

Fig. IV. See page 67.

Represents a flexible gum catheter very much curved, by means of a small wire inserted into it, in order to give the catheter the degree of curvature of a common silver catheter, when the wire is withdrawn, in which state it is to be passed into the bladder. The degree of curvature I have represented, is particularly necessary in new instruments, but it may be afterwards varied a little, according to the stubbornness or flexibility of the instrument.

Fig. V.

Represents a bougie a size larger than one of the finest kind, for applying the caustic to a very contracted stricture. The particle of kali represented in the smallest dot at page 44, is selected as ready for insertion.

Fig. VI.

Represents a cloth bougie of the very finest kind. It is generally necessary that bougies of this slender make should be of a conical shape, otherwise they would not be firm enough for introduction.

Fig. VII.

Represents a very fine catgut bougie.

AN
IMPROVED METHOD,

&c. &c.

CHAPTER I.

**GENERAL REMARKS ON STRICTURES IN THE
URETHRA.**

THE canal of the urethra is peculiarly disposed to contraction, especially after it has been the seat of inflammation, or has been injured from any external violence. A contraction of the whole canal perhaps never happens; what we generally meet with is one or more strictures in particular parts of the passage. To account for the frequency of this complaint is very difficult; it may be observed, however, that the urethra being hollow, muscular, and membranous, if any part of it be excited to action in consequence of inflammation, either from gonorrhœa, or any other cause, it is more natural to expect that the excitation would contract, than that it would widen the canal. Further, as that part of the

urethra which is anterior to the bulb, as well as the bulb itself, from it's size, and the attachment of the *acceleratores urinæ* muscles to it, has greater natural powers of action than the membranous part of the urethra ; we might expect, a priori, that both these parts, but especially the bulb, would be more subject to stricture than the posterior portion of the urethra : which is indeed the fact. In this complaint the patient has nothing to expect from what are called "the powers of nature." The strictured part of a urethra, in almost all subjects, continues to contract more and more, if no means be used to counteract this tendency. The progress of this contraction, however, is extremely variable in different persons. Sometimes it so happens, that in two or three years the canal is nearly closed. But in general it requires a much longer time to produce this effect. Nor is it at all uncommon for the disease to continue in a slight degree for many years before any considerable contraction takes place.

The effects which proceed from these partial contractions of the urethra are variable, not only in different subjects, but likewise in different stages of the disease in the same subject ; the symptoms in general depending on the degree of contraction of the passage : for it is obvious that whatever impedes the discharge of the urine, must in some degree affect the bladder. The same

cause produces effects not only at the stricture itself, or the parts contiguous to it, but also in more distant parts of the body. These several effects shall be noticed in the order in which they have now been mentioned.

In some cases of slight stricture, the action of the bladder is but little disturbed; in general, however, even in this moderate state of the disease, the bladder is sufficiently irritated, to provoke a more frequent discharge of urine than usual: but as the contraction advances, this frequency, as might be expected, generally increases. When the stricture has proceeded so far as to render the passage extremely narrow, there is not only a still more frequent desire to make water than before, but the urine comes away by drops, or at least in a very small stream, with much straining and pain, and sometimes attended with a small evacuation of fæces from the anus. In the cases last mentioned, there is often a mucous sediment deposited in the urine, and sometimes a glairy gelatinous fluid mixed with it. These effects of stricture remain in many bad cases, as long as the strictured part of the canal continues in an equally contracted state. In these cases, however, as well as in the slighter, it is no uncommon thing for the patient to be attacked with paroxysms, during which all these symptoms are increased. But they are not permanent, con-

tinuing at times not more than a week, at other times only a day or two. When the symptoms are permanent, they proceed, I apprehend, from spasmodic irritation, accompanied with some degree of inflammation in the bladder, excited and kept up by it's repeated efforts to discharge it's contents. When they are not permanent, the attack may be considered as being of a more purely inflammatory nature. These last symptoms being produced by occasional causes, as cold, violent exercise, or irregularity of living, may be very severely felt for the time they continue. In this case the complaint is but temporary; the bladder being more regularly and perfectly emptied, as soon as the accidental cause that produced the symptoms ceased to operate. Some patients are occasionally subject to a suppression of urine, which, however, frequently subsides in a few hours, though no remedy be used; yet sometimes this distress is of a much more serious nature. In one case that came under my own observation, the urine passed in a tolerable stream as soon as the evacuation commenced, but a degree of dysuria continued for many months: the patient never being able to pass any urine under two or three minutes from the time of his beginning to make the attempt.

The effects of stricture in or adjoining to the contracted part are variable in different cases.

Many patients are subject at intervals to shooting pains in the perineum, extending at times to the thighs or rectum. Others complain of a general uneasiness and tenderness in the perineum. In one case, a patient complained of a shooting pain at the extremity of the glans penis two or three times a day, which continued in each instance for five minutes. In another case a pulsatory motion, resembling that of the heart, and accompanied with the discharge of a few drops of blood, was felt at times in the perineum, and extending to the glans penis at each evacuation of the urine. Many are affected with a scalding sensation in the perineum when they make water, while others feel the same in the glans penis. Others again complain of a kind of chordee. Many of those who are affected with strictures are troubled with a gleet discharge from the urethra: sometimes in so small a quantity as to be scarcely perceptible; at others, it is more copious, and so much resembles a gonorrhœa, that it is difficult to distinguish it from that disease. By obstructing the course of the urine, a stricture sometimes prevents a complete evacuation of the contents of the bladder; when the small quantity of urine left above the stricture will afterwards steal away, as is observed by the wetting of the shirt. Others find a like retention and gradual evacuation of part of the semen after the

act of coition. It may be remarked here, that the urethra, and particularly it's strictured part, is sometimes irritated after this act. In one case this showed itself in a redness of the glans, and an increase of the gleet before mentioned. I have likewise met with a bubo in the groin suppurating as an effect of stricture, but it was not venereal. In another instance the patient's chief complaint was a continued uneasiness and pain in each groin.

The effects of stricture on the more distant parts of the body are likewise variable. In some patients it produces a depression of spirits, listlessness, sickness, and want of appetite. In many, the complaint brings on pain in the loins and lower parts of the back, extending sometimes to the os coccygis, or to one hip. This is often felt in turning or moving the body suddenly, and frequently in rising from a chair. In one case, a considerable pain was felt at times in the side and sole of the foot. I likewise recollect another case, in which the leading symptom of the stricture was a pain in the thigh felt in walking, which extended from the groin to the knee, and another in which the penis was considerably curved in erection.

These are the principal symptoms produced by stricture in the urethra; but one of these, the smallness of the stream of the urine, on account

of it's being an invariable attendant on the complaint in all cases, deserves a more circumstantial notice. The formation of a stricture must necessarily occasion some impediment to the flow of the urine, by narrowing the canal through which it has to pass. As the disease advances, this impediment must of course become greater. But although the urine from this cause passes with a diminished stream, yet the urethra being naturally large, and the expulsive power of the bladder, aided by the abdominal muscles, great, the contents of the bladder are sometimes evacuated very well, even for years after a stricture has been formed. From the absence of pain, the patient perhaps takes no notice of the diminished size of the urinal stream. Even when a stricture is far advanced, patients are often found to be extremely inattentive to this circumstance*, although so obvious, that after the stricture has been discovered, they distinctly recollect it's having taken place for a considerable length of time back. In a great number of cases, the urine passes in a forked or a twisted stream, and is seldom projected to such a distance from the body as when the parts are in a natural state. As a

* It seems advisable in every case of stricture, that the practitioner see the patient make water. This may greatly assist him in judging of the degree of contraction.

stricture advances, the stream of urine gradually diminishes, till at length it becomes so slender, that it scarcely deserves the name of a stream. But if the obstructing cause be not removed, even this threadlike stream often ceases; and the bladder, which in all cases of advanced stricture is longer in emptying itself than in health, now parts with its contents only by drops, and the urine in these cases often comes away involuntarily, both by day and by night, which of course keeps the linen in a continued state of moisture.

Having made these general remarks on strictures, and on the effects produced by them, let us next attend to the state of the inner membrane of the urethra at the strictured part. The true knowledge of this will greatly assist in the cure. The state of this part in the dead body has been frequently ascertained, and Mr. Hunter's observation, that a stricture is harder in its consistence than any other part of the urethra,* has been confirmed by repeated dissections. I cannot think, however, that we have been sufficiently attentive to a strictured state of this part in the living body, or to the causes producing this state. Can a muscular canal, which is naturally in an easy and relaxed state, be con-

* Hunter on the Venereal Disease, p. 113.

sidered as free from diseased affection, when a portion of it is unnaturally contracted? I apprehend not; for whatever is the cause, that first excited the contraction, this cause in a certain degree continues to operate, till proper means are used to counteract it; inasmuch as the contraction seldom remains stationary, but generally goes on increasing. The origin of those strictures which commence during the continuance of an inflammatory irritation in the lower parts of the urethra in some particular cases of gonorrhœa, is, I doubt not, inflammation. I am the more confident, that strictures of this description commonly arise from this cause, from having remarked, that many of those patients, who have had these irritations during the treatment of a gonorrhœa, have afterwards been found, on examination, to have a stricture. In several instances the proof of this has occurred very soon after those irritations have taken place, though there was not the least indication of a stricture previous to the gonorrhœa. The inflammation produces an incipient contraction on a portion of the inner membrane of the urethra; and though the active state of it be removed by time and the usual remedies, yet the strictured part is left in a diseased state, with more or less of increased action in it's vessels, generally accompanied with a gleet, and almost

always with a continued disposition to spasmodic contraction. In this state it continues, until proper methods are used to remove it. There are, however, many strictures, which do not appear to originate from a state of active inflammation in the urethra. But even in these cases, the contracted portions become diseased; being frequently, as in the others, accompanied with a gleet, and other marks of being in an unhealthy state.

I have observed in several cases of stricture, that when the point of the bougie touches, though in the most gentle manner, the anterior part of this contraction, some drops of blood have immediately issued from the part. This circumstance favors the opinion, that a stricture is not merely a contracted, but also a diseased portion of the urethra. A stricture being likewise, according to Mr. Hunter, "the hardest part of the urethra," and according to Sir Everard Home, "a thickened contraction of the inner membrane," is another circumstance, that corroborates the opinion above mentioned. Such an alteration from the natural state of the membrane could not be produced by the mere contraction of its fibres; the change must therefore be occasioned by disease.

But let us examine more particularly into the state of a strictured part of the urethra in

the living body. This may be done with tolerable accuracy, by introducing a bougie. Whoever will attentively examine a stricture of the urethra by this instrument, will find, in most cases, that this part of the urethra has a greater degree of sensibility than any other; as patients generally feel a degree of pain, when the point of a bougie touches a stricture, which they do not experience, while it is passing over any part of the urethra anterior to it. When the bougie passes through the stricture, this pain increases, as the instrument thereby comes more completely into contact with the whole surface of the contracted part. This sensation is neither to be attributed merely to the pressure against the anterior part of the stricture in the beginning of the examination, nor to the distention of its sides in the progress of the bougie. Too violent a hand, indeed, in the first attempt, or the use of too large a bougie, may, by pressure in one instance, and distention in the other, add much to the pain. But the sensation I allude to is perceived, when neither of these errors is committed. Let the point of the bougie touch the anterior part of the stricture in the most gentle manner; let the bougie that passes through it be of so small a diameter, as to occasion no distention of its sides; still some degree of pain will be felt in the operation. A touch

will be sufficient to produce it. Many patients corroborate the truth of these observations by remarking, that they can tell not only when the point of a bougie touches a stricture, but when it passes through it. This difference however in point of sensibility between a strictured part of the urethra and the healthy portion of it, is not observable in every case of stricture that occurs.

Strictures of the urethra, as has been before mentioned, are generally attended with a gleet. A question here occurs, whether this discharge proceed from the surface of the strictured part, or from any part of the urethra beyond, or anterior to it. Where a gleet is unconnected with gonorrhœa, I have no doubt of it's proceeding, in most cases, directly from the strictured part only; and that it is a consequence of this part being in a diseased state. But as we cannot have an ocular examination of this part in the living body, it may be difficult to prove the truth of this conclusion. It may, however, be reasonably assumed, that the discharge would proceed from the stricture, considered as a diseased part, rather than from any other. In cases indeed where the urethra is almost closed up, a gleet may be brought on by the repeated distention of that part of the canal, which lies immediately beyond the stricture; and in such cases the

gleet may proceed from this part. But this discharge is a very general attendant on strictures, even at their first commencement, where the urine, not meeting with much impediment to its passage, the distention beyond the stricture cannot of course be so great as to amount to irritation: I am of opinion therefore, that in these cases, the gleet generally arises from the surface of the stricture itself, and not from that part of the membrane that lies beyond it. It is of some use in practice to ascertain this point, and on this subject Mr. Hunter maintains a contrary opinion to me. "It generally happens," says that author, "that there is a gleet, when there is a stricture in the urethra. This, I suppose, arises from the irritation produced in the urethra *beyond* the stricture, by the urine in its passage distending this part too much*."

In reply to this, I beg leave to observe, that in many cases of stricture, we have proof that the gleet proceeds directly from the strictured surface. On passing down to the stricture a bougie too large to enter it, and gently pressing against it, I have repeatedly observed on the point of a bougie, when it has been with-

* Treatise on the Venereal Disease, p. 132.

drawn, a glairy purulent kind of mucus, sometimes slightly tinged with blood. That this discharge came from the strictured part is the more probable, as I do not recollect to have seen a similar appearance upon a bougie, except in cases of stricture. A similar appearance at the point of a bougie may sometimes be observed, after it has been passed into and not perfectly through the stricture: this I consider as a further proof, that the gleet must be a secretion from the surface of the stricture itself, and not from the inner membrane of the urethra beyond it. In two or three instances I have known the passing a bougie only once through a stricture, and immediately withdrawing it, to remove, at least for a time, a slight gleet of many months standing. This circumstance appears to me most readily explained upon the supposition, that the gleet proceeded from the strictured part, and was suspended by the diseased contraction and action of the vessels depending thereon, being weakened by the application of the bougie.

In the same way we may explain the entire removal even of the most violent gleans, by wearing a bougie for some hours daily; or by repeated applications of caustic to the whole surface of the stricture, which has in many instances almost immediately lessened, and after-

wards totally removed this symptom of stricture ; and this even after only two or three applications, and long before any considerable progress had been made in the complete dilatation of the stricture. All the above facts tend to prove my former assertion, that a stricture of the urethra is to be considered not merely as a contraction of it's fibres, but a diseased affection. The same opinion is favored by the relief, which one or two applications of the caustic to the whole surface of the strictured part frequently afford to the scalding sensation on making water, and the pains in the perineum and penis, and other uneasinesses, which sometimes accompany this disease.

Let us now consider another important point in the treatment of strictures of the urethra ; which is, the ascertaining how far the contraction has proceeded, or whether it be regular or irregular in it's form, having the aperture left by the stricture, in the centre of the urethra or on one side of it.*

By the size of the stream of urine, we shall almost always be enabled, as has been before

* I am now alluding to cases where there is only one principal stricture, these being more commonly met with than others. The observations, however, contained in the following pages equally apply to every case.

observed, to judge of the degree of contraction in any case of stricture, where no impediment arises to its current from a diseased state of the bladder, the enlargement of the prostate gland, or a stone.* By the assistance of a bougie, we shall likewise be able to ascertain, whether the passage through the stricture be in the centre or on one side of the urethra.

If the urine come away by drops, or in a very fine threadlike stream; if it be evacuated very frequently, and with violent straining efforts; and especially if these circumstances be habitual, and have made a gradual progress to this state, we may be certain, provided it be ascertained, that the cause is not in the bladder, or the prostate gland, or from a little calculus lodged in the urethra, that this canal is so far closed in one or more parts of it, as not to admit a bougie larger than a common sized pin to pass through the obstructed part. In some cases we cannot pass even so slender a bougie till after repeated trials. Various indeed are the degrees of contraction, which take place in different subjects;

* It is proper to remark, that spasmodic contractions, or inflammatory irritations occasionally occurring, may in a considerable degree alter the size of the stream of urine; but as these causes are not permanent, their effects on it will be only temporary.

but in all, the stream of urine is generally in proportion to the size of the aperture in the obstructed part. If the contraction be only in an incipient state, our inquiries can be best satisfied by passing a bougie through the strictured part, which for this purpose must be nearly of the natural size of the urethra ; as one of a much smaller diameter might pass through a newly formed stricture, without stopping at it ; and thus the disease would escape detection, an occurrence not uncommon in the examination of recent strictures. Hence a false conclusion may be drawn in a very serious case ; a complaint really existing, and which in this stage of it might be easily removed, escaping observation : and thus the symptoms being referred to another cause, remedies are applied for a complaint that does not exist, while that which has actually taken place is unnoticed, and suffered to increase from day to day.

If the aperture left by the stricture be in the centre of the urethra, a bougie a little less than the contracted part may generally be passed through it with facility ; and in the greater number of cases the opening is thus situate. There are, however, strictures of every degree of contraction, in which the aperture is not in the centre of the urethra. In these, the stream of urine will of course be according to the degree

of contraction ; and though they cannot be distinguished by this circumstance alone, from those in which there is no irregularity of conformation, yet they are always marked, by the difficulty with which a bougie of even a moderate size is passed through the aperture. In many cases of this kind, where the stream of urine is so large as to lead to the supposition, that a middle sized bougie will pass through the stricture, it is found upon trial, that neither one of that or any other size can be passed through it, if introduced in the usual manner. But a bougie somewhat less than the strictured canal may in general be passed through it, provided it's point be turned to that side of the urethra on which the aperture lies. As, however, it must be uncertain on which side of the urethra the aperture is, we have no clew to direct us in the first instance how to point the bougie so as to hit it exactly. I have sometimes succeeded by making the attempt in the following manner. Judging from the stream of urine what was probably the width of the opening, a bougie, of a size less than might be supposed to enter it, has been introduced ; and if when the point has reached the stricture, it makes no entrance, I have withdrawn the bougie about half an inch, and turning it half way round, in order to alter the direction of it's point, I have again passed it forward to the

strictured part; if this second attempt should likewise fail, I try, in a similar manner, different sides of the urethra, till the opening is discovered.

When this method has failed, I have frequently succeeded by extending the penis as far as it could be done without giving pain, with the finger and thumb of the left hand, while the bougie was at the same time pressed gently forward with the right hand. It has sometimes passed the stricture when the extension was made in a straight line from the body; at other times, when it was made to the right or left side; and now and then when made upwards towards the abdomen. If in any of these trials the bougie meet with resistance, it should be withdrawn a little, and then gently pushed forward again, till it finds the entrance of the stricture: but the force used in passing it should on no account be so great as to bend it's point. Should these methods likewise fail, a soft, or what is called a white bougie, of as large a size as the urethra will admit, may be passed down to the stricture, and pressed against it's aperture for about a minute, by which such an impression will often be made at its extremity, as will determine the situation of the opening. After this a bougie of a proper size, having it's point a little bent to the side at which the opening is

situate, (Fig. 1.) should be carefully passed down the urethra. By this method a bougie will frequently enter a stricture of this description. I prefer, however, making a trial of the other methods first, as the passing a soft bougie against the affected part will sometimes occasion much pain, and even draw blood*. Having made these observations, I proceed to lay before the public an improved method of curing the complaint.

* On account of the pain they occasion, I never use soft bougies for these purposes if it can be avoided. When made of different sizes, however they are sometimes very useful to pass into the bladder, where, if suffered to remain about two minutes, they sometimes take an impression of the canal, which enables us to ascertain the exact distance of a stricture from the extremity of the penis. Nor do they generally give pain when thus used, and if made of a conical shape, and nearly as slender as what is commonly called a fine bougie, from their pliable texture, they will frequently pass through a narrow stricture into the bladder, in cases where no bougie of any other composition would enter the contracted part. Soft bougies of this size will likewise often pass over an enlarged prostate gland into the bladder, and take the impression of the eminence, while a bougie of a harder composition will stop at this part. The following is an approved composition for a bougie of this kind:

Diachylon 4 ounces,

White wax 2 ounces,

Olive oil 3 drachms by measure. Melt them carefully together.

CHAPTER II.

AN IMPROVED METHOD OF CURING STRICTURES OF
THE URETHRA BY KALI PURUM.

IN the preceding pages I have endeavoured to show that strictures of the urethra are not merely contracted fibres, but really diseased portions of the membrane lining that canal, with a continued disposition to increased contraction. From this view of the disease, it seems probable, that the application of a remedy, calculated both to remove the diseased affection, and to dilate the contracted part, might perfectly cure the complaint, without putting the patient to the inconvenience of wearing a bougie. Such a remedy is caustic, when judiciously used. Hitherto the lunar caustic has been chiefly employed for this purpose, and my former work upon this subject will show the high opinion I entertain of this remedy, in the various diseases in which it is employed. It has, however, been my good fortune, to discover a more efficacious, and, at the same time, a less painful and hazardous remedy for the disease in question. This valuable remedy is the kali purum, which, if used in the manner, and with the precautions

shortly to be described, will be found of singular efficacy in removing the complaint. I have already had so much experience of it, and am so perfectly convinced of it's superiority over the lunar caustic, as well as over the common bougie, that I now use it in a considerable number of the cases that come under my care. Of it's safety I am as well convinced as of it's efficacy; for, if used with circumspection, experience shows there is little danger of it's producing any disagreeable effect.

Before a caustic of any kind is applied to a diseased surface, care should be taken, that the state of the parts, and the habit of the patient, are such as to warrant it's application. In almost every instance in which it is applied with these precautions, the benefit expected to be derived from it will accrue, without any risk whatever, and with much less pain, than might be expected from a remedy of this nature. But if, on the contrary, these precautions be not taken; if the caustic be applied while the parts are in a highly inflamed or irritable state, or tending to gangrene; if the habit be bad, and the patient very far advanced in years; we may expect the most mischievous effects from it's application. Under such circumstances, the use of any kind of caustic, in strictures of the urethra, is dangerous in the extreme. By a little at-

tention, however, it will be a very easy matter to distinguish the cases fit for the use of this remedy, from those which are not.

If the patient be affected with fever, or any other acute disease; if he be much indisposed, indeed, from any cause; if in particular, he have a gonorrhœa, attended with much inflammation and irritation in the urethra; if the prepuce, glans, or any other part of the penis, or the parts adjoining to it be swelled and inflamed; if the urethra, and especially if the strictured part of it, be so irritable as not to bear the touch of a bougie, the use of the caustic is, for the present, forbidden. Great caution should likewise be observed in applying this remedy to those who are far advanced in years. There are, indeed, many elderly persons, who bear this remedy well; yet good reasons might be assigned, why age alone should make us cautious in applying caustic. But supposing none of these objections to exist, the application of caustic should not be the first act of the practitioner, on discovering a stricture in the urethra: some previous steps should be taken, in order to insure the benefit which it is capable of affording, and that without giving unnecessary pain, or producing the serious consequences, which frequently follow it's injudicious application.

In every case of stricture, before we apply this remedy, we ought to be able to pass a bougie into the bladder of at least a size larger than one of the finest kind. This is necessary both to enable us to apply the caustic to the whole surface of the stricture, and likewise to put it into our power to remove a suppression of urine, should it occur, during the use of the caustic. In the greater number of all the cases of stricture we meet with, a bougie above the smallest size may be passed into the bladder. These, therefore, are proper cases for the use of caustic, provided none of the above stated objections to it's immediate application exist.

If the patient bear the introduction of the bougie without experiencing pain, faintness, or great dejection of spirits from it's action, the use of caustic may commence immediately. It should be here observed, however, that many patients very much dread the first introduction of a bougie; indeed some of the most robust are affected with a degree of faintness on passing it along the urethra. Oftentimes the urethra is so irritable, that the first time a bougie is introduced, the patient complains of a very acute pain in the part. In this case the caustic ought not to be applied, till some measures are taken for removing this irritability. For this purpose a

bougie should be introduced every day, or every other day, and kept in the urethra, at first for a few minutes only, but by degrees for a longer time, till the irritability is so much lessened, and the patient so accustomed to it's action, as to be able to wear it without great inconvenience; after which the caustic may be applied with safety. When only a faintness, or dread of the bougie, is complained of, and the patient experiences little or no pain from it's introduction, the only preparation necessary, previous to the application of the caustic, is the introduction of a bougie for a few days successively, withdrawing it immediately afterwards.

When the urethra is rendered nearly imperious by stricture, it generally happens that a bougie, even of the finest size, cannot be passed into the bladder without great difficulty, and sometimes the passage is so confined, that so far from entering the bladder, it will not pass into the stricture. In such cases we often discover other very narrow strictures in the passage, anterior to that usually met with at the bulb of the urethra. The course of the urine being, as before observed, so much impeded in these cases, that frequent painful efforts to evacuate the bladder are excited. These repeated and violent actions of the bladder, with it's almost constant

distention, produce an inflammation of it's internal coat, and derangement of the general state of health*.

In such cases, caustic in any form or quantity, must not be immediately attempted: so active a remedy ought not to be used, till a bougie, as we have before observed, a little larger than one of the finest size, can be passed through all the strictures into the bladder. When this is done, the urine is evacuated more freely, and the consequent irritation and inflammation of the bladder lessened, if not removed, together with the danger of a suppression of urine: caustic may then be conveyed with safety into the centre of

* I have seen three or four patients, at an advanced age, with long neglected strictures, through which one of the finest bougies could not be passed into the bladder without the utmost difficulty; partial suppressions of urine have been the consequence; and from the distention of the bladder, and inflammation of it's internal coat, the disease has spread along the ureters to the kidneys; fever, and at length death have succeeded, notwithstanding the bladder has been relieved from it's distention by bougies and the catheter: two of these patients were examined after their decease; in both the bladder, ureters, and pelvis of the kidneys, appeared to have been highly inflamed; and particularly the substance of the kidneys. In all these cases a hiccough supervened some some days before the patients died.

the worst stricture, with a moral certainty of producing a good effect. But in such a case, to thrust down, in the first instance, a bougie armed with caustic, of a size considerably larger than the narrowest part of the contracted canal, I consider the most painful, as well as the most dangerous practice, that can be adopted. For in these cases it frequently happens, that nearly the whole of the urethra, anterior to the bulb, is so much contracted by numerous and uncommonly rigid strictures, as to render it impossible by any art whatever to dilate the passage to its natural size. If, therefore, the canal, whilst in such a state, be rudely torn open by a large caustic bougie, hemorrhage, pain, dangerous suppressions of urine, inflammation, mortification, and even death itself, must sometimes inevitably ensue. No pains need be taken to show, that these consequences may follow even before the remedy can be brought into contact with the principal seat of the disease.

