On stricture of the urethra and fistula in perineo / by James Syme.

ON

STRICTURE OF THE URETHRA

AND

FISTULA IN PERINEO.

BY

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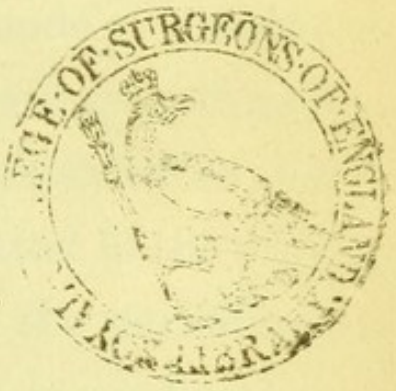


SECOND EDITION.

EDINBURGH:

SUTHERLAND AND KNOX, SOUTH BRIDGE.

LONDON: SIMPKIN, MARSHALL, & CO.

MDCCCLV.

MURRAY AND GIBB, PRINTERS, EDINBURGH.

PREFACE TO THE FIRST EDITION.

When attention has been long devoted to the attainment of an important object, and when the most elaborate efforts have proved ineffectual for the purpose, it is not easy to persuade those engaged in the pursuit, that they have overlooked a simple and easy mode of obtaining success. The method of treating obstinate strictures of the urethra, recommended in the following pages, was communicated to the profession five years ago, through the periodical press; and again, two years ago, in a collection of surgical essays; but, so far as I know, it has not yet been adopted by others even in a single instance. Being deeply impressed with the importance of the subject, I feel it my duty to make another attempt, with the view of awaken-

ing attention to it, by publishing in a separate form full details of the procedure, together with its advantages, positive and comparative, and also further evidence of its efficacy, from cases in public as well as in private practice. Having done this, I leave the matter to the profession, trusting that, whatever may be their decision, they will at least give me credit for an earnest desire to render the opportunities committed to me conducive to the improvement of Practical Surgery.

EDINBURGH, 1*st November* 1849.

STRICTURE OF THE URETHRA.

THERE are few human infirmities productive of more distress and danger than stricture of the urethra, when it assumes an aggravated form. The painful, laborious, and frequently repeated efforts to effect micturition, occupying the patient's time by day, and disturbing his rest at night—the liability to complete retention of urine, with all the risks of abortive attempts to introduce catheters, or the more desperate resource of puncturing the bladder—the involuntary dribbling of water, wetting the clothes and excoriating the person—the feverish attacks—the abscesses, and the fistulas of the perineum—the inability for exertion, whether of body or mind—the irritability

despondency, and emaciation, with the despair of relief except from premature death, constitute a sad catalogue, which might be greatly extended without comprehending all the evils originating from this fruitful source of misery.

With reference to their symptoms and treatment, strictures may be divided into—1. Imaginary; 2. Slight; 3. Confirmed; 4. Irritable; and, 5. Contractile.

Imaginary strictures constitute a large proportion of the cases that occur in practice. They generally depend upon an erroneous idea of the patient, suggested by some irritation of the urinary organs, or debility in the expulsive power of the bladder, and encouraged either through unskilfulness of the surgeon, who attributes the pain and difficulty resulting from his awkward use of instruments to contraction of the passage, or through the culpable delusions of rapacious quacks whose appropriate field is the remedy of diseases that have no real existence. Such cases explain the good effects attributed to various modes of treatment, which, if the stricture were real, would prove useless, impracticable, or injurious.

Where a stricture does exist, but in no great degree of duration or contraction, it may be easily removed by dilatation through the use of various means, such

as retaining a succession of catheters in the bladder, or introducing bougies frequently for lengthened periods. There is, however, no occasion to place the patient under any such restraint, since the object in view may be more simply, safely, and effectually accomplished by passing bougies with intervals of three or four days, and withdrawing them immediately after their introduction. One or two of the steps in the scale being thus gained each time, the urethra is soon expanded to its natural capacity, without pain, trouble, or confinement.

It is a remarkable fact that strictures frequently pass into the most confirmed state without the patient being aware of their existence. The symptoms steal on so slowly and insidiously, that the flow of urine may be reduced to a thread-like stream little better than a succession of drops, while no suspicion is excited, until an attack of complete retention, or the length of time occupied in evacuating the bladder, leads to an examination of the passage. Not unfrequently the first intimation of there being something wrong is afforded by the formation of a perineal abscess; and as the explanation usually given to account for this occurrence is not at all correct, the true nature of the process may be here considered.

The ideas which have long been and still are pre-

valent in regard to perineal abscess and fistula afford an example of probabilities in pathology being assumed as trustworthy instead of the facts ascertained by observation. It is said that the urine, impeded by the stricture, presses upon the urethra behind it, and thus causes ulcerative absorption, which forms an opening in the canal that allows a little water to escape into the cellular texture, where it lays the foundation of an abscess. Now, if this explanation were correct, the early history of such collections of matter would always present the symptoms of that violent local and general disturbance which is attendant upon urinary extravasation. But so far from this being the case, the perineal abscess usually forms slowly, and insidiously; and when opened by incision previous to its spontaneous evacuation, is found to contain purulent matter alone, unmixed with urine. It is true, that if an external drain be not afforded, the fluid may discharge itself into the urethra, and then indeed the urine, not only entering the cavity, but being urged into it by the contractile force of the bladder, while the stricture opposes its outward flow, breaks down the circumscribing wall of lymph, and diffuses itself through the scrotum, when an opportunity is presented of seeing what would happen if, in accordance with the generally received opinion, its escape

were, in the first instance, permitted directly by ulceration of the urethra.

The truth seems to be, that the irritation of the stricture, or of the means employed for its remedy, occasions inflammation in the textures adjacent to the urethra, which, sooner or later leading to suppuration, gives rise to an abscess separated from the canal of the urethra merely by its lining membrane, but thickly covered externally by the fascia and integuments of the perineum. In obedience to the law of progressive absorption induced by the pressure of purulent matter, spontaneous evacuation is nevertheless much more apt to take place outwardly than inwardly, although the resistance of the fascia tends to render the passage tortuous and directed towards the hip, scrotum, or anus, instead of the nearest point, which of course coincides with the raphe. In no long time after the matter is thus discharged, or through an incision anticipating this event, ulcerative absorption establishes an opening in the thin denuded portion of mucous membrane that constituted the urethral wall of the abscess, and then the urine escaping in more or less quantity, renders the fistula in perineo complete.

When an instrument of any sort can be passed through a stricture, it is generally possible, by careful

and well-directed efforts, to introduce a succession of larger ones, so as to dilate the contracted portion of the canal to its natural capacity. The process thus accomplished, has been naturally, but perhaps rather unfortunately, named Dilatation; since this title conveys the idea of a purely mechanical effect, and has doubtless led to many of the plans for treatment which are founded upon the same principle, and executed by similar means as those employed for stretching the finger of a glove. But it should be recollected that while the cause of stricture is effusion into and condensation of the urethral coat, relief is afforded by the opposite action of absorption, which restores the thickened texture to its proper condition, and that the beneficial effect of dilating means depends upon their exciting such a counteracting agency in the living tissue. Any sort of stretching which exceeds the degree requisite for this purpose, so far from doing good, will, therefore, probably increase the evil by reinducing the irritation productive of contraction; and mere distension of the canal, by the permanent retention of catheters, must not be confounded with the real widening which results from a restoration of the urethral coats to their natural state of capacity and tenuity.

To effect dilatation with this view, the best means

are unquestionably metallic bougies, and those made of Berlin silver seem decidedly preferable to any others, as they take a fine polish, are not liable to rust, and being hollow, are guided more lightly than the plated steel instruments used in London, while their moderate expense does not place them beyond the reach of ordinary employment. Ten sizes are sufficient, unless in extraordinary cases, for dilating the tightest stricture to the natural width of the canal; beyond which there is no advantage in distending it. It is usual to pass bougies while the patient is in the erect posture. But whenever any difficulty is anticipated, he should be placed horizontally; since the operator can thus judge much better as to the direction of the urethra, which varies with the form of the pelvis, and can also conduct the manipulation altogether more gently. Pain and bleeding are certain indications of the procedure being faulty. The bougie should be rather suspended than held between the tips of the fore and middle fingers, and gently urged on by the thumb, while the fingers of the left hand rest on the perineum to assist in determining the proper course of the instrument. Stretching of the penis and forcible clutching of the bougie are sure signs of awkwardness and incompetency in this department of surgery; and a patient who has once had the instrument

properly introduced, can always afterwards distinguish between its proper and maladroit employment.

When the existence of a stricture is suspected, the urethra should be examined by introducing a moderate-sized bougie, such as No. 8. If one larger than this be employed, it may encounter resistance at the narrowest part of the channel, though there is no real contraction, while one of smaller size may not detect a degree of stricture requiring dilatation. But when a bougie of the size above-mentioned is obstructed, there need be no doubt as to the existence of stricture, and its degree of tightness should next be ascertained by trying a succession of smaller instruments until one is passed. It is unnecessary to say anything as to the preposterous plan of taking casts of the stricture by pressing upon it the extremity of a soft plaster bougie, since any one at all conversant with the subject must be satisfied that such a procedure can produce no result better than deception of either the practitioner or the patient. The only satisfactory measure of a stricture is the instrument which it allows to pass; and this being ascertained, the dilatation may proceed from that point, according to the principle which has been explained. But however often the introduction of instruments may be required for this purpose, the

greatest care should be taken to avoid all attempts to gain an advance by force in opposition to unfavourable circumstances. If the patient is heated or out of order—if he has exceeded in the use of stimulants, or proposes to do so—if he has performed a journey or is about to undertake one—if the urine is thick or loaded with mucus—if the bowels are constipated or unduly relaxed—if the urethra is inclined to bleed or appears more than usually irritable —if there is pain of the testicles or perineum—and, finally, if the surgeon is in haste or out of humour, the operation ought to be delayed.

However carefully and skilfully this process may be conducted, disagreeable consequences are apt to result from it, and the risk of such occurrences will of course be greater, when there is any impropriety on the part of either the patient or the surgeon. The most frequent are rigors, followed by heat and perspiration, so as to simulate attacks of ague, for which they are often mistaken, especially after exposure to the influence of tropical climates. In general these feverish fits pass off without leaving any trace of their existence, beyond languor or weakness, or perhaps some herpetic eruption on the lips. But if the instruments have been used with undue roughness, or the patient has been guilty of any im-

prudent exposure to cold or stimulants, inflammation of the testicles or an abscess of the perineum may ensue, so as to complicate the case and delay its treatment. False passages also are frequently established, not only by inexperienced practitioners, but by those whose success has led to over-confidence, and induced a want of that extreme caution which is always requisite for the safe guidance of instruments through the urethra. From the dire effects of urinary extravasation it might be expected, that injuries of this kind would be always productive of serious, if not fatal, consequences; and such, no doubt, the case would be, if the opening were seated on the vesical or inner side of the stricture. But as it is beyond the contraction, and forms an exceedingly acute angle with the direction of the canal, the safe exit of the urine is favoured, while its entrance into the false passage is impeded. The principal inconvenience, therefore, that results from this complication, is the increase of difficulty it occasions in carrying on the dilatation.

Whatever may be the difficulties and danger of the simple dilating process, they are trivial when compared with those attending the use of Caustic; which, even if it should happen to be correctly applied to the seat of contraction, must expose the

patient to the risk, not only of immediate irritation, but also of subsequent inconvenience from cicatrisation of the ulcerated part. It seems, indeed, surprising, that an agent so uncertain and hurtful should ever have got the credit of proving beneficial for the remedy of stricture, unless we suppose that in the cases where it appeared to do so there was no real contraction. There is a fashion in diseases as well as in their treatment, and when every uncomfortable feeling about the urinary organs was attributed to stricture or enlarged prostate, any means of remedy could not fail to acquire some portion of confidence. But now, when juster notions are entertained on the subject, it is needless to point out the inexpediency of resorting to the use of caustic under the circumstances in question, which must render its employment unnecessary, as well as in the highest degree dangerous.