In all such cases, the first step, preparatory to the use of caustic, should be to dilate the strictured part of the urethra ; for which purpose a fine bougie should be slowly and gently passed down, with its point inclined to the lower side of the canal, in order to avoid the large lacunæ situate on its upper part. In bad cases, the bougie, however slender, generally stops at the

narrowest stricture. When this happens, care must be taken, that it's point be not bent, which it certainly will be, if pushed with force against the stricture, as such an accident would prevent it's farther progress. But by pushing the instrument forward in a gentle manner, and frequently halting during the operation, it will, in some cases, immediately enter the obstruction, and pass on to the bladder. It must be confessed, however, that such success will not always attend the first trial: on the contrary, it will often happen, that nothing short of steady perseverance, and the nicest management in every attempt, will overcome the difficulty*.

The impediment is sometimes occasioned by the aperture of the stricture not being in the centre of the urethra. Having before suggested some hints for ascertaining where the opening lies in such cases, the reader is referred for these

* The purpose is sometimes accomplished by alternately pushing the bougie gently forward, and withdrawing it about half an inch; pausing a little between every attempt to carry the instrument forwards. In some cases of narrow passage, a very fine catgut bougie will pass into the bladder, where a cloth one has failed. In general, however, the latter, if well made, are preferable to the former, as they adapt themselves more readily to little irregularities so frequently met with in cases of this kind.

to page 18. The situation of the aperture being discovered, a bougie may then commonly be passed into the bladder. When this can be effected, it should be worn for a few hours daily, or every other day,* till the passage is so far dilated, as to admit one of a larger size. A few days will generally be sufficient for this purpose.

* The following simple method of keeping a bougie in the urethra is, I think, preferable to any other. Tie about a quarter of a yard of strong cotton thread to the end of the bougie. Take afterwards a bit of rag about six inches square, put it over the end of the penis, enclosing the bougie and string, then wind the string over the rag round the body of the penis, beyond the glans, and fasten it in this situation, by putting the end of the string under that part of it which passed round the body of the penis, without making a knot in it.

In my former essay on strictures of the urethra, I mentioned an instance in which a bougie in a moment slipped three or four inches into the urethra, while a thread was preparing to be tied round it. Since that, another instance of the same kind has occurred, in which I was obliged, as before, to introduce a pair of forceps into the urethra to get out the bougie, and with great difficulty succeeded. I mention these instances as a caution to others never to leave a bougie in the urethra, even for a few seconds only, without having a thread tied round it. Particular care is likewise necessary in tying the thread; if it be too tight, it will divide the bougie; if otherwise, it will slip off from it's end.

In those cases where the passage is so much contracted, that no bougie can be passed through the stricture, though the aperture be ever so favorably situate, it often happens, that it's point may be passed into, though not fairly through it. When this is the case, a certain sensation in the finger and thumb of the experienced practitioner sufficiently indicates the fact, as in attempting to withdraw the bougie, a little force is required to extract it, from it's point being closely grasped by the stricture, and we usually see a circular mark on it when withdrawn*. Besides, a bougie thus engaged, is never forced out merely by the natural action of the urethra, but, if left to itself, continues there: this circumstance is therefore another proof that it's point has entered the stricture. When the point of a bougie is thus engaged in the stricture, the instrument should be kept in this situation† for an hour or more daily, as the patient can bear it, till a passage is procured wide enough for the bougie to enter the bladder. This has been effected, in most of these cases, in the

* Mr. Hunter has remarked the same thing.

† When the whole of a bougie cannot be got into the urethra, it's extremity should be cut off close to the glans. After this the bougie should be tied in its situation by the method just described.

course of a few days ; but in some a longer time will be required. I can, however, truly say, that in the worst and most contracted strictures I have ever met with, I have sooner or later almost uniformly succeeded in procuring a passage into the bladder by means of fine bougies ; and when this is effected, as Mr. Hunter observes, the cure is always in our power. Sometimes, indeed, there has been very great difficulty ; but the only cases where I have not been able to succeed, or have met with uncommon difficulty, have been almost exclusively those, which had been previously treated by caustic according to Sir Everard Home's method. When, by the above management, a fine bougie can be passed into the bladder, it should be worn, as before directed, till one a size larger can be passed through the strictures.

I have hitherto taken no notice of the objections made by some practitioners to the use of fine bougies. But as I am persuaded of their eligibility, I beg leave to offer a few considerations, by way of reply, to those who disapprove of them. It has been asserted, that fine bougies are dangerous instruments, on account of their being sharp pointed ; and particularly, that they are apt to make a new passage for the urine. A bougie of any kind is a dangerous instrument in

unskilful hands. It will be found, however, on examination, that the mischief occasioned by these instruments has generally arisen from the use of those of the middle size. If fine bougies were made of wire, or any other rigid material, serious effects would unquestionably follow their use, especially in incautious hands. But I am persuaded, that such effects never follow from the use of the common fine bougie under skilful management, and but rarely, even when injudiciously applied. Not equally safe is the larger bougie. Although the latter be composed of the same materials as the former, it has, from its increased size, a much greater degree of rigidity. It will not of course accommodate itself so readily as the fine bougie to the passage it has to pass through; and if introduced without having the curvature of the urethra previously given to it, and pushed with too great force, the point of it may penetrate into the substance of the corpus spongiosum, and thereby lay the foundation for a new passage. To all which dangers, the use of the fine bougie is much less liable, from that pliability it derives from its tenuity. This last mentioned ill effect has, however, actually happened, where bougies of a middle size have been used for the purpose of producing ulceration in such strictures as will

not admit a fine bougie* ; and may happen in other cases, from the injudicious management of bougies of this size.

That excellent and discerning surgeon, Mr. Hunter, in treating of the kind of strictures I have been describing, has given directions respecting the use of fine bougies, which evidently show, not only that he was much experienced in their use, but that he had the highest opinion of them. And it should be particularly observed, that he makes no mention of any injury likely to arise from them. When we consider the eminence of this great professor, is it not a little surprising, that his practice should be nearly laid aside by Sir Everard Home, and some other surgeons of experience and respectability ?

It must be evident to any one, who gives the slightest attention to the subject, that if the immediate danger in these cases arise from a suppression of urine, occasioned by the narrowness of the canal, the obvious measure for averting that danger is to widen the obstructed part. Now, as the urethra is a membranous and not a bony canal, it is well known, that it is capable of being dilated to a certain extent, by the introduction of a distending body ; and that such dilatation rarely fails of abating all the violent

* See Hunter on the Venereal Disease, p. 123.

symptoms, though it may not make a perfect cure of the disease itself. If these be facts, is it not absurd to reject the use of an instrument, which, operating as a wedge, attempts but little at a time, and this, when properly applied, in the most gentle manner? If the contraction be so great as has been represented, what hope can there be of passing a bougie through it, unless it be of the smallest kind? Is there any other remedy, by which such a contracted passage can be enlarged with safety? Caustic may indeed now and then be applied on the point of a very fine bougie, in such cases as admits of its being passed into the very centre of the stricture, with the effect of giving immediate relief, as I once experienced; but I have before shown the imprudence of applying this remedy, before the passage is a little dilated, and the parts are known to be in a fit state for its introduction.

To conclude this account of fine bougies, I will only observe, that I have used a very large number of them, and do not recollect a single instance, in which they have done harm; a considerable number of cases might be adduced, in which they have been of the most essential service, without producing any pain or inconvenience; rescuing, in a very short time, many unhappy sufferers from the very jaws of death,

and paving the way for that more powerful and valuable remedy, the caustic.

Having shown that the kali purum caustic ought not to be applied to strictures of the urethra, till a bougie of a proper size can be passed into the bladder; having likewise pointed out the methods to be taken previous to it's application in different cases of stricture; and enumerated certain cases and circumstances, under which this valuable remedy is interdicted, I proceed to state that mode of removing the complaint in question, which it is the particular object of this treatise to recommend. Our first business is to instruct the young practitioner how to arm a bougie with this caustic. For this purpose, put a small quantity of kali purum upon a piece of strong paper, and break it with a hammer into small pieces, about the size of large and small pin's heads. In doing this, care should be taken not to reduce it to powder. Thus broken, it should be kept for use in a vial, closed with a ground stopper. The bougie, intended to be used, should have a proper degree of curvature given to it, by drawing it several times between the finger and thumb of the left hand. (Fig. 2.*)

* It is necessary to give the curvature to a bougie in this manner by degrees, otherwise it will often crack, and be in

Before the caustic is inserted in it, it will be necessary to ascertain the exact distance of the stricture, to which the caustic is to be applied, from the extremity of the penis. For this purpose, let the bougie (which should be just large enough to enter the stricture, with some degree of tightness) be passed, in a gentle manner, into the urethra; and when the point of it stops at the stricture, which it almost always does before it will enter it, make a notch with the finger nail, on its upper portion without the urethra, exactly half an inch from the extremity of the penis. The bougie should then be passed through the stricture, in order to convince the operator that he can readily do the same thing when it is armed with caustic. After this, it should be withdrawn, and a small bit of the kali purum inserted into its point, in the following manner:—A small hole, about the sixteenth part of an inch deep, should be made at the extremity of its rounded end. A large blanket pin, two inches and a half in length, with the head struck off, will answer this purpose; the hole being made with the point of the pin*.

danger of being broken, especially in cold weather; and in such weather, it is useful to warm the bougie before the curvature is made, to prevent the like accident.

* If the bougie be extremely hard, and the weather cold, it is sometimes necessary to warm the end of the pin, in or-

The extremity of the bougie should then be made perfectly smooth with the finger and thumb, taking care in doing this the hole in its centre be not closed. Some of the broken caustic should now be put upon a piece of writing paper, and a piece less than half the size of the smallest pin's head should be selected; the particle, indeed, cannot be too small for the first application. Let this be inserted into the hole of the bougie with a pocket knife, spatula, or some such instrument; and pushed down into it with the blunt end of the pin, so as to sink the caustic a very little below the margin of the hole*. To prevent the kali from coming out, the

der to prevent cracking the bougie in making the hole. To save time to those who apply this caustic frequently, it is recommended to them to keep bougies for use ready curved, with the hole prepared in their extremity.

* Particular care should be taken, that the kali be genuine, and that it has been kept from the influence of the air. That which is good is extremely hard, and of a grayish colour within. Though broken into pieces as small as here directed, it will preserve its hardness even after that exposure to the air, which is inevitable, in preparing bougies to convey it to a stricture, provided that it be returned into the vial as soon as the bougie is finished for use. If, however, by repeated exposure to the air, the pieces become soft, they should be deemed unfit for use: as in this state they are not only apt to break on being pushed into the hole with the pin, but likewise to liquify too soon.

hole should then be contracted a little with the thumb nail *, and the remaining vacancy in it be filled up with hog's lard. This last substance will prevent the caustic from acting on the sound part of the urethra, as the bougie passes to the stricture †. Let the bougie be oiled, when it is completely prepared for the office it has to perform. Then let the operator, without delay, pass it by a very gentle motion, with the curvature upwards, to the anterior part of the stricture, upon which the caustic is to be applied. In doing this, the end of the bougie, that is held by the finger and thumb, should be a good deal inclined towards the abdomen, on its first introduction into the urethra, in order to preserve the curvature of the bougie. After it has passed about five inches, this end should be gradually brought downwards, as the bougie passes on, till it forms a right angle with the body.

* I have not met with a single instance, in which the kali purum has left it's situation in the extremity of a bougie before it was dissolved. Many instances, however, are recorded by Sir Everard Home, in which a large piece of lunar caustic has been detached from a bougie whilst in the urethra.

† I have used both gold beater's skin and gum water for the same purpose, but I prefer lard to either: as it equally defends the urethra, and yet more readily admits the caustic to exert it's power.

It will be known when the bougie arrives at the stricture, by the resistance to its progress being felt by the hand of the operator.

It is a matter of the highest importance, to be extremely correct in ascertaining the distance to which the point of the bougie has proceeded in the urethra. This calculation will assist us in confining the action of the caustic to the strictured part. And here we must not trust merely to what the hand of the operator may feel when the bougie stops at the stricture; as we have a more certain criterion in the notch made in it, as before directed*. To prevent miscalculation, the penis should be held with some firmness upon the bougie, by the fore-finger and thumb of the left hand: this will hinder it from shrinking, and thereby altering the measurement to the notch: without this precaution, the penis, would, in most cases, be shortened during the operation more than half an inch.

When the bougie has reached the anterior part of the stricture, it should rest there for a few seconds, that the caustic may begin to dissolve.

* It is necessary that the patient be placed in a good light, that the notch on the bougie may be distinctly seen. He should likewise stand against a wall, that he may be prevented from moving.

It should then be pushed very gently forward, about one eighth of an inch; after which there should be another pause for a second or two. The bougie should then be carried forward in the same gentle manner, till it has got through the stricture*. The sense of feeling will generally inform the operator, when it has proceeded so far. But here we must again have recourse

* Bougies used for this purpose ought not to be of too soft a texture, lest, when they become warm in the urethra, they bend on meeting with the least resistance. Besides, the hole, in which the kali purum is inserted, is in danger of being closed.

They may, however, readily be made hard enough to resist any impression likely to be made on them by a stricture. Many of those who make these instruments for sale, are very ignorant of the properties which constitute a good bougie. As a common fault of plaster bougies is their becoming too soft when warmed by the heat of the human body, it is necessary, that the composition of wax and other materials, of which they are made, be not mixed with too much oil. A composition of sufficient hardness is not easily wrought into a bougie, except in warm weather, or in a very warm room. The makers of these instruments, therefore, are apt to mix too much oil in the composition of such as they make in cold weather, in order to lessen the labour of rolling them into form. From this cause a bougie, though it look well, may not be soundly made. Hence the bougies most to be depended on are, in general, those which are made in summer. A small quantity of shell lac, when dissolved in wax and diachylon, will give to bougies firmness, as well as a smooth

to the notch in the bougie, as a guide; which, when the point of the instrument has fairly passed through the stricture, will generally be seen near the orifice of the urethra.

When in any particular case, a bougie thus armed stops at the stricture, and seems to refuse proceeding any further, the difficulty of passing it through the contraction is often overcome by extending the penis, and at the same time pressing the bougie gently forward, in the manner already described, in some cases where the same difficulty has occurred in attempting to pass a common bougie. When the caustic bougie has passed through a stricture, it should be immediately withdrawn by a very gentle motion to the part at which it was first made to rest a while. After which, it should be passed very slowly through the stricture a second time; but without letting the bougie stop in it's passage. If the patient complain of pain, or if he be faint, which last effect sometimes, though rarely, attends the first operation, the bougie should be immediately withdrawn; But if these effects are not produced, we may re-

and glossy surface. Bougies are harder, and, in every respect, better for age. They should be made of new cloth, to prevent their breaking in the urethra, and if they are made of fine cloth, they are much less liable to crack, and become rough by use.

peat the operation of passing and withdrawing the bougie through the stricture, once or twice more before we finish the operation, which will take up in the whole about two minutes.

In the greater number of cases, in which the caustic is thus applied, even in the first instance it gives but little pain at the time of it's application. A slight scalding in making water, and a trifling discharge during the first day or two, are, however, commonly produced by it. But it must be observed, that the mildness of these effects is entirely owing to the small quantity of caustic employed.

At the expiration of seven days, the application of the caustic should be repeated in the same manner. If the first application should have enlarged the aperture of the stricture, which may be known by passing a bougie through it, of the same size as that by which the caustic was conveyed, the bougie used in the second operation should be a size larger than the one used in the first, taking care, however, that this be not so large as to stop at the stricture without passing through it*. But

* It is essential that the bougie, upon which the kali is applied, pass through the stricture at each application of the caustic. We ought therefore, in all cases, to pass the bougie we intend to use for this purpose once through the stricture, before the kali is inserted into it.

if the passage shall not have been enlarged by the first process, the second must be carried on by the same sized bougie as was before used. If the patient felt no pain under the first operation, a piece of kali, a small degree larger than was used before, may be selected for the succeeding attempt. But if the first application gave pain, there should be no increase made in the quantity of caustic. At the end of seven days more the caustic should be repeated a third time. At this and all future applications of it, the bougie, upon which it is applied, should be increased in size, in proportion as the aperture of the stricture dilates, the better to effect the dilatation. Every succeeding bougie should pass, with some degree of tightness, through the stricture, and be moved backwards and forwards several times, either slowly or more quickly, as the patient best can bear, till the caustic is dissolved. The operation should be repeated, in this manner, till the contracted part of the urethra is dilated, if possible, to the natural size, which is generally practicable in recent strictures. In those of longer standing, we should make the attempt, and carry the dilatation as far as it can be done with safety. We are, however, on no account to increase the quantity of caustic, as we increase the size of the bougie.

On account of the extreme activity of this remedy, and the certainty with which it destroys the organization of the part it touches, it is necessary to fix upon a maximum or determinate quantity, which we should not venture in any case to exceed. Without this precaution, great mischief may result from it's application; as some patients have so little irritability, as to be able to bear much larger quantities of it, without any sensible inconvenience, than it would be prudent to use. On this account, as well as from a wish that the remedy should act only on the surface of the stricture, without destroying it's substance, I do not in any case apply more of the kali purum at a time than a piece about the size of a common pin's head: and even this quantity cannot be borne where the habit is very irritable. It would be difficult to weigh such small portions of this article. In order, therefore, to convey a clear idea of the different quantities to be used, I shall here represent them by three different dots of different sizes: thus, . . . and to give further assistance on this important point, I find that twelve bits of the largest size weigh one grain.

Hitherto I have had in view those cases only, in which there is but one stricture. Where, however, there are more than one, it is necessary

to apprise the practitioner, that the caustic should generally be applied to one only at a time* ; commencing with that in which the contraction is greatest, in whatever part of the urethra this is situate. It should be kept in mind likewise, that where there are many strictures, one of them is generally at the bulb, which may be called the main stricture, is commonly the most contracted, and that from which a gleet usually proceeds ; whence it is evident, that our attention should always be particularly directed to the removal of strictures in this situation.

The above directions for using the kali purum as a caustic, hold only in those cases of stricture, in which the contraction is regular. Whenever it is irregular, a common bougie must be first passed through it, according to the directions already given in such cases †. The same bougie should afterwards be armed with caustic,

* In several cases of old and very narrow strictures, I have met with contractions within half an inch of each other ; in these I have sometimes applied the caustic to both strictures at the same time, with the greatest advantage. I have, however, in no instance adopted this plan till having applied the caustic several times to one stricture only, I became well assured, that it might be used with perfect safety and greater advantage to both at once.

† See page 13.

and passed through the stricture in the manner already directed. By this treatment, a stricture of this kind will generally have the irregularity so far reduced by two or three applications, as to render it unnecessary any longer to give the point of the bougie that particular direction which it before required. After this, the stricture must be managed as in other cases.

Seven days have been mentioned as the interval which should be suffered to elapse between the different times of applying the caustic: there may however be reason sometimes, to depart from this rule, but in no case should the caustic be repeated till the action of the former application has entirely ceased. Experience has convinced me, that thus to desist from repeating the caustic, till the action of the last application is completely gone off, and the part has remained at rest for a short time, is not only less painful, but more effectual, than to re-apply the caustic while the parts are still under the influence of the former application. As, therefore, the effect of caustic continues something longer in some cases than in others, and even in the same case at different times, either from some difference in the quantity employed, or from the various degrees of irritability in different habits, I have, in a few instances, re-applied it at the end of five days; but in others, not till after eight or

nine, or even a longer interval. And where this has happened, from the patients being so circumstanced, as to render a more frequent application inconvenient, I have rarely perceived any interruption to the cure from this delay; but on the contrary, have reason to believe, that many of them recovered with less pain and hazard, than if the caustic had been re-applied at shorter intervals.

In most of the cases in which I have applied the kali purum in the quantity, and with the precautions mentioned, it's action has subsided either on the first or second day after. In a few instances, however, it has continued for four or five days; and in one or two, where the habit was uncommonly irritable, for nearly a fortnight. These varieties show the propriety, or rather the absolute necessity, of waiting till the immediate influence of one application of the caustic has ceased, before another is made. Indeed, I am convinced, that had not this rule been observed in the last mentioned cases, the patients would have suffered extreme pain on the re-application of the caustic, which, if nothing more serious were to follow, ought to have weight*.

* I attribute to a carelessness in not irritating the urethra by the too frequent application of the kali purum, that I

The immediate effects of an application of the kali purum are usually, as before observed, a slight scalding sensation in making water, and more or less of a discharge from the urethra, for the first day or two. This discharge is commonly of a gleety nature, sometimes, but not usually, a little tinged with blood. In two instances, a tea-spoonful or two of blood succeeded the application. In another case, a table-spoonful followed the extraction of a bougie; but I attributed this entirely to the bougie, and not to the caustic; for this patient, as sometimes happens, had repeatedly lost about the same quantity of blood merely by passing a bougie through the stricture, though this was done in the gentlest manner. In one instance, the patient lost two teacupfuls of blood three or four days after the application of this caustic; but this is the only case I have met with, in which such a loss of blood has followed the application either of lunar caustic, or the kali purum, although I have used them at least a thousand times; and it was occasioned by an ac-

have met with only one or two cases, in which a swelling of the testicle arose from it's use. From what I have formerly observed, I am of opinion, that such instances occurred much more frequently where the common bougie only was used, than happens with this remedy.

cidental circumstance; the bougie, that conveyed the kali, being too large to pass the contraction, the whole of the caustic was expended on the anterior part of the stricture, which consequently received a greater quantity than was designed*.

I am always particularly careful not to excite hemorrhage: for, though no harm whatever arises from the loss of a few drops, or even a few teaspoonfuls of blood, yet, having once taken place, it may occur again, and a larger quantity may be lost, if care be not taken to prevent it. In such cases, therefore, I do not repeat the caustic oftener than once in eight or nine days; and even then I use less than the usual quantity. But where these slight hemorrhages do not proceed, either from the abrading action of the caustic, or from wounding the part by the use of too large a bougie, or passing it with too violent a hand, but merely from the diseased state of the surface of the stricture; we may expect, that a moderate application of caustic, instead of increasing, will lessen, and in time entirely remove them, as I have frequently experienced.

* This case points out to us the absolute necessity of applying the kali upon a bougie of such a size as we know will pass through the stricture.

During the use of caustic, I never suffer a bougie to be passed into the urethra, in the interval of it's applications, except there is a suppression of urine, as this is sure to irritate the parts; and I am well persuaded, that the use of the bougie, at such times, tends to produce hemorrhage. Indeed, I can see no other advantage likely to be derived from the practice, but that of preventing, in a few rare instances, a partial adhesion of the strictured part. This circumstance one might be led to suppose would frequently happen, after the parts have been excoriated by caustic, as the sides of the urethra are at all times in contact, when not distended by the passage of the urine; but I believe it very seldom follows; once or twice, indeed, I have seen an adhesion take place, in the interval between the applications of the caustic, but it was so slight as to be easily removed by passing a bougie, or re-applying a small quantity of caustic*.

* I am certain, that where no caustic has been employed, strictures are sometimes, though rarely, brought on, merely by the contact of the sides of the urethra, when in an inflamed state. And such adhesions, when of long standing, are more obstinate than the common stricture. A case, apparently of this kind, I saw about 12 years ago, in which the contraction was situate at the distance only of three

I shall next show in what manner the kali purum acts upon strictures, and thence endeavour to explain how this remedy, powerful as it is, may be applied with safety to the urethra. From considering how extremely active this caustic is, when applied in the usual way to any part of the human body, we might be led to conclude, that it would be almost impossible to convert it into a mild and safe remedy to a part so tender as the urethra. When, however, we reflect, that there is no substance, either of the

inches from the extremity of the penis: but there was no stricture in any other part of the urethra. The subject was a young gentleman, about 22 years of age; the complaint was brought on while he was travelling for a fortnight in a hot country, during which time there was almost a constant flow of blood from the urethra. When I first saw him, the urethra appeared to be nearly closed at the contracted part; as it would not, without great difficulty, admit the point of a bougie of the very finest kind, and the urine came away by drops only. This case was attended with a highly inflamed state of the urethra, and symptoms of an inflamed and irritable bladder. The stricture was the most irritable I ever met with; the first touch of a bougie giving the most excruciating pain. A cure was obtained by the common bougie, by making the first attempts with very fine ones, and gradually increasing the size, till a middling one could be passed into the bladder. But the urethra was so uncommonly irritable, that it generally required five or ten minutes to get the bougie into the stricture.

most caustic or poisonous nature, but may be converted into a medicine as safe as any in common use, so as even to be applied to the coats of the stomach without injuring them, it ought not to be deemed an extraordinary assertion to declare, that one of the most active substances of the former description may be employed on the tender surface of the urethra with the utmost safety.

Before the kali purum can be safely taken into the stomach, it's caustic properties must be entirely destroyed by dilution ; but, under proper management, it may be applied to the urethra, even as a caustic, without producing a slough, as it commonly does when applied in the usual method. The mode of applying it on the extremity of a bougie, which is gently moved backwards and forwards, and the time that the caustic may be supposed to be in the act of dissolving, have been already explained. By this procedure, the kali is equally diffused over every part of the strictured surface, and only *abrades**

* The Editors of the *Imperial Review*, in their account of the first edition of this work (see Review for August, 1804, page 571) find fault with my explanation of the manner in which the kali purum acts upon strictures, and affect to speak of it somewhat ludicrously. To enable them to do this with more appearance of plausibility, they have mis-

the membrane of the stricture, without producing a slough. The *degree* of this abrasion is entirely under the control of the operator: by a little attention to the quantity of caustic employed, it may be increased or lessened at each application, as circumstances dictate. In this operation, a slimy substance is formed, compounded probably of the abraded matter of the stricture, and the oil and lard used in the operation, combined with the kali. This slime is found adhering to the bougie, and some of it generally finds it's way down to that part of it which is held by the operator's hand. In this manner the kali penetrates and dissolves the hard and diseased surface of a stricture, with a facility, which no other remedy, that can be safely applied, will equal. That this is the mode of it's action, when applied as directed, I am convinced, from ocular demonstration; for, in applying it to a stricture near the orifice of the urethra, I have had frequent opportunities of

printed the sentence criticised, substituting the word *absorbs*, for *abrades*, and thus rendering it truly unintelligible. Although I have twice written to Messrs. Cadell's, requesting that this error might be corrected, no notice has yet been taken of it; the public may judge from hence of the degree of impartiality with which the *Imperial Review* is conducted.

remarking the degree of abrasion it produced without occasioning slough, together with the formation of the saponaceous slime I have mentioned. Such cases have likewise afforded the pleasure of seeing the immediate success, which attends the kali purum, when used for the purpose of opening a stricture. In many instances where the contraction was so great as scarcely to suffer even a small bougie to pass, a much larger one has been readily admitted, immediately after the caustic had been applied. In the same manner it must undoubtedly act in strictures situate out of sight: and as a proof of this, I have almost uniformly found, on applying this caustic to a stricture in any part of the urethra, that the passage has soon been widened; and in most cases even before the bougie has been withdrawn from the urethra.

The kali purum, from it's property of combining with oily substances, and animal mucilages, and forming soap, acts in a manner totally different from the lunar caustic, to which it is decidedly superior, for the following reasons: it acts more powerfully on the stricture; gives less pain to the patient, especially after the first momentary effects are over; is more capable of having it's action confined to the contracted part; and irritates less after it has been applied. Of the superiority of the kali over the

lunar caustic I speak with confidence, from experiments repeatedly made with both these articles.

Among these advantages, there is one resulting from its chemical properties, which deserves a more particular consideration. By its quality of combining with the substance of the strictured surface into a soap, we have the power of confining its action entirely to the part to which it is applied; for the soap, so formed, is so perfectly smooth and mild, as to be incapable of stimulating the membrane of the urethra. The chemical composition of the lunar caustic is totally different, and on this account, though its chief strength may be expended on the disease, yet, as it does not form a soap on being dissolved, but on the contrary liquifies, and forms a caustic watery solution, which, by the natural action of the urethra, flows in a very short time to its external orifice, the whole urethra is stimulated, and more or less injured from the strictured part to its external orifice. In proof of the truth of these observations, I have repeatedly seen the inner membrane of the urethra, just within its external orifice, perfectly white and sloughy, after the application of this caustic to a stricture at the bulb. A circumstance which would not have happened, had not the whole membrane, ante-

rior to the stricture, been affected in a similar way: so in it's application to external sores, we find the same disposition in this caustic to liquify, and flow to the surrounding parts, when it meets with moisture enough to produce this effect.

The kali purum,^u by not commonly producing a slough of any size or firmness, possesses another advantage over the lunar caustic: the sloughs occasioned by the latter, when separated, not unfrequently plug up the strictured orifice, and thereby produce a temporary suppression of urine. Sir Everard Home notices the same effect, and relates one case in particular, in which the slough was an inch in length.

The great activity of this remedy is likewise another of it's decided advantages; as the bulk of the requisite quantity is so small, as to be contained within the confined hole made for it's reception, in the point of the bougie. By thus conveying the caustic within the bougie, the urethra is more completely defended from it's action, in it's passage to a stricture, than by any method hitherto adopted for conveying the lunar caustic to the part. By this method of arming a bougie with the kali purum, the caustic is, as it were, enclosed in a sheath, and thus is gradually dissolved, and regularly diffused over the strictured surface. The hole likewise,

into which the caustic is inserted, may be more or less contracted, previous to the introduction of the bougie, so as to suit different cases, and different degrees of irritability. This is useful in those cases, where a difficulty arises in passing a bougie *through* a stricture, after it has proceeded so far as to reach the contraction.

All that I have hitherto advanced in recommendation of the kali purum refers to such cases only, as admit a bougie to be passed, with more or less facility, *through* the stricture. I shall next inquire, how far this caustic may be applied to strictures impervious to a bougie, even of the smallest size. Whoever is acquainted with the nature of the slough produced by this caustic, and the enlargement of a sore during it's separation, when applied to any of the external parts of the body, must understand, that much caution will be required in applying it, where it is intended to act on one particular part of the urethra only. The extraordinary activity of the remedy, however, has it's peculiar advantages; and I am persuaded, that in some of the worst of these cases, it will be found to perform, if used with discretion and judgment, what the lunar caustic cannot effect. For the reasons, however, just assigned, it is advisable, in all the cases now under consideration, to give a fair trial to the lunar caustic,

previous to the use of the kali purum. If the former fail, I should recommend, that the latter be applied at first in very small quantities; and that the bougie which conveys it be as large as the urethra will admit; in order that the caustic may be applied with more certainty to the central part of the contraction. When the bougie arrives at the stricture, it should be kept in that situation by a very gentle, but continued pressure, for two or three minutes. The degree of pressure should be just sufficient to keep the point of the instrument steadily upon this part without bending it, or obliterating the hole into which the caustic is inserted. At the end of a fortnight, the caustic may be re-applied, provided there be no pain, discharge, or other inconvenient effect of the first application remaining. Under any of these circumstances, we must postpone the succeeding application of the caustic, till these effects have entirely subsided.

If we do not succeed in passing a bougie through the stricture, after three or four applications of the smaller quantities of this caustic, we may cautiously proceed to the use of the largest quantity already recommended in cases of stricture pervious to the bougie. But, as before observed, this should be the maximum: on no account should we exceed this quantity. By

strictly observing these rules, respecting the interval between each application of the caustic, we give time for the separation of the slough, and the cicatrization of the sore, occasioned by the action of the kali; and hereby the danger of hemorrhage is, in a great degree, prevented; a consequence, however, which we could not guard against, were the caustic to be applied upon a slough formed by a previous application of this powerful agent.

Another caution must here be given, not to intrude into the urethra, during the interval between the applications of the caustic, any kind of bougie; as by so doing an hemorrhage might be excited. This caution is not meant to prohibit the introduction of a bougie, for the purpose of ascertaining the state of the urethra, just before the caustic is reapplied. Such an examination may be advisable, and may in that stage of the treatment be ventured on; as it may be reasonably concluded, from the cessation of the effects above alluded to, that the parts are by this time cicatrized, and of course there is no danger of hemorrhage.

I have applied the kali purum, a considerable number of times, to strictures of this description. In one of the worst and most obstinate cases I have ever met with, the method here recommended was successful in procuring a passage

for a large bougie into the bladder, after the lunar caustic had failed. In another case, attended with several fistulous openings in the perineum, the bougie, armed with the kali purum, made it's way into one of these openings*; but this event was not attended with a single drop of blood, or with much more pain than what had been felt before, in applying this caustic. When the bougie was withdrawn, the patient felt no inconvenience from this circumstance: he went about as usual the following day; and what is remarkable, the state of his general health has been better since the occurrence above related took place, than it had been for some time before. It was evident to me, that in this case the kali did not make any new opening: for I had several times observed, in applying the lunar caustic previous to it's use, that some of the latter, when liquified, had flowed through the same opening through which the bougie, armed with the kali, had passed. In this case, the lunar caustic had been applied without success, both by myself and others, a considerable number of times.

* Sir Everard Home relates an instance of fistula in perinaeo, in which the urine came away, partly through the openings in this part, and partly by the rectum. In this case the caustic bougie passed into the rectum.

Before I conclude this chapter, I shall take some notice of the means to be employed for relieving a suppression of urine, should this occurrence take place from the use of caustic, or any other cause.

A suppression of urine is not an uncommon attendant on strictures of the urethra, even when neither the caustic nor the common bougie has been employed. It is, however, in these cases more particularly, that a patient is attacked with this complaint during the use of caustic. This happens especially after exposure to cold; during frosty weather; after some irregularity in living; or in consequence of violent exercise. But a suppression of urine is a rare attendant on this remedy in other cases of the complaint, if it be applied with judgment, and with an observance of the precautions I have already suggested. This complaint is also sometimes brought on from other causes, as, for instance, from wearing a bougie. I have known it likewise produced by the awkward introduction of a bougie. However alarming this disease may appear, yet when it takes place from the use of caustic in the cases I have alluded to, or from the introduction of a bougie, its consequences rarely prove fatal. I have not seen a single instance of any bad effect arising from it.

When a suppression of urine takes place in cases of stricture, whether from the use of caustic, or any other cause, all that is in general required of the patient is to pass a bougie, of a size proportioned to the degree of contraction, into the bladder, and to let it remain in this situation for a minute or two: on withdrawing it, the urine generally follows immediately. Very frequently, indeed, the urine will come away, if the bougie be passed only through the stricture. Those, therefore, who are under treatment with caustic, and reside at a distance from the surgeon, should always keep a bougie by them for this purpose. If, however, a suppression of urine should not be removed by the introduction of a bougie, we must have recourse to the catheter. For this purpose, and indeed almost every purpose for which this instrument is used, the flexible gum catheter is superior to one made of silver. But if the aperture of the stricture be so small as not to admit a catheter, even of the finest kind, to be passed into the bladder, we must have recourse to other means for removing the suppression. If the patient be young and plethoric; if the attack be attended with pain in the region of the bladder, with an increase of heat, with thirst, and other marks of inflammation, we must take blood from the arm; apply leeches to the perineum; empty the bowels;

employ the warm bath, with fomentations to the region of the bladder and perineum. If these fail, opiates must be used. In no mode are they administered with more effect, in this case, than when thrown into the bowels per anum: opiate clysters, therefore, must be given freely. These means should be repeated in proportion to the violence and urgency of the symptoms. If, however, the suppression be not attended with marks of inflammation, but appear to be purely spasmodic; we must be sparing of evacuations, and rely more on the use of opiates, particularly opiate clysters, joined with the warm bath, and topical fomentations. By the judicious use of these means, we shall scarcely ever fail of relieving the patient.

As, however, a suppression of urine sometimes proves fatal, and is therefore always to be considered as an alarming complaint, the absolute necessity of using every means of preventing such an attack must be obvious. Nothing more, therefore, I apprehend, need be said to enforce the previous dilatation of those strictures which are nearly impervious, by the use of very fine bougies before caustic is used; and the utmost caution in the application of the latter remedy, where the stricture is so close as not to admit a bougie, or a catheter, of any size, to be passed through it.

Having repeatedly employed both the lunar caustic and the kali purum, in all the different kinds of stricture, I have several times seen a suppression of urine follow the use of these remedies; but I have met with only two cases, in which this complaint was not immediately relieved by the mere introduction of a bougie. Both of them were of that kind, which admits neither a bougie, nor a catheter, to be passed into the bladder. In one, the lunar caustic had been applied; in the other, the kali purum; in both cases the suppression continued about fourteen hours. In the former, bleeding, purgatives, fomentations, and opiates, administered as before directed, procured relief. In the latter, the same remedies, bleeding only excepted, the patient being too weak to bear it, were equally successful.

Having mentioned the flexible gum catheter, it may seem unnecessary to say any thing further on the use of an instrument so well known to surgeons in general. But as I am well persuaded, that it is not so generally used as it ought to be, I beg leave to make a few observations on its superiority to the silver catheter.

The introduction of a silver catheter into the bladder is a formidable operation. If the surgeon be not well acquainted with the different positions in which the handle ought to be held, in the

several stages of it's progress to the bladder, in order to adapt the point and curvature of the instrument to the curvature of the urethra, the operation will probably be difficult, embarrassing, and very painful to the patient. Indeed, I have no doubt, that in unskilful hands, much mischief is often done by it, particularly at the prostate gland, and about the caput gallinaginis. These hazards might, in almost every case, be avoided, by the use of the flexible gum catheter; which, when properly directed, generally passes into the bladder with as little pain as a bougie, where there is no impediment to it's introduction from a narrow or irregular stricture, or an enlargement of the prostate gland.

An attempt is sometimes made to pass a flexible gum catheter into the bladder with a plated copper wire inserted into it. But this compound instrument is a very bad one, for let it be ever so advantageously curved when it enters the urethra, the wire has not sufficient firmness to keep the catheter in it's proper shape during it's progress. If, therefore, any undue degree of force be used, or if a slight impediment from stricture meet the instrument in it's progress, it's curvature will be altered, and the difficulty of introducing it into the bladder of course increased. If the flexible gum catheter be used with a wire inserted into it, the wire should be

made of iron, and as thick as the catheter will admit, in order to give as much firmness as possible to the instrument. The large instruments of this kind have sufficient firmness, and of course are as useful as the silver ones for common purposes; but as in order to suit them to particular affections of the prostate gland, their curvature may be adjusted more readily and safely by bending the wire, than that of a silver catheter, such large flexible gum catheters are, therefore, superior for these purposes to the silver ones: (Fig. 3.) small flexible gum catheters, with an iron wire, are, however, inferior to those of silver of the same size; as the wire, though made of iron, cannot, for want of sufficient thickness, be strong enough to give the instrument the necessary degree of firmness.

In maintaining that the flexible gum catheter is a superior instrument to the silver one, I mean that my opinion should generally be understood to apply only to those cases, in which it can be introduced into the bladder without a wire inserted into it. The wire, however, is a necessary appendage to this instrument, as it serves to give it a proper degree of curvature for the office it has to perform. A catheter of this description should, therefore, be always kept for use with the wire inserted into it, but curved to a much greater degree than the common silver

catheter. (Fig. 4.) When it is going to be passed into the bladder, the wire should be withdrawn: the instrument thereupon loses it's redundant degree of curvature; it should then be oiled, and passed in a very gentle manner along the urethra till it reaches the bladder*; it's curved extremity being directed towards the pubis, and the opposite end, on it's first introduction into the urethra, inclined towards the abdomen. Where there is no obstruction from stricture, or the prostate gland, a catheter thus prepared, of almost any size or degree of flexibility, will, from it's greater smoothness, generally pass more easily into the bladder than a common bougie. It requires only to be pushed on, with it's point kept constantly upwards, till it reaches the bladder: the flexibility of this instrument causes it to adapt itself readily to the curvature of the urethra. Such, indeed, is the ease with which gum catheters, of a proper firm-

* If the gum catheter be very stiff, it should be warmed before the wire is inserted, and the instrument is put into a curved state. For common purposes, this catheter should be of the usual degree of curvature, when the wire is withdrawn. But where the intention is to pass this instrument over an enlargement of the prostate gland, it should be still more curved, particularly at the point, when the wire is withdrawn.

ness and curvature, generally pass into the bladder, that I lately introduced them in forty-eight cases, merely for the purpose of measuring, in a number of men, of different stature, the distance from the extremity of the penis to the entrance of the bladder*.

* Although the general distance from the extremity of the penis to the bladder is already well known, yet perhaps a knowledge of the deviations from the usual length, arising from the variations of stature, as well as from the length of the projecting part of the penis, in different men, may not be altogether useless. At any rate, the young practitioner may, I conceive, be assisted by the result of my examinations, in ascertaining the situation of obstructions in the urinary passage. The following is a scale of the measurement of the cases I have alluded to, which I have divided into three classes, viz. tall, middle-sized, and short men. In each of these classes, however, there were some differences in size, and in many of them considerable variations in the length of the projecting part of the penis. The number of tall men, in whose cases the flexible gum catheter was introduced into the bladder, was sixteen. Of these, the following is an exact measurement of the different distances from the extremity of the penis to the bladder in each of them, taken while the former was held firmly upon the catheter, to prevent it from shrinking.

1 at 10 inches

8 at $9\frac{1}{2}$

5 at 9

2 at $8\frac{1}{2}$

16

Gum catheters are made of very different degrees of flexibility; some are so pliable as not to stand in need of the assistance of a wire to give them curvature. Catheters of this kind, however, are not so generally useful as those which, being of a firmer texture, require a wire to be

The following is a similar scale for the men of a middle size: these were twenty-three in number.

3	at	$9\frac{1}{2}$	inches
1	at	$9\frac{1}{4}$	
7	at	9	
2	at	$8\frac{3}{4}$	
7	at	$8\frac{1}{2}$	
2	at	$8\frac{1}{4}$	
1	at	8	
—			
23			

The next is the scale for the short men: these were nine in number.

1	at	$9\frac{1}{4}$	inches
2	at	9	
4	at	$8\frac{1}{2}$	
2	at	$8\frac{1}{4}$	
—			
9			

It is well known that strictures are very rarely met with beyond the bulb of the urethra: and as the lowest part of the bulb, in short men, is commonly about $6\frac{1}{2}$ inches from the extremity of the penis, allowing for variations in the length of the projecting part of the penis, we may in general

kept in them to give them curvature. The real French gum catheters are in general preferable to the English ones: as the resinous gum, with which they are covered, does not dissolve by the urine, even when they are kept in the bladder for many days together; nor do they readily

safely conclude, that no obstruction from stricture will be found in such subjects much beyond that distance. With equal safety we may conclude, that an obstruction from stricture is seldom met with beyond $7\frac{1}{2}$ inches in tall men. If, therefore, in short men, a bougie pass unobstructed to the distance of eight inches, or a little more from the extremity of the penis, and yet will not go into the bladder; or if the same thing happen in tall men, after a bougie has proceeded about nine inches, allowing in each case, for the different sizes, about an inch and a half for the membranous part of the urethra, we may conclude, that the impediment does not often arise from stricture, but from an enlargement of the prostate gland, or from stone.

It is also of great importance in examining the urethra, in order to ascertain the seat of a stricture, to be correct as to the situation of the real impediment to the progress of the bougie. Bougies are frequently made of a conical shape, and even those usually called cylindrical, are often somewhat conical if nicely examined. In using bougies of this shape, therefore, we may be greatly deceived in some cases of stricture. If, for example, the contraction be at three inches from the external orifice, and a conical bougie, much less at the point than the stricture, be introduced, it might at first readily pass through it; but just as it's point arrived at the prostate gland, it might be so much grasped by the stricture,

become rough by repeated use. They are likewise in general of a firmer texture, particularly within an inch of the rounded extremity, where it is especially necessary that they retain the degree of curvature given to them. I hope, however, that we are rapidly advancing to per-

from its conical shape, as to be incapable of passing into the bladder. Such a case, therefore, might be mistaken for an affection of the prostate gland. I have been often deceived from circumstances of this kind in the use of conical bougies, and am, therefore, persuaded, that for the purpose of correct examination, we ought to use bougies of this shape, but rounded and introduced at the large, instead of the small extremity of the cone. This will obviate every difficulty I have mentioned, as such bougies will not stop till the point arrives at the most contracted part of the urethra. Bougies of this shape are likewise in general better than those of any other for the conveyance of the kali purum; as the caustic may always be applied by them with more certainty to the narrowest stricture. By using a bougie of this shape, we likewise frequently avoid an embarrassment from a contraction of the orifice of the urethra in some cases, which contraction, if a conical bougie be used, with the small end downwards, absolutely prevents one of a proper size from being passed down to the stricture.

I would, however, just remark, that when it is necessary to wear a bougie in the urethra, in order to dilate a stricture, conical bougies are often preferable to any others for the purpose.

fection in the manufacture of these instruments at home.

When a catheter reaches the neck of the bladder, it is often requisite, that the point of it be elevated above that little eminence called the verumontanum. Without this, it will not pass into the bladder. And in case of an enlargement of the prostate gland, which is very common in the advanced periods of life, the catheter requires more than the ordinary degree of curvature, to be given to it, in order to elevate it's point in proportion to the degree of enlargement of this gland. To show how extremely necessary it is, that the point of a gum catheter, when used without a wire, should, in cases of this kind, not only be well curved, but be of texture sufficiently firm to retain that curvature, I may here mention two instances that occurred within a month of each other, in which a pliable gum catheter was used. The instrument, although much curved by the wire, would not rise over a little enlargement of the prostate gland which occurred in each, when the wire was withdrawn; nor could the water be drawn off by it in either of them. In both these cases, however, a catheter of a firmer texture, particularly at the point, with the same degree of curvature given to it by the wire, as in the former trials, passed into the bladder with-

out difficulty when the wire was withdrawn. The same thing happened in these cases at several different trials with this instrument.

Having made these observations on the means to be employed for relieving a suppression of urine, and on the use of the flexible gum catheter for that purpose, I proceed to some other remarks, relative to the application of the kali parum, in cases of stricture.

It may perhaps be observed, that in many of the cases hereafter related, I have employed the caustic a great number of times. To this I answer, that many of them being of the worst kind, and extremely difficult of cure, and as the remedy employed must in *all* cases be used in small quantities, it required a greater number of applications to effect the cure. And, indeed, I am firmly of opinion, that the cures made by this gentle mode of procedure, are more lasting than those which are performed by violently forcing open a stricture with a large caustic bougie. On the difference between this mode of treatment, and that adopted by Sir Everard Home, I have to remark, that I do not recollect a single instance in which my patients were confined from business during their being under cure, excepting the following, viz. the two cases of suppressions of urine, and that of slight hemorrhage, mentioned in the preceding pages, and

another, in which an abscess in the perineum took place*. Let any one contrast this account with the dreadful effects of caustic related in almost every part of Sir Everard Home's work. It is most certainly true, that almost all the effects he has detailed, are the consequence of his own injudicious mode of employing this powerful agent on a part so uncommonly irritable as the urethra.

It may likewise be noticed, that I have treated many cases with the caustic, which might have been relieved, if not cured by the bougie only. To this I can answer, that a more extensive experience in the use of this remedy has convinced me, that the cures made by it are much more durable than those effected by the bougie alone. On this account, as well as to avoid the trouble and inconvenience of wearing a bougie, I thought it right to use the caustic in all those cases of stricture, in which it might be applied with safety. I am now still more satisfied, that the cures made by the caustic are more radical, than those effected by merely dilating the stricture with a bougie†. I consider it as a further

* This abscess was the effect of hard drinking several days after the application of the caustic.

† After a cure is completed by caustic, I do not generally advise a patient to pass a bougie through the part for-

corroboration of this matter, that two or three of those whom I have radically cured by the caustic, were likewise cured under my own inspection a few months before, by the bougie

merly strictured, in order to prevent a relapse; as I have known two or three instances where this has been done so awkwardly, as to bring on a swelled testicle, and other inflammatory complaints. Were it not from an apprehension of such consequences, I should think it right in most cases to have a bougie passed eight inches into the urethra, and immediately withdrawn, about once or twice a week, and in some cases oftener, for some months after a cure is made. Where, however, strictures have been of long standing, and where patients can pass a bougie in a gentle and cautious manner, it is certainly prudent to adopt this practice, and even to continue it for a considerable length of time.

I have remarked in several cases that, after a stricture has been cured, a degree of curvature has been given to the urethra in that part where the stricture was situate. This, I apprehend, has arisen from the contraction which took place while the stricture was forming, by which the urethra was drawn at that part a little out of it's natural direction. A soft bougie passed into the bladder, and suffered to remain about two minutes, will always, on being withdrawn, show the curvature I allude to. A common bougie will sometimes answer the purpose. I have several times known this curvature to be so considerable, as to impede the free passage of a bougie through this part, at it's first introduction; but when the instrument becomes warm, and has once passed the curved part, it will afterwards go through it again without stopping.

alone. The strictures in each of the cases re-appeared in a few months after they had been removed by the bougie; but no relapse followed the cure effected by the caustic.

In thus recommending, however, the practice of curing strictures by caustic more generally than has been hitherto done, I do not wish to lay aside the practice of using the bougie alone. I am convinced that there are many cases, in which these instruments only ought to be used.*

* I would warn gentlemen against the use of metallic bougies, as they are extremely dangerous instruments. I have heard of an instance, in which an instrument of this kind, by being pushed into the substance of the corpus spongiosum, produced an alarming hemorrhage. Other cases have occurred, in which those instruments have broken both in the urethra and bladder; and have required an operation for their extraction, similar to that of extracting stones from these parts. The common bougie is so pliable, that it sits easier in the urethra than any other; and if its composition be very stiff, as before observed, it will be sufficiently hard to answer every purpose of a wedge. With respect to the use of elastic gum bougies, since the last edition of this work was published, I have been able to give them a proper degree of curvature, by which, from their smoothness and durability, they may be made very useful in some cases. For this purpose, let them be immersed for about a quarter of an hour in hot water, consisting of two parts of boiling water, and one part of cold, after which they should be repeatedly drawn through the

There are likewise other cases, in which both the caustic and the bougie may be alternately used to great advantage; and others again, where the urethra is at first too irritable for the use of the caustic. In these cases, a bougie

fingers and thumb of the left hand, and at each stroke, the point, and lower part of the bougie, should be strongly bent in one direction, till the bougie is curved like a common silver catheter; after which it should be placed in this form till cold, between two large books on a table, by which the curvature will be retained. Or this curvature may be given by warming the bougie by a gentle fire, and then gradually bending it with the fingers as before directed. In some cases, these bougies thus bent are preferable to those made of cloth, and they are much fitter for hot climates; but they require great care in giving the curvature, otherwise the coating of elastic gum will be cracked. Is it not surprising, that in these days of improvement, bougies of this kind are still sold in the shops perfectly straight, without a hint or direction to the patient or young practitioner, to give them a curvature. Some indeed are so pliable, that they will take the curvature of the urethra by introduction; but this is not the case with those which are made of rigid materials, and especially those of the larger sizes, which are dangerous instruments. Even the former will not readily pass a stricture of difficult entrance, without having the curvature given to them.

When a common bougie is worn in the urethra for any length of time, it is often advisable not to pass it into the bladder. If it reach to the length of $7\frac{1}{2}$ inches in the urethra of short men, and of $8\frac{1}{2}$ in that of the tall, it will, in

should be worn daily, or on alternate days, and gradually increased in size, till the caustic can be applied with safety and effect.

I now close my observations on the use of the kali purum as a remedy for strictures of the urethra; having faithfully related the whole of my experience on this subject: and I can affirm, without the least hesitation, that this caustic will be found a most efficacious, and, at the same time, a perfectly safe remedy, for the cure of these complaints, if it be used in the quantity, and according to the method I have recommended; but I cannot be answerable for any consequences which may result from it's being differently applied.

almost every case, have passed all the strictures; and if the bougie be perfectly cylindrical, the strictures will be dilated as well as if the instrument were passed into the bladder. By this method we avoid irritating the orifices of the seminal ducts, and thereby frequently prevent swelled testicles. It must be confessed, however, that in some cases the bougie sits easier, and is retained better in it's situation, when passed into the bladder.

CHAPTER III.

ON THE CURE OF STRICTURES IN THE URETHRA
BY LUNAR CAUSTIC.

IN a former essay on this subject*, I proposed a method of curing strictures of the urethra by affixing a determinate quantity of lunar caustic upon the extremity of a bougie by means of gum water, and coating it with a thin lamina of gum water or bees wax, before it was passed into the stricture. Of the superiority of this mode of applying the lunar caustic, over Sir Everard Home's method, I have had repeated proofs; and it gave me much pleasure to find that, what I had recommended met with public approbation, in several respectable periodical publications.

The method of applying caustic at each operation to the whole surface of the contracted part, is unquestionably of great efficacy in this disease; and it seldom fails of giving immediate relief, as it opens the stricture, by acting on the diseased part itself. I have made a perfect cure of many cases of this complaint, by applying lunar caustic

* Observations on Mr. Home's Method of Treating Strictures in the Urethra, 8vo.

in this way, without advising my patient to wear a bougie in the intermediate times of applying it; but in others, it was very difficult to effect a sufficient dilation of the stricture. In some very irritable habits I found, that this caustic, though only an eighteenth part of a grain was used, gave more pain at the time of applying it, and that the pain continued longer, than might have been expected from so small a quantity; these last circumstances induced me to turn my thoughts to the kali purum, as a substitute for it. In the beginning of my new course of treatment, I had many opportunities of comparing the effects of both caustics, by finishing the cure with the kali purum, in cases in which the lunar caustic had been previously used. In every instance of this kind, I found the former occasioned far less pain than the latter; especially, after the first effects of it's application had subsided. In recommending the kali purum, however, as, in general, a safer, less painful, and, at the same time, more efficacious remedy, I by no means wish it to extend to the total rejection of the lunar caustic in the treatment of strictures.

There are, as has been before stated, some cases in which the contraction is so irregular, and it's aperture so untowardly situate, that a bougie cannot readily, if at all, be passed into it: other cases have likewise been described, in which it is impossible to pass a bougie through

the strictures. If, in the former of these cases, a bougie, furnished with the kali, cannot be passed *into* the stricture, or if it get through the stricture, and yet do not destroy the irregularity, and it becomes necessary for this purpose to apply a caustic at the extremity of a bougie to the anterior part of the contraction, I should certainly prefer the lunar caustic, to the kali purum. In cases of the latter description, the lunar caustic, for the reasons already assigned, ought always to be fairly tried in the same way, previous to the use of the kali purum.