There is another mode of treatment that may also be discussed in a few words. This is the method of internal incision, which was advocated by Mr Stafford of London, more than thirty years ago, and has since then found much favour from the surgeons of France, whose ingenuity has been variously exercised in the contrivance of instruments for the purpose. In all such apparatus the essential con-

stituents are a sheath and narrow blade contained in it, which may be protruded from the side or the extremity, accordingly as the instrument can or cannot be conveyed through the stricture. In addition to the uncertainty of this procedure in regard to its immediate effect, and the danger to which it exposes the patient from bleeding, as well as the irritation of urine forcibly urged upon a raw surface, the great objection may be mentioned, that whatever relief is thus obtained does not prove permanent. Indeed it would seem from the results of experience—and this I find from my communications with patients treated in London, has been much more extensive than might be supposed from what has appeared in writing on the subject—that so far from lessening the disposition to contract, the internal incision rather increases this morbid tendency, so as seriously to aggravate, instead of alleviating the disease.

A French surgeon, M. Reybard, has lately endeavoured to maintain that all strictures of the urethra depend upon the formation of a new texture, or lining membrane of the mucous surface, which must be completely divided through its whole extent of length as well as thickness, in order to afford permanent relief. For this purpose he introduces a

sheath containing a blade which, when expanded, presents its point not backwards but *forwards,* so that when the instrument is withdrawn it rips open the canal with a certainty no less unerring than relentless. The Parisian Imperial Academy of Medicine have been so much delighted with this procedure as to express their approbation of it by bestowing upon the author the prize of 12,000 f. (L.450) bequeathed by the late M. d'Argenteuil, for rewarding practical improvements in the treatment of stricture. How far this distinguished body have acted justly in their decision, will appear from the "Reclamation" which I took the liberty of transmitting for their consideration.* But I may here remark, that M. Reybard limited the employment of his dreadful engine to cases of stricture so accommodating as to permit the passage through them of a thick sheath, with the blade contained in it, and held all tighter contractions as beyond the reach of remedy; so that he stopped short of the great difficulty, and merely substituted a bloody, painful, and dangerous procedure for the easy and safe means of dilatation, which are found quite sufficient for the treatment of stricture in its ordinary form of severity. It would be instructive to learn how many members of the Imperial

* See Appendix.

Academy have adopted in practice a mode of treatment in favour of which they have so strongly testified.

There has long been a general persuasion that strictures, especially when complicated with perineal fistula, are apt to become impermeable, or altogether closed against the introduction of instruments, and it was under this impression that the French surgeons employed an operation which they called, "Boutonnière." It consisted in cutting upon the point of a catheter, conveyed down to the seat of obstruction, and after having thus removed the resistance, completing the passage into the bladder. But although it might be possible in this way to re-establish the natural canal, the chances were greatly against doing so; and although temporary relief might be afforded, there was almost a certainty of future trouble from contraction of the new formed passage, while failure in completing it in the first instance exposed the patient to great danger from the extravasation of urine, so apt to occur when an opening is made into the urethra on the vesical side of any obstruction in its course. Now there is nothing of more consequence in the treatment of stricture than knowledge of the fact that this alleged impermeability has no real existence, except in those rare, exceptional cases, where the urethra has been

divided by violence, and allowed to cicatrise with obliteration of the passage beyond the opening at the seat of injury. It is obvious, indeed, that if the urine is permitted to pass, no matter in how small a stream, or even only by drops, there must be room for the introduction of an instrument, provided it be sufficiently small, and properly guided.

In making this statement, it is very far from my wish or intention to allege that the passage of instruments through strictures is always easy, or to deny that the utmost extent of skill and experience may hardly prove sufficient for overcoming the difficulties presented by an extreme degree of contraction, associated with numerous false routes through the sides of the canal. But if the case, as I have endeavoured to show, is really one of difficulty merely, and not impossibility, the prospect of successful treatment will be rendered much more encouraging by viewing it in the proper light; and instead of desisting from further attempts under the impression that an insuperable obstacle exists, the surgeon will patiently persevere in the hope of, sooner or later, discovering the true passage, or seek the assistance of his brethren who are more conversant with this department of practice. In teaching surgery, Mr Liston repudiated puncture of the bladder as a proceeding never

necessary, and always indicative of incompetency on the part of the practitioner, forgetting that daily, or rather hourly exercise in the use of urethral instruments is requisite for any approach to perfection in their use, and that therefore retention of urine would often prove fatal, if not remediable by other means. For my own part, I always taught the operations for puncture of the bladder as procedures which might be fully warranted by the circumstances, and especially in the army, navy, or country practice, prove the only available expedients for saving the patient's life. But on the other hand, when hospital surgeons, who ought to have the best opportunities of acquiring dexterity in the use of instruments, confess that they frequently find it necessary to puncture the bladder, the standard of professional skill is lowered to a degree that must prove injurious to the interests of the public. One of those gentlemen lately published the astounding fact that he had witnessed forty instances of this proceeding; and if such testimony were accepted without comment, it might afford a shield to great laxity in the treatment of urethral diseases. I therefore think it right to state, that the necessity of having recourse to puncturing the bladder for retention of urine depending upon stric-

tures, has not hitherto been regarded as creditable to a public institution; and that for my own part, during more than twenty years' practice in the Royal Infirmary of Edinburgh, I have, as also in private practice, never found it necessary.

What has been said thus far applies to strictures as they usually present themselves, but not to those which may be distinguished as unyielding, irritable, and contractile. In the unyielding form dilatation, though it may be carried on to some extent, is sooner or later arrested by resistance of the tough texture at the seat of contraction; and if attempts are made to remove this obstacle by forcible distension, the most serious consequences are apt to ensue. In the irritable condition, while all the symptoms of stricture are presented in an extreme degree of severity, the gentlest introduction of instruments is sure to produce great aggravation, not only at the time, but for days afterwards; so that the patient is distracted between desire to obtain relief, and dread of the effects resulting from means employed with this view. In the contractile, or spasmodic stricture, as it is usually called, no difficulty is experienced in dilating the canal to its proper capacity; but unhappily with little benefit—the patient still making water laboriously, painfully, and frequently—by

drops, or in a dribbling stream, which is liable to complete obstruction, through the influence of any local or constitutional disturbance affecting the urinary organs.

For the treatment of stricture in these three forms, whether existing singly or combined together, the means of remedy hitherto employed have proved quite unavailing; and the patients thus afflicted are deserving to be regarded as a great discredit to surgery. If poor, they frequent hospitals until dismissed by desire from despair of relief, or are declared incurable, or fall victims to practice more zealous than discreet. If rich, they run the gauntlet of European skill—having bougies introduced—caustic applied—internal incisions inflicted; and so on, until with broken health, disappointed hopes, and perhaps empty purses, they retire in dreary seclusion from society to carry on a dangerous and ineffectual system of palliation through means of the various apparatus collected in the course of their wanderings. That this is not an imaginary or overdrawn picture, must be admitted by every practitioner who possesses any considerable field of observation; and will also appear from the cases to be found in any large hospital. Indeed, the following fact is of itself sufficient to show how inefficient the

resources of surgery, have proved in affording relief under the sufferings in question. A French gentleman, the late Marquis of Argenteuil, bequeathed funds sufficient to provide every five years a prize of nearly L.500 in value, for the greatest practical improvement in the treatment of stricture. It is impossible to express more emphatically the amount of torment he had endured, or the imperfect relief he had derived from the treatment which his ample means enabled him so fully to appreciate. The following case affords a good example of the complicated misery resulting from this aggravated form of stricture, as well as in the insufficiency of ordinary treatment, to afford relief under such circumstances, and led me to adopt a mode of procedure that there seems reason to hope will prove sufficient for vanquishing the difficulty in question.

Case I.

In 1840 I was requested by the late Dr Hay to take charge of a gentleman who had suffered long and severely from stricture of the urethra. He was between forty and fifty years of age, of tall stature and robust form. His complaint had existed twenty years, and during the earlier part of this period had

been partially alleviated by the introduction of bougies, but had then gradually increased, until at length the suffering occasioned by it was altogether intolerable. During both day and night, the calls to make water were almost incessant, and excited the most violent expulsive efforts, which, aided by a milking-like manipulation of the penis, and pressure along the perineum, never produced anything more than a scanty dribbling discharge. From the bladder being thus imperfectly emptied, the urine was constantly passing away insensibly, so as to keep the clothes wet, with what discomfort to the patient may be more easily imagined than described. He was peculiarly susceptible in regard to atmospheric changes, and especially in damp weather suffered an aggravation of the symptoms. The urine, when collected on such occasions, was found to deposit large quantities of glairy mucus, from which indeed it was never quite free.

On examination, I found a tight stricture between five and six inches from the orifice of the urethra; and at the second or third attempt, succeeded in passing the smallest-sized bougie fairly through it into the bladder. I then supposed that, as usual, there would not be any further difficulty in treating the case, and desired the patient to call upon me

twice a week, unless when the weather or any other circumstance should render a longer delay necessary. The progress, though not rapid, at length enabled me to pass No. 5 of my scale, equal to No. 1 of that in common use, when I found it impossible to make any advance. Indeed there was little encouragement to persevere in attempting this, as, notwithstanding the degree of dilatation that had been accomplished, there was not any appearance of relief from the symptoms of the disease.

I then proposed to confine the patient to bed, and keep a succession of catheters, gradually increased in size, in the bladder. He made no objection, and was greatly pleased to find that, instead of the irritation he expected, there was at once obtained complete relief from all his previous uneasy feelings. He read and wrote, ate and slept, without the least disturbance, drawing off the urine from time to time, and observing to his great satisfaction that the mucus had entirely disappeared. At the end of ten days I withdrew the full-sized silver catheter then employed, and before twenty-four hours had expired, found the complaint in every respect exactly as it had been before the process was commenced.

Some months after this, I divided the stricture from within by means of a catheter containing a

lancet blade, which was protruded from its sheath after the instrument had been passed through the seat of contraction, and kept in this expanded state while the catheter was withdrawn. A large bougie was immediately afterwards passed with perfect ease; and again hopes of success were entertained. But next day things were precisely in the same state as formerly.

Several months having elapsed without any change, it was resolved to combine the two last-mentioned modes of treatment. In the first place, I divided the stricture as before, but on both sides, by means of two lancet catheters, cutting right and left, and then introduced a full-sized catheter into the bladder, where it was retained for a week. For some time afterwards it seemed as if benefit had resulted from this procedure, and the patient, by frequently passing a bougie or catheter through the strictured part, was enabled to make water in a tolerably full stream. But this imperfect relief was of short duration, and by the end of two or three weeks, the frequent calls, laborious straining, and copious mucus, proclaimed that the stricture had regained its former condition.

The patient now protesting that life was not desirable under the torment of his complaint, and en-

treating me to employ some efficient measure of remedy, no matter at what expense of pain or risk of danger, I resolved to divide the stricture by free external incision. With this view a small staff, grooved on its convex side, having been introduced, I made an incision in the raphe of the perineum from the bulb to the anus, and then feeling for the stricture, which was easily recognised by its surrounding induration—ran the knife fairly through the whole extent of thickened texture. A full-sized catheter was substituted for the staff, and retained for a few days. The patient suffered little from the operation, except some uneasiness from irritation caused by the urine passing through the wound. When it closed he felt quite well; and he continues to do so, though thirteen years have now elapsed. He has never required the bougie, and in every respect enjoys the most perfect health.

In this case, the obstinacy of resistance, and tendency to contract, occurred in an extreme degree. Indeed, the latter peculiarity was so strongly marked, that it suggested the idea of an adventitious elastic texture, or rather one possessing contractile properties similar to those of the middle coat of the arteries. It is plain that the most prolonged use of bougies

would not have effected a cure. And the result of retaining catheters in the urethra, shows that this mode of treatment is not so effectual as it has been represented, since it only produced a temporary dilatation. But the most important lesson is to be drawn from the results of the different trials that were made of internal incision by lancet catheters. Additional space was thus at once obtained, and the passing of bougies was greatly facilitated, without any lasting difference being effected in the contractile power of the stricture. It hence appears that this mode of treatment affords no practical advantage, since, in the ordinary condition of stricture, bougies accomplish recovery on the easiest possible terms; and in its obstinate form, an internal incision does not prove sufficient to relieve the patient. The reason of this, I believe to be, that the obstinate stricture in question requires, for its complete and permanent remedy, a thorough division of the firm texture which surrounds the contracted part of the canal.

This case afforded conclusive evidence that complete relief might be afforded in the most aggravated form of strictures by external incision of the contracted part, but of course could not determine how far the recovery would prove permanent, what dangers might attend the operation, or what was essential to its complete

performance and after treatment. Upon these points, in the first instance, I could only hold out hopes and expectations, founded upon reasonable probabilities; but now, having operated more than a hundred times in cases presenting every variety of condition which the disease can assume, and carefully watched the results during a considerable number of years, I feel warranted to express myself, if not with absolute certainty, at all events with a degree of confidence pretty nearly approaching it.