The lunar caustic should be used in every case, in a determinate quantity, upon the extremity, and partly upon the shoulders of a common bougie, which has previously had the curvature of the urethra given to it. The following is an improved method of arming a bougie with this caustic. Take a given quantity of powdered lunar caustic, e. g. the twelfth part of a grain, put it upon a bit of flat glass, then take a very small quantity of thick mucilage of gum arabic upon the point of a penknife, (about the quantity of a large pin's head to a quarter of a grain of caustic is sufficient) mix the caustic and the mucilage together. If the quantity of mucilage be nicely adapted to that of the caustic, it will almost immediately form a paste, which may be taken up from the glass on the point of

a knife. In about half a minute this will become so stiff, that it may be rolled into a pill, without adhering to the fingers. In this state it should be put immediately upon the end and shoulders of the bougie, and without delay so moulded upon it as to become perfectly smooth, like the extremity of a bougie. The operator's finger and thumb will mould the paste, and his thumb nail will smooth it's surface, or it may be polished by gently rubbing it on the glass. But this must be done expeditiously, otherwise the paste will become so hard as to be incapable of being thus moulded.

The bougie may likewise be prepared in the following manner: the liquid paste of caustic and mucilage, when first mixed may be immediately put upon the extremity of the bougie from the point of the knife, and, as it hardens, may be coated upon it, partly by one of the fore fingers, and partly by the knife. This paste hardens so quickly, that by the following day it will be too firmly fixed on the bougie to be easily separated from it*.

* Effectually to preserve the necessary properties of these bougies, it will be advisable to keep them in a bottle with a ground stopper. To defend the urethra from the action of the caustic in passing it to the stricture, the caustic extremity of the bougie should be coated, on the day on which it is to

When a bougie thus armed, is applied to either of the kinds of stricture I have just mentioned, it should be of as large a size as the urethra will admit. When it arrives at the strictured part, it should be pressed against it with a moderate degree of force, till the caustic is dissolved, which it will be in a minute or two*.

be used, with a layer of very thick mucilage of gum arabic, or this part may be very lightly rubbed with bees wax. According to the state of the atmosphere, this coating will be sooner or later in acquiring the necessary degree of hardness. If the air be very dry, it will instantly become hard and fit for use; but in humid weather it will take more time. In the latter case, a small quantity of pulverized gum arabic, made as fine as possible, should be lightly sprinkled over the coating. In using this caustic where the urethra has been unusually irritable, I have sometimes previously introduced into it a straight silver canula, about five inches long, with a probe pointed stilet inserted into it, and withdrawing the latter, have passed the caustic bougie, without the coating on it, to the stricture through the canula.

I have no doubt but that a given quantity of powdered lunar caustic, or the paste above described, might be inserted into a hole made with a pin at the extremity of a bougie, and be afterwards sealed up with a little mucilage of gum arabic, so as to secure it effectually from acting on the urethra in passing the bougie down to a stricture. Bougies thus prepared would act powerfully upon a stricture, if of such a size as to pass through it with tolerable facility; but I have not yet tried this mode of applying the lunar caustic.

* In one case in which I employed the lunar caustic in this

The quantity of caustic employed in the first operation, should not in any case exceed the sixteenth part of a grain. At the second and third operation, the twelfth part of a grain may be used, if the quantity first employed gave but little pain. If, after this, no progress is made in opening the stricture, the quantity of caustic may be gradually increased to the eighth, the sixth, or if the patient bear the preceding quantity very well, even to the fourth of a grain at each application. But the increase should be made with a very cautious hand : and in no case ought we to exceed the quantity last mentioned. In those who are young and healthy, it may sometimes in these cases be repeated to advantage every five days : in other cases, however, a week, or even less frequently, will be sufficient. In making an addition to the quantity before used, we should attentively regard the effect produced by preceding applications : should these have produced pain and irritation, with a frequent desire to make water ; or hemorrhage, even of the slight-

way, a stone, that had been confined beyond the stricture, was set at liberty. In another case, by passing the lunar caustic *into* a stricture, upon a fine bougie, prepared according to the method recommended in a former essay, I dislodged a stone, which came away afterwards, adhering to the point of a bougie.

est kind ; we must not even repeat the caustic, much less increase it's quantity, till these effects have entirely ceased. As a proof of the necessity of keeping an attentive eye on the effect of former applications, I may inform the reader, that I have seen an instance, where only the twenty-fourth part of a grain of this caustic produced great irritation.

It may be objected by some, that the lunar caustic must be weakened by being mixed with gum water. In answer to this I may observe, that the quantity of gum water contained in the paste bears too small a proportion to that of the caustic matter, to affect the strength of the latter. Nor does the patient perceive any diminution of it's force from this circumstance. Further, as gum so readily dissolves where there is any moisture, the caustic is soon set at liberty after the bougie is passed down to the stricture. Whoever will take the trouble of applying a bougie thus prepared to the surface of any wound or ulcer, will find, that it is altogether as active as the stick of caustic itself.

By the process now detailed, I have succeeded in the treatment of several very irregular strictures. Nor have I any doubt, but that the greater number of all the common cases of stricture, where no irregularity exists, and in which a bougie can be passed into the bladder, may be

effectually opened by the lunar caustic thus administered, without the least necessity of submitting to the inconvenience of wearing a bougie during the interval of applying the caustic. In the use of the lunar caustic, the cure should be conducted exactly in the same manner as has been described in the rules given for the application of kali purum; viz. by beginning with a small quantity of the caustic, by gradually increasing it, by passing the bougie *through* the stricture at each application, and increasing by degrees it's size, till the strictured part be dilated, if possible, to the natural width of the urethra. And I must add, that all the precautions enforced with respect to the application of the kali purum, are equally necessary in the use of the lunar caustic, and must be as scrupulously observed by those, who prefer the latter to the former in the treatment of strictures.

CHAPTER IV.

OBSERVATIONS ON SIR EVERARD HOME'S METHOD
OF APPLYING CAUSTIC TO STRICTURES IN
THE URETHRA.

HAVING, in a former essay, commented freely on Sir Everard Home's treatment of these diseases, and pointed out many objections to it, producing instances in which some lives have been endangered, and others said to have been lost by it, I had formed an expectation that what I had advanced, would have been productive of some alteration in his method of treating these complaints. I find, however, that the same practice is still continued by this gentleman, and, that he has even asserted, that the method I have recommended will do no good. Further experience, however, has confirmed what I advanced concerning the danger arising from this practice. I have likewise had authenticated to me so many fresh instances of it's having either proved fatal, or brought on very alarming symptoms, that I should think myself greatly deficient in the duty I owe to the public, were I to close this essay without making some further observations on the subject. I shall

avoid, as much as possible, the repetition of my former remarks: my principal intention being to point out such further objections to that mode of practice, as have occurred to me since the publication of my first essay on this subject.

In the preceding part of this work I have endeavoured to show that most strictures of the urethra may be perfectly cured even by caustic applications, without giving much pain to the patient, and with as little risk as from wearing the common bougie. Having had great opportunities of observing the effect of these remedies, I can speak of them with the utmost confidence. But I will venture to say, that no reader of Sir Everard Home's treatise will conceive his method of cure to be equally safe and easy. The numerous instances he has himself given, of excruciating pain, hemorrhage, rigor, suppression of urine, fever, delirium, extravasation of blood in the perineum, &c. brought on by caustic; seems, *prima facie*, to prove something against his mode of applying it: for, according to this representation, the remedy is very often even worse than the disease. But by the method above recommended of employing this powerful agent, a cure may be effected, and yet these serious effects never be produced.

Every practitioner well knows how differently a remedy may operate, according as it is administered, towards the accomplishment of the

same end: by one mode of exhibition, it may fulfil it's intention without giving pain, or producing any inconvenience whatever to the patient; by another, the most violent pain, or the most dreadful effects may be produced. Thus it is with respect to the use of caustic in strictures of the urethra. It is not denied, that many cures may be made by forcing a large caustic bougie through the urethra. But it does not hence follow, that this mode of treatment is the best that can be adopted: and I shall endeavour to prove, that it is not only the least eligible, but a very hazardous and dangerous practice.

As the urethra is lined with a yielding membrane, and as the disease in question is a contraction of a certain part, or parts of it, it is natural to suppose, that, if a hard and stiff bougie, armed with caustic, be forced against a contraction, it will sometimes yield to it, and thereby a free passage for the urine will be procured. This too may perhaps be done in some instances, where one stricture only occurs, and that of short standing, and where the parts are neither very rigid, very irritable, nor much contracted; without giving a great deal of pain, or producing any serious effect. Yet it is well known, that very different effects are often produced by this mode of treatment in other cases of longer standing, and where more than one

stricture occurs; as these often require a great number of applications of the caustic, by which the most alarming symptoms are produced, before the bougie can be passed into the bladder. Even in the former instances, a treatment of this kind is improper, as too much violence is thereby offered to a part, which might be dilated to the same extent by a more gradual and gentle method, not exposed to the many evils resulting from a sudden distention or rupture of the parts. But in those of very long standing, where, by numerous strictures, the canal of the urethra is nearly closed up at different places, and the contracted parts are extremely rigid, the practice recommended by Sir Everard Home is, I conceive, the worst that can be adopted, and in many instances extremely dangerous. We might indeed, begin in these cases at the extremity of the urethra, and attack the first stricture; and after much excruciating pain, and repeated applications of the caustic, perhaps succeed in passing through it: a second may be attacked, and perhaps conquered in the same manner: but the main and principal stricture at the bulb is yet to be removed: and here the operator will probably be either foiled in the attempt, or if he succeed in getting through the stricture, the most violent hemorrhages, pain, fever, shiverings, perhaps death itself, are the consequences. Such effects have been known to follow.

If we consider the nature of the disease, and the method of applying the caustic that occasions these effects, they will be easily accounted for. The contracted part in all strictures of the urethra, as before observed, is harder and thicker than that of any other part of the urethra, and in very old strictures, it is more rigid and thickened than in recent ones: as, therefore, in the cases I am more particularly alluding to, strictures are not only very rigid, but extremely contracted, it becomes very difficult to force a passage through them even by caustic, especially if it be applied upon a large bougie, having its extremity not well rounded. It must be difficult to approach even the anterior part of a stricture of this kind, with such an instrument. Owing to these impediments in getting through a stricture, the caustic is applied again and again, and in many instances from fifty to a hundred times to the anterior part of one stricture only. Slough after slough is, therefore, formed; and if the operator at last force the bougie through the stricture, it is often accompanied with the most alarming and dangerous symptoms. What is remarkable in many of these cases is, that the operator has not at last been able to pass the caustic bougie through a stricture of this kind, but

has been obliged to give up the attempt. It is highly probable, therefore, that in some of them, the difficulty arises from the bougie passing in a wrong direction, and thereby making a false canal. As a ground of presumption that this consequence may follow this mode of treatment, I know of one instance, in which, I was informed, the caustic was used by Sir Everard Home a considerable number of times, without passing through the stricture to which it was applied; during which process the patient suffered extreme pain. After living in the utmost misery for about two years, he lately died, and was opened. A false passage was found by the side of the urethra, which extended between the bladder and the rectum. It was evident, (as observed by the gentlemen who opened the body) that the caustic bougie had entered this passage every time it had been applied; but it was impossible to say with certainty, whether the passage had been made by this, or by the previous use of a common bougie. When, however, we consider what a strong pressure is employed in the mode of treatment now under consideration with the caustic bougie; and how much more powerful than a common bougie it acts upon the part, against which such pressure is made, especially where it is repeatedly

used; it is much more reasonable to suppose, that such a false passage was made by the caustic, than by the common bougie.

Other cases treated by Sir Everard Home have likewise fallen under my observation; in one of them, the caustic was applied to the same stricture more than one hundred times, and could not at last be passed through it. I have likewise met with repeated instances, in cases of multiplied stricture, where he has failed of passing the caustic bougie through the principal contraction.

Let us inquire more particularly into the cause of the impediment above mentioned, and of the frequent repetition of the caustic. Any one acquainted with the action of the lunar caustic upon other soft parts must know, that if a piece of this caustic be applied, with that frequency and force which Sir Everard Home employs in cases of stricture, to any soft part destitute of cuticle, in which there was an obstruction as rigid as a stricture usually is, a very few applications would generally be sufficient to carry it through such obstruction. If this be a fact, what can prevent the same caustic from passing through a stricture of the urethra by as small a number of applications? When, therefore, the effect does not follow in the latter case, as quickly as in the former, it

may reasonably be inferred, that this arises from some defect in the mode of application. The rigidity of some strictures, especially such as are of long standing, is very great; and if the plan of forcing a large bougie through them be followed, thereby rupturing and burning the entire membrane of the urethra at the strictured part, it will undoubtedly require several applications of the lunar caustic to produce such an effect. I do not, however, consider the rigidity of the stricture as the sole cause of the necessity of such frequent repetition of the caustic; I should rather suppose, that the curved form of the urethra is the occasion of it; this form making it difficult to apply to the centre of the obstruction a soft yielding substance, like that of a bougie when deprived of its smooth rounded point, by being armed with caustic. For certainly, if the instrument in its passage do not keep exactly in the middle of the urethra, it will be liable to catch against the under part of the lining of that canal, and thereby be impeded*.

* I know a gentleman, in whose case Sir E. Home applied the caustic to the same stricture upwards of one hundred times, but without being able to pass the caustic bougie through it. He succeeded, however, several times, in passing a common silver catheter through the stricture.

I am willing, however, to allow, that in some few cases, the hinderance may proceed from spasm. But no argument can be derived from this circumstance in favor of Sir Everard Home's method. I have never met with a single instance, in which I have been prevented by this circumstance from passing a bougie, armed with caustic according to my own method, through a stricture. As, however, the curved form of the urethra often creates a difficulty, it is necessary, as before observed, that the requisite degree of curvature be given to the

This gentleman is now a great, I fear a hopeless, sufferer; his case being one of the most obstinate and difficult of any I have yet met with, owing, as I suspect, to the injury done to the part by the treatment he has undergone.

Sir. E. Home admires the ingenuity of putting a piece of caustic stone into the end of a bougie, and considers it a valuable instrument. For my own part, I think that a worse mode of applying lunar caustic to a stricture in the curved part of the urethra, could not have been invented. Every one, who has had much practice in passing a bougie into the urethra, knows, that unless *it's point be round*, and the whole bougie smooth, it passes along this canal with great difficulty, and not without giving pain. As, therefore, the extremity of a bougie thus prepared *cannot* be made round, I consider it an instrument very unfit for the purpose; to say nothing of an accident that has often happened, that of the caustic stone dropping from the bougie while in the urethra.

bougie, before it is suffered to enter the urethra. From merely not attending to this precaution, an unarmed bougie will frequently stop in it's passage where there is no stricture: the curvature of the canal it has to pass through preventing it's progress, unless, indeed, it happen to be of soft texture. If, therefore, an uncurved bougie of hard texture be introduced into the urethra with a quick motion, as is common, there will be great danger, especially in cold weather, that it will stop at the beginning of the curvature of the urethra, and thereby wound the inner membrane at that part, before it can become warm enough to adapt itself to the curved course of the canal. This consequence is likely to follow even where the bougie is very fine; but still more so, where one of a large size is used, the inflexibility of the instrument being greater in proportion to it's size. I have been the more particular on this point, from observing that there are no directions relative to it in Sir Everard Home's treatise.

To show that these remarks are not without foundation, I beg leave to relate the following experiments. I passed a large *curved* bougie with the utmost ease into the bladder, in a case where a stricture at seven inches from the orifice

of the urethra had been cured by caustic. I then introduced another bougie, exactly of the same size, and made as the former, but not curved; it stopped at six inches from the extremity of the canal; I pressed it with some force, but it gave pain, and would not proceed. I am persuaded, that had I used any more force, the inner membrane of the urethra at that part would have been wounded, and danger incurred of passing the bougie into the substance of the corpus spongiosum. On withdrawing the bougie, and giving to it a small degree of curvature, it passed half an inch further than in the former attempt, but again stopped. I withdrew it once more, and gave to it a degree of curvature equal to that which the bougie first introduced had. After this, it passed into the bladder without the smallest difficulty. On the same day, I repeated these trials on another patient; the result of which was nearly the same. The stricture, in the last instance, was situate at seven inches and a half from the point, and was not entirely cured. A curved bougie passed, with slight resistance at the stricture, into the bladder. A straight bougie, of the same size as the former, could not be passed further than six inches, but when it was curved as much as the first bougie had been, it passed into

the bladder, halting only a little at the stricture.*

* A straight iron instrument cannot be passed further than five or six inches into the urethra, according to the difference in the stature of men, and the length of the projecting part of the penis. Did not a bougie, therefore, when introduced perfectly straight, become warm in the urethra, and acquire thereby a curvature, it would stop like an iron one. Bougies when old and large, are sometimes very unyielding; it is, therefore, absolutely necessary to give them a considerable curvature before they are introduced. If we take a common silver catheter, and measure off nine inches and a half from it's curved extremity for a tall man, and eight inches and a half for a short man, we shall have a model of the true curvature of the whole length of the urethra. If we measure off seven inches from it's straight end, we shall have its true curvature at a stricture seven inches distant from the extremity of the penis; a proper allowance being made for men of different sizes, as well as for variations in the length of the penis. By the same means we may also gain the curvature at any other distance. The curvature at seven inches is considerable, see Fig. 2; a bougie, therefore, of any size, ought always to be bent to this curvature before it's introduction; and particular care should be taken to bend it well at the point. As, however, a silver catheter, and particularly a flexible catheter without the wire, when much curved, passes more readily into the bladder than if it were less curved; so likewise will it be with a bougie, as I have repeatedly experienced. The reason is plain; the point of these instruments, when they arrive at seven inches distant from the external orifice, is in a better

There is likewise another reason to be assigned, in some cases, for Sir Everard Home's inability to pass a caustic bougie through a stricture in the curvature of the urethra, notwithstanding the instrument is so frequently applied. In passing even a curved bougie, I have sometimes found it to halt, though, on being slightly pushed, it has passed through the stricture. In these instances a jerk has been felt, as if the point of the bougie went over a ridge. Sometimes a drop or two of blood have followed the operation. There are many cases, in which, as observed in a former chapter, there is an irregularity in the strictured part. In some of these, a bougie, in the easiest way of passing it, will occasion the sensation just mentioned. When less experienced, I imagined that all the cases I met with of this kind were alike, but on

direction for being pushed forward, than when they are less curved.

In curving bougies, particularly during cold and frosty weather, great care ought to be taken, that the cloth, of which they are made, be not cracked; as from this circumstance a bougie may break while in the urethra. In order to avoid this accident, they should first be a little warmed by a fire, their curvature should then be made by drawing them between the fore finger and thumb of the left hand. Indeed, in such kind of weather, bougies ought always to be warmed previous to their introduction into the urethra.

finding that they did not all yield to repeated applications of caustic, I discovered, that the same cause does not give rise to this circumstance in every case in which it occurs. Instead of passing the bougie without extending the penis, in some cases where the jerk had been felt, I extended it as much as I could without giving pain, and at the same instant pushed on the bougie as in any other case: by so doing, the bougie immediately passed through the stricture, without occasioning the sensation produced before the extension was made, or drawing any blood. To ascertain whether there were any deception in this experiment, I made another trial; withdrawing the bougie to the anterior side of the stricture, after it had been passed through it without producing the jerk, I endeavoured to pass it again through the stricture without making the extension, but it was then resisted, and in going through the stricture gave a jerk as before. This trial was repeated with the same effects. It is obvious, that in these cases the stricture was not irregularly formed; and it may be concluded, that the inner membrane of the urethra, close to the stricture, was pushed by the bougie into a kind of fold, which produced the obstruction felt when the penis was not extended, and that by extending the penis the fold was taken out. This sug-

gestion is worth attention in the application of caustic as well as other bougies, as it serves to show the advantage of extending the penis in the act of passing them through a stricture. It appears highly probable, therefore, that the caustic bougie, as used by Sir Everard Home, is, for want of such extension of the penis in cases of this kind, prevented from acting directly on the stricture; and that in consequence of it's hitching on some part of the urethra, it may sometimes be forced into the substance of the corpus spongiosum, instead of making it's way through the stricture. But should this not happen, it is evident, that the caustic must act on a part not intended, and thus put the patient to useless pain. It is, therefore, clear to me, that the necessity of such frequent repetition of the caustic bougie to the same stricture has been owing to one or other of the causes above assigned. Let me, therefore, again particularly caution those, who still persevere in this mode of using this caustic, not to apply it frequently to the same stricture; it being impossible to repeat it in a powerful manner, fifty or an hundred times to the same identical spot of the urethra, without doing mischief. I have lately heard that a gentleman, in whose case the caustic had been repeatedly applied to the same stricture, was sent to the sea side,

on account of a violent hemorrhage produced by it: but before he reached the coast, he became extremely ill, and expired before assistance from town could reach him. In this case, the quantity of blood lost daily was very considerable. Many other instances have likewise come to my knowledge, in which the hemorrhage has been alarmingly profuse from the same mode of treatment. There are, however, cases in which the caustic, thus repeatedly applied to the same stricture, is productive of no other inconvenience to the patient, than the pain it occasions during its application and for some time after: but this has frequently been so acute, as peremptorily to forbid any further proceeding in this course of treatment.

There is another serious effect of Sir Everard Home's mode of applying the caustic to be noticed. We have two cases recorded by himself, in which a swelling in the perineum quickly followed the application of the caustic. On the first of these cases Sir Everard observes, "the applications" [of the caustic] "were therefore repeated six times more, on the last of these, the bougie went through; this was followed by a considerable degree of a peculiar kind of pain, that communicated with the rectum, and ran down the thigh. This lasted for a few minutes; he made water by

“ drops, and a swelling came on in the course
“ of a few hours in the perineum. Spirits of
“ wine and camphor were applied, but the
“ swelling continued the same for four days:
“ in a few days more it entirely subsided,
“ after which a full sized bougie passed readily
“ into the bladder.” (P. 443.) The other case
is thus related. “ Another stricture at seven
“ inches gave way to the third application of the
“ caustic ; this happened at eleven in the fore-
“ noon. He now felt an uncommon sensation
“ of a very distressing kind, and in half an
“ hour nearly fainted; was in great pain all
“ day; had a rigor in the evening, with swel-
“ ling in the perineum ; passed a very restless
“ night; had great pain in making water,
“ which came away in a small stream, and was
“ voided every two hours. Next morning he
“ had head-ach, sickness, and retching, with-
“ out vomiting. This he was subject to on
“ many occasions, and considered it as bilious ;
“ passed a good deal of bile by stool.” P. 445.
This patient gradually recovered in four days,
and the water flowed in a good stream, but a
fulness remained in the perineum for some
time, and likewise a swelling laterally on each
side of the penis, where it projects on the os
pubis. This case required afterwards two more
applications of caustic before the stricture was

cured. These swellings, Sir Everard Home *acknowledges to have been produced by blood extravasated in the cellular membrane.* But I would ask, how is blood to be extravasated so suddenly in this part, unless the mouths of vessels are ruptured or opened in order to produce that effect? And in what possible manner can the vessels of the cellular membrane in the perineum be ruptured, so as to produce such sudden and alarming extravasations of blood? Is it not probable, nay almost certain, that the caustic bougie had in these cases been forced through the inner membrane of the urethra, at that part where its membranous portion is joined to the bulb, and thereby produced the extravasation of blood in the perineum? The symptoms attending these cases demonstrate, that some unusual violence had been offered to the parts; for I am utterly unable to account for the swellings upon any other supposition. These cases, therefore, are additional proofs to me of the absolute necessity of treating strictures of the urethra by caustic in a much gentler manner, than has been done by Sir Everard Home, if we wish to avoid pain, and other serious consequences from our remedy. It must be evident to every one, that a method by which caustic can be applied with certainty at each operation, *to the whole surface of a stricture,* must be an effec-

tual preventive of the numerous and serious effects produced by it's being frequently applied to the anterior part of a stricture only, by which it often penetrates the substance of the corpus spongiosum.

There is another serious effect of Sir Everard Home's mode of treating strictures, which is but little known, except to the individuals who have been under this treatment. What I here refer to is, that the caustic, when repeatedly applied to the same stricture, does irreparable mischief to the contiguous part of the urethra. Whether the bougie be eventually passed through the stricture, or whether the surgeon, at length despairing of success, desist from any further attempt, the subsequent effect is nearly the same; the inner membrane of the urethra being repeatedly injured, fresh contractions frequently take place in a short time after the caustic is left off, and the parts are cicatrized, and left to themselves; which being generally of an irregular kind, the strictured part degenerates into a worse state than ever. I have had opportunities of observing the effects of this mode of treatment in many of Sir Everard Home's patients, and I can truly say, that I have met with no cases so obstinate and unmanageable as these; several of them I have found to be incurable: as either no passage could be procured for a bougie

into the bladder, or if passed, yet the stricture proved so rigid, that it could not be dilated. One of these cases was truly distressing; Sir Everard Home had succeeded, after fifty very painful applications of caustic, in procuring a passage for his bougie into the bladder; but in less than twelve months afterwards, the stricture had again so increased, that it was with difficulty a fine bougie could be passed through it; and the patient was in extreme misery from frequent and painful evacuations of urine. All this might be expected, a priori, to be the result of repeated applications of a substance, that tends, if unguardedly used, to destroy the inner membrane of the urethra. In the removal of strictures by caustic, a slight injury may be done to this membrane, this, however, may be repaired. A moderate and cautious use of this remedy does not bring on a contraction of the parts. But a long succession of injuries done to this tender membrane, added to those which the corpus spongiosum frequently receives by this treatment, must in the nature of things be productive of the consequences above stated*. But it being matter of fact, that fresh contrac-

* We see effects somewhat similar to these produced in the cicatrization of other parts of the body, that have been injured by wounds or other accidents, and particularly by burns.

tions of a serious kind frequently take place after violent and repeated applications of lunar caustic to the urethra, this is of itself an unanswerable objection to the practice ; and proves that if caustic be admissible in the cases under consideration, it ought to be applied only in very small quantities, never to be repeated till the little excoriations produced by it are perfectly healed ; and when used, applied in such a manner as to act upon the whole surface of the stricture, and upon that part only.

I shall illustrate these observations by relating some effects of the different modes of applying caustic, in cases of stricture within a quarter or half an inch of the external orifice of the urethra, where they were partly within the observation of the eye. In these cases the strictures were of various degrees of contraction ; but in all, the free evacuation of the urine was impeded, and no moderate sized bougie could be passed to other strictures situate about the bulb of the urethra. In one of these cases I applied a larger quantity of lunar caustic, than I have usually employed. This produced a considerable slough ; part of which was very visible. The application of the caustic was followed by a discharge, attended with inflammation around the orifice of the urethra, and an uncommon tenderness and irritability in the strictured part. The stricture

was at first enlarged by the caustic, but in a few days it began to contract again ; and in the course of a week, the contraction was so great, as not to admit a bougie of much more than half the size it received before the application of the caustic. I endeavoured to prevent the contraction from becoming permanent, by passing a bougie daily, and afterwards, by directing one of these instruments to be worn for a certain length of time every day ; but such was the uncommon irritability of the part, that the irritation and secretion were kept up, and the parts were not restored to their former quiet state, and perfectly cicatrized, till nearly a month after this single application of the caustic. When the irritation ceased, I expected that the stricture would return to the state in which I found it before the caustic was applied ; but in this I was disappointed ; it was much narrower, and would not admit so large a bougie as I had then passed.

Many months afterwards, I applied to this stricture rather more of the kali purum than I had been in the habit of using ; thinking that I should be more successful than I had been before with the lunar caustic. In this, however, I was likewise disappointed : the stricture was, indeed, considerably dilated by this application, and the immediate effects of it were less severe

than those produced by the lunar caustic ; yet it afterwards became more contracted than it was before I applied the kali to it. About three weeks elapsed before any thing further could be done in this case also : a delay which I attribute to the extreme irritability of the parts.

I have lately seen another instance of a stricture situate as before described, (page 107) in which the kali purum was applied in rather a larger quantity than usual, though not so large as to give much pain at the time of it's application. More than ten days elapsed before the inflammation and secretion excited by the caustic were removed. At the expiration of this period, the contraction had so much increased, as not to admit a bougie of more than half the size that might have been passed previous to the application of the kali. I have, however, by smaller quantities of this caustic, considerably dilated the aperture of this stricture again ; yet I do not apprehend, that it is now quite so open as it was before the first application of the kali. As a contrast to this account, I would observe, that in other cases of stricture at the extremity of the penis, I have considerably lessened the contraction, by applying about once a week very small quantities of the kali purum, on a bougie gradually increased in size at every succeeding operation. By this procedure, the strictures

have not only been opened without giving pain, or exciting inflammation, but have continued in this amended state. What is here said should operate as a caution against hastily having recourse to any caustic substance in large quantities, in whatever part of the urethra the stricture may be situate, as contractions of a more serious kind, than before existed, have certainly been occasioned by this practice.

Beside the tendency of strong and repeated applications of caustic to produce fresh contractions, there is another bad consequence likely to result from them, the danger of hemorrhage. In my former essay, I took particular notice of this circumstance, and have likewise given some hints respecting it in this work. But the danger is of such a serious kind, that it obliges me to add some further remarks on the subject. Sir Everard Home is so far from considering an hemorrhage from the urethra as a dangerous symptom, that he regards it often as being a favorable effect of caustic: to me, on the contrary, it appears one of the most unfavorable; as being a strong indication, either that the part of the membrane of the urethra, to which the caustic was applied, is entirely destroyed, and that the cells of the corpus spongiosum are thereby exposed; or, that the bougie is making it's way into a false passage. In general, in-

deed, we need not be alarmed for the patient's life by an hemorrhage, the vessels in this part not being of such a size as readily to endanger it, though it has in some few instances terminated fatally. Nevertheless, from the great quantity of blood sometimes lost, the constitution has been so weakened, that consequent debility has been felt for a great length of time.

Whether we open a vein in the arm, or, by destroying the inner membrane of the urethra, draw blood from the corpus spongiosum, the vital fluid is in either case taken out of the system; a loss that can never be sustained, without being followed by a proportionate degree of debility. A judicious physician, well considering this, never orders blood to be taken from the body without specifying the quantity. What should we say then of a surgeon, who thinking such extreme caution unnecessary, when he sees one *pot de chambre* filled with the blood that has issued from the urethra, should view the effusion with so little concern as, with perfect coolness, to call for another. Surely this is treating a serious and important matter with too much levity. In diseases in which venesection is necessary, the patient generally bears well the loss of blood taken from him. Or if some partial inconvenience be induced, yet it is more than balanced by the abatement or cure of the

disease for which the bleeding was prescribed. Losing blood, however, where no disease exists which can be relieved by this evacuation, is a totally different case, in which the patient will frequently feel for a great length of time the baneful consequences of his loss. Notwithstanding these well known facts, Sir Everard Home asserts, that when an hemorrhage takes place during his course of treatment, it is rather favorable, as denoting the destruction of the stricture. I hope, however, that it has been clearly proved, that such severities are not necessary to it's destruction ; but that the complaint may be removed more effectually, with much less pain, without any hazard whatever, with a much greater prospect of a permanent cure, and without the loss of a single drop of blood.

From what has been advanced in the preceding pages, I think we may fairly conclude, that Sir Everard Home's plan of treating strictures by the caustic, is, in many respects, extremely objectionable. It has one defect in particular, hitherto but cursorily mentioned, that deserves more particular notice ; as it is a principal source of the mischief attending this practice. It is Sir Everard Home's professed endeavour, in all cases of this complaint, to destroy the stricture so completely, as he expresses it, by a large caustic bougie, as to make the whole canal

of the urethra of it's natural size : where this is not effected, he considers the cure as incomplete. It is certainly desirable in every case of stricture, to obliterate completely every vestige of the disease : if, however, we consider for a moment, how much these cases differ from each other, both as to the degree of contraction, and the length of time the disease has existed, we might naturally conclude, that it would be a very easy matter completely to remove a recent and slight contraction in this part, but extremely difficult, if not impossible, a stricture of many years standing, and where the canal of the urethra is nearly closed. The inner membrane of the urethra is naturally firm and strong ; it is, however, when little diseased, elastic and yielding. A recent stricture, therefore, readily gives way either to dilatation by the bougie, or the application of caustic ; and in all the cases in which a cure is performed by either of these methods, it is unquestionably proper to open the strictured part to the width of the other parts of the canal, which, as Sir Everard Home justly observes, is much greater than most people imagine. But if the aperture of the stricture be extremely narrow, and the contraction has been gradually increasing for fifteen or twenty years, as frequently is the case : and if, moreover, in the course of this time, one stricture be added

to another, so that nearly half of the urinary canal is thus diseased ; I would ask any one accustomed to observe contractions in diseased muscular parts, how they should easily be restored to their former width, when the muscular and membranous fibres must have undergone a consolidation, and the whole substance of the corpus spongiosum must be involved in the diseased contraction? If, indeed, the contraction were confined to a very small portion of the urethra, where the part appears as if a thread were tied round it, we might hope that, though the disease were of long standing, the part might be restored to it's natural width. Yet even in this case, there would be many objections to our attempting a dilatation by violent means. But the misfortune is, that in most of the cases I have described, there are more strictures than one, and these are generally situate within a short distance of each other ; so that the portion of the canal of the urethra between them, though not at first actually diseased, grows, in process of time, much narrower than it was when in it's natural state. All this adds to the difficulty of restoring the canal of a strictured urethra to it's natural width. But I may go further, and maintain, that in many of these cases it is almost impossible to procure a passage for a full sized bougie, unless it be through the cellular sub-

stance of the corpus spongiosum, by totally destroying the membrane of the urethra. This I am afraid has been frequently done. Sir Everard Home, however, makes no allowance for these circumstances, in the treatment of such cases, but seems to endeavour to obtain a passage by forcing through the urethra a caustic bougie many times larger than the width of the diseased part of the canal into which it is thrust. He acknowledges, indeed, that it is almost impossible to dilate the strictures in such cases by the plain bougie. (See Home, page 114.) And I will as confidently say, that it is equally impossible to effect this by the caustic bougie, without doing the mischief I have described. What, therefore, is the consequence of this mode of treatment? In the worst of these cases, the caustic can seldom be forced through such contractions: and where the attempt does succeed, pain, hemorrhage, shivering, and other dreadful effects follow its use; and what is very mortifying, parts thus ruptured generally contract again, and the patient, in the course of a year or two, becomes nearly as bad as ever. I speak from observation; having seen many instances of what I am now advancing. I have lately had under my care about fifteen of the worst of these cases, and having paid particular attention to them,

the result of my experience is this: that in those which have existed for a great number of years, and where the contractions are so advanced as nearly to close up the canal, it is impossible by any art whatever, to restore the urethra to it's natural width. It is, indeed, right to attempt it either by the caustic or the plain bougie; and if the former be used, it ought in no case whatever to be applied, unless the bougie at each application of it passes through a stricture in the manner already described. From this method of applying caustic, benefit may be derived in the worst of these cases; the aperture of the strictures may be so dilated as to admit a middle sized bougie; and sometimes, though I must confess not very often, we are able to carry on the enlargement of the passage, till the canal becomes nearly as wide as it was when in it's natural state. If, however, a dilatation be effected by caustic only to the former extent, I have the satisfaction to say, that the patient will thereby in most instances be relieved from all the urgent symptoms, which had before attended the complaint, and he will appear to be nearly as well as if a complete dilatation had been effected. Time alone, however, can demonstrate whether his cure be radical. My experience gives me no reason to discourage the hope of it's generally

proving so; as all, except three of those whose cases I have thus treated, still remain well* : a success I attribute in a great measure to the caustic being so applied as not to destroy the inner membrane of the urethra, while at the same time nothing is lost of that power it exerts on the diseased surface of a stricture, by which the disposition to future contraction is so often removed. It may, perhaps, be a matter of surprise to some persons, that these patients should be so well as I have described, as the urethra was not dilated to it's natural width. It may be easily conceived, however, that though the urethra be not so wide as it is when in it's natural state, yet if it be sufficiently open to let the urine pass freely, the patient may not feel much more inconvenience from this state of the canal, than if it had it's natural width, provided the disposition to future contraction be removed.

To what has been advanced on Sir Everard

* In none of these cases were the symptoms of a fresh contraction violent; and in all of them, the part was readily re-opened by two or three fresh applications of caustic. I am only surprised that more relapses have not occurred, as by way of experiment, in the cases hereafter related, a bougie was neither occasionally passed through the stricture, and immediately withdrawn, nor worn in the urethra for any given time, excepting in one or two of them.

Home's practice in strictures, I have little more now to add, than this sincere declaration, that the more I have had the opportunity of examining it, and seeing it's effects, the more am I convinced, that his method of treating these complaints is very injudicious. The mild, cautious, and judicious treatment of these diseases, adopted by Sharp and Hunter, are, in my opinion, greatly preferable to his mode of forcing a large bougie, armed with caustic, into the bladder, with little regard to age, constitutional debility, and other circumstances; which, in particular cases, either entirely prohibit the use of caustic, or strictly enjoin us to apply it but seldom, and then with the greatest caution. At the same time there is no doubt, but that many sound cures have been made by Sir Everard Home's mode of treatment; but I contend, that these might have been effected by a method of applying caustic without the risk of producing that dreadful train of effects enumerated by him. Simplicity of treatment in every disease is undoubtedly to be admired; Sir Everard Home, however, has evidently carried this idea much beyond it's bounds in the treatment of strictures. There is but little display of skill or science, in forcing a caustic bougie from one end of the urethra to the other. Nor will it strike any one as a proof of profound judgment, to apply a

violent remedy to so tender and irritable a canal, without due care to proportion the quantity of the medicine to the degree of irritability in the part. Here is, indeed, simplicity of method; but where is the discrimination, that ought unquestionably to have a place in every system of treatment? The method recommended by Sir Everard Home is practicable by any common mechanic; if it be a good one, he may perhaps make as sound a cure as an experienced surgeon, and in some cases may do less mischief, as he certainly would not apply a straight instrument to a curved canal.

Thus have I laid before the public what I conceive to be an improved method of treating strictures of the urethra. In doing this, the animadversions on Sir Everard Home's practice appeared necessary, and if severe they have proceeded wholly from a regard to truth; nor do I conceive, that a single line in this treatise has been written under the influence of prejudice.

APPENDIX TO CHAPTER IV.

SINCE the second edition of this work was published, Sir Everard Home has, in some cases, adopted another mode of treating strictures, still more dangerous and fatal than that of using the caustic; which is, the endeavouring to force open or rupture a stricture, either with a catheter, or a common bougie. In one case in particular, in attempting to force open a narrow stricture with a bougie, he created a false passage, three inches in length; the consequences of which, after some time, proved fatal to the patient.

To expose the fallacy, and shew the dangerous effects of any particular method of cure, is, I think, at all times desirable, and the duty of every one. This alone it is, that induces me to publish the case alluded to. Let me add, however, that it is far from being my wish, needlessly to irritate the feelings, or excite any painful emotions in the breast of any one; my sole aim and ardent desire is, to advance the progress of the art of surgery, and to lessen the sufferings of the human race.

In the case I allude to, the patient drew up a short history of it, which he presented to me: and as he was aware of his dangerous situation, he requested that, if he died, I would open his body for the public good. The following is a copy of this paper:—

“ In November, 1807, I applied to Mr. Home
 “ for the cure of a stricture that had been of
 “ several years continuance, even as far back as
 “ the year 1792; from which period I was a
 “ great sufferer, and occasionally had recourse
 “ to surgeons for assistance to draw off my water;
 “ amongst others, Messrs. Nayler and Trye, of
 “ Gloucester, and Mr. Russel, of Worcester. But
 “ the relief afforded was only temporary, and my
 “ complaint was treated as a spasmodic stricture,
 “ rather than a natural contraction of the parts.
 “ To remove which, very strong diuretics were
 “ administered, which more than once nearly
 “ cost me my life. Indeed, through this treat-
 “ ment, my water at length burst through in
 “ perinæo; which was opened outwardly, and
 “ afterwards healed by Mr. Nayler, of Glou-
 “ cester. The stricture still continued, and the
 “ passage closed more and more each succeeding
 “ year, till at length, Mr. Cole, Surgeon, of
 “ Worcester, recommended me to consult Mr.
 “ Home.

“ For this purpose, in 1807, I came to Lon-

“ don with my friend and brother-in-law, Dr.
“ ———, who accompanied me, and explained,
“ medicinally, every particular of my case.
“ Having placed myself under the care of Mr.
“ H. he discovered the first, and, as he said,
“ *only* stricture to be situate within two-eighths
“ of an inch of the extremity of the penis. To
“ this he applied the caustic four times. The
“ bougie then passed through the stricture, and
“ with much force was passed a considerable
“ way down the passage. Mr. H. then declared
“ that there certainly was no other stricture,
“ and that I might return into the country per-
“ fectly satisfied of my cure. However, as I
“ still remained in London, on a visit, and was
“ not perfectly convinced of my being cured, I
“ again called on Mr. H. and told him my ap-
“ prehension of another stricture. Conceiving
“ I was fearful, he undertook to pass a bougie,
“ which he accordingly did, but with very con-
“ siderable pain to me at the part where the
“ stricture was situate, which has increased ever
“ since. Indeed, the passage became so con-
“ tracted that, in May, 1810, I took another
“ journey to town, purposely to consult Mr. H.
“ At this visit he thrust, by the greatest force, a
“ bougie up the passage. It came out, twisted
“ like a cork-screw, with a flow of blood fol-
“ lowing. I was to call on him the following

“ day for the application of the caustic: but
“ such a swelling had taken place through the
“ whole length of the passage, that he recom-
“ mended my return into Worcestershire, and
“ the use of brandy, flannel, and a suppository.
“ From this time, I gradually became worse,
“ my water passing only by drops, with fre-
“ quently a total suppression. To abate these
“ sufferings, I had recourse to laudanum, warm
“ baths, &c. ; my appetite was gone, and I felt
“ a constant sickness in my stomach. I was
“ unequal to any exertion, or to enjoy the
“ society of my friends. During this time, I
“ used bougies of different descriptions ; and
“ having consulted Mr. Sandford, a surgeon of
“ eminence in Worcester, he thought it possible
“ and probable, that a wrong passage might be
“ formed. He therefore urged my taking one
“ more journey to London, as a last resource,
“ and to apply to Mr. Whately. This I did,
“ and having placed myself under the care of
“ this gentleman, I hope, if it please God, to
“ give a good account of my progress to re-
“ established health.”

Having carefully attended to this history of his case, I requested my patient to let me see him make water, that I might form a judgment of the degree of contraction in his stricture, in order, if possible, to pass a bougie through it.

His urine came away only by drops, as described in the latter part of the preceding account, attended with much straining. At times also it came away involuntarily, particularly in the night. His state of health was likewise extremely unfavorable, as represented in the narrative. For five successive days, I attempted to pass the very finest catgut bougie that could be made, through the very narrow passage that admitted these drops of urine; but in vain. I then examined the urethra with bougies of every other description and size, with a view of ascertaining, if possible, if a false passage existed. A middle sized bougie of any kind passed readily to a distance of about two or three inches further than the part which is often the seat of stricture, without halting at all. At this point the bougie always stopped, and the passage seemed to end in a cul de sac. On examining externally with the fingers in perinæo, while the bougie was in the urethra, the latter could be felt much nearer the surface of the skin than usually happens when a bougie is introduced to the same distance in a sound urethra. This was particularly observable when a metallic bougie was passed. While these examinations were taking place, much urine came away by drops involuntarily, from the distention, as I supposed of the bladder. After these examinations, I was convinced

that a false passage existed to some extent, and that the natural entrance into the urethra was nearly closed. Under these impressions, on the sixth day I directed the point of the catgut bougie as much as possible to the upper surface of the urethra, two or three inches anterior to the cul de sac, and fortunately succeeded in passing it into the bladder. This bougie was effectually secured from passing into the bladder by a string tied very securely to its extremity; and it was equally secured from coming out, by a piece of rag tied round the extremity of the penis. In this state the patient walked to his lodgings without any inconvenience, with orders to go to bed, to avoid drinking any thing, and to retain the bougie in its situation as long as he could. He afterwards gave me in writing the following report of what took place on this and the two succeeding days :

Monday, February 24th, 1812. “ After trying for some time, Mr. W. passed a bougie as fine as a horse hair into the bladder, returned to my lodgings, went to bed; no inclination to make water came on until about half past four o’clock, (about four hours from passing the bougie), *a considerable flow of water then came from me*, and washed out the bougie. Had a good night’s

“ sleep, and got up to make water only twice
“ through the night.”

Tuesday, 25th. “ Tried to pass a bougie
“ without effect; my water came rather better
“ than usual, but not in a stream.”

Wednesday, 26th. “ On the first attempt a
“ bougie was passed into the bladder; went to
“ my lodgings, and to bed till seven o’clock,
“ without any inclination to make my water;
“ at that time, *it burst from me*, and brought
“ out the bougie.”

On the four following days, the bougies were again attempted to be passed, and on one of these days I succeeded in passing it again into the bladder. At this period, he complained more than usual of the sickness in his stomach, which had so long attended him, and of which he complained daily from his first arrival in town. He said that he felt very unwell, being cold and shivering; he had restless nights, with lassitude and unpleasant feeling in his stomach, and a violent hartshorn taste in his mouth. In short he became so ill, that Dr. Hooper was consulted, and the use of the bougie was suspended. From this period he daily became worse, and died in about a month. He complained extremely throughout his illness of his stomach affection, and during the last ten days of his life, nothing was retained upon it.

DISSECTION.

On examining the urethra, a false passage about three inches in length was found in the cellular substance, anterior to the urethra. It commenced at the distance of five inches from the extremity of the penis, and ran in a direct line towards the rectum, ending as before related in a cul de sac. It was smooth and as it were glazed, having much the appearance of the urethra, but without the lacunæ. The diameter of this passage was a little less than that of the urethra anterior to it. At the place where this false passage commenced, as was suspected while he was living, an exceeding small opening, almost invisible to the naked eye, was found to pass from the posterior side of the urethra into the bladder. This was the original and main stricture, but it was now so contracted by the healing of the false passage into a cicatrix, that a bristle but just entered it. This very narrow canal was not more than an eighth of an inch in length. The whole of the urethra beyond this point, consisting of the bulb and membranous part, quite to the bladder, was much dilated and irregular in its surface, evidently from previous inflammations and distensions of urine. The bladder was contracted and

thickened, so as to be incapable of containing the natural quantity of urine; about four ounces however was found in it. The pelvis of the kidneys and the ureters were much enlarged. The pelvis of the left kidney was like a small bladder, and contained near a teacupful of thin purulent urine, and both ureters were nearly of the size of a large finger. As this gentleman, during the latter part of his illness, vomited constantly a greenish liquid, and as none of the medicines or liquids he took, seemed to pass his stomach, I examined this viscus with great attention. The pylorus was found so small, that the *point* of a little finger introduced from the duodenum was but just perceptible, and nothing but force could have caused it to pass through it. The contraction was evidently a fixed and permanent one, but without schirrous. The other parts of the abdomen were sound. Dr. Hooper was present at the dissection.

It is worthy of remark, that this patient's stomach affection commenced with the forcible entrance of the large bougie in May, 1810, and from that time never left him to the day of his death.

This case, I think, clearly shews the danger of attempting to force a large bougie through a stricture. Many cases of a similar nature have come under my observation, in which the same

attempt has been made, both with the bougie and silver catheter. In some, the stricture has been forced with the catheter, which has made its way into the bladder; but I do not recollect a case in which this has been effected with a bougie. In others, both instruments have passed in a wrong direction, and made a false passage, without enlarging the stricture, exactly similar to the case just related. Both in the cases where the stricture has been forced, and in those where it has produced a false passage, considerable hemorrhages have followed. In the former, immediate relief was generally given to the patient by the free passage of the urine. In the latter, however, this effect of course did not follow, but an increase of all the symptoms; and even in those cases where the stricture was forced, the patients became worse than ever at the expiration of a few months, from the cicatrix produced by this violence, and both these cases have always proved more difficult of cure than any which I have met with; the entrance through the stricture having been so narrow, that a fine bougie would scarcely enter, and in most of them the passage was extremely irregular, and as it were zig-zag.

Such are the effects which usually attend this violent method of treating strictures. These, I beg leave to recommend to the serious attention

of those gentlemen who have followed this plan. Let them consider the pain, the hemorrhages, the suppressions of urine, and other alarming consequences, which, under the most favorable circumstances, must commonly follow so violent a procedure. Let them remember also, the number of times in which they fail of relieving the patients, and how much, in these cases, all the distressing symptoms of the disease are aggravated; nay, that the life of the patient is not unfrequently endangered by this practice; and from these considerations, they will be induced, I hope, to give up this, for some other plan, more safe in its operations, and in the cures which it effects more certain and efficacious.

CASES OF STRICTURES

CURED BY

KALI PURUM.

CASE I.

A Man, aged thirty-nine, applied to me for the cure of strictures of several years standing; he had one, at the distance of six inches and a half from the external orifice; another, at seven inches, and a small contraction within half an inch of the end of the glans. The following were his symptoms: his stream of urine was as fine as a straw; he voided it four or five times a day, and two or three times in the night; but on exposure to cold, or by drinking a little more than usual, he was occasionally subject to suppressions of urine two or three times a week. At these times his water came away first by drops for about an hour, and afterwards in a fine stream. This complaint was accompanied with a slight gleet.

With difficulty I passed a fine bougie through the strictures; but by wearing this instrument some hours daily, and gradually increasing its size, they were at last dilated to the full size of the canal, and all his symptoms were entirely removed. He remained well about six months, after which he had several returns of the suppressions of urine, and all the other symptoms of his strictures, and a small bougie was again passed with difficulty. After this he was perfectly cured, and the strictures were dilated to the size of the rest of the canal by sixteen applications of the kali purum; nine of which were made to the furthest stricture; six to the middle one; and one to the contraction near the orifice. After two applications to the furthest stricture, a bougie, three sizes larger than that first used, passed through it. The caustic was generally repeated about once a week, and it produced no other sensation than that of a slight heat. He is now perfectly well, being entirely free from suppressions or gleet, and makes water with a full stream; less frequently than before in the day time, and not at all in the night. He has been cured about fourteen months.

CASE II.

A young gentleman, aged twenty-five, had the following symptoms of stricture for twelve months before I saw him. He had a shooting pain in the perineum, which extended towards the rectum, and also on the inside of the hips several times a day. His stream of urine was smaller, and he was longer in making it than usual, and he had a small gleet in the morning. He had recourse to bougies for about two months; but they brought on occasional irritations, excited a more frequent propensity than usual to make water, and the evacuation was attended with straining, which was accompanied sometimes with a small mixture of blood with the urine. On leaving off the bougie, these symptoms disappeared, but returned a second time on using that instrument again; on this account he was under the necessity of omitting the bougies for about a month, at the end of which time, the strictures, of which he had two, had become much narrower: one of them was at five inches and a half, the other at six inches and a half from the external orifice. At this period I applied the kali purum to the nearer stricture. He felt very little pain from it's application, and on the following day be-

came easier than he had been at any time before. He passed his water better, and made it, as he expressed it, with more pleasure. But after the second application, he had a little irritation in the parts, which he attributed to his taking a journey. By six applications of the caustic to the stricture at five inches and a half, and five to that at six inches and a half, with the interval of a week between each of them, his stream of urine gradually became larger, and the evacuation less frequent. The pain in the perineum, and that in his thighs totally left him, his gleet was removed, and he was perfectly well; having the strictures dilated to the natural size of the urethra. This gentleman has not had a single irritation since the caustic was thus applied: except that just described. The fourth time of applying the caustic to the stricture at five inches and a half, it was passed upon a bougie double the size of that first used. By these applications of the caustic, a greater dilatation of his strictures was produced than he had been ever able to effect by the plain bougie.

He is now perfectly well, and has been cured fourteen months.

CASE III.

A young gentleman, aged twenty, applied to me, in whose case were the following symp-

toms of stricture. He made water three or four times in the night, and six or seven times in the day; he always had a pain in voiding it; the stream of urine was less than usual, and he was longer in emptying his bladder. He had had a gleet about six months. There was generally a spot on his shirt wetted with urine, after making water. He had a stricture at the distance of six inches and a half from the orifice of the urethra, through which a bougie of a middle size only could be passed. By four applications of the kali purum, which gave him very little pain, and were repeated only about once in three weeks, all the above symptoms were entirely removed, and he is now perfectly well.

CASE IV.

A man, aged forty-three, applied to me for the cure of strictures of three years standing, the last eighteen months of which time he had a fistula in perineo, through which part of the urine was evacuated. In this case there was a considerable quantity of mucus in the urine, and a too frequent desire to make water, which came away in a small stream. There was one stricture at seven, and another at seven inches and a half from the orifice, through which only a small bougie could be passed. After two applications

of the caustic, which gave him very little pain, the stream of urine became larger than it had been for many months. A bougie two sizes larger than that first used, could be passed through the strictures, and the fistula in perineo was nearly healed. The mucus in the urine had disappeared, and he did not now make water once in the night. After four more applications of the caustic, a bougie of the natural size of the urethra was passed through the strictures. During the cure the fistula healed up, but opened again; he is now, however, perfectly well: the fistula is healed, and all his complaints are removed.

REMARK.

As the urethra in this case appeared to be tender, and a very small quantity of bloody sanies sometimes oozed from it, when examined by a bougie at the end of a week from an application of the caustic, this remedy was repeated only at the following periods: Oct. 3d, 10th, 31st, Nov. 15th, 22d, Dec. 12th; 1802. In this case the patient passed a bougie through the strictures once or twice a week after the cure was completed, and continued this practice for several months.