The peculiar and fundamental principle of the treatment about to be particularly considered, is to divide the stricture completely by an external incision—not at random, as by the procedure formerly in use—but with certainty and accuracy, through the assistance of a grooved director passed fairly through the contracted part of the canal. This obvious distinction has been strangely overlooked, and the operation which I have proposed has been held responsible for the disastrous effects of the very methods which it was intended to supersede, so that individuals, societies, and journals, have paraded the deadly statistics of groping in the perineum without a guide, or opening the urethra behind the stricture, as arguments against adopting a proposal which afforded perfect security from the dangers of

these proceedings. It is much to be regretted, that through such misconceptions, the relief placed within their reach has been withheld from many unfortunate sufferers; and I venture to express the hope, that any impression so produced, will no longer be permitted to oppose the progress of improvement in this department of surgery.

Cutting into the perineum without the assistance of a precise guide, exposes to the serious danger of opening the urethra on the wrong side of the stricture, of breaking through the deep fascia, and of wounding the artery of the bulb, so as to incur the risk of urinary extravasation and hemorrhage, while pressure being the only means available to suppress the latter, must greatly tend to promote the former evil. It is therefore no wonder that this procedure has been looked upon as a forlorn hope, warrantable only in cases of impermeable stricture. But while admitting, as I have already done, that in some rare cases the urethra may be actually obliterated, I maintain that no *stricture* is impermeable, and that if a drop of urine is able to escape, a director of sufficiently small size may be introduced; and in support of this position I appeal to the fact, that although patients alleged to labour under impermeable contractions, have come to me for relief from the most distant parts of Scot-

land, England, and Ireland, from the Colonies, and from America, I have never, either publicly or privately, been unable to pass an instrument since I became satisfied that there was no true impermeability. Believing, from my own experience, that the establishment of this pathological fact was of great importance in practice, I was sorry to see it stated in the medical societies, and journals of London, that whatever might be the case elsewhere, the cases occurring there were frequently so aggravated as to be completely impermeable; and supposing that the gentlemen who had engaged in this discussion must be anxious to ascertain the truth of a question so practical, I offered to take under my charge, in the Royal Infirmary of Edinburgh, any cases deemed impermeable in a London Hospital, and publish the results of their treatment. This offer, made in all sincerity, and to which I still adhere, was nicknamed a "challenge," and characterized as a vain boast, but does not on that account the less entitle me to maintain my position; and leaves a heavy responsibility with those surgeons who still obstinately testify their blind faith in the old doctrine of impermeability, by needlessly puncturing the bladder, and recklessly cutting into the perineum. Some advocates of impermeability, indeed, allege that those

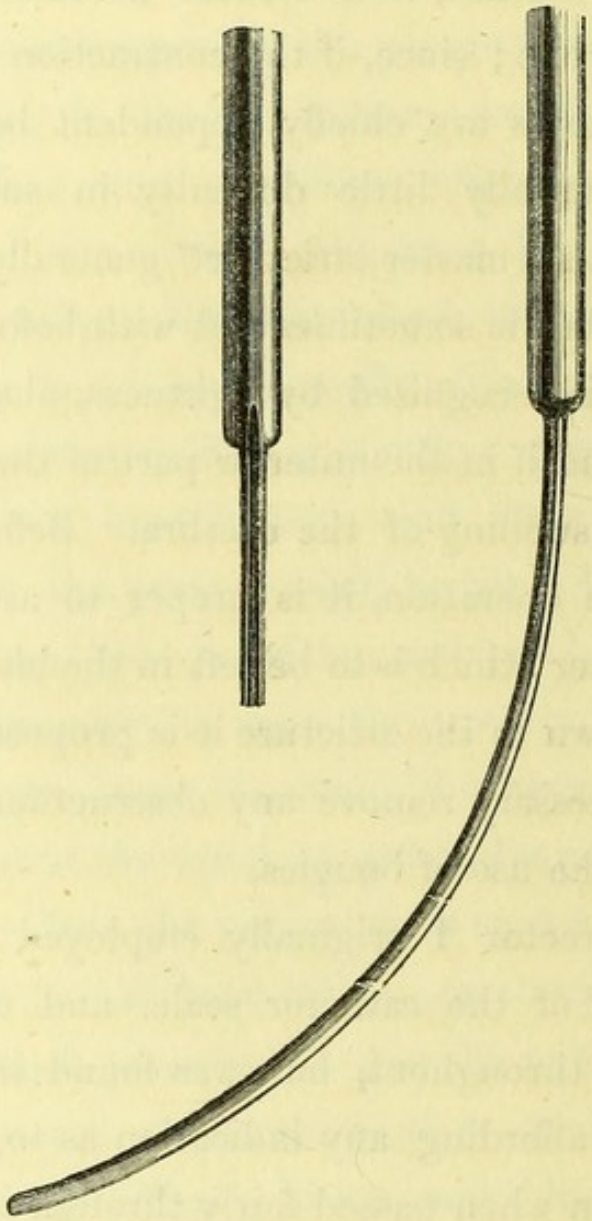
who deny the existence of this condition effect a passage by force; but as the stricture is tougher than the sound urethra, and as, therefore, any passage accomplished by force must necessarily be a false one, which would aggravate the patient's case instead of remedying it, the satisfactory result of treatment affords a most complete refutation of such statements. As already said, it is far from my intention to allege, that the introduction of instruments, may always be accomplished with ease. In general, I have succeeded at the first attempt; but in many cases, have had to wait days, or even weeks, before the passage could be hit. Indeed, on three occasions—one in private and two in public—I found it necessary to open the urethra anteriorly to the stricture, so as to obtain the assistance of a finger placed in the canal, to guide the point of the instrument. It is the preposterous system of "tunnelling," as it has been called—or attempting, by long continued pressure, to pass large bougies or catheters through a tight contraction—that gives rise to the greatest difficulty in accomplishing this part of the operation, since there is thus formed a cul-de-sac beyond the stricture, but nearly in the proper direction of the canal, so that if small instruments are afterwards used, false passages are apt to be

formed at the bottom, while the true one exists at the side of the excavation.

Although there may be two or more strictures in the same urethra, it is seldom necessary to divide more than one; since, if the contraction upon which the symptoms are chiefly dependent be remedied, there is usually little difficulty in subduing the other. This "master stricture" generally lies before the bulb, but is sometimes met with before the scrotum. It is recognised by tightness, obstinacy, irritability, and if in the anterior part of the canal, by a firm oval swelling of the urethra. Before proceeding to the operation, it is proper to ascertain that the catheter which is to be left in the bladder can be passed down to the stricture it is proposed to divide, and if necessary remove any obstruction to its progress by the use of bougies.

The director I originally employed was of the size No. 1 of the catheter scale, and of the same thickness throughout, but was found inconvenient, from not affording any indication as to the seat of contraction when passed fairly through it. I therefore tried the effect of sheathing it with a piece of flexible catheter, so as to leave three inches of its extent from the point exposed; and as this completely attained the object in view, I had an instru-

ment made of solid steel, in the same form, which has wonderfully facilitated the process, and also rendered it much more sure of being effectual.



The best knife for dividing the stricture is a short bistoury, with straight back and slightly convex belly. It should be inserted in the groove of the director, nearly an inch beyond the thick part, and pushed for-

ward to the notch, when, both instruments being held firmly by the operator, are carried in an outward direction, so as to divide the stricture completely, which may be felt by the giving way of a firm texture, and is proved by the thick part of the instrument no longer meeting with resistance. I at first supposed that division of the contracting ring, at its narrowest part, was sufficient for the purpose, but have long been satisfied that so limited an incision exposes the patient to relapse, since there is generally, for some extent on both sides, a narrow or conical shaped portion of the canal capable of reproducing the symptoms of disease.

The catheter should be a silver one—as being more easily introduced and retained than those of flexible materials—and be kept in the bladder for forty-eight hours, but not longer, since it may annoy the patient, and can do no good beyond this period —as there is then no risk of extravasation—and it is hardly desirable that the urine should at once resume its proper course. If the patient shows a more than usual disposition to bleed—so that, instead of one or two teaspoonfuls, there may appear to be as many ounces in the course of a few hours after the operation—a piece of dry lint may be placed in the wound, so as to compress the cells of the corpus

spongiosum. The diet should be devoid of animal food and wine for three or four days, and the patient should not leave his bed, except for necessary purposes, before the end of a week. A full-sized bougie should be introduced once in eight or ten days, so long as there is any discharge of urine from the wound, which seldom continues beyond a month, and frequently ceases in the course of a few days.

Having now explained the different steps of the operation, I may give a connected account of it. The patient being subjected to the full influence of chloroform, should be brought to the edge of his bed, and have the limbs held up by an assistant on each side. The director is then introduced, and confided to one of the assistants. The operator, standing or sitting in front, cuts into the perineum, exactly in the middle line—to the extent of about an inch and a half—having the seat of stricture for its centre, and continues his incision in the same plane until the director is felt—he then, resting the knife on the fore finger of his right hand, guides its point into the groove, and effects complete division of the contracted part of the canal, in the way that has been described. The catheter is then introduced, and bound by tapes passed through the rings, and tied to bands, which, after being carried, on each side, round the upper

part of the thigh, are fastened to one encircling the loins, so as to maintain the position of its point just within the bladder.

The only sources of danger that can be attributed to the operation, are bleeding and extravasation of urine; and in order to estimate the importance due to them, it is necessary that the true position of strictures should be ascertained. If they existed in the prostatic or membranous portion of the canal, extensive incisions, involving the deep fascia of the perineum would be requisite, and accordingly this has been made a serious objection to my proposal by writers who quote the authority of Sir B. Brodie and others, to prove the occurrence of stricture behind the bulb. But the fact is that the seat of contraction is never so far back, and may be positively limited to that portion of the urethra which extends from the bulb to the orifice. The ground upon which I make this statement is, that in all my experience I never found it necessary to cut further back than the bulbous portion, for the conveyance of a full-sized instrument into the bladder. It is easy to understand how the mistake in regard to position has arisen, since every obstruction met with by a bougie or catheter, after it has passed through the stricture, is naturally referred to contraction of the canal, instead

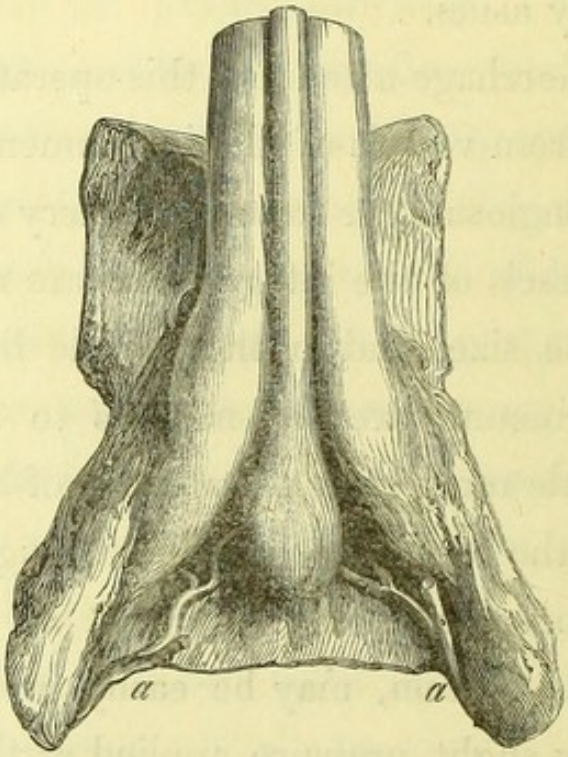
of the preternatural dilatation caused by pressure of the urine, that allows the point of an instrument to go astray from its proper direction. When the stricture is tight and firm, a peculiar jarring sensation is experienced while an instrument passes through it, which is apt to make the contraction appear of considerable length, instead of being little more than a ring at the narrowest part; and from this source also erroneous impressions are derived in regard to the extent, as well as the position of the disease. But experience founded upon division of the stricture, is truly the *experimentum crucis,* since the introduction of a full sized instrument beyond the seat of incision, affords positive proof of the urethra not being contracted any farther; and this I have done in many cases where the stricture was believed to be in the membranous portion.

It being then assumed as a fundamental principle, that incisions for the remedy of stricture do not require to be carried farther back than the bulb of the urethra, it follows that there is no occasion for cutting through the deep fascia of the perineum or extension of the triangular ligament, and consequently, that if the urine should become extravasated, its diffusion must be limited to the scrotum and other external parts. But if a large catheter be retained

in the bladder, there is no risk of any such occurrence, and therefore this source of danger may be put entirely aside.

The hemorrhage attending this operation can proceed only from vessels of the integuments, from the corpus spongiosum, or from the artery of the bulb. But the vessels of the integuments are never of any considerable size, and in the middle line, or raphe of the perineum, are so small as to afford, when divided, little more than a few drops of blood; while wounds of the corpus spongiosum, though capable of bleeding to some extent in a full, or sanguineous state of the system, may be easily prevented from doing so by slight pressure applied at the part concerned; and the artery of the bulb lies at the side of the urethra, so that it cannot be endangered by the knife if it is confined to the middle line. It was a serious error in the Parisian Academy of Medicine, to represent the arteries of the bulb as seated on the lower part, so as to render incisions in a lateral direction the most free from danger; and as with many minds authority has a greater influence than matter of fact, I shall endeavour to counteract the mischievous impression that may thus have been produced, by here representing the actual relation of parts as they exist in a prepa-

ration kindly supplied to me by my colleague, Professor Goodsir. It is evident from this view of the



vessel in question, that it cannot be wounded by any incision in the middle line.

By these considerations in regard to the security from extravasations of urine and hemorrhage, I was originally led to expect that the operation would prove nearly, if not entirely, free from danger; and this anticipation has not been disappointed. Having declined no case presented for treatment, and operated at all ages, from 77 downwards, as well as under every variety of complication from long existence, alleged impermeability, and the false passages of previous mismanagement, I have now performed

the operation 108 times, with only 2 fatal results that can be ascribed to it. One of these was a poor, miserable creature, 39 years of age, admitted into the hospital on the 11th day of July last, suffering from a stricture so irritable, that he refused to have it examined even, except under chloroform. He had been under my care some years previously, and then declined to suffer the ordinary means of relief; but at length, finding the complaint intolerable, he expressed his willingness to permit any measures that might be deemed expedient, provided they could be accomplished while he was unconscious of pain. Under these circumstances I at once divided the stricture, which was anterior to the bulb. The patient was extremely restless after the operation, and could not be prevented from frequently altering his position, so as to affect in a corresponding degree the fixture of the catheter; but, nevertheless, on the following day he exhibited a marked improvement of appearance, from the relief experienced in regard to his urinary evacuation. In the evening he had a rigor, which was succeeded by extreme frequency of pulse, and great embarrassment of breathing. On the sixth day he died. There had not been any bleeding, and the parts concerned, when carefully examined, did not show the slightest trace of urinary

extravasation. But at the fundus of the bladder there was a red spot on the mucous membrane, and under the peritoneum, opposite this point, a small abscess. There was also an incipient abscess in the left arm, and much thickening of the pericardium with effusion, which appeared to have resulted from previous disease. The most probable explanation of this result, therefore, appears to be, that the patient being in a very irritable state, while the bladder was very much contracted, the point of the catheter, by pressing on the mucous surface, caused the commencement of a destructive process of suppuration.

The other case was that of a gentleman, who, by means of the operation in question, had for more than twelve months been completely relieved from a contractile stricture, which was aggravated instead of being improved by the ordinary means of treatment; but subsequently, suffering a partial return of the symptoms, desired a repetition of the procedure which had occasioned him so little trouble, and afforded so much comfort. Believing that the tendency to relapse proceeded from the contracted part not having been divided with sufficient freedom, I readily complied with this request. The catheter was removed on the second day, when the patient seemed perfectly well. On the third day he ex-

pressed himself as being so; and on the fourth, I found, that without waiting for my sanction, he had dressed and left his bedroom. In the afternoon of that day, while still feeling perfectly well, he went to make water in his bedroom, and then felt an acute pain which made him faint and fall in the passage with such force, as to graze the skin of his eyebrow and knee. At the same time he had a severe rigor, and in recovering from it, complained very much of the injured parts. Next day the pain of his knee became intense, and the eye exhibited signs of internal inflammation. Symptoms threatening effusion into the pericardium then ensued, but disappeared after the application of blisters. The urine passed freely, and there was no swelling of the scrotum or perineum. In the course of a fortnight, although it was evident that suppuration had taken place at the knee, and that the eye was obscured by effusion of lymph, such an improvement took place in other respects, that expectation of recovery was entertained both by Dr Christison and myself. But in the commencement of the fourth week indications of cerebral excitement presented themselves, and soon assumed an alarming character, which, in a few days, were verified by the death of the patient. His body was not examined, but the nurse who assisted in

arranging it saw that some matter issued from the wound which had seemed quite closed. As extravasation of urine, four days after the operation, is quite out of the question, I suppose there can be no doubt that the local suppurations and fatal termination must be attributed in this case also to a pyemic state of the system.

Had these two cases happened at an early period of my experience in dividing strictures, they would have occasioned much apprehension and distrust. But as before meeting with them I had performed the operation nearly a hundred times without encountering any instance of a fatal consequence; my only feelings were regret for the individuals, and determination to be more than ever careful in enforcing the restrictions of after treatment; since, if the catheter had not been tied quite so far into the bladder in the first case, and the patient in the second had not left his bed quite so soon, I entertain no doubt that the usual results would have been obtained.

The only instance of hemorrhage with which I have met occurred in my ninety-eighth case, and under circumstances so peculiar, as to occasion no ground of apprehension for the future. The patient was a gentleman fifty-nine years of age, who had been an invalid nearly all his life. At an early period

he had escaped with difficulty from repeated attacks of hemoptysis, attended with serious impairment, if not, as it was believed, the complete destruction of one lung; and afterwards he had been a victim of rheumatism, with various other ailments, of which the most distressing was a stricture anterior to the bulb. For this complaint he had been treated by various eminent surgeons in London, one of whom, no longer ago than last winter, in vain contended against the contraction by means of bougies for some months. Though fully aware of this gentleman's feeble and shattered state, I felt such confidence in the safety and efficacy of the operation, as to be induced at once to undertake it. Every thing went on favourably for seven days, the wound being closed, and the patient making water in a full stream entirely by the natural passage, when, without any warning, a discharge of blood, to the amount of an ounce, took place from the urethra. As this unpleasant occurrence was repeated several times during the next two days, I reintroduced the catheter, and retained it in the bladder for forty-eight hours, with the effect of checking any further external hemorrhage, but, at first, without preventing the urine from being bloody. For nearly ten days it seemed as if there was no longer any cause of alarm,

but then the bleeding returned more seriously than ever, and resisting the control of a catheter which was again introduced, together with carefully applied pressure on the perineum, obviously required some measure of a decided character. I therefore passed a grooved director, cut in the line of the wound, and freely opened the urethra so as to ascertain the source of hemorrhage. It proved to be a vessel in the coat of the canal on its lower surface, which was seized by forceps and tied, with the effect of completely and finally putting an end to the bleeding. Whether this vessel bled from a hemorrhagic tendency, or was a *lusus naturæ,* or merely a morbid derangement, induced by the long teasing and irritation to which the urethra had been subjected in the course of its previous abortive treatment, I leave the reader to determine; but venture to express the hope, that as the appearance of one swallow is admitted not to make a summer, one instance of bleeding in a hundred operations will not be regarded as good ground for apprehending hemorrhage.

Still more groundless if possible than the fear of hemorrhage, is that of the wound remaining fistulous. Indeed, so far from there being any risk of this occurrence, it may be stated that of all the means hitherto devised for the remedy of fistula in perineo,

a free division of the contracted part of the canal is the most effectual, as might be expected from the state of matters concerned. If the obstinacy of such a fistula depends upon its communication with the urethra on the bladder side of a stricture, which, impeding the flow of urine through the natural channel, directs it into the morbid one, and also upon the tortuous course of sinuses which results from the fascia of the perineum opposing the passage of matter formed under it towards the surface; it is obvious that a sufficiently free incision in the middle line must at once completely remove the obstacle to recovery. It is true that perineal fistula may exist under different circumstances, as when it depends merely upon the patient's bad state of health, or other causes not connected with stricture; and then although a free drain in the proper situation will still afford the best chance of recovery, the failure of this measure cannot be justly held to invalidate the efficacy of division in cases where the urethra is really contracted. Yet instances of such experiments and abortive attempts to afford relief have been diligently sought out, and perseveringly published with the grossest exaggeration as evidence of the operation which I advocate being apt to cause the production of fistula. I am also aware of cases in

which the stricture, from being missed or imperfectly divided, has forced the urine to flow through the wound, and thus delayed or prevented its healing; but, on the whole, I feel warranted to state, that when the operation is properly performed it can leave no fistulous opening unless one has existed previously.

While the operation may thus be regarded as exempt from the risk of hemorrhage, urinary extravasations, and fistulous effects, it is here proper to remark, that there are not unfrequently symptoms of an alarming character, and which under other circumstances would justly excite the most serious apprehension. These are rigors occurring alone or associated with bilious vomiting, suppression of urine, or delirium. They generally present themselves during the first two days, and are seldom met with beyond the third. In the great majority of cases they pass off in a few hours without the slightest disagreeable consequences; but on rare occasions, just as in the feverish attacks attending the introduction of a bougie, leave some local derangement, such as a swelled testicle or abscess of the scrotum. There is no treatment required on the occasion of these attacks, and if the surgeon has had sufficient experience to feel confident that there is no real danger,

he will be able to administer the only practicable relief by assuring the patient and his friends that the state of nervous irritation will quickly subside. I have already mentioned the only two cases in all my experience where the rigors were followed by serious consequences, and in both of these it will be recollected there were peculiar circumstances calculated to give the constitutional disturbance a local direction, as in one the catheter pressed on the bladder, and in the other the patient had a serious fall from being out of bed too soon.

The good effects of the operation may be divided into immediate and remote. The first extending to a period of some months' duration, and the latter existing through the remainder of the patient's life. Now, whatever may have been the condition of the stricture, whether irritable, contractile, or obstinate, and whatever may have been the severity or duration of the symptoms, complete relief in the first instance has invariably resulted from every operation that I have performed Instead of the slow and frequently interrupted progress of improvement which usually attends the use of bougies, all the distressing symptoms quickly disappear, not unfrequently without an hour's delay, and at all events in the course of a few days. If the urine has

been thick and loaded with mucus it becomes clear and limpid. The frequent and distressing calls to micturition are succeeded by a state of blissful repose. The most obstinate and unyielding contraction admits with ease instruments of the largest size; and the most irritable stricture which could not previously be touched without the production of spasms and ague, permits the passage of bougies without the slightest uneasiness either immediate or consecutive. The urine, instead of being passed by drops or escaping incontinently, flows freely in a copious stream, and the patient, however much worn down by suffering, speedily regaining his appetite and strength, appears to his friends like a new edition of himself. The relief thus obtained having proved no less permanent than complete in many cases of the most hopeless character, I think the fair presumption is, that when relapses do take place there must be some reason for such exceptions from the general rule, and that the duty of practitioners consequently is, not to search out these failures as objections to a proposal for the remedy of contractions, confessedly incurable through other means, but rather to study the subject in a candid spirit of inquiry, with the view of ascertaining the circumstances essential to success.

Having communicated my own early and, of course,

crude observations to the profession, in the expectation that they would lead more rapidly to this result than if they had been limited to my own field of practice, I am rather surprised to find, at the end of five years, that little, if any, additional information has proceeded from other sources—that my anxiety to lose no time in suggesting what seemed to be an improvement in surgical practice has been characterized as unbecoming precipitancy—and that the sanguine expressions of my own confidence have been attributed to a reckless desire of proselytizing, or even to some other motive of a still less excusable kind. That the rapacious quacks who have so long made strictures of the urethra a profitable source of gain should oppose the introduction of an efficient method for rescuing the victims of their extortion from the toils of an incurable malady, is not at all surprising; and that members of the profession who have not acquired the art of passing instruments safely through urethral obstructions should view with coldness a proposal essentially requiring for its successful application the utmost familiarity with operative manipulation, is quite consistent with what was to be expected. But that the leading members of the profession should have displayed such apathy in regard to a matter so

deeply affecting the interest of their patients, could hardly have been anticipated. If, then, the following attempt to account for the sources of occasional relapse should not appear altogether perfect, it will, I hope, be recollected that no assistance has been accorded towards making the explanations more complete.