CASE V.

A man, aged fifty-five, had strictures in the urethra for about two years and a half, and had been so ill for the last twelve months before I saw him, that he was nearly incapable of going about. He got up about twenty times every night to make water, and generally made it every half hour through the day. The urine came away only by drops, or in a very fine stream, with much straining and pain, and in the night it passed involuntarily between the times of making water. He had also a pain in his loins every morning for an hour or two after getting out of bed, which affected him most when he stooped. He had a stricture at five inches and a half from the external orifice. A bougie of the very finest kind could not at first be passed either into, or through it; after two or three trials, however, I succeeded in passing it into the bladder. He wore a bougie of this size for an hour or more every day during a week. By this the symptoms above related were somewhat relieved, the stricture likewise was so much dilated, as to admit a bougie a size larger; but even this was so fine, that a very small bit of caustic could with difficulty be inserted into its point. The caustic was however applied upon a bougie of this size, and passed through the

stricture. It gave him no pain. After this application he was considerably better; having made water only twice in the night, and less frequently than before in the day, the quantity at each evacuation was likewise increased; he made half a pint at a time, and with a much larger stream than before; whereas during the use of the bougie, he made only four ounces at a time. Soon after this application of the caustic, he was obliged to go into the country for about three weeks, from which he returned much better than for two years before; having made water only thrice a day, once in the night, and with a good stream: he appeared to be nearly well. On examining the urethra, I passed a bougie into the bladder four times larger than that on which the caustic was applied. I repeated the caustic twice more only; after which he was so much recovered that, being engaged in business at a distance from me, he did not think it worth while to pursue the plan of cure any longer. The caustic was applied the second time, after an interval of three weeks from the first application; and the third time, at the end of a week, from the second application.

CASE VI.

A man, aged forty-four, had been four years afflicted with strictures. During the greatest part

of this time, he emptied his bladder with much difficulty, and by frequent efforts. For a year and a half before I saw him, he made water five or six times in the night, and about a dozen times in the day, and sometimes with great straining. The urine dribbled away, but never issued in a stream. Besides this, his shirt was almost constantly wetted with the involuntary passing of his water. When he began to strain, he had a pain in his loins and left hip, which left him on ceasing to strain. He had likewise frequent attacks of strangury, sometimes every two or three days, and was often an hour or more in making water, and sometimes he had a suppression of it for two hours together. This was often occasioned by too much exercise, or intemperance. On examining the urethra, it was found so extremely irritable, that it was with the utmost difficulty he could bear a bougie to be passed along it. The first stoppage was at four inches; but, for the first two or three days, he could not bear even the attempt to pass a bougie through it; I contented myself, therefore, with passing a bougie down to the stricture, and withdrawing it. After this operation, I passed a very fine bougie with much difficulty, into the bladder; in doing which, several other strictures were discovered. The patient kept the bougie in this situation for about an hour.

This was repeated daily for a week ; in consequence of which, all his symptoms were somewhat relieved. After this, I passed a bougie, a small size larger, through the first stricture ; but with considerable difficulty, from its very contracted state. Upon this bougie I applied the caustic, and passed it through this stricture. I saw him a week afterwards ; he had had no pain from the caustic, and, since its application, his water had passed in a larger stream, the evacuations were less frequent, and in larger quantities, (sometimes as much as a pint at a time) than for many months before ; nor had he had a suppression or strangury since the last mentioned operation. At this time, I passed a bougie through the stricture three sizes larger than the former one. Upon this bougie, the caustic was applied the second time ; this, likewise, gave him no pain. After this, the stream of urine was still larger ; the pain in the loins left him, and a bougie, still a size larger, could now be passed through the stricture. He now walked twenty miles a day, occasionally, which he had not before been able to do for two years. I applied the caustic twelve times more, and once a week, to other strictures, situate at four and a half, five, and six inches from the external orifice ; but I was not able to dilate them so much as to admit a bougie into the bladder larger than a full

middle sized one. This man remained well for about eight months ; after which he again applied to me, having a slight return of some of his symptoms. On examination, the stricture at four inches was found to be more contracted than when he left me ; I could, however, still pass a good sized bougie through it. I re-applied the caustic twice more to this stricture, and then gave him directions to pass a bougie occasionally to the distance of eight inches from the orifice, in order to prevent a relapse. He was immediately relieved by the caustic. His case is one of those before enumerated, in whom a return of the complaint occurred.

CASE VII.

A young man, aged twenty, applied to me for the cure of a stricture, of more than twelve months standing. His symptoms were the following : He had a pain in the small of his back, chiefly to the right side, to which side, if he leaned, the pain subsided. It came on, more particularly, on any exertion of his strength, so that he was unable to work as usual. He made water twice in the night, and rather oftener than usual in the day. His stream of urine was smaller than it naturally is, and did not fly from him so far as usual. For about a month before he

applied to me, he had a pain in both shins, and in both ancles and knees, which came on about ten or eleven in the forenoon, continued all the day, and used to hinder him from sleeping about two hours every night. He had a stricture at six inches distance from the orifice of the urethra; on passing a common bougie through the stricture, the pain in the back nearly left him. On the following day, and on the day afterwards, it was entirely removed, and did not return. A week after passing this bougie, I applied the caustic; this happened on the 9th of December, 1802. After which, he made water seldomer, and with a larger stream than before. The urine was likewise propelled much further from him. After the next application of the caustic, a larger bougie passed through the stricture; he did not now make water in the night, and the stream was stronger and larger. He was perfectly cured by two more applications of the caustic, which were repeated on the 17th and 29th of December. The strictured part was dilated to it's natural size; and the pain in his legs, &c. entirely left him. I saw him nine months afterwards, when he remained perfectly well.

CASE VIII.

A man, aged thirty-eight, had strictures for about five years. He first perceived a diminu-

tion in the stream of urine, and made water oftener than usual, especially if he drank a little more beer than was customary with him, which was not the case before he had the strictures. About eight months before I saw him, he was attacked with a retching, which came on five or six times a day; and now and then, though but seldom, he brought up his supper. In general, however, he did not bring up any thing; but his appetite was very bad. This retching continued till he applied to me. About two months after he was attacked with the retching, he was seized with a strangury, which continued at intervals for five weeks. During this time, he sometimes made water about twenty times in the night, and as often in the day. Formerly, he used to have a gleet, upon drinking more than usual; but for the last three quarters of a year, he had a permanent gleet. About three weeks before I saw him, a swelling came on in the perineum; about a fortnight after its commencement, he was taken with an almost total suppression of urine, which continued for three days. Some of the urine, however, dribbled away, or came from him in a fine stream, with much pain, and often five or six times in an hour.

I passed a very fine bougie into the bladder with much difficulty, which he wore about two

hours. But, although the bougie was introduced in the most gentle manner, a few drops of blood came away on it's first introduction, which was evidently from the strictured part of the urethra. The patient continued to wear a bougie daily for a week, by which all his symptoms were abated, the swelling in the perineum was much lessened, and I could now introduce a bougie through the strictures, of a size sufficient to apply the caustic upon it. He had three strictures, one at three and a half, another at six, and a third at seven inches from the external orifice. After two applications of the caustic, one to the stricture at three and a half, the other to that at seven inches, both of which were nearly alike contracted, the following memorandum concerning him was made a week after the second application.—“Has no pain in making
“ water, stream larger, does not make it once
“ in the night, and only twice in the day. Has
“ now a good appetite, and is quite free from
“ retching.” The caustic was repeated alternately to those strictures which happened to be the most contracted, eleven times more, with an interval of sometimes six, but more generally seven days between each application, by which he was perfectly cured, and remains well.

hour
I passed a very fine bougie into the bladder
with much difficulty, which he wore about two

CASE IX.

A man, aged thirty-one, had a pain in the small of his back a little to the left side, about six years before I saw him. He felt it particularly when he stooped, and when at work; being a tailor, he was obliged to sit up against a wall five or six times a day while he was at work. He likewise felt a weakness in that part, when he walked much. These complaints increased after continuing two or three years in this state, and at length they became so violent, that he was obliged to give up his employment. He did not make water oftener than usual, but the stream was not so large as it naturally is, nor did it fly from him so far as it ought. He had a stricture at six inches and another at seven inches from the orifice. As the urethra in this case was very irritable, I passed a bougie daily through the stricture for a week, and withdrew it immediately. After this, the pain in his back was less than it had been for six months before, and he was able to sit to his work. I then applied the caustic. After the first application, his back was still easier, and he himself felt stronger and better than for some months before; but on the following day he was nearly as before. By fifteen applications of the caustic, some to one stricture

and some to the other, repeated about once a week, he was perfectly cured, and the strictures so much enlarged, that a very large bougie was passed into the bladder. After this he felt no pain when he stooped, he could sit to his work, his stream of urine was much larger than before, was propelled further from him, and his general health was much mended. He now remains perfectly free from every complaint, except a very slight uneasiness in his back at times.

CASE X.

A pensioner at Chelsea Hospital, aged fifty, had strictures for seventeen years. About eight years before I saw him, he had almost an entire suppression of urine for twelve hours, his water coming away only by drops. This was at length relieved by passing a bougie. About five years afterwards, he applied for relief to a gentleman, who was unable to pass a bougie of any size through the strictures. When he applied to me his account was, that he had not had a good night's rest for three years; he made water six or seven times in the night. It generally came away by drops, though sometimes in a very fine stream, attended with much straining and pain, and when evacuated, was commonly accompanied with a propensity to go to stool. The efforts to

make water were equally frequent in the day time, and he was often unable to pass it at all for some time, whether the efforts were made by night or by day. He generally had a fulness and pain in the region of the pubis, and was often feverish and thirsty; there was always a considerable quantity of a ropy fluid in his urine; but he had no gleet from the urethra. On examining the urethra, I found the first stoppage at the distance of six inches and a quarter from the orifice, but was unable to pass the very finest bougie through it. I succeeded, however, in passing the point of it into the stricture. The bougie was cut off at the glans, and kept in this situation for more than an hour. After this, he was easier, and made water less frequently. This was repeated with the same effect on the following day. On the third day I succeeded, but with great difficulty, in passing a very fine bougie into the bladder: he kept it in about two hours. This was repeated daily for a few days; but the bougie was afterwards kept in the urethra each time for about three or four hours. After this he made water with a better stream than he had done for seventeen years before, and only once or twice in the night. He had now no straining or tenesmus when he made water, and the ropy fluid in it had entirely subsided. By using five bougies in this manner,

for five days only, I was enabled to pass one of a size larger into the bladder. Upon this the caustic was applied to the stricture, at six inches and a quarter distance from the orifice; he had very little pain from the caustic, but his stream of urine was much larger after than before it's application. In a few nights after passing the caustic, he lay in his bed seven hours without making any water. A week afterwards, I passed a bougie through the stricture three sizes larger than that on which the caustic was applied. The caustic after this was applied to different strictures at seven, and seven inches and a half from the external orifice. In short, all this part of the canal of the urethra appeared to be almost one entire contraction. By persevering in the caustic once a week, I procured an opening into the bladder for a middle sized bougie; but I could not succeed in passing a large one. The caustic was applied in all fifteen times; after this all his symptoms were removed. Seven months afterwards, the stricture at six inches and a quarter became narrower than when he left me. As yet I have re-applied the caustic only thrice to this stricture, by which he is much better. This is another of the cases mentioned to have relapsed.

CASE XI.

A man, aged twenty-eight, had symptoms of a bad stricture for more than twelve months before I saw him ; the chief of which were a considerable gleet, a scalding in making water, which he voided about ten times every day, and about twice in the night, and an aching pain at times about the testicles. He had two strictures ; one at six, the other at four inches distance from the orifice, through which a bougie of a small size only could be passed. The caustic was applied on the 10th of October, 1802, to the furthest stricture, that being the narrowest, but it gave him scarcely any pain. On examining this stricture by a bougie seven days afterwards, it was much enlarged, and he was considerably better ; but, as the canal appeared to be tender, I deferred applying the caustic till the 24th of October. My entry concerning him at that time is as follows :—“ He is much better ; the
“ discharge is much less : he makes water only
“ four or five times in the day, and not once
“ in the night. His stream of urine is much
“ larger than before.” On this day I passed through the same stricture a bougie, at least three sizes larger than that on which the caustic was applied. From this time the caustic was

applied once a fortnight only ; sometimes to one stricture, and at other times to the other, for eight times ; after which, a full sized bougie passed into the bladder. He was then perfectly well, having lost the gleet and all other symptoms of his stricture. In this case there was generally a little oozing of blood, on examining the stricture by a bougie at the expiration of a week from the application of the caustic, which was the reason why this remedy was applied only once a fortnight. Sept. 16th, 1803, I saw him, and he remained perfectly well.

CASE XII.

A man, aged twenty-nine, about eighteen months before I saw him, complained of a pain in his back, particularly when he stooped, which continued for about twelve months, and then left him. When I saw him, he complained of a violent pain in the lower part of his back, which came on about five o'clock in the evening, and continued till about ten. He had been in this state about eight days. He had no gleet, except when he took cold. Now and then he got up in the night to make water, but not constantly ; and, in the day time, after drinking tea, he made water oftener than usual. On examination, he had a stricture at the distance of

six inches and a half from the orifice of the urethra. The caustic was applied only thrice ; after which, the pains in his back entirely left him ; he made water seldomer, and did not experience the irritation after drinking tea. A bougie, the full size of the passage, afterwards passed through the stricture, and he is now perfectly well.

REMARK.

In this case, the pain in the back did not so clearly appear to be connected with the stricture, as in some others.

CASE XIII.

A healthy young man, aged twenty-four, had the following symptoms of stricture, more than twelve months before I saw him ; a heat in the urethra, a gleet in the morning, a shooting pain from the rectum to the end of the penis, which attacked him sometimes once a day, at other times only once in two or three days, a scalding in making water, which he voided more frequently than formerly, especially after drinking more than his usual quantity. His stream of urine was not so good as it used to be. There was also a constant inflammation on the

glans penis, On examination, a narrow stricture was found at six inches and a half, and another less contracted, at four inches distance from the external orifice. To the former, the caustic was applied. I add the following report of the effects of the first application made seven days afterwards:—"The caustic brought
 " on a little discharge and scalding, which
 " continued three or four days: on the sixth
 " day, the discharge was less than it had been
 " for some months. The scalding and shooting
 " pain in the urethra, and the inflammation on
 " the glans, were quite removed, and the
 " stream of urine was larger." The caustic was applied in all, seven times to both strictures, at the different periods of five, six, and seven days apart; after which, a large bougie was passed through the strictures into the bladder; the gleet was quite gone; he made water only thrice a day, and all his other complaints were removed. He is now perfectly well.

CASE XIV.

A man, aged thirty-five, complained, about two years before I saw him, of having a more frequent desire than usual to make water, upon drinking a little more than what he was accustomed to. Twelve months afterwards, he was

attacked with a pain in his back, which came on several times in the day, and lasted about a quarter of an hour each time. About six months after this, he complained of a pain in the perineum, especially if he lifted up any thing heavy. This often lasted two or three minutes, and returned sometimes several times in a day; at other times, two or three times only in a week. He experienced likewise a scalding sensation in making water. About ten months after he was attacked with a pain in his back, a gleet came on; after which, the pain in his back lessened. When I first saw him, he made water six or seven times in a day, and once in the night; the stream of his urine was less than usual, and forked. The caustic was applied to a narrow stricture, met with at seven inches distance from the orifice. Seven days after this first application, I took down the following memorandum:—“ Has been much better since the
“ caustic—had no scalding, as the effect of it’s
“ application. Neither has he felt any scald-
“ ing sensation all the week. He has not been
“ so free from this symptom for four or five
“ months back. His gleet is lessened; he has
“ made water seldomer; nor has he any shoot-
“ ing pain in the perineum. His stream of
“ urine is larger. His back has been easier
“ than for many weeks past.”

By repeating the caustic once a week, for eleven times, a bougie, of a full size, passed into the bladder, and all his symptoms were removed. He remains perfectly well.

CASE XV.

A man, aged forty-six, had been afflicted with a stricture, five years before I saw him. When he applied to me, he made water very frequently; he passed it in a very fine stream, and with much straining; he was usually five minutes in the effort, and could not make the stream flow from him. He had a gleet, and pain in the perineum, every time he made water; and was subject to shivering fits occasionally. In short, he was weak, and his general health so much injured, that he was incapable of following his business. He had a very contracted stricture at six inches and a half distance from the orifice. With great difficulty I passed a very fine bougie into the bladder: this he wore for two hours: after which, he made water with a larger stream than he had done for five years before, and voided more in one minute, than he had done before in ten. A fine bougie was worn daily in the urethra, for two or three hours, until one of a proper size for the caustic could be passed through the stricture. This

was effected in ten or twelve days : now and then a drop or two of blood came from the strictured part, on the slightest touch of the bougie. The caustic was now applied ; he had no pain at it's first application. On the next examination, a week afterwards, a bougie, two sizes larger than that on which the caustic was applied, passed readily into the bladder. After the third application of the caustic, the stream of urine was as large as it naturally is ; he made water only three or four times a day, and not once in the night. He had no pain in the perineum, nor any shiverings : and his general health was much improved. The caustic was repeated once a week four times more : after which he was perfectly well. He is now able to pass a large bougie into the bladder.

CASE XVI.

A man, aged fifty-four, had slight symptoms of stricture about ten years. About two years before he applied to me, they became more violent ; he generally made water five or six times in the day, and twice or thrice in the night, and could not hold it after the desire to make it came on. About a month before I saw him he had a more serious attack, he generally made water about thirty times in the day, and two or

three times in the night. The stream of his urine was small, a scalding sensation accompanied the evacuation, and he had a glairy mucous sediment in it, but no gleet from the urethra. During this period he had little sleep; he sweated all night, and a tingling sensation, like that produced by the sting of nettles, was felt over the whole of both hands, but was not attended with any eruption. This last symptom came on every night and morning, and lasted for an hour or two. He had a great depression of spirits, and was unfit for any employment. He had a stricture at seven inches distance from the orifice. A small bougie passed with difficulty through the stricture; his urethra being extremely irritable to the touch of a bougie, it was therefore passed through the stricture only once in a day, and immediately withdrawn, for three or four days successively, after which he bore it's introduction pretty well. His spirits were much relieved by this operation, and the caustic was at length applied, and repeated once a week for three or four times; after which my memorandum concerning him is as follows:

“ He sleeps well—has no pain in making wa-
“ ter—but he still makes it nine or ten times in
“ the day, and once in the night—the mucous
“ sediment in it has disappeared, and the stream
“ is better—his spirits are better---he is stronger

“ does not sweat in the night—and a bougie,
“ three sizes larger than that first introduced,
“ can now be passed into the bladder.” By re-
peating the caustic once a week, for five times
more, his stricture was still more opened ; but I
could not yet pass a bougie of a full size into
the bladder. He is now nearly free from all his
symptoms, but I recommended him to pass a
bougie through the stricture about twice a
week.

CASE XVII.

A man, aged thirty-five, had the following
symptoms of stricture about two years. He
made water five or six times in the day, and if
he drank a little more porter than what he was
used to take, he made it still more frequently.
He had a slight gleet ; a drop of milky coloured
discharge came away every morning on squeez-
ing the penis. Sometimes he had a shooting
sensation at the end of the penis two or three
times a day, at other times only once in two
or three days. On examination I found he had
a stricture at seven inches distance from the
orifice : to this the caustic was applied twelve
times about once in a week ; after which he was
perfectly cured. The gleet, and all the symp-
toms above described, being entirely removed.

CASE XVIII.

A young gentleman, aged twenty, had a stricture about two years. It was attended with a considerable gleet, he made water seven or eight times a day, with a narrower stream than usual, and when he had done making it, his shirt was always wetted with a little of the urine which was left in the urethra. After an act of coition, much of the semen came out upon his shirt.

On examination, I found that he had a very narrow stricture at six inches and a half distance from the orifice. By nine applications of the caustic, which gave him very little pain, and were repeated about every nine or ten days, his gleet, which had been treated as a gonorrhœa, and for which he had before taken every kind of medicine he could think of, was perfectly removed. His stream of urine was enlarged, and neither the urine nor the semen came out upon his linen as before described. A full sized bougie could then be passed into the bladder.

CASE XIX.

A gentleman, aged thirty, had strictures between two and three years. He had a gleet, and shooting pains in the urethra, three or four times a day. His stream of water was narrower than usual. He had two strictures; one at six inches

and a half, and the other at seven inches distance from the orifice of the urethra. They admitted only a small bougie to be passed through them. This case was attended with an uncommon irritability to the passing a bougie: I was obliged therefore for some time, to withdraw the instrument immediately after its introduction, in order to lessen or remove this irritability. Finding after thus using the bougie every day, or every other day, that he would bear small quantities of the caustic, I applied it first to the nearer stricture, this being the most contracted. After two applications a week apart, I passed a bougie two sizes larger than that first introduced, and by repeating it once a week five times more, the shooting pains in the urethra left him, his stream of urine became as large as natural, his gleet was removed, and a full sized bougie passed into the bladder. He is now perfectly well, and has remained so more than twelve months.

CASE XX.

A young gentleman, aged twenty-one, had been troubled with a gleet for a considerable time. It was treated as a gonorrhœa, for which he used injections, &c. to no effect. He passed his urine in a smaller stream than usual, and in a twisted form. On examination, a considerable stricture was discovered at six inches and a half distance

from the orifice. To this the twenty-fourth part of a grain of lunar caustic was applied. It brought on a bloody discharge, and a severe scalding sensation, for three days. On repeating the same quantity of caustic nine days afterwards, the same symptoms were produced, which lasted two days. The kali purum was afterwards applied in small quantities, which gave him much less pain at the time of it's application than the lunar caustic. The discharge produced by it was not bloody, nor was the scalding so severe as that produced by the lunar caustic. By three applications of the kali purum, the first on the 27th of July, 1802, the second on the 6th of August, and the third on the 17th of August, the gleet was totally removed; the stream of urine enlarged, and a full sized bougie passed readily into the bladder. He is now perfectly cured.

CASE XXI.

A gentleman, aged thirty-six, about three years ago first perceived that he was longer than usual in making water, and that the stream was narrower. About two years afterwards, he made water once in the night, which he was not used to do, and perceived that his shirt was wetted after he had finished making it. He felt also pain occasionally at the end of the penis after

emptying the bladder. After an act of coition he perceived the whole of the glans to be very red, which effect continued for nearly twelve hours. He was also subject to nocturnal emissions of semen, and pain in his back. His general health had been for some time declining. He had no gleet. On examination, he had two strictures; one at six, the other at seven inches distance from the orifice. After the first application of the caustic to the nearer stricture, which gave him scarcely any pain, he made water in a better stream, the pain in his back was better, and his general health improved. After the second application, he had no pain at the end of the penis, nor in his back. After the third application, his stream of urine was still larger, and flowed further from him; nor was his shirt wetted as before. He did not make water once in the night, and less frequently in the day time than before; his general health was much improved, and he looked better. After five more applications of the caustic, some to one, and some to the other stricture, a full sized bougie passed into the bladder. He was then perfectly well, and still remains so; being not only easy, but more able than before to take exercise. The redness at the end of the glans before mentioned has entirely disappeared. N.B. The caustic was repeated in this case on the following days: January the

5th, 1803, the 17th ditto, February the 2d, 11th, and 23d, March the 4th, 17th, and 31st.

CASE XXII.

A man, aged forty, for the last twelve months before I saw him had a pain about the glans in making water ; and sometimes he had a sudden desire to make it, when he drank a small quantity of warm spirits and water. He made water three or four times in the evening, which he had not done before. He had a slight gleet, which had continued upon him for six months. After two applications of the caustic to a stricture at seven inches distance from the orifice, the gleet left him, and likewise the sudden desire to make water ; nor did he make it so often after drinking spirits and water as before. The pain in the glans also left him. After this, he was so well, that he would not be at the trouble of having the caustic applied any more ; though the stricture was not dilated to the size of the other parts of the urethra. However, he still remains perfectly well.

CASE XXIII.

A young gentleman, aged twenty-three, contracted a gonorrhœa, for which he imprudently used astringent injections. Four months after-

wards, a gleet remained, which was discovered only in the morning ; but it could not be cured either by internal remedies, or injections. He made water oftener than usual in the day time, and once in the night, which he never used to do. He felt a scalding sensation in making it ; and the stream was somewhat smaller and more scattered than usual. A stricture was discovered at six inches and a half distance from the orifice, through which a bougie was passed, and withdrawn immediately. By this single introduction of the bougie, the gleet was entirely removed. Knowing, however, that this would not eventually be found a perfect cure of his complaint, the caustic was applied in a small quantity to the stricture ; it neither gave him pain, nor produced any running. The first application had a good effect ; for he made water seldomer than before, and had less pain in making it. After the second application, he did not make water in the night, and only twice in the day time. The scalding sensation he had before experienced in making water was entirely gone, and he felt, in every respect, easier and better than before the caustic was applied. By eight applications of the caustic, repeated once a week, he was perfectly cured, and a full sized bougie passed into the bladder.

CASE XXIV.

A young man, aged twenty-eight, had symptoms of stricture for about four years before I saw him. His stream of urine became narrower, and he had a gleet. Upon drinking a little more than usual, he made water three or four times in an hour; and at three different times he had a suppression of urine for about six hours each time. His stream of urine gradually contracted, and after some time, he made water six or seven times in the day time, and once in the night. About two months before he applied to me, his stream of urine was not larger than a straw, and he was generally five minutes in making water. It came away with much straining, and forced him to go to stool each time of making it; by which the rectum came down. Upon coughing, a little of his urine came frequently out upon his shirt, and some of it also came involuntarily away while he was in bed; after making water likewise, a little of it came out upon his shirt. On examination, I found a stricture at seven inches distance from the orifice, but it was so much contracted, that, on the first trial, I could not pass one of the finest bougies into it. On the second day, however, I succeeded in passing one of them through it,

which the patient kept in the passage for about an hour. On the two following days, a bougie of the same size was likewise passed through the stricture, and kept in the urethra about two hours each day; after which, he was much relieved in all his complaints; he made water less frequently, and in a better stream. The bougie, which could now be passed through the stricture, was large enough for the use of the caustic; though so small as to admit only of a little hole to be made at it's extremity with the point of a pin for the insertion of the caustic. After the first application of the caustic, the urine was passed in a much larger stream, and with less straining than before. The patient made water only three or four times in the day, and in a larger quantity at a time. After the second application, his water came away in one continued stream, which it had not done before since his stricture had been so much contracted. After the third application of the caustic, he had a suppression of urine the following day, which was immediately relieved by passing a bougie through the stricture. The stream of urine was still enlarged, and by three more applications, repeated once a week, a bougie of a large size could be passed into the bladder. All his complaints were then removed. After this, he

was so well, that he would not be at the trouble of attending to his complaint any longer.

CASE XXV.