The most obvious and certain causes of relapses would appear to be adhesion by the first intention between the edges of the incision made through the strictured part, which must restore the state of matters that existed previously to the operation. It might be expected, indeed, that the stream of urine, passing over the raw surface, would effectually prevent any such occurrence ; and so I believed must be the case, until taught a different lesson by the following observations :—A gentleman came to Edinburgh for division of a stricture anterior to the bulb ; and I proceeded to the operation so soon as it was found that a director could be passed through the contracted part. But when I came to introduce the ordinary sized catheter, its entrance was resisted by a firm ring at the very orifice of the urethra, which required a little gentle compulsion for accomplishing the object. The patient did well, and made no complaint, except of uneasiness from the orifice being thus

stretched; and when the catheter was removed at the end of forty-eight hours, I expected he would be quite comfortable; but to my surprise, I found that, whenever he made water, which passed entirely by the natural channel, acute pain was felt, and followed by rigors. On the fourth day after the operation, I was sent for during one of these attacks which presented alarming characters from its severity, and being attended with bilious vomiting; and not doubting that all this disturbance proceeded from the contracted orifice of the urethra, I did not wait for the subsidence of the rigor, but at once ran a knife through this dense ring on the side towards the fraenum, and had the satisfaction of seeing the patient immediately become quiet. A few hours afterwards I found him perfectly comfortable, passing water in a full stream without the slightest uneasiness, and in every respect quite well. So he continued, going out daily, and I supposed that all was right, until the end of another week, when I thought it would be proper to pass a full sized bougie, and, in attempting this, found the orifice precisely as it had been before my incision, presenting the appearance of a firm round ring, which obstinately resisted the entrance of an instrument beyond a small size. Although not productive of any troublesome symptoms at the time, as this con-

traction prevented the use of means proper to maintain the posterior part of the canal expanded during the process of healing, it was obviously necessary to remove the obstacle thus presented; and having again cut through the ring, I interposed a piece of lint between the edges, with the effect of obtaining a free and permanent enlargement. As the incisions were precisely the same in extent on both occasions, and made precisely in the same way, the difference of results can be attributed only to the means employed on the second occasion to prevent primary adhesion; and it is obvious that if the stricture could thus be renewed, a mere division of the contracted part is not sufficient to ensure prevention from relapse. If the stricture is tight, the presence of a full-sized catheter will go far to prevent approximation of the cut edges; but if it be of that dilatable kind which requires the operation merely to remedy a spasmodic or resilient tendency, the risk of reunion will be considerably greater; and it is accordingly in such cases that I have found the disease most apt to return. At the expense of somewhat prolonging the process of recovery, it will therefore be prudent, with the view of promoting its permanency, to allow the urine in the first instance to pass through the wound, which may be easily done by introducing the

finger occasionally, so as to feel the surface of the catheter.

Another cause of relapse, I have no doubt, is making too limited an incision through the stricture; since the canal is frequently, if not always, contracted on each side of it into a conical form—so that if the whole of this part is not divided, the portion remaining may reproduce the symptoms. This error was very apt to be committed when the operation was performed by means of a director possessing the same thickness throughout the whole of its extent, but may be certainly avoided with the assistance afforded by the guide I have suggested for ascertaining, at the time of incision, the precise situation of the stricture.

As in all wounds and injuries of the urethra contraction of the canal is apt to occur, if a full-sized instrument is not occasionally introduced during the process of healing, this precaution should not be omitted. It does not appear, however, that the use of such means requires to be continued so long as a few drops of urine escape by the wound, the early period being the most important. But if there should be any contraction of the canal, however slight, anterior to the part principally affected, it is of great consequence that a bougie should be

passed through this extent, at least until the cure is complete, since I have always observed that any impediment to the flow of urine through its natural channel tends more than could be anticipated to prolong its escape by the wound.

Independently of these causes, the tendency to contraction may be maintained by a source of irritation in some other part, as by a stone in the bladder. The influence thus exercised is so well known as hardly to require particular notice or illustration, and was long ago impressed upon myself by a case which afforded the late Mr Liston his first opportunity of performing the operation of lithotomy. The patient, in addition to a large stone in the bladder, suffered from a tight stricture anterior to the bulb, which had resisted prolonged and careful attempts on my part to effect dilatation by bougies. At length it was resolved to cut him upon a small staff, and three, of very slender size, were constructed for the purpose. But when the patient was placed on the table, the operator found it impossible to pass any of these instruments through the stricture, and asked me to try, which I did, fortunately, with success, so that everything went on favourably; and although the gentlest introduction of a bougie had previously been apt to induce attacks of fever, with,

on one occasion, inflammation of the testicles, and sloughing of the scrotum, all the liberties to which the urethra had been subjected on this occasion failed to produce the slightest disturbance. It was, therefore, supposed that the peculiar obstinacy and irritability of the stricture had depended upon the stone, and when it was found, about a fortnight after the operation, that a full-sized instrument could be introduced with perfect ease into the bladder, no doubt remained as to the reality of this connection. Thirteen years ago Dr Combe asked me to see an Officer of Artillery at Leith Fort, who suffered from stricture, and had on several occasions been relieved with great difficulty from complete retention of urine. The contraction was anterior to the bulb, and admitted only instruments of the smallest size, without any relief to the patient's incessant and intolerable sufferings; which made him, I believe, sincerely pray for death as the only termination of his misery. Having ascertained that there was a stone in the bladder, we advised its removal, and I performed the operation on a staff the size of No. 1 of the bougie scale, with the effect of affording complete and permanent relief, no resistance being afterwards opposed to the introduction of large instruments. The patient afterwards served with comfort

both at home and abroad; and the last time I saw him was at Woolwich, where he held an important situation, in the enjoyment of perfect health. Within the last twelve months alone I have met with five cases in which urinary concretions existed in the urethra behind the stricture. They are very apt to escape detection, from lying in a sort of pouch on the lower side of the canal, and must of course be removed before the cure is rendered complete or lasting.

But if the irritation of a stone in the bladder be sufficient to maintain the contractile disposition, it seems reasonable to conclude that an irritating disease in some other portion of the urinary organs, or even in those of the digestive function which are so intimately associated with them, may produce a similar effect; and, therefore, while all such adverse influences should be carefully recognised, and, if they permit, removed, it is obvious that cases may occur in which permanent relief cannot be afforded, in consequence of the seat or connection of the opposing irritation. But surely the possible existence of these exceptional conditions would not constitute a good ground for rejecting a mode of treatment, which, at the worst, can only fail to do good, and in the great majority of cases, proves an effectual remedy for one of the most distressing, and,

under all other means of relief, the most hopeless, diseases to which the human body is liable.

It will now be proper to give some examples of the operation being performed with advantage, and with this view I might relate almost any of the cases in which it has been employed; but as the instances thus afforded would be inconveniently copious, I think it better to select merely proof sufficient to maintain the different points I have endeavoured to establish. Many of the cases most remarkable for severity, duration, and obstinacy, have occurred within the last year or two; but as the results of their comparatively recent treatment might not be deemed so satisfactory as those of older standing, my choice will be chiefly from the latter.

Case II.

E. M., aged forty-one, a plasterer, was admitted into the Royal Infirmary on the 13th of November 1848, on account of urinary irritation, and inability to pass his urine, through the natural channel. He stated, that about nineteen years before he had fallen across a beam of wood, and bruised his perineum, which injury was accompanied by a slight discharge

of blood from the urethra, and, for a few days, by retention of urine, requiring the catheter to be introduced. A small induration gradually formed in the perineum, behind the scrotum, and about twelve years afterwards he had again retention for several days. Three years before admission under my care he suffered from a similar attack, and subsequently experienced more or less difficulty and pain in passing urine, with enlargement and increased uneasiness of the perineal swelling. More recently he was admitted into the hospital under the care of the late senior ordinary surgeon, for relief from stricture of the urethra. Bougies were passed regularly, and under this treatment the hardness in the perineum nearly disappeared. After a residence of five weeks, he was dismissed almost quite well. Soon after leaving the hospital, he was exposed to cold and wet, and his complaints returned with increased severity. The swelling of the perineum and scrotum enlarged rapidly. An abscess formed, and a considerable quantity of matter was evacuated by incision; and in a few days the urine began to escape through the opening thus made.

At the period of his final admission (13th November 1848), there was great induration of the perineum and scrotum, with two fistulous openings about an inch from each other, through one of which the

chief part of his urine escaped. The patient, from long suffering and disturbance of sleep, which he was not permitted to enjoy for more than a few minutes at a time, was extremely irritable and desponding, and derived no benefit from the introduction of instruments through the stricture, which was situated about five inches from the orifice of the urethra.

On the 20th, I introduced a grooved staff into the urethra, and cut upon it in the perineum through the contracted part, making an incision about two inches in length. A full-sized catheter was then introduced, and retained in the bladder. The catheter was withdrawn at the end of forty-eight hours, after which the patient did not make a drop of water through the wound, and was at once completely relieved from all his previous sufferings. He quickly regained his sleep, appetite, and strength, and was dismissed cured on the 2d of December.

This man continued to reside in Edinburgh; and as he laboured under a disease of the heart, for which medical assistance was occasionally required, afforded an opportunity of ascertaining, by the introduction of full-sized instruments, that he remained perfectly free from stricture until the period of his death, about two years afterwards.

Case III.

In 1844, Dr Wickham of Penrith, brought me a case of stricture, which had proved peculiarly obstinate and distressing. Although the patient was under 50, it had existed twenty-seven years, and during the whole of this long period had never derived more than an imperfect degree of palliation from the use of bougies, notwithstanding their repeated and varied employment. Latterly, the symptoms having become much more severe, the assistance of a practitioner, deemed very skilful in the treatment of such cases had been required; but the patient returned home after two months' assiduous attempts to pass instruments, without ever having one introduced, and presented a new feature of alarming character in a tumour of the perineum, so prominent, circumscribed, and of such stony hardness, as to suggest serious apprehensions of carcinomatous degeneration.

Upon examination, I found that a full-sized instrument could be passed without pain or bleeding, down to the left side of the anus, fully an inch and a half beyond the probable, or rather possible, seat of stricture, which did not surprise me when I learned that

the bougie had been used by pressing its point steadily upon the seat of resistance, so as to produce what has been called a "tunnelling" effect. Regarding the perineal tumour as the result of local irritation, I did not hesitate to make a free incision through its whole length. It was almost of cartilaginous firmness, but contained a few drops of matter in the centre, and it speedily disappeared after a free drain had been established. I then turned my attention to the urethra, and knowing that the mouth of the *tunnel* must be anterior to the stricture, searched for the contracted orifice of the canal at a little distance before the bulb, where it was soon found, so as to permit the passage of a small catheter fairly into the bladder. At the end of six weeks the patient returned home, as I hoped effectually relieved by dilatation, but in the course of a few months he returned with the symptoms of stricture no less urgent than before.

I then introduced a grooved director through the contracted part, and freely divided it by external incision. In a few days the patient felt quite well, being, for the first time since the commencement of his disease, completely relieved from the uneasiness attending it, and greatly delighted with the facility no less than the efficiency of his treatment by the

knife, instead of the tedious and abortive experience which he had had of the bougie. In reply to an inquiry at the end of more than eight years, which I addressed to Dr Wickham, he says:—

"Agreeably to your request, I have seen Mr —— to-day, and, so far as regards the stricture, I would say he is quite well. It is more than a year since any instrument has been passed into the bladder. On the last occasion I passed No. 13, with great ease."

Case IV.

Mr ——, æt. 30, came from Ireland in December 1849, to place himself under my care, on account of a stricture in the urethra. He had at first become aware of its existence ten years before, from suffering retention of urine and requiring the catheter, which was introduced by a surgeon in Drogheda. From that time he had continued to labour under the symptoms of stricture, and sought assistance from a great variety of sources, but without ever having another instrument passed through the contracted part of the canal. In England and America attempts without end had been made, unsuccessfully, to accomplish this object; and upon one occasion, for nearly

two months, Mr Liston, in London, tried every other day in vain to introduce a bougie. At length the patient, despairing of relief, resolved to endure the complaint, without any further attempt to remedy it, and continued to do so until the symptoms assumed that intolerable form in which the discomfort of incontinence is added to the difficulty of evacuation. He then committed himself to my charge.