A young gentleman, aged twenty-two, had the following symptoms, when he applied to me. After drinking a little more than usual, he used to make water more frequently than formerly; and, after he had finished making it, his shirt was generally wetted with some of it. He had a gleet, and was subject to nocturnal emissions. About a month before I saw him, he had a pain in his loins towards the right side, which was most violent on raising himself up after stooping. A stricture was met with at six inches and three quarters distance from the orifice. By fourteen applications of the caustic, repeated once in about five days, he was perfectly cured. He did not make water more frequently than usual after drinking—his shirt was not wetted with the urine—his nocturnal emissions occurred less frequently—and, for the first two or three weeks after the caustic was applied, he had no emissions at all. His gleet was removed; and he has felt the pain in his back but slightly for one or two days since the application of the caustic. In conse-

quence of this process, a full sized bougie was passed into the bladder.

CASE XXVI.

A gentleman, aged forty, had a stricture about seven years. During the whole of this period, he used to have a pain in his right side, which came down the hip, and terminated in the right testicle. His pain continued about a fortnight, and returned every two or three months. He generally made water four or five times in the day, and once or twice in the night. Upon drinking more than usual he made it oftener, and for the last two years the stream was twisted, and smaller than it naturally is. He had likewise a gleet. On examination there were three strictures found; one at six inches and a half, another at seven, and a third, but much less contracted than the former, at the distance of half an inch from the external orifice. A middle sized bougie only could be passed into the bladder. The caustic was applied thirteen times, at the different intervals of five, seven, and nine days. After this treatment he seldom got up in the night to make water, and made it less frequently in the day time. He can now sit at table in a drinking party for six or seven hours, without making

water. His stream of water is larger than before, his gleet is gone, he feels easier and better in the urethra, his general health is improved, and he has not had a return of the pain in his side since the caustic was applied.

CASE XXVII.

A young man, aged twenty-two, had a gleet for seven months, and made water five or six times a day, but not in the night, and with a smaller stream than is natural. During the period above mentioned, he had at times a slight pain in erection. He complained also of pain in the groin, and once in a fortnight or three weeks, he had a little pimply eruption on the glans, which continued for a week, and then disappeared. On examination, it was found that he had a stricture at six inches and three quarters distance from the orifice; to this the caustic was applied. After the first application, the stream of urine was larger than before, and he made water less frequently. After the second application, he was in every respect better, and his gleet was nearly gone. The caustic was applied about once in nine or ten days, and repeated three times more; after which a bougie, as large as the orifice of the urethra would admit, it being a little contracted, was

passed through the stricture. The gleet then entirely left him, as well as the pain felt in erection, and that situate in the groin; and he made water only three times a day. He is now perfectly well, and has not had the eruption on the glans since he was cured.

CASE XXVIII.

A young man, aged twenty-six, had strictures near four years. About two years since he applied to a gentleman, who used the caustic according to Sir Everard Home's method, for three months, but without having once succeeded in passing the bougie through them. This, however, was at last accomplished by *force*; but the operation gave the patient extreme pain, and brought on a violent hemorrhage, which lasted four hours, by which he lost about two quarts of blood, and in consequence thereof was weak and ill for a fortnight afterwards. When I saw him he had a return of the stricture. He made water twelve or fourteen times in the day, with a narrow stream, which was sometimes attended with a scalding sensation, and in evacuating it, he was double the length of time he used to be. He had a throbbing pain in the perineum once or twice a day. He had likewise a pain in the

right thigh, from the groin to the knee, and in the right ancle, three or four times a day, which when he walked caused him to limp. He had two strictures; one at six and a half, the other at seven inches and a half, from the orifice of the urethra. After one application of the caustic to the first stricture, he made water less frequently, and the pains in the perineum and thigh were less violent. By seven applications of the caustic from seven to ten days apart, all his symptoms were removed. He remained well about eight months, after which he had some symptoms of a relapse. On examining the urethra, the stricture at six inches and a half was somewhat contracted, although a good sized bougie could be passed through it. I applied the caustic to this stricture four times, after which his complaints were removed. He was now directed to pass a bougie through the strictures two or three times a week.

CASE XXIX.

A young gentleman, aged twenty-five, had a stricture about four years before I saw him. About twelve months after it was discovered, he had the caustic applied according to Sir Everard Home's method, which gave him extreme pain, and four different times during it's use he lost

about a pint of blood each time ; since which his general health has not been so good as it was before. When I saw him he had a considerable gleet. He made water more frequently than usual in the night as well as in the day, his stream was smaller than it naturally is, and when he rode, either on horseback, or in a carriage, he had a frequent desire to make water, and discharged it in small quantities. On these occasions he could seldom make water immediately on having the desire. On first examining the urethra, a bougie of the smallest size stopped at the distance of six inches from the orifice, and could not be passed further in the usual way in which a bougie is introduced. But by holding the penis close to the abdomen, and inclining the bougie towards the left shoulder, I readily passed a small bougie into the bladder. Upon this bougie I applied the caustic, and by the same method easily passed it into the stricture. On the next examination, which was at the expiration of a week, I readily passed through the stricture a bougie of a size larger than that on which the caustic was applied, and without inclining either the penis or the bougie to any particular direction, which I had not been able to effect before. The irregularity, therefore, in the stricture was removed by the caustic. Another stricture was afterwards discovered at seven

inches distance from the orifice. By fourteen applications of the caustic to these different strictures, repeated sometimes once in five days, at other times once a week, which seldom gave the patient much pain, the gleet was removed; the stream of urine restored to it's natural size; he made water less frequently than before in the day time, and not once in the night. A full sized bougie was afterwards passed into the bladder, and he is now in better health and spirits than before this treatment commenced.

CASE XXX.

A captain in his majesty's navy had been troubled with a gleet for about twelve months before I saw him, which had been treated as a gonorrhœa, by a variety of remedies, internal as well as external, but with very little effect. Sometimes it seemed to disappear, but on an act of coition, a fresh discharge ensued, which was again treated as a gonorrhœa, but to no purpose. At length, slight bleeding followed his making water, and his urine was evacuated once in the night, which never occurred before. There remained also the desire to make water after the bladder was emptied, and the stream was evidently smaller than it naturally is. On examination, a stricture was discovered at six inches

and three quarters, and another not so narrow within half an inch of the external orifice. The former stricture was enlarged, though not to the natural size of the urethra, by wearing bougies; but that near the orifice yielded with more difficulty to this mode of treatment. The caustic was therefore applied to each of these strictures alternately; after it's first application to the stricture at six inches and three quarters, this was enlarged so much as to admit a bougie, some days afterwards, a full size larger than that upon which the caustic was introduced. By two or three applications of the caustic to the nearest stricture, it readily admitted a larger bougie than could have been passed before, by every attempt that was made to enlarge this part. This gentleman experienced much less pain from the caustic, than from stretching the part by wearing a bougie. The caustic was applied to these different strictures once in five or six days, to the amount of ten times; after which the gleet, and all other symptoms of stricture before related, were removed; a full sized bougie passed readily into the bladder, and he became perfectly well.

CASE XXXI.

Another gentleman, of the same profession, had been afflicted with a stricture for three or

four years before I saw him. Sometimes he made water three or four times in the morning; his stream of urine was less than usual, and it frequently wetted his shirt, after he had finished the evacuation. He was subject to a pain in his loins, which would last three or four days, and which he was particularly affected with when he stooped. Sometimes it came on suddenly while he was sitting or walking. He had a considerable gleet attended with a scalding sensation in making water, and a pain in erection. A stricture was discovered at six inches and a half distance from the orifice, which admitted a bougie less than one of a middle size. To this the caustic was applied, which gave him very little pain. In two or three days after a second application, the scalding and pain in erection were lessened; the gleet was considerably reduced; the stream of urine was increased in size; and in the night, immediately after this application, he made water but once; a circumstance which had not before happened for three or four years. In short, he now felt himself easier, and better in every respect, than before the application of the caustic. After a third application of the caustic, the gleet was nearly removed, and a bougie, three sizes larger than that first used, passed with ease through the stricture. In three or four days, however, after

this application, the discharge increased again ; but immediately lessened, on repeating the caustic. By fifteen applications of the caustic, repeated once in five or six days, the gleet was totally removed ; the stream of urine restored to it's natural size ; and a full sized bougie passed into the bladder. This gentleman is now perfectly well.

CASE XXXII.

A gentleman, aged thirty-eight, had been afflicted with strictures for six years before I saw him. During the last four years, he had a constant gleet ; and, after making water, he always wetted his shirt. He made water about five times in the day, and as often in the night, with a very narrow stream, frequently with much straining and difficulty, and was long in emptying his bladder. But when he drank more than usual, he made water much more frequently, and with pain. Several times he had suppressions of urine for a short time. He had also a pain in the lower part of his back, extending from the os coccygis to the rectum, which was most severe on rising from his seat. He had likewise a pricking pain in a particular part of the perineum, which was more tender to the touch in that spot than in any other part. This

he supposed to be opposite to the strictured part of the urethra. On examination, three very narrow strictures were discovered; the furthest and worst of which was at seven inches distance from the orifice. It was with difficulty that a fine bougie could be passed into the bladder. This he wore occasionally for a few days; until one a size larger, and fit for the caustic, could be passed into the bladder. When this was effected, the caustic was twice applied to the furthest stricture, being the narrowest; after which he made water with a stream twice as large as it was before these applications, and less pain attended the evacuation. The day after the third application, he was obliged to ride twenty miles, in an open chaise, in cold weather, in consequence of which he had a partial suppression of urine. However, by passing a fine bougie into the bladder, the urine came away immediately in a stream, which he could not void before, but by a drop at a time. From the same cause, and from irregularity in living, he had two or three other similar attacks, which were always relieved by passing a bougie. By fifteen different applications of the caustic to the different strictures, repeated once a week, or ten days, a bougie, of a middle size, could be passed into the bladder; and the stream of urine became large, though not of it's natural

size. He made water seldomer; he had no pain in the perineum, nor in his back; the gleet was quite removed; and he had now no stoppages of urine. I could not, however, in this case, effect any further dilatation of the strictures by the caustic. At present, he remains perfectly well; though it is more than twelve months since the caustic was last applied.

CASE XXXIII.

A man, aged thirty, had symptoms of stricture about six months before I saw him. These commenced by his not being able to make water immediately on having the desire. After he had voided it, he had a repetition of the desire. These symptoms however, occurred only occasionally. Afterwards, he had a desire to make water oftener than usual, though in the evacuation he could void only a few drops at a time. This symptom likewise occurred only occasionally. He had often a scalding sensation when he made water, and a small gleet. On making water his urine did not flow so far from him as formerly. The stream was very narrow, and he was longer in making it than he used to be. For five or six weeks before I saw him, he had a pain in the lowest part of his

back, which was worse when he stooped, or when he rose from his seat: he felt it likewise in walking. On examination it proved, that he had a stricture at six inches and a half distance from the orifice; but, as he was extremely irritable to the touch of the bougie, particularly when it came to the stricture, I passed it only through the strictures for a few times, and withdrew it immediately. This, however, was sufficient to render him easier, and to lessen the irritability. After this, I applied the caustic in a very small quantity. After the first application of it, he made water more frequently than usual. The contrary effect is generally produced by the caustic, as well as by the wearing a bougie; yet the latter now and then irritates in the same way as the caustic for a little while. When the irritation had subsided, the caustic was applied the second time; after which, the pain in making water was removed, and the pain in his loins was lessened. At this time, he was attacked with a slight swelling of the testicle, which was removed by antiphlogistic remedies in a fortnight, without confinement; after which, I passed a bougie through the stricture, three sizes larger than that on which the caustic was applied. His stream of urine became as large again as it had been. After four more applica-

tions of the caustic, he was much better in every respect, and his general health was greatly improved*. On account of the distance of his residence from mine, and his engagements in business, the use of the caustic was discontinued, and I did not see him for eight months; at the expiration of this term, he made water with a good stream; once only in the night, but rather oftener in the day time than is usual in a state of perfect health. In all other respects, he was perfectly well.

CASE XXXIV.

A gentleman, aged thirty-three, had been afflicted with strictures about ten years before I saw him; the first symptoms of which were a more frequent desire than usual to make water in the day time, and making it once in the night, which he had not done for the last five or six years before; this propensity was increased by drinking a little more than his

* The following is an account of the distance of time between the applications of the caustic in this case:

24th and 31st of December, 1802.

21st and 31st of January, 1803.

10th and 24th of February.

usual quantity : after the act of making water, a small quantity of the urine was retained in the urethra, and his shirt was wetted by it's oozing out. About six weeks before he applied to me, a large discharge came from the urethra, attended with pain in making water, which was felt in the extremity of the penis, and he had pain in erection. He was subject to pain in the perineum and in his loins. He had two strictures; one at six and a half, the other at seven inches and a half distance from the orifice, both of which were much contracted. After two applications of the caustic to the nearest stricture, a week intervening between them, the gleet was very much lessened, as well as the pain in erection and scalding. The caustic was not applied the third time till a fortnight after the second application. Two days before this application, the pain in erection returned; but it was removed again the same evening on which the caustic was applied, and did not return after this. In this case, the strictured parts of the urethra appeared to be more diseased than usual; as the caustic always brought away much coagulated mucus. But, though the case proved very obstinate, yet at length an improvement took place. After nineteen applications of the caustic, repeated about once a week; a bougie, as large as the

natural size of the urethra, passed into the bladder; the patient made water with a larger stream, and less frequently than before; and he was, in every respect, easier and better than he had been for many years; all his complaints being removed, except a very slight gleet.

CASE XXXV.

A gentleman, aged thirty-five years, had been afflicted with a stricture, about seven years before I saw him. Three years after the first appearance, a bougie, armed according to Sir Everard Home's plan, was passed down to the stricture; but the patient being unable to bear the pain it gave him, it was immediately withdrawn. When I saw him, he had a scalding sensation when he made water; the stream of urine was small, and the shirt showed, that some of the urine oozed after making water. In general, he did not make water oftener than is usual with people in health, either by night or day; excepting when he walked very far. On these occasions, he frequently had a desire to make water every five minutes, which propensity lasted about half an hour. About once in a fortnight, he had a pain in the perineum, which lasted about the same time. His complaint was attended with a considerable gleet.

On examination, a stricture was discovered at seven inches distance from the orifice. A middle sized bougie was passed down to the stricture, but would not enter it. I turned the bougie half way round to the right hand, when it's point was at the stricture, but it would not pass through it. I next turned it in the same manner to the left hand; the bougie then passed immediately through it. The same thing happened at three different trials. I applied a small quantity of caustic through the stricture upon the same bougie I had before used. Five days afterwards, a bougie, two sizes larger than the former, passed without any interruption through the stricture, and without having it's point inclined to any particular direction. After seven more applications of the caustic, repeated about once a week, the gleet was removed; the stream of urine restored to its natural size; the pain in the perineum, as well as the desire to make water on taking exercise left him; and he is now perfectly well.

CASE XXXVI.

A gentleman, aged thirty, had symptoms of strictures for three years before I saw him. When he made water, he had a pain along the urethra; and, after he had done, a wet spot was

left on his shirt. He made water three or four times in the night, and five or six times in the day, and was longer in making it than usual in a state of health. He had an uneasiness in the urethra. For some time past he had been subject to a pain in his back, which would attack him three or four times in a day, and sometimes awake him out of his sleep. A considerable stricture was discovered at seven inches and a half; and another at seven inches distance from the orifice. On the first application of the caustic to the former stricture, he felt a little scalding in making water during the first day. When I saw him a week afterwards, he made water with a larger stream than usual, and less frequently. The uneasiness in the urethra, was likewise diminished. Two months previous to the application of the caustic, his urine had much mucus in it; but, after the caustic was applied, it became clear. After three more applications of the caustic, a bougie, two sizes larger than was used before, could be passed through this stricture. The caustic was afterwards applied twelve times more to both strictures; by which process, all his complaints were removed, excepting a slight pain in his back, which he still feels, when he is fatigued with walking.

CASE XXXVII.

A young man, aged twenty-nine, had symptoms of stricture about five years before I saw him. During the last twelve months, he made water four or five times in the day, and as often in the night, with a violent straining and difficulty, and in a very small stream, which used to be three minutes in passing. These symptoms were attended with a gleet. He had two strictures; one at five and a half, the other at seven inches from the orifice, neither of which would admit any bougie, but a fine one, to pass. The furthest stricture, however, was rather more contracted than the other. As the urethra was irritable to the introduction of a bougie, I passed one through the strictures every day, for three or four days, and withdrew it immediately. After this, I applied a small quantity of caustic to the furthest stricture, upon a fine bougie, just large enough at the point to admit a small hole to be made in it with a pin. The patient experienced no pain from the application of the caustic. Three days afterwards, I took down the following minute:—"The first time
" he made water after the application of the
" caustic, it came with more force, and with a
" larger stream than before; he now makes
" water only once in the night, and about twice

“ a day. The gleet has been much less than for “ two or three months past.” After the second application of the caustic, which gave no pain, the gleet was nearly removed, and his stream of urine was still larger. I repeated the caustic afterwards six times more, sometimes once a week ; at other times once in ten days, in order to enlarge the strictures. In doing this, I increased the quantity of caustic in a small degree, which gave some pain in the application ; but the pain did not continue after the bougie was withdrawn. Upon this plan, the strictures were so much enlarged, as readily to admit a bougie, above the middle size, to be passed into the bladder. After this, his engagements were such as to prevent him any longer from attending to his complaint. I saw the patient two months after he had been out of my hands ; his stream of urine was large, though not of it's natural size ; he did not make water in the night, and only three or four times in the day ; he felt no inconvenience whatever from his complaint.

CASE XXXVIII.

A gentleman, aged forty, had symptoms of stricture for about ten years before I saw him. His stream of urine had been less than usual

during the greatest part of this period. He generally made water in the day time oftener than is usual with people in health, and once in the night. About once a week, for several years before he applied to me, he made water four or five times in a morning, which was attended with a degree of heat, and a smarting at the extremity of the penis. Sometimes when he made water on going to bed, he did not empty his bladder, but was obliged to rise about a quarter of an hour after he had lain down, in order to make water again. This second discharge was more copious than the first. He had a stricture at seven inches distance from the orifice. After three applications of the caustic, which gave him very little pain, he made water less frequently, and with a larger stream than before. After eleven additional applications, repeated once a week, the stricture was enlarged to the natural size of the canal, and all the symptoms of his complaint disappeared.

CASE XXXIX.

A man, aged fifty, had strictures for eleven years before I saw him. The first symptoms were a gleet, and a scalding sensation in making water, which continued for three years, during which time his complaint was treated as a go-

norrhœa by three different gentlemen, whose care he had been under. At the end of this period he was seized, on exposure to cold, with a very frequent desire to make water, which often came away by drops only, attended with great pain. Sometimes he made it three or four times in an hour. After continuing three weeks, this irritation subsided, and he made water less frequently, but in a small stream. He was afterwards subject to attacks of this kind from the same cause about once a fortnight, which continued for several days. All his complaints increased every year. About six months before I saw him, he became much worse, and generally made water every hour through the day, and four or five times in the night. His urine came away by drops only, attended with a violent straining, which often obliged him to go to stool, and he was seldom less time than a quarter of an hour in emptying his bladder. During this period, he had sometimes suppressions of urine for forty-eight hours together. He continued in this miserable situation till he applied to me. His gleet had not ceased since the commencement of his disease, and his urine had always a mucous sediment in it.

On examination, I found he had a very narrow stricture at six inches. In the course

of his treatment others were met with at seven, and seven inches and a half distance from the orifice. I succeeded the first time, though with considerable difficulty, in passing a very fine bougie into the bladder; this he wore for about an hour. A bougie after this was passed every day through the strictures, and kept in this situation for an hour or two, as he could bear it, during a fortnight; at which time the contractions, though extremely rigid, were so much enlarged, as to admit a bougie a size larger, though but just large enough to admit of making a hole with the point of a pin for the insertion of a small bit of caustic. This I applied to the middle stricture, which now appeared to be the narrowest, and passed it into it. Three days after this application I saw the patient, when he informed me, that since the caustic had been applied, he had made water less frequently, and with a much larger stream than at any time before, since the commencement of his complaints, and that he was in every respect much better. After the second application, a bougie full two sizes larger passed into the bladder; his stream of urine was more enlarged; and he made it seldom. After two more applications, a bougie, still a size larger, passed into the bladder. He now made water, to use his own expression, with a stream as large as he ever did in his life,

only once in the night, and seldom in the day. He had very little pain from any of the applications of the caustic. After this I applied the caustic to the different strictures as they required it, once a week, for sixteen times more; by which the gleet and all his other symptoms were removed; but the strictures appeared to be so uncommonly rigid, that I could not dilate them, so as to admit a bougie larger than one of a full middle size, without using that degree of force to which I am averse. He is, however, perfectly well, and has continued so twelve months.

CASE XL.

A man, aged forty, had symptoms of stricture about eight years before I saw him. He had been very ill for the last five years, and for the last three years in a state perfectly miserable. During the whole of this last period, he was not able to pass his water but in drops only. The evacuation was attended with much straining and pain, which sometimes produced a little blood. He was generally half an hour in emptying his bladder; part of his water generally dribbled away in the day time, so as to keep his shirt constantly wet; but this did not happen in the night. He made water generally nine or ten times in a day, and three or four times in the

night. In addition to these symptoms, about once a month he used to have a total suppression of urine, for a whole day; and in these attacks, which were generally brought on either by exposure to cold, or drinking more than usual, he has been sometimes laid up for a week together. On these occasions his water was of a bloody colour, and a ropy and tenacious sediment appeared at the bottom of the vessel. His general health was much injured, and he was frequently thirsty and feverish in the night. He had been under the care of three different surgeons; but none of them having been able to pass a bougie through the obstruction, he was given up as incurable. I found a stricture at four inches and a half distance from the orifice; but after repeated trials, I was not able to pass the finest bougie that could be made through it. I was able however on the first day I examined him, to pass the point of a very fine bougie a very little way into the stricture, a circumstance which was ascertained by it's requiring a small degree of force to withdraw the bougie, and likewise from a little circular indention found on the bougie near it's point, on examining after it was withdrawn. I knew by former experience, that if the bougie could be kept in the situation to which I had conducted it, for a few hours every day, I should soon be able to pass one *through* the

stricture. The bougie was therefore cut off near the glans, when it's point was passed into the stricture, and it was tied in it's situation by the method I have before described. He kept it in the urethra two hours. Immediately after it was taken out, he made water better than he had done for five years before, and afterwards less frequently; after keeping the third bougie in the stricture in the same manner, he made water on it's being withdrawn, still better. At this time the frequent irritations to make water, which he had before been subject to, came on, and continued for three or four days. When these had subsided, I repeated the bougies, and after using them five or six times, I passed a very fine catgut bougie through the stricture into the bladder; and in a day or two afterwards a common fine bougie was likewise passed through it. After this, by wearing these instruments for a few hours daily, he made water with a pretty good stream, and only four or five times in the day, and once in the night. At this time a bougie large enough only to admit the caustic passed through the stricture; which yielding to dilatation very reluctantly, and believing that it would not long remain open without using the caustic, I desisted from any further trial with the bougie alone, and applied the caustic, which gave him very little pain. I en-

larged the stricture considerably by the use of this remedy : on which his stream of urine was further increased in size, and after five applications, repeated once a week, I passed a bougie through the stricture two sizes larger than that on which the caustic was first applied ; but the stricture felt uncommonly rigid, and dilated with difficulty. At this time his general health was restored. Living at a distance from town, and being so well as to be capable of military duty, having joined a volunteer corps, he would not be at the trouble of repeating the remedy. He continued well for several months. I saw him lately, and found that the stricture had contracted a little ; I passed however readily into the bladder a bougie somewhat less than what had been used before. As he could not attend to the cure by caustic, I advised him to wear the bougies occasionally.

CASE XLI.

A man, aged thirty-one, had symptoms of stricture, for about three years before I saw him. The first indication of which was a partial suppression of urine, which was extremely distressing for about two days. Sometimes his water came away by drops only ; at other times by a table spoonful at a time. He was confined by this attack, though in a slighter degree than

what I have mentioned, for a fortnight. It was brought on by travelling on the outside of a coach for seventy miles; after this, he was tolerably well for a year and a half, though he made water with a very narrow stream. At the end of this period, he was seized again with a suppression of urine, which continued more or less for about three months: this terminated, as he said, in an abscess, and a large quantity of matter came away by the penis in one day; but whether this was matter, or mucus only, it is difficult to say. Eighteen months after the commencement of this attack I saw him; at which time he made water eight or nine times in the day, and three or four times in the night, with a very fine stream, and with much straining. He had also a pain in the perineum eight or ten times a day, which at different periods he had been afflicted with for three years. During the course of treatment I found that he had three strictures; one at four and a half, another at five and a half, and the third at six inches and a half distance from the orifice: all of them were so extremely contracted, that one of the finest bougies could scarcely be passed through them. He wore one of these instruments for an hour or two daily, for three or four days. After this, a bougie, a small size larger could be passed through the first

stricture, which appeared to be the narrowest. Upon this bougie I applied the caustic. It gave him no pain, and opened the stricture immediately; as the bougie passed readily and freely through it, after the caustic was dissolved. After this application, he made water much better the same day; but on the following day he had a return of the irritation he had before felt, and made water frequently, and with a small stream. This, however, subsided in two or three days; after which his stream of urine was nearly as large again as it had been before the application of the caustic, and larger than it had been for two years preceding: there was likewise less straining in voiding it. The caustic was repeated about once a week, for eighteen times, to the different strictures; but being very rigid they were dilated with great difficulty. I remarked, that when the bougie had passed through a stricture, and while I was moving it backwards and forwards, in order to abrade it's sides, it passed through it each time in such a manner as to give me the idea of rubbing against a part of a tendinous nature, a sensation which is not usually felt in this act. I can now pass a good sized bougie into the bladder; but as the pain in the perineum has not left him, he is still under cure.

CASE XLII.

A gentleman, aged thirty-eight, had symptoms of stricture for four years before I saw him. When he applied to me his stream of urine was smaller than is usual with persons in health. He had a gleet, with which he had been afflicted during the whole of the above mentioned time. He had a difficulty in making water, it being generally two or three minutes after he began the effort before the urine came. During the last two months he had a pain in the perineum through the day. His stricture was at six inches and a half distance from the orifice. After two applications of the caustic, he made water with a full stream; the pain in the perineum was removed; the difficulty of making water entirely gone, and the gleet considerably lessened. The caustic was repeated once a week, for ten times, in order to dilate the stricture still more. Four or five days after the last application, he drank wine and spirits to great excess, and on the following day, pain and inflammation in the perineum came on, with a swelling, which terminated in an abscess; a large quantity of matter was discharged by an incision. After this the wound healed, the gleet was removed, and he is now perfectly well.

CASE XLIII.

A man, aged sixty-four, had been afflicted with strictures upwards of twelve years. For the last eight or nine years, he had been extremely miserable: he generally made water six or eight times in the day, and four or five times in the night, attended with much straining and pain, and with a very fine stream: some of his urine also came from him involuntarily in the night. During this period, he was subject to occasional irritations, from cold or other causes, about once or twice in a month. At these times he usually made water two or three times in an hour. About eight months before he applied to me, a swelling came on in the perineum, which afterwards burst, and the urine came away partly through it. From this time he made water in drops only, and was generally ten minutes or a quarter of an hour in emptying his bladder. With difficulty I passed a very fine catgut bougie through a stricture met with at seven inches distance from the orifice. He kept it in the urethra about two hours. This was repeated every other day only, for four times, as the urethra was extremely irritable, by which the swelling in the perineum was in some degree lessened, but his water came away,

for the most part, by drops. After this, I was able to pass a bougie through the stricture, a small size larger than that first introduced. Into the extremity of this, I applied a small quantity of the kali. The application gave him no pain. The next time he made water, it came away in a full stream, and he voided it better than he had done for twenty years, and not oftener than natural. The fistula in perineo healed up in a few days afterwards, and the patient thought himself so perfectly well, that he did not call upon me for a fortnight after the application of the caustic. I passed a large bougie into the bladder, in order to be certain that there was no deception in his report. He was so well, that I judged it unnecessary to repeat the caustic.

CASE XLIV.

A man, aged thirty-nine, had been afflicted with symptoms of stricture about four years before I saw him; during the three last of which he had been extremely miserable, his water having come away from him by drops only. During the last twelve months, he had been worse than before, as he generally made water a dozen times in the day, and five or six times in the night, and was ten minutes or a quarter

of an hour in emptying his bladder, which was attended with much straining, and pain. Besides these efforts, his urine was also constantly dribbling away from him involuntarily, by night as well as by day. He had a stricture at three quarters of an inch from the external orifice, which admitted with great difficulty the point of one of the finest bougies to be passed into it. As soon as this was effected, the remaining part of the bougie was cut off close to the glans, and the point of the bougie kept in it's situation in the stricture for two hours. This was repeated every day for about a week, but the stricture dilated with uncommon difficulty, and soon contracted again after withdrawing the bougie. At this time, I succeeded in passing a bougie through the stricture, a small size larger than the former; upon this, a bit of kali was inserted, and expended upon the surface of the stricture. After this application, he made water in a fine stream, and seldomer, and he was easier, and in every respect better.

The kali was repeated in the same manner about once a week. A few days ago, and about a week after the fifth application, he told me that he was quite well. I saw him make water in a large stream, though not of it's natural size: he was now able to empty his bladder in about a minute, and made water only four or

five times in a day, and twice or thrice in the night, and without pain, and he is much better in his general health. I mean, however, to repeat the caustic in small quantities, as the strictured part feels like gristle every time the bougie passes through it, and one of a small size only can yet be passed through the stricture. He does not appear to have any stricture in the urethra, beyond that which I have mentioned.

CASE XLV.

A man, aged forty-six, had been very ill, for eighteen months before he applied to me, with symptoms of a bad stricture; the last six months of which he made water by drops only, without any stream; he passed it generally about ten times in the day, and eight or ten times in the night, and was about ten minutes in voiding it; each evacuation was attended with much straining, and a pain in the region of the pubis. Beside which, his urine constantly dribbled away from him and kept his linen always wet. In this situation, he had been utterly unable to follow his employment for the last six weeks. He had a stricture at five inches and a half from the external orifice, through which I was unable to pass one of the finest cloth bougies. I

succeeded, however, in passing into the bladder a very fine catgut bougie, which he wore for four or five hours, and repeated it daily for three days, which relieved him a little. I was then able to pass a bougie through his stricture a size larger; into the extremity of this I inserted a small quantity of kali, and applied it to the surface of the stricture, which gave him very little pain; his stream of urine became immediately larger; he made water only twice or thrice a day, and without any straining or sudden efforts. Six days after the caustic was applied, a bougie, three sizes larger than the former, passed readily into the bladder; but as it did not go through the strictured part quite so smoothly, as through the rest of the canal: the caustic was applied once more, after which he was perfectly well.

REMARKS ON THE PRECEDING CASES.

I should not have thought it necessary to have given the preceding details, had I not deemed it proper, to present the public with many confirmations of the truths I have advanced in the former part of this work. The

whole of what I have reported of each case, both of it's history and of the effects of the caustic, were taken down in presence of the respective patients, while they were under cure; and may be considered as their own report of the disease in question, and of the effects of the remedy used for it. Fearful of being unnecessarily prolix, I have confined myself chiefly to the leading particulars. There is, indeed a striking similarity in many of the circumstances of the respective cases, as well as in the effects of the caustic; yet I conceive that the number of facts adduced will not be thought too great, when the importance of the subject to be illustrated by them is considered. The diversity of opinions respecting the treatment of this very obstinate disease, may be a further apology for inserting so many instances of it.

These cases clearly shew the surprising efficacy of caustic in this disease; and, as clearly, it's perfect safety when administered with judgment.

I wish the reader to compare these reports, with those which Sir Everard Home has given: The greater number of his cases are filled with accounts of the violent and dreadful effects of his method of treatment, not merely on the urethra itself, but on the system in general. These cases, on the contrary, show the genuine effect

of a powerful remedy, applied in a suitable quantity, and at proper periods, to the diseased surface of a stricture; which, like all other remedies of great efficacy, when thus employed in many other diseases, tends to abate and moderate their symptoms, rather than produce fresh ones, or increase those from which the patient already suffers.

All the cases here stated, unless expressed to the contrary, were cured by the kali purum only; nor was the bougie used as an assistant in the cure of any of them, after the application of the caustic commenced. I may add, likewise, that the bougie has not, in any instance, been used since, even as a preventive to the return of the disease, unless it is so specified.

It may not be improper again to remark, that, in many of these cases, little or no pain was experienced on the first application of the caustic; I would wish it, however, to be understood, that this was entirely owing to the small quantity of it employed, and to the strictured part not being in a very irritable state. But, when the quantity of caustic was increased, the patients generally felt more or less pain or uneasiness at the time of its application: yet, it very rarely happened, that this continued after the bougie was withdrawn. Although I have now applied the kali purum a very considerable number of times, I

do not recollect a single instance of a patient being confined even for a day, in consequence of it's application. On the contrary, in almost every case in which it has been used, he has gone abroad as usual: But, I must repeat, that I attribute this entirely to the *small quantity* of caustic employed; to it's being seldom repeated; to the diffusion of it over the whole surface of the stricture; to the strictured parts not being in a very irritable state at the time of it's application; and to the patient not being infirm.

POSTSCRIPT.

Since the former part of this work was printed, I have met with two cases of very contracted strictures, in which a fine cloth bougie, having a particle of the kali inserted in it's point, became so soft, that it was a little bent in it's middle part on being moved gently to and fro through the stricture. In these cases, I applied the kali with the greatest ease and advantage, by inserting it within a hole made in the extremity of a catgut bougie of a small size. This hole was made by heating the point of a blanket pin in the flame of a candle, and applying it in this state to the extremity of the bougie. If the

point of the bougie be made rough by this process, it may be readily smoothed by a small file. Care must however be taken, that the hole be made deep enough to prevent the kali from coming out. After the bougie was armed, I filled up the hole by a little lard as before directed. In these cases I curved the catgut bougie by drawing it several times between a finger and thumb, as directed for cloth bougies.

The following was one of the worst cases of very contracted strictures I have ever met with, and affords a very striking and incontestible instance of the great efficacy of even a single application of a small quantity of caustic, when passed *into* a stricture by means of a fine bougie. This case affords likewise another instance among many which I have seen, that it is by no means always necessary, though ever desirable where it can be effected, to dilate a strictured part of the urethra to the natural size of the canal. Most of the particulars of this case are known to Mr. Andrews, a very respectable apothecary in Parliament Street.

A gentleman, aged about forty, had been afflicted with strictures near twenty years before

I saw him ; during the last twelve months of which, his complaint became more serious. He generally made water four or five times in the night, and six or eight times in the day. He was subject at times to more frequent irritations, and even to suppressions of urine ; for he sometimes made water four or five times in an hour, and the evacuation was attended with straining and pain. Sometimes on these occasions, he could not make water for half an hour after he first attempted it. At other times his urine came away involuntarily by night as well as by day. His stream of urine was generally as fine as a thread. He had a pain occasionally in the perineum. There was a glairy gelatinous fluid in his urine, which was more particularly observable when the irritations and frequent desire to make water were upon him. When this occurred, he was much debilitated, and from the long continuance of his disease, his general health was much impaired. While he was in this state, and before any remedy was used for his stricture, he was seized with a fever. During the continuance of this disorder, he had an almost total suppression of urine. From this he was relieved by the introduction of a fine bougie into the strictures, as will be related hereafter. After his recovery from this illness he submitted to the use of the caustic.

The finest bougie that could be made, could not be passed into the bladder, and the urethra was so irritable to the touch of this instrument, that the patient could not well bear the dilatation of the strictures by wearing it in the urethra. He had two strictures: one at six, the other at seven inches distance from the orifice. The latter was the most contracted. Although I could not pass a common fine bougie, either into, or through these strictures, yet I was able to pass the point of a conical shaped fine white bougie*, of a soft consistence, into them. Upon the extremity of a bougie of this kind, I applied the twelfth part of a grain of lunar caustic, incorporated with gum water, and rolled it so neatly upon it before it became hard, that that part of the bougie, upon which the caustic was fixed, was as smooth as any other part of it. I introduced this armed bougie by measurement into the very centre of the further stricture without any difficulty. I suffered it to remain in this situation for about two minutes, that the caustic might dissolve. The caustic gave him very little

* I have given an approved recipe for the composition of these bougies at page 20. When they are made very small at the point, it is absolutely necessary that they should be of a conical shape; otherwise they have not firmness enough for introduction.

pain at the time of it's application; but even this small quantity brought on considerable irritation afterwards. He had a frequent desire to make water, attended with straining and pain, and partial suppressions of urine. These symptoms continued for two or three days, and then subsided. After which, his stream of urine was better than it had been for twelve years; he made water once only in the night, and sometimes not at all, and only three or four times in the day. He submitted afterwards to have the caustic applied in the same manner two or three times more at certain intervals. After this, he found himself so materially altered for the better, that he refused to proceed any further in the use of the caustic. The stream of urine is good: he has neither irritations nor suppressions of urine; and he is in a better state of health than he has been for many years.

The following CASES are proofs of the singular utility of fine bougies, in suppressions of urine; when, from the very great contraction of a stricture, it is impossible to introduce the finest catheter, that can be made, into the bladder.

CASE I.

I was called to relieve an old gentleman, upwards of eighty, who had laboured under a suppression of urine for three days. The abdomen was tense and prominent, and his pain was extreme. He had symptoms of stricture for many years; but no bougie had ever been attempted to be passed into his urethra.

On introducing a bougie, I found a very contracted stricture at the bulb of the urethra. With great difficulty I passed one of the finest bougies through it; but it would not pass into the bladder. The bougie was no sooner thus introduced, than the urine made it's way by drops so fast by the sides of it, that I judged it prudent to keep this instrument in it's situation, as long as the urine should continue to flow. In this manner, I drew off about half a pint of urine in half an hour. On introducing another bougie a few hours afterwards, a pint of water was

drawn off; partly while the bougie was in the urethra, and partly after it was withdrawn. A fine bougie was then passed as far as possible, and retained in it's situation for two hours. This was repeated the following day. In two days, I dilated the stricture by this method so much, as to pass an exceeding fine flexible gum catheter into the bladder, which completely relieved him. The stricture was afterwards dilated still more, by the use of bougies, without the aid of caustic. When the bougie, *first* introduced, was withdrawn, I observed in this case a white earthy matter, enveloped in thick mucus, adhering to all that part of it which had been in contact with the stricture. This being suffered to dry upon the bougie, proved to be truly calcareous; nor have I any doubt, that this matter was a principal cause of the suppression.

REMARK.

Since this instance occurred, I have seen another case of a very narrow stricture, attended with a suppression of urine, and a diseased bladder; in which the urethra was plugged up at the strictured part by a slough from the bladder. This slough was brought away by the introduction of a fine bougie, and the suppression of urine thereby relieved.

CASE II.

I was sent for to relieve a man, who had laboured under a total suppression of urine for twenty-four hours. His abdomen was very tense ; he had procured a metallic bougie, hoping to relieve himself by it ; but it was of no service to him. Knowing that he had been afflicted with strictures many years, and having formerly relieved him under the same complaint, I passed, with some difficulty, a very fine bougie into the bladder, through a stricture which he had at seven inches distance from the orifice of the urethra. I suffered it to remain in the passage about three minutes, and then withdrew it. The patient made water immediately afterwards, with a very thin stream, to the quantity of nearly two quarts. The urine was of a livid colour, and full of mucus. He recovered immediately, and is now very well.

CASE III.

I was called to relieve a gentleman, under great pain, from a total suppression of urine, occasioned by strictures in the urethra. The proximate cause of the attack was fever. He formerly had many partial suppressions from

cold; but they were totally different from that with which he was now affected. He had a very narrow stricture at six inches, and another at seven inches distance from the orifice. With difficulty I passed a very fine bougie into them: but it became a little twisted, and would not go into the bladder. After keeping it in the urethra about three minutes, and then withdrawing it, the urine followed in a very thin stream; by which about a quart of it was drawn off. The bougie was afterwards introduced several times with the same good effect, before the bladder had power to expel the urine.

APPENDIX.

I add a few remarks on an affection of the bladder, frequently met with in elderly people; which resembles, in some of its symptoms, those of the complaint which is the subject of the foregoing treatise, but from which it may be clearly distinguished.

In the decline of life, the bladder is apt to retain a part of the urine after the act of making

water; the frequent efforts made to expel this remainder inflame it's inner coat, and bring on a very painful and distressing disease. This complaint generally comes on slowly. One of the first symptoms of it is a more frequent desire to make water than usual, by night as well as day; and the quantity expelled, at each evacuation, is of course diminished.

After the disease has continued in this way for some time, the urine begins to deposit a curd-like, mucous sediment, and the patient complains of pain in voiding it. The propensity to make water becomes more frequent; a greater quantity of mucus is contained in the urine, and more pain is experienced in evacuating it. These symptoms increase in some cases to such a degree, that at length the urine is discharged every hour, day and night; the quantity at each evacuation is less and less; and a much larger proportion of mucus, of a more purulent and turbid appearance, is deposited. At this period of the disease, the pain in making water is extremely severe. The complaint, if left to itself, will sometimes continue in this way for many months, and sometimes even for a year or two, without much alteration. At length, the pain becomes more intense, and some glairy gelatinous mucus, extremely viscid and tenacious, is found at the bottom of the vessel containing the urine, some-

time after it is evacuated ; though, when first discharged, it appeared only a little turbid, and free from any actual glair. In some cases, indeed, this glairy mucus is perceived at the time of the evacuation. In this period of the disease, a total suppression of urine sometimes takes place, which, if not relieved, soon proves fatal.

The complaint here described is an inflammation of the inner coat of the bladder, which though but slight at first, becomes in time extremely violent, and often affects the ureters and kidneys. The principal cause of the inflammation, in many cases, is the stimulus given to the bladder by the retention of the urine left in it after the act of evacuation. As this remainder becomes greater, the inflammation is proportionably increased ; and the repeated but ineffectual efforts of the bladder to expel it, continue likewise to keep up the inflammation.

The mucus sediment in the urine is a secretion from the inflamed coat of the bladder ; of course it commences with the inflammation, and it's quantity depends on the degree of it. When the urine is mixed with the glairy gelatinous fluid, it may be concluded, that the bladder is more highly inflamed ; for the patient is always in more pain, and is less able to empty the bladder of it's contents, when this appearance takes place, than when it does not. This glair

likewise is unquestionably a secretion from the inflamed coats of the bladder. Having paid particular attention to the circumstances attending this complaint, and had many opportunities of examining, by dissection, cases in which similar appearances took place, I am confident of the truth of these assertions.

It is of considerable importance in this, as in every other complaint of the bladder, to distinguish these mucous and gelatinous sediments from pus, as well as from other depositions of the urine, occasioned by the various diseases to which the human body is liable. A little attention will be sufficient for the purpose of discrimination. The curd-like mucus observed in the urine, in the disease of which I am now treating, will be easily distinguished from pus, merely by the eye, if time be given to let it completely form: it being neither so uniform and smooth, nor of so yellow a colour as the latter. It is likewise lighter, and of course subsides less perfectly to the bottom of the vessel. There are cases, indeed, in which pus is intermixed with the mucus; but the two substances do not in general mix so as to lose their respective appearances*. There is another and more certain

* The appearance of pus, in these and other cases, does

rule for determining the nature of the matter deposited. When either pus, or mucus, is voided with the urine, it has when first discharged a turbid appearance, which is greater or less, according to the quantity of pus, or mucus, that may be contained in it. When the urine is left quietly to settle, the turbid part falls to the bottom of the vessel, and leaves the upper part perfectly transparent. The deposition from urine on the contrary, that has neither pus nor mucus mixed with it, does not take place till the fluid becomes cold; when first discharged it is perfectly transparent, and will often become so again, if heated to a degree equal to the warmth of the body. This however is not the case with urine that contains either mucus or pus, as it is always turbid, whether it be warm or cold.

To determine exactly the cause of this complaint, is more than I can undertake. Perhaps it may proceed from an imperfect action of the muscular coat of the bladder, or from a want of due relaxation of it's sphincter. Perhaps, in many cases, both these circumstances may have contributed to the effect. There is some reason

not always denote the existence of an ulcer; for the lining of the bladder, the ureters, or the pelvis of the kidneys, when inflamed to a certain degree, will, like other inflamed surfaces, secrete pus, though not ulcerated.

to believe, that in general the fault is not so much in the bladder as in the sphincter; for I have sometimes observed in drawing off the water of a patient under this complaint, that the bladder has acted with great force in expelling the urine through the catheter.

This retention of urine does not seem to be the effect of stricture, as there is commonly no stricture in these cases. A much more probable cause is an enlargement of the prostate gland. This I have known to be actually the case with patients of this description. I have, however, met with other instances of the complaint, in which a bougie or catheter could be passed so freely into the bladder, that the passage of the urine did not seem to be obstructed from this cause; nor was there any perceptible enlargement of the prostate gland, when it was examined by the rectum.

On the cure of this complaint I may be concise. The first thing to be done is to empty the bladder by a catheter. It is almost incredible to say, how soon the patient finds relief from this operation. The urine and mucus are no sooner evacuated, than he feels himself, as it were, perfectly well. Instead of finding a return of the painful effort to make water at the expiration perhaps of every hour, or oftener, he is frequently, though not always, free from it for

several hours, and sometimes nearly for half a day after the operation has been performed. The inclination to evacuate his urine of course returns when the bladder is again distended; but if it be again emptied by the catheter, the relief before obtained is again experienced. By this method I have seen many so much improve in a few days, as apparently to be cured. By persevering in this treatment, the patient often appears to have received a perfect cure of his complaint, without the use of any other means. But if the catheter be left off, and the water be suffered to collect again in the bladder, the symptoms are apt to return with their former violence.

The intention of using the catheter should be, to draw off the water as often as is necessary to prevent pain, from the distention of the bladder. When this viscus is highly inflamed, and the symptoms severe, the operation should be repeated every six hours. In ordinary cases, once in twelve hours will be sufficient. The instrument best suited for this purpose is a curved flexible gum catheter, without the wire, as described in the foregoing treatise. This may often be passed into the bladder by the patient himself. If, however, the prostate gland be enlarged, and the point of the catheter, from not having a sufficient degree of curva-

ture, will not rise over the projecting part of the gland, it must be used with an iron stilet inserted, which should be made of as great a thickness as the catheter will receive. To this instrument more than the ordinary degree of curvature should be given, especially at it's point. See Fig. 3. If there be no other obstruction in these cases than an enlargement of the prostate gland, a large catheter of this kind will generally pass more readily into the bladder than a small one. Sometimes the silver catheter, a good deal curved, will be found a useful instrument, on account of it's firmness:

I have seen different medicines tried in this disease, but with very little effect. They are of service chiefly where the symptoms are extremely violent. In such cases, gentle evacuations by the bowels should be procured daily, and opiates should be given, either internally or in the form of clysters. The semicupium, and fomentations to the perineum and region of the pubis, joined to a light diet, should be employed. Abstinence from all heating liquors, and rest, should likewise be enjoined.

The following letter and case, illustrating the preceding disease, was intended to be inserted in the first edition of this work, but it was mislaid. It is written by Joseph James Swaby, Esq. residing at New River, St. Elizabeth's County, Member of the Court of Assembly, and Custos Rotulorum of that County, in the Island of Jamaica. I have the pleasure to add, that I received another letter from him some months ago, in which he informs me, that, with the use of the instrument, he continues remarkably well.

“ DEAR SIR,

The following is, as near as I can recollect, the state of my complaint, previous to my application to you.

It may be necessary to premise, that I am now in my seventieth year, upwards of fifty of which, I have resided in Jamaica. My life, generally regular: about twenty years last past frequently smart attacks of the gout. The last six or seven years, frequent urinary calls, especially in an erect position, small quantities of urine evacuated at a time, and that slowly.

About three years since, during a gouty fit, I observed the urine to be turbid, and, after some time standing, to deposit a considerable

quantity of mucus, mixed with an appearance of pus. After some time, an irritation took place, chiefly after the turn of the night, which created considerable pain, and frequent stimulus to urine, which was discharged in small quantities, and prevented me from taking rest; the deposit in the urine so considerably increased, as to amount to four ounces, at least, in the twenty-four hours. With the increased deposit, increased irritation, so that, at length, the urine was voided every hour, at least, during the night, which totally deprived me of sleep, and greatly reduced my flesh and strength. It was the opinion of the faculty in that island, that ulceration existed on the neck of the bladder; to remove which, I underwent the usual medical routine of alteratives, tonics, &c. &c. without any salutary effect. A sea voyage, and change of clime, were next advised, and complied with. I arrived in this country under similar complaints. The advice of a surgeon of eminence was taken: on due examination, he pronounced, that the discharge was mucus only, and not matter. I was again directed to a course of mercury, in small quantities, with a decoction of the bark. Having tried this for a considerable time, in Jamaica, ineffectually, I despaired of benefit from it; I received none. Another surgeon of respectability recommended

the uva urci; this also was continued for some time, with as little success; when I, most fortunately, was introduced to you. Your scientific idea of the cause of my complaint, was verified by the use of the flexible catheter. The effect of it was almost instantaneous. The irritation decreased in a few hours; I slept the following night more than eight hours; urinary calls were not more frequent than four hours; and, in a few days, every stimulus and painful symptom left me. My utmost expectation did not rate the use of the instrument beyond palliation; I have the best grounded hope it has now effected a radical cure, as, for a considerable time past, my urine has been perfectly free from any deposit; my sleep sound, and undisturbed; my appetite, and digestion, which were much impaired, perfectly restored; and, except the gout, which has visited me more smartly than usual in a warmer clime, I am in as good health as I can expect at such an advanced season of life. Very much to my satisfaction, I have not had occasion to take a single dose of any kind of medicine since I first made use of the catheter.

If the within should require any alteration, in stile or manner, to fit it for your publication, I must beg you would alter it to your inclination. As soon as your publication is put forth, I shall be happy to be favoured with it.

My residence in this country will not exceed the end of February ; previous to my departure, I shall have the pleasure to pay my respects to you, and wish you a long series of health and felicity.

I remain, most respectfully,

Dear Sir,

Your most faithful

and obedient Servant,

JOS. JAS. SWABY."

15, Church Row, Pancras,

18th Dec. 1802.

The following case, though not connected with the subject of this work, is added on account of it's extraordinary nature, though it is not the only one on record of the same kind.

A gentleman, aged fifty-five, was attacked with a frequent and sudden desire to make water, attended with a painful sensation at the end of the penis, and an appearance of mucus in the urine. These symptoms continued for a fortnight, but were more severe during the last three or four days of the term. At this time, a guggling noise of wind, from the urethra, was perceived during the time of making water.

The day after this symptom appeared, the patient ate some ripe currants; and, on the following day, he found a currant seed just within the orifice of the urethra, which he took out of it, and minutely examined, that he might not mistake it's nature. Some weeks subsequent to this occurrence, he perceived his urine, in about an hour after he had taken coffee, to be tinged with a colour very similar to this liquid. About three months after the currant stone was found in the urethra, the patient was attacked with a swelled testicle, which was cured by lying in a horizontal position, by applying leeches to the part, and using purgatives. About two years afterwards, he was again attacked with the same complaint, which came on after a journey of some length. In addition to this complaint, there was much irritation in the bladder, as the patient had a frequent and painful desire to make water, in which a considerable quantity of mucus was perceived. Both the swelled testicle and the irritation on the bladder were cured by the same means as in the former attack of the first mentioned complaint. From the time that the noise of wind from the urethra was first perceived, to the present period, the patient has had occasional returns of this symptom. Sometimes three weeks has elapsed between the different

periods of it's appearing; at other times, it has come on every day, for a week together. The mucus, likewise, has been frequently, but not invariably seen in the urine.

Ever since the noise of wind was perceived in the urethra, the urine has been occasionally clouded with some opaque matter of a brownish colour when it was first made; and a sediment of the same appearance has been deposited in it after it had stood for some time in the vessel. These appearances had every mark of being occasioned by a small portion of fæces having been mixed with the urine. As a corroboration of this opinion, it should be noticed, that small bits of solid matter, resembling mice dung, were found in the urine. When these were rubbed against the side of the vessel, they evidently appeared to be bits of real fæces, which had passed from the intestines. This appearance in the urine entirely ceases for some time, and then returns at uncertain intervals; and, it has been remarked, that when there is no guggling of wind from the urethra, the urine is generally of a clear colour. In order to be certain that there was no deception in this case, I saw the patient make water, and distinctly heard the guggling noise follow the evacuation. I am

certain, therefore, that air came out of the bladder, through the penis. This gentleman remains at present in the same situation; having, at intervals, returns of the windy discharge, and his urine is discoloured as before described.

From what I have related, I beg leave to observe, that there is unquestionably in this case, a communication between the bladder and some of the intestines. Probably an adhesion has taken place at the part where this opening is made. The hole communicating with the two cavities, is, I conceive, of the length and width of the bits of fæces found in the urine. When these lodge in the aperture, and plug it up, the urine has it's natural appearance, but the discolouration of it is occasioned by the passing of these bits into the bladder. From the same circumstance that the fæces pass this way, the wind escapes from the bowels into the bladder; and when the fæces and wind pass into the bladder, they inflame it's inner coat, produce the irritation, and frequent desire to make water, with the appearance of mucus in the urine. The inflammation thus communicated to the bladder, affects in all probability, the orifices of the seminal ducts, and thereby occasions the swelling of the testi-

cles. As an additional proof, that the wind comes out of the bladder, the patient always voids the urine first, and then the wind; for the air being so much lighter than the water, is naturally uppermost in the bladder, and consequently comes out of it last.

THE END.