In little more than a week I was able to pass a director through the stricture, which I divided by external incision upon the guide thus afforded. Recovery was delayed, by a little of the urine getting into the scrotal integuments, but was completed by the end of six weeks, and the patient then returned home, in the enjoyment of perfect health. On the 20th August 1850, he wrote to me in the following terms:—

"I promised to let you know how I was getting on, when I left Edinburgh, and as it is now a long time since I wrote to you, I have a good opportunity of knowing how matters stand. I am delighted to say, that there has never been the slightest obstruction or difficulty in making water, or in passing the bougie, which I do myself about once a month." In the following year, 1851, I wrote to inquire if the relief still continued, and received for reply:—"On

my return, last Saturday, from England, I found your kind note, inquiring after my health. In answer, I am delighted to be able to tell you, that I have never felt the slightest return of my old malady. I sometimes pass the bougie, but it is only to satisfy myself, as I think now it is no use doing so. My health was never so good, and I can undergo more fatigue (which I do) than I ever could in my whole life."

The case affords encouragement to treat strictures deemed impermeable as accessible to the introduction of instruments, through their careful and persevering employment. It also illustrates the change in contractile disposition, which results from dividing the parts concerned by external incision.

Case V.

Lord ——, æt. 35, applied to me in the month of October 1852. He had suffered long from a stricture anterior to the bulb, and during the last five years had been under the treatment successively of Mr Copeland, Mr Liston, and Sir B. Brodie, who had employed dilatation by bougies, with the effect of affording partial but neither complete nor permanent relief, micturition being always more or less uneasy, and a

corresponding degree of constitutional disturbance preventing the patient from ever having the enjoyment of perfect health. At length it was remarked, that whenever he made water a considerable swelling took place behind the stricture, and that after the expulsive efforts of the bladder ceased, a quantity of urine could be made to flow by pressure upon this part. As such a state of matters seemed to threaten the danger of extravasation it excited much alarm, and was deemed to require an aperture by incision. Instead of submitting to this proposal, the patient thought proper to request my assistance, and, regarding the dilatation of the urethra as an effect of the stricture, I resolved to strike at the root of the evil, by dividing the latter while I opened the former.

Chloroform having been administered, I introduced a small grooved director, and made an incision, as usual, in the middle line of the perineum, then pushed the knife through the dilated part of the canal into the groove, and carried it forwards so as to divide the stricture completely. A No. 8 silver catheter was next passed with perfect facility, and retained in the bladder for forty-eight hours. During the first thirty hours no uneasiness was experienced; but at the end of this time the train of nervous symptoms, to which I have adverted as no unfrequent occur-

rence, commenced, and continued for about the same period, so as to alarm the patient and his friends, although they did not occasion me the slightest anxiety. The urine did not escape at all through the wound, but, to the patient's great contentment, flowed copiously from the extremity of the urethra in a full stream, very different from that to which he had been so long accustomed. Convalescence was soon completed, without any interruption worthy of notice, and the recovery has been in every respect complete. I passed a full-sized bougie on two occasions within the first three weeks, twice since then, with the interval of as many months, and twice at the end of six months, with the most perfect facility.

From this case it appears that dilatation is not always sufficient for the remedy of stricture. The patient being a nobleman of the highest connections in London, and having the assistance of three surgeons, the most distinguished for skill and experience in the treatment of urethral disease, it must be supposed that the bougie was employed with every circumstance calculated to promote its efficiency. Yet we see that the disease, so far from being cured by these usual means, was very imperfectly palliated, and not prevented from producing effects of the most alarming kind. We also in this case see that a pain-

less operation, followed by a few days' confinement, not only arrested the mischief in progress, but completely accomplished what a long trial of the ordinary treatment, in hands pre-eminently skilful, had failed to effect.

Case VI.

Captain ——, R.N., applied to me in January 1851, on account of a stricture, of which he gave the following history in writing:—"It was in the year 1829, when serving as a midshipman on board H.M.S. ——, in the Mediterranean, that I first observed symptoms of stricture, produced by gonorrhœa. Bougies were then introduced, and in a short time the complaint seemed to be overcome, and continued so up to 1833, when I was in the East Indies, on board H.M.S. ——, and suffered very much on boat-service, hunting pirates, etc., which exposed me to wet, and rapidly increased the complaint. I sought relief on board the ship but found none, as the medical men could not pass an instrument, and by their attempts generally induced complete stoppage of urine, when bleeding and the warm bath were the only means of any service. This state of matters continued for two years, until the ship was paid off,

no instrument having been passed. Having got a little better from living quietly on shore, I sailed, in May 1836, as —— Lieutenant of H.M.S. —— for the Arctic regions, and up to the end of that year suffered little, except the inconvenience of making water almost by drops. But the ice then suddenly broke up, exposing the ship to great danger, and obliging officers as well as men to expose themselves for considerable lengths of time to very low temperatures, even 80° below the freezing point, and upon some occasions to quit the ship. This had the effect of again sealing me up, and the old remedy (bleeding) was employed, as no one could pass an instrument. I suffered much until the end of the voyage, in November 1837, and then went into Chatham hospital, under the charge of Sir John Richardson, where I remained for six weeks with little or no relief, as nothing larger than No. 4 could be passed, and that produced very severe rigors at every attempt. Having learnt to use the bougie myself, I succeeded in keeping the passage open, until again, in the East Indies, in 1838, on board H.M.S. ——, it became so bad as to oblige me to return to England. In 1839 I sailed as —— Lieutenant of H.M.S. —— for the South Pole; during this voyage, which lasted until September 1843, I suffered very much, and was

obliged to quit the expedition a few months before to come home. I could neither make nor retain my water, which was constantly dropping away, so as to keep my clothes wet, while the temperature was from 20° to 30° below the freezing point. On my return to England, I went under Mr Guthrie, who succeeded in passing bougies up to No. 6, but no farther. He then used a catheter with a lancet-blade, but with little benefit, as in a month afterwards the passage was as much contracted as ever. I suffered severely from rigors during the time I was under Mr Guthrie's care. Since then I have been three years upon the coast of Africa, and suffered so much from the disease, that upon two occasions lately I felt it necessary to decline the offer of service, knowing that had I accepted I should certainly have broken down."

Upon examination I found a slight contraction about three inches from the orifice, and a very tight stricture anterior to the bulb. Bougies were passed as usual up to No. 4, but then farther dilatation was resisted, and as the patient had experienced no relief from the degree accomplished, I did not hesitate to divide the contracted part by external incision. For two days after the operation the patient felt perfectly well; but in the evening, after the catheter was taken out, he became suddenly so ill, that I was sent

for ; I found him cold, nearly pulseless, and vomiting bilious fluid, in short, with every appearance of approaching dissolution. In the absence of other experience, these symptoms would doubtless have alarmed me ; but knowing their true nature, I gave the confident assurance that all would be right in the course of a few hours. Accordingly, upon calling next forenoon, I found that the patient had breakfasted as usual, that his books were again in requisition, and that he was reading with a cheerful countenance. He made an excellent recovery, and at the end of a few weeks having received a letter from the Admiralty, offering him the command of an expedition to the Arctic Regions, at once accepted it. The stormy aspect of the political horizon delayed the necessary arrangements until too late for that season ; but the patient's ready acceptance, after two refusals of a similar appointment, sufficiently shows the change in his feelings which had been produced by the operation. Wishing to know his state at a later period, I wrote to him two years afterwards, and received for reply, that " he has not had a moment's uneasiness from the stricture."

Case VII.

Mr ——, æt. 27, from his earliest recollection, had experienced undue irritability of the urinary organs, and deficiency of freedom in the urinary evacuation. In 1843 he went to the East Indies, and there suffered several attacks of gonorrhœa, which were followed by symptoms of stricture. In 1848, having returned home, he was exposed to severe cold while travelling in Ireland, and had retention of urine, which was relieved by warm baths and medicines without the use of a catheter. Next year a fresh attack of gonorrhœa was followed by an aggravation of the symptoms of stricture, which led to a long trial of instruments and subsidiary measures without success. Being in the service of government, he then entered Haslar hospital at Portsmouth, where, between three and four months, to use his own expression, "innumerable attempts" were made with all sorts of rigid and flexible instruments, assisted by strict confinement to bed, repeated leeching and medical means, but all in vain, as, no more in the hospital than out of it, could the smallest bougie or catheter be passed through the stricture, which was

in the usual situation, anterior to the bulb. The patient then came to Edinburgh and placed himself under my care, in August 1850. At the very first attempt I passed a metallic bougie fairly into the bladder, and by the end of three weeks could introduce No. 10 without the slightest difficulty. He then went home, with instructions to have the instrument passed regularly.

Twelve months afterwards this patient returned, complaining that the symptoms of stricture were as troublesome as ever, and stating, that as his services had been transferred to London, he was desirous of being rendered fit for duty without the risk of further interruption. I again passed some small bougies on two different occasions; but finding that although there was neither pain nor bleeding at the time, severe rigors were afterwards experienced, and that the symptoms derived no alleviation, I advised the operation by external incision, and accordingly performed it as usual. Nothing occurred to impede recovery, so that by the end of three weeks the patient returned to London, in every respect perfectly well, and indeed making water with a degree of freedom which he had never known. Three years afterwards, wishing to learn the state of this gentleman, I requested my friend, Mr Henry Thompson,

to ascertain it for me, and received for reply, that No. 11 catheter passed with ease into the bladder.

This case shows that a stricture may be deemed impermeable without really being so, and will also, I hope, appear a convincing illustration of the advantages that may be derived from dividing by external incision a contraction of the urethra which resists the effect of dilatation.

Case VIII.

Captain —— began to suffer from stricture in 1822, when in the cavalry depôt at Maidstone, soon after entering the army. The military surgeon could not pass any instrument; he repaired to London, and placed himself under the care of the late Mr Earle, who, in the course of five or six months, after trying various plans, at length succeeded in dilating the canal to its full extent. The patient then went to the East Indies, and during the three years which he passed there, as well as after his return home, regularly introduced bougies. This, however, did not protect him from occasional attacks of retention, which required the catheter, and were observed to happen most frequently the day after he had passed the

bougie. In 1838, finding that the disease was gaining ground, he applied to Mr Guthrie, and remained under his care for a month, but without deriving any permanent advantage, so that it was necessary again to request his assistance in the same year, when the stricture was cut by internal incision. He then went to the West Indies, and continued to pass bougies regularly. In 1844 he married; in 1848 the disease assumed its formidable condition of extreme irritability. The calls to make water were almost incessant, and produced efforts so ineffectual, that a small catheter was required to empty the bladder three or four times a day. Severe pains in the perineum and limbs prevented every sort of active exertion, while the state of suffering and oppression frequently required confinement to bed for weeks. The patient, at the end of two years passed in this miserable state, feeling thoroughly disabled for the enjoyments and duties of life, resolved to try the effect of my treatment. He accordingly came to Edinburgh in July 1850, and as the case seemed very suitable for division of the stricture, I performed this operation without delay. The patient made a good recovery, and from that time forward has never had retention of urine, frequent calls to make water, pain or difficulty in doing so, or, in short, any of his former

ailments. He enjoys the best of health, and is able to take the most active exertion. The bougie is still passed once a week by the patient, but more as a precautionary measure than from any feeling of its being required.

This case shows that dilatation affords no security against the progress of a stricture, from its milder form to that of the most distressing character. It also affords an example of complete and permanent relief from dividing the stricture by external incision, under circumstances which rendered any of the other means of treatment hitherto proposed utterly hopeless, and indeed inadmissible.

Case IX.

In the month of July 1852, Mr James Miller, Edinburgh, asked me to see a very distressing and perplexing case. The patient, Mr ——, æt. 41, had begun to suffer from a stricture of the urethra thirteen years before, but paid little attention to it until the end of nine years, when about to be married. Mr Miller then requested the assistance of Dr Duncan, lately Senior Ordinary Surgeon of the Royal Infirmary, who soon succeeded in passing instruments, and at the end of little more than two months had

fully dilated the canal. Twelve months after marriage the symptoms of stricture were again so troublesome, that the aid of Dr Duncan was requested with the effect of again dilating the urethra, so as to admit bougies of the largest size. But upon this occasion, instead of relief, there was an aggravation of the complaint. In November 1851, the state of matters became so bad, that from this time to May 1852, the catheter was required twice a day for drawing off the water, the patient being confined not only to the house, but chiefly to bed; he then went to the country for some weeks, but returned without any improvement, and twelve months nearly having elapsed since he had been laid aside from the active duties of life, and rendered unable to take any charge of his business, though having every inducement and disposition to do so, he became very desirous to obtain some effectual relief.

In these circumstances, I found him lying in bed with an emaciated aspect, and care-worn, anxious countenance, expressive of suffering and apprehension, complaining of constant pain and uneasiness about the perineum, aggravated at every attempt to make water, which passed by small quantities, in drops, or in a slender stream. On examining the urethra, I found that a moderate-sized instrument,

and even one of the full size, could be introduced, but not without encountering a little difficulty, and requiring some guidance at the seat of stricture, which was anterior to the bulb. According to the opinions hitherto entertained generally, so inconsiderable a degree of contraction would not have been deemed sufficient to account for symptoms so obstinate and severe. But having known complete and permanent relief afforded under similar circumstances, by external incision through the seat of stricture, I advised this mode of procedure, and carried it into effect with the most satisfactory result. The patient was at once entirely freed from all his uncomfortable feelings, quickly regained his health and strength, and ever since has been perfectly well. I have on several occasions, at distant intervals, passed a full-sized bougie, without the slightest catch or obstruction, and the patient finds it difficult to express his sense of obligation to the treatment by external incision, which so speedily transferred him from a bed of helpless and hopeless misery to the full enjoyment and usefulness of vigorous health.

This case illustrates the progressive disposition of stricture, and the inefficiency of dilatation either to prevent or to remedy the distressing symptoms which are occasionally presented by the disease. It also

affords an example of the immediate, complete, and permanent relief which may be obtained under such circumstances from the external incision.

Case X.

Mr ——, æt. 23, applied to me in October 1852. He stated that, from the earliest period within his recollection, he had experienced difficulty in making water, and particularly noticed this infirmity upon first going to school, from taking so much longer time than the other boys. At ten years of age he suffered from retention of urine, requiring the warm bath and confinement to bed. Next year he had a more severe attack, requiring the catheter, which one medical man failed and another succeeded in introducing. In every year subsequently, and generally about the autumnal season, he suffered from complete retention, while in the intervals he made water with great difficulty, in a very small stream. Indeed, from the age of fifteen, he said that it had always been necessary for him to empty the bladder in the same position as when evacuating the bowels, and then only through laborious efforts, aided by the pressure on the perineum at the seat of stricture,

which was just below the scrotum. At length the suffering became so great and incessant, notwithstanding the use of small bougies, which indeed aggravated the symptoms, that he resolved to come from Canada to place himself under my care, and accordingly crossed the Atlantic for this purpose.

Feeling sure, from the history of this case, that effectual relief could be afforded only by complete division of the stricture, I administered chloroform, passed a small grooved director through the contracted part of the canal, and divided it freely by external incision. The patient was at once relieved from the distress he had so long experienced, and in the course of a few weeks might have returned to America, had he not feared a relapse. I saw him after four months had elapsed since the introduction of any instrument, and passed No. 10 without the slightest difficulty, so that with ordinary care the recovery might be deemed permanent.

From this case, and others which have fallen under my observation, I am inclined to suspect that the occurrence of stricture before the age of puberty, and independently of sexual disease, is not so very rare as might be concluded, from the silence of surgical writers on the subject.

Case XI.

Lieutenant ——, of H.M. —— Regiment of Foot, in 1841 contracted a gonorrhœa, which was treated after a somewhat peculiar fashion, by the introduction of large bougies, and the cold shower-bath, with the effect of stricture being induced, and manifesting its presence by the usual symptoms, within the following eighteen months. He then went to India, and, during six years which he passed there, was under the care of five different medical men, who tried catgut bougies long and assiduously, without being able to pass them, and also caustic with little better success. In the course of these ineffectual attempts to afford relief, his general health had become impaired, and in 1849 he was sent home, by the decision of a Medical Board. He arrived in England in March 1850, and placed himself under the care of Mr Quain, who, during the next eight months, passed bougies at first twice a week, and afterwards irregularly, but, to use the patient's own words, "the stricture, like India-rubber, always went back to about the same size" (No. 3 or 4), and the scalding, from which he had never been free since 1841, continued. Next year his army surgeon passed instruments

occasionally, without affording any benefit, and, towards the conclusion of it, finding the state of matters worse than ever, inasmuch as incontinence began to be experienced, in addition to the difficulty of evacuation, he applied to Mr Hancock, of London, and remained under his care from December to the following April 1852. In the first instance no instrument could be passed, but caustic having been employed every two or three days for a month, under chloroform, No. 3 catheter was introduced, and retained in the bladder, and then Nos. 5, 7, 9, 11, and 12, with an interval of two days between each. Violent irritation succeeded the introduction of the last instrument, and prevented any other from being used for a fortnight, when No. 6 was passed with difficulty, and after a month or six weeks' farther trial with bougies, No. 9 was the utmost extent that could be reached, while the symptoms remained unrelieved. The patient then rejoined his regiment, and had bougies introduced regularly without any benefit, up to the end of October, when the attacks of ague, from which he had long suffered occasionally, became nearly constant, so as to confine him entirely to bed. In these circumstances, the surgeon wrote to ask me if I would undertake the treatment of the case, and as I readily agreed to do so, the patient

came over from Ireland, and arrived in Edinburgh on the 22d of December.

I found him lying in bed, much exhausted by his sufferings on the passage, and still labouring under one of the aguish attacks, from which he was seldom free; the urine was very turbid, and excessively loaded with mucus, which formed a large glairy mass at the bottom of the vessel containing it, and all the symptoms of stricture were present in an extreme degree. On the 24th, I divided the contraction by external incision, with some difficulty, from the excessive thickening and induration of the textures concerned, which resembled cartilage much more than the urethra in its ordinary state. After the operation there was no return of ague, or the slightest tendency to rigor, and in the course of a few hours the urine became clear, and free from mucus. The catheter was removed at the end of two days, when a portion of the water escaped by the wound, but gradually diminished in quantity, and ceased entirely within a fortnight, when the patient might be considered, in every respect, as perfectly well. He had not been confined beyond three days to bed, and, instead of finding the time pass slowly, at a distance from his friends and occupation, declared that he never felt weary in enjoying the delightful sensation

of relief from the scalding and other sorts of uneasiness which had been experienced, without intermission, for the last twelve years. On the 12th of January, as his regiment had been ordered to embark for foreign service, he departed for Cork, and there finding that sufficient time remained for the purpose, proceeded to London, and thence returned to Cork, in the midst of frost and snow, without ever having a bougie passed; there he engaged in all the fatigue and turmoil of departure, and sailed in a different transport from that which conveyed the regimental surgeon. This was, indeed, a severe ordeal for the operation, and, as it has stood the trial, the result is all the more satisfactory. But the case is important in another point of view, by showing the inefficacy of dilatation and caustic in the hands of gentlemen who, from their position, must be supposed to have employed these means in the most perfect manner. It also shows the progressive nature of the symptoms, and the complete relief immediately afforded by division, in circumstances which, I believe, might have been justly deemed hopeless under any other mode of treatment.

Case XII.

In 1849, Mr ——, æt. 60, applied to me on account of a stricture anterior to the bulb, from which he had suffered more than thirty years. During this long period Mr Liston, and other practitioners, by the use of bougies, had palliated the symptoms, but never completely relieved them, and latterly they had become much more troublesome than ever. The urine was at all times passed with extreme difficulty in a small dribbling stream, or by drops, and the patient was so liable to retention, that he never felt secure without having a slender flexible catheter in his pocket. I tried dilatation, but could not carry it beyond No. 4, and finding that the patient derived no benefit from this degree of improvement, proposed to divide the stricture by external incision, to which he readily assented. On the following day, after the catheter was removed, the urine resumed its natural channel, and flowed so freely, that the patient felt at once completely free from all the annoyance and apprehension he had so long experienced. I desired him to call upon me occasionally to have a bougie passed, but this he neglected, and when he at length returned, in the course of the following year, I found

that the contraction was re-established, so as to present the same symptoms and resistance to dilatation as before the operation. I therefore proposed to repeat it, and in doing so took care to divide the urethra much more freely than on the former occasion. Since then, during more than two years which elapsed before his death, from a different disease, there was no return of the disease, and every third or fourth month I passed a bougie of the full size without any difficulty.

This case shows the efficacy of division in subduing the resistance which is proof against dilatation, and also illustrates the advantage of making a free incision through the contracted part of the urethra, since had the second operation not been performed, it might, and no doubt would, have been said, that in this instance the procedure had proved insufficient to afford permanent relief.

Case XIII.

In the beginning of January 1850, Mr Harvey of Lincoln requested me to take under my care a poor man who had suffered long from stricture, and been rendered by it unable to do any thing for the sup-

port of himself or family. He was accordingly admitted into the hospital on the 28th of that month.

The patient was 34 years of age, and had suffered from the disease for seven years, during the first three of which he had been under treatment by a dispensary surgeon, and derived some relief from passing instruments, which he found constantly necessary for allowing the urine to escape. He then went into the Lincoln Infirmary, and left it much in the same state, so that for the two following years he was unable for any employment; and although he constantly used a small instrument for keeping the passage open, occasionally suffered from retention even to the extent of 48 hours. At length extravasation of the urine took place into the scrotum, and he again entered the Lincoln Infirmary, when incisions were made, and at the end of a fortnight an operation was performed by cutting at the seat of stricture, and passing a catheter into the bladder for ten or fourteen days. After this he felt easy, he said, for a few days, but then felt it necessary to pass an instrument; and on leaving the hospital was provided with one, which he soon found too large, and therefore got a smaller one; that he continued to use four or five times a day during the next five

months, when, being a burthen on the parish, without any prospect of improvement, he was recommended to my care.

On the 30th of January I divided the stricture, which was anterior but close to the scrotum, by external means upon a grooved director. The patient experienced no bad consequences, and was dismissed perfectly free from complaint on the 28th of Feb. Having heard nothing of him since that time, I lately requested Mr Harvey to ascertain his present condition, and received from that gentleman the following letter addressed to him:—

"Sheffield, November 20, 1854.

"Sir,—In reply to your letter, I have to inform you that I never had better health in my life than I enjoy at the present time, and that the stricture is quite removed. I have never felt any thing from it since I underwent the operation.

"I remain, your obedt.,

"J. D."

Case XIV.

T. E——, æt. 32, a seaman from Halifax, in Nova Scotia, of robust constitution, was admitted into the

Royal Infirmary on the 9th of July 1854. In 1839, he was standing on the bowsprit of the ship when the vessel made a heavy plunge, and his heel slipping he fell with great force upon his seat. He voided his urine with great pain for a day or two, and mixed at first with blood. He noticed that the stream of urine was diminished immediately after the accident, but it afterwards became progressively less, and during the last twelve months he had made water only in drops, and had perpetual incontinence of urine. The stricture having proved impermeable to the surgeons of Halifax, whom he consulted, he was advised to cross the Atlantic and place himself under my care. On his admission into the hospital, micturition was extremely painful, and the most laborious efforts forced the urine away only in drops, while incontinence existed both night and day. There was a feeling of induration and irregularity about the bulb, which was the seat of a very tight stricture, complicated with a false passage, into which the bougie constantly tended to deviate, so that I found it impossible to introduce an instrument through the stricture. The same difficulty presented itself in all my subsequent attempts to pass bougies, and at the end of August he remained in the same state as on admission. As I had little doubt, how-

ever, that the difficulty arose from the form of the urethra where the false passage entered it, rather than from mere tightness of the stricture, I resolved to lay open the urethra on a director in front of the stricture, and then endeavour to guide the director through the stricture by means of my forefinger introduced into the wound. For I had found, in a former case, that the tip of the index finger being inserted into the part of the urethra in front of the stricture as into a thimble, afforded the means of guiding on an instrument through the stricture with unexpected facility. Accordingly, on the 31st August, the patient being under chloroform, I measured with a large bougie the distance of the stricture from the external orifice, and having introduced a director rather larger than No. 1 bougie for the same distance into the urethra, I pushed it in as far as it would go, and being thus sure that the end of the director was in the false passage, I made an incision in the middle line of the perineum, and laid open on the director the contiguous parts of the urethra and false passage. Having then introduced my finger into the wound, I succeeded in guiding the director through the stricture, and divided it in the usual manner by running the knife along the groove. I had now no difficulty in passing a full-

sized catheter into the bladder. The catheter was removed after 48 hours, the urine came for three days entirely by the wound, and then gradually resumed its natural channel, a large bougie being introduced occasionally. He left the Infirmary on the 13th November, able to pass his water in a full stream, and in good general health.

Case XV.

J. N——, æt. 37, forester in the service of a baronet in one of the northern counties of Scotland, was recommended to my care by his master on account of a very distressing stricture, and entered the Royal Infirmary on the 8th of August 1853. It appeared that when between fifteen and sixteen years of age, he had fallen from a height of eight feet, and felt unwell for several days. About three months afterwards he began to experience difficulty in making water, which was voided in a small and turbid stream, and ever since had suffered in the same way. Various attempts had been made by different surgeons to pass instruments, but without success, during the last ten years.

Having, after several unsuccessful attempts, intro-

duced a small bougie fairly into the bladder, I divided the stricture, which lay before the bulb, in the ordinary way, on the 12th of September, and the patient was dismissed quite well on the 24th of the same month. He continues to enjoy the most perfect health, and he lately sent me a message expressive of his gratitude for the speedy, complete, and lasting relief experienced from the operation.

Case XVI.

[For the following case I am indebted to Dr Watson, who was the House-Surgeon of my late lamented friend, Dr Mackenzie.]

J. R——, æt. 44, a fisherman, from Prestonpans, was admitted into the hospital on the 17th of March 1852, on account of a stricture in the urethra of sixteen years' standing. Previously to admission he had been treated by bougies on various occasions, and under this mode of treatment had always suffered severely from rigors and febrile symptoms, without experiencing any benefit of longer duration than the period of dilatation. Latterly his symptoms had become more aggravated, and every

attempt to pass instruments had proved ineffectual. A full-sized instrument was arrested at the bulb, and, not without considerable difficulty, a No. 1 bougie was introduced into the bladder. The introduction of this instrument was followed by a severe rigor, and the next day the patient suffered from retention of urine, to relieve which a No. 1 catheter was introduced. Dr Mackenzie made repeated attempts to continue the treatment by bougies, but the constitutional disturbance produced by them was so severe, that he determined, without further delay, to divide the stricture. Accordingly, having introduced a grooved staff, the size of a No. 1 bougie, into the bladder, he made an incision in the middle line of the perineum, over the induration at the seat of stricture, and divided the contracted portion of the urethra to the extent of about three quarters of an inch. A No. 8 catheter was passed with great facility into the bladder, and retained there, not more than half an ounce of blood being lost either during or after the operation. There was subsequently a slight degree of febrile disturbance, which subsided when the catheter was removed, at the end of forty-eight hours. During the following ten days the urine passed in nearly equal proportions by the urethra and the wound, but before the end of three weeks had

entirely resumed the natural channel. He remained in the hospital a few weeks longer, during which a full-sized bougie was passed occasionally without the slightest difficulty, and was dismissed on the 12th of June. He was seen again on the 9th of June 1853, when a No. 12 bougie was passed with ease ; and the patient stated that, although he had been much exposed to cold and wet in deep-sea fishing, he had never experienced the slightest difficulty of micturition. In April 1854, he applied for admission to the hospital on account of symptoms supposed to be rheumatic, but which were traced to aneurism of the innominata. He suffered from no urinary symptoms whatever, but was admitted on account of the aneurism, and died in the beginning of June.

The symphysis pubis, bladder, and urethra, having been removed from the body, the symphysis was divided, so as to allow the urethra and neck of the bladder to be laid open from above. A white depressed line of cicatrix, on the inner surface of the urethra, extending, in the mesial line, half an inch forward from the extremity of the bulb, corresponded exactly with the line of cicatrix in the integuments and intermediate textures. The urethra in this part was rather wider than natural, from having a slight funnel-shaped depression on the lower surface, and,

before being opened, easily admitted a No. 12 bougie. In other respects the coats of the urethra presented a perfectly natural aspect, and the spongy tissue of the bulb, as well as the neighbouring parts, were free from induration.

No one, looking at the urethra, which remained thus sound and ample at the part where it had been so long and tightly contracted, although two years had elapsed since the operation without any means being used to prevent relapse, could entertain a reasonable doubt as to the recovery proving permanent, however long the patient might have lived; and such a result should stimulate our exertions to discover, so that they may be avoided, the errors of performance to which any recurrence of the symptoms that may have happened ought to be attributed, rather than to the principle of the operation.

APPENDIX.

RECLAMATION ADDRESSED BY MR SYME TO THE IMPERIAL ACADEMY OF MEDICINE OF PARIS, RELATIVE TO THE REMARKS OF THAT BODY ON THE MODE OF TREATING OBSTINATE STRICTURES OF THE URETHRA.

Edinburgh, 13th November 1852.

Mr President, the Bulletin of the Academy of Medicine for the 12th of September last contains the report of your committee, appointed to decide upon the claims of candidates for the prize instituted by Monsieur d'Argenteuil for improvements in the treatment of urethral disease, and especially stricture. It is far from my wish or intention to question the justice of their decision. I was not a competitor, and am not affected by the result. But my name has been introduced into the report in such a way as to convey a most erroneous idea of the operation which I have devised for the remedy of obstinate strictures. And I feel persuaded that the members of the Academy of Medicine, when acquainted with the extent to which, however unintentionally, they have misre-

presented my practice, will not hesitate to relieve it from a reproach that I hope to show is wholly unmerited.

The report states that my operation is more severe than that of Monsieur Reybard, since it requires division "of the whole thickness of the soft parts of the perineum," and characterises it as an "extreme measure,"—the employment of which, by testifying to the urgency of the circumstances requiring relief, enhances the value of Monsieur Reybard's milder method. "I do not wish (says your reporter) to make any comparison between the urethrotomy of Mr Syme and that of our countryman. The two methods, indeed, are not to be compared with reference to their employment in practice." I have to beg that you will permit me to do what your committee have considered out of the question, and compare the two operations, in regard, 1st, to their performance; and, 2d, to their effects.

The operation of M. Reybard is performed by introducing through the stricture a sheath containing a blade which may be expanded to any requisite extent by means of a central rod. But as such an apparatus could not be passed in cases of tight stricture, we are told that the patient must be prepared by dilatation sufficient to admit the "Urethrotome,"

and that if this method proves too slow, or too painful, scarification of the contracted part is proper for accelerating the process. It is also said, that whatever be the form of the stricture, the incision ought always to be directed laterally, so as to avoid the artery of the bulb placed below. Now, this I affirm to be an anatomical error of the gravest consequences in practice, the arteries of the bulb being seated not below, but at the sides of the canal, and therefore endangered by any incision which is not strictly confined to the middle line corresponding with the raphe of the perineum. In the after treatment of his incision, which, it is said, should be from five to six millimetres in depth, and six centimetres in length, M. Reybard introduces into the urethra, either a metallic dilator with expanding branches, or a bag expansible by mercury, and repeats this process every day for four or five weeks.

In my operation a grooved director is passed through the stricture of such a size as is admitted without using force or causing pain or bleeding, and I maintain that there is no stricture whatever through which an instrument of this kind may not be passed. The patient's limbs being then held up, an incision about four centimetres in length is made exactly in the middle line of the perineum through the integu-

ments and fascia. While the director is held in the left hand of the operator, the knife is guided over the forefinger of his right hand so as to have its point inserted into the groove at the bulb, and is then carried forwards completely through the strictured part of the canal. If the contraction be at any other part of the urethra, the process is conducted in the same way; but as it never exists any farther back than the bulbous portion, it is in no case necessary to cut, as your reporter says, the whole thickness of the soft parts of the perineum, or any thing more than the integuments, fascia and corpus spongiosum, which, being divided in the middle line, has the trunks of its arteries kept perfectly secure from injury, so as to prevent the possibility of hemorrhage. A moderate sized silver catheter is retained in the bladder for two days, and the only treatment afterwards required is the occasional introduction of a full-sized bougie at the distance of eight or ten days, or at a later period, of as many weeks.

With regard to the effects of the two operations, it is necessary to remark that Mons. Reybard maintains all strictures to depend upon the formation of a new texture, which, in every case, essentially requires a free longitudinal division for effecting complete recovery; and also, that he considers urethro-

tomy inapplicable to the firm non-dilatable strictures which occur in old people, or those in bad health, for which he thinks palliative measures more expedient. It may hence be concluded, that in the class of cases subjected to operation by M. Reybard, the strictures were not of the most inveterate, obstinate, and unmanageable kind. Indeed, of all the seven cases particularly mentioned in the report as having been remedied by him, there is no allusion whatever to the duration of the disease, the unyieldingness of its character, or the failure of previous treatment. On the other hand, I maintain that strictures vary in their nature, some yielding to dilatation, others resisting it, and a third sort yielding to the bougie, but permitting no advantage to be derived from it in consequence of a resilient or contractile disposition, which almost immediately renews the symptoms. By means of the simple metallic bougie, I have been accustomed to remedy all the ordinary forms in which the disease presents itself; and even in cases of twenty years' standing, or a still longer duration, should expect this method to prove successful as the general rule—the comparatively small number of those which, from their obstinacy, prove exceptions, being alone deemed proper subjects for my operation. Thus, there is at present under my

care a patient who came from Montreal on purpose to have the operation performed, in consequence of prolonged and careful trials of the ordinary means having failed to afford relief. Almost all the cases in which I have operated possessed a similar character of obstinacy, and I have never declined interference on account of the age or health of the patient. In these circumstances it could hardly be expected that the immediate effects of my operations should be less severe than those of M. Reybard. Yet it appears that in thirty-two cases operated upon by him, *one* patient died, while in sixty-six cases operated upon by me, *not one* died; that in his thirty-two cases hemorrhage occurred ten times, but in my sixty-six cases not once; and that in all of his cases bleeding continued for four or five days, while in mine it has never lasted beyond four or five hours.

I therefore contend that my operation is more simple, certain, and safe than M. Reybard's, and also more extensively applicable to that class of cases which chiefly require its performance, from resisting other modes of treatment.

The quarter of a century has elapsed since Mr Stafford, of London, proposed to remedy strictures by internal incision; and, ten years ago, I tried this method in a case which had resisted all the then

known means of treatment. I cut the urethra no less freely than M. Reybard, by means of an instrument which, like his, consisted of a sheath, containing a blade protruded at the side by a central rod—so freely, indeed, that without any subsequent dilatation, the largest instruments were passed with ease; but I found that the patient's relief was only of a few days' duration, and therefore concluded that the operation was not adequate to the remedy of stricture in its most obstinate form. The same opinion is now, with hardly any exception, entertained in this country, from the results of ample and varied experience.

In conclusion, I beg to state, as the principles of my proposal—

1. That there is no stricture truly *impermeable*, and that with time and care, in every case, an instrument may be passed through it, and serve as a guide for the knife.

2. That all strictures which cannot be remedied by simple dilatation, admit of effectual relief only through a free division of the contracted part of the canal.

3. That this object can be attained with certainty and safety only by an external incision, in a line cor-

responding with the raphe of the perineum, upon a grooved director passed through the stricture.

4. That the only after-treatment required, is the introduction of a catheter during forty-eight hours, with the subsequent use of a full-sized bougie at distant intervals.

5. That the operation, if properly performed, is free from any risk whatever of hemorrhage, extravasation of urine, or fistulous opening.

I have the honour to be, Mr President, your most obedient servant,

JAMES SYME.

Paris, le 17th Novembre 1852.

Le Secrétaire perpétuel de l'Académie, a Monsieur le Docteur James Syme, Professeur Royal de Clinique à l'Universiteè d' Edinburg.

Monsièur,—L'Académie a reçu, dans sa Seance du 16th Novembre 1852, votre note manuscrit, relative au traitement des rétrécissements de l'urètre, d'àprès une méthode qui vous est particulière.

J'ai l'honneur de vous prévenir que ce travail sera examiné, par une Commission composée de MM. Larrey et Robert.[1]

[1] M. Robert was the author of the report impugned.

Agréez, Monsieur, l'assurance de ma considération très distinguée.

DUBOIS.

Edinburgh, 4th April 1853.

SIR,—I beg you will have the goodness to inform me if the committee to whom my reclamation was referred on the 16th of November last have reported on the subject.—I have the honour to be, Sir, your most obedient servant,

JAMES SYME.[1]

M. Dubois.

[1] To this communication no answer has as yet been received.

THE END.

MURRAY AND GIBB, PRINTERS, EDINBURGH.