Giberson (G. H.)

TWO NEW INSTRUMENTS FOR THE TREATMENT OF STRICTURES OF THE URETHRA, WITH CASES.

STRICTURES OF THE URETHRA.

DESCRIPTION OF TWO NEW INSTRUMENTS,

THE DIVULSING AND BULBOUS URETHROTOME,

WITH REPORTS OF CASES OPERATED ON.

BY

CHAS. H. GIBERSON, M.D.,

BROOKLYN, N. Y.

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NEW INSTRUMENTS FOR THE TREATMENT OF STRICTURES OF THE URETHRA, WITH CASES.

BY C. H. GIBERSON, M.D.

Figure 1 represents a new instrument called the Divulsing Urethrotome, and designed especially for the treatment of strictures of large calibre.

It consists of a metallic tube nine inches long and eighteen millimeters in circumference, enlarged to 20 mm. at one extremity, five-eighths of an inch from which is a slightly raised band or shoulder. The tube is split throughout one-third its length to permit the halves to be expanded laterally. Two rings near the end serve as a handle. Within is a steel tube, into which an olive-shaped bulb can be screwed, whilst at the opposite end is a screw, turning which retracts the bulb and dilates the instrument. There is a deep groove or slot in the bulb for the blade, whose shaft passes through the inner tube and far enough beyond to permit a handle being attached. Between the bulb and shoulder of dilating bars, a distance of $\frac{5}{8}$ in., the blade can be exposed. Two are provided, a smaller $\frac{1}{12}$ inch wide, and a larger $\frac{1}{8}$ of an inch. The aim of this instrument is to avoid deep incisions, but by a process of stretching and nicking combined, to effect division of strictures. There are three sizes of bulbs, or wedges as they may be called, viz.: 20, 25 and 30. (Throughout this paper the French scale is referred to, it being the only one of definite measurements.) With the first can expand to 30 F., with the second to 35. The largest, or No. 30, is seldom needed, except as a bulbous bougie for exploring purposes. There is also a small outer tube with flat wedge for the treatment of strictures below 20 F. Though gradual dilatation with flexible olive-pointed bougies is best for most cases of this class, no apparatus would be complete without the means of dealing with them, if only as preparatory to the use of the larger instruments.

The same blades, screw and inner retracting tube can be adapted to this. At first sight it seems a simple affair to divide a band of organic tissue which constricts the urethra. And so it is when you have fixed it at an exact point in relation to your urethrotome. A previous measurement may approximate its seat, but the attempt to operate with no more reliable data will be apt to prove a failure. For this instrument is claimed the ability to locate and divide a stricture and at the same time to be assured of such division. It is marked with inches and halves, but these are intended simply to aid in determining the location of the constriction.

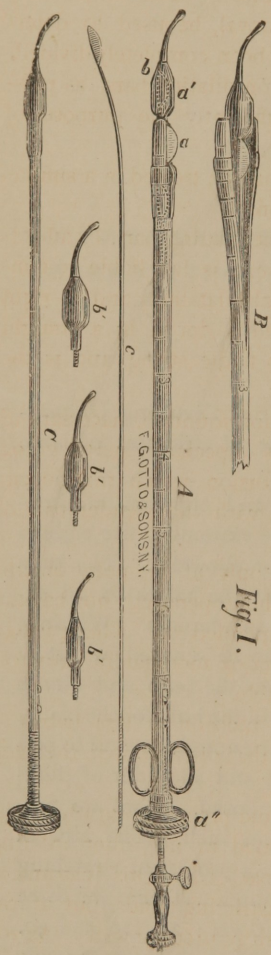

Fig. 1.

A—Divulsing Urethrotome closed, but showing at *a* where blade is projected. *b'b'b'*, Bulbs or wedges of various sizes. *c*, Blade. *a'*, Dotted lines show where blade is concealed. *a''*, Dilating screw. *B*—Same expanded, with blade exposed. *C*—Inner tube, with bulb or wedge attached, and useful as an exploring sound.

In using it, the bulb or wedge first takes cognizance of the stricture, which as it passes through is felt by the operator. This done, the constricting band must surround the dilating bars at some point between the wedge and shoulder. If in any doubt, proceed a little further, until the band actually rests against the projection referred to. Usually there will be no difficulty in feeling the resistance offered at this point. If the stricture be of so large a calibre as not to be so perceived, a few turns of the dilating screw will so expand the bars and distend the urethra as to be readily detected by the shoulder. This expansion stretches and holds the band between the two points named. The hand manipulating the screw feels the tension, and the patient is likely to say when it is becoming uncomfortable. At this stage the blade, which has lain concealed in the wedge, is retracted so as to traverse the part across which the band must lie. Usually there is sensible relief by the first incision, but rarely is the stricture quite severed. Another turn or two of the screw again makes it tense, when the blade, which for the time being has been concealed between the bars, is carried forwards to the wedge, again nicking and probably severing the band. If completely

divided, further expansion becomes easy, as shown by the facility with which the screw turns. This process of dilating (or rather divulsing) and nicking is continued until resistance ceases. The instrument wholly or partially closed can now, before removal, be used to determine whether every fibre of the constriction has been completely divided.

In addition to the wedge then, the shoulder on dilating bars, as passed back and forth in the urethra, serves very efficiently the purposes of a bulbous bougie.

Having disposed of one stricture, a second may be treated in a similar manner, and so on, at the option of the surgeon.

It will also be observed that the breadth of the dilating bars, by affording more surface for pressure and counter-pressure, is less liable to contuse the urethral walls. Also by making lateral dilatation, and at right angles to the cutting edge of blade, the band is drawn in a straight line across the space between the bars, like a fiddle string, and is the more easily divided.

Probably this is one reason why I have not found it necessary to dilate to a degree insisted upon by Dr. Otis especially, never going beyond 35. We thus avoid the pain and contusion which must occur with great over-distension, and particularly with the slender bars of instruments now in use.

With mine, too, extreme dilatation occurs only at the point of constriction. I have not employed anæsthesia when operating, nor has the pain been severe enough to be seriously complained of. The passage of a full-size sound through an irritable urethra or moderately contracted meatus has often been found more intolerable.

The combination, too, of divulsion and incision is less liable to produce hemorrhage than simple incision, so that operations in the deep urethra are correspondingly safer.

The difficulty, also, of fixing a stricture at the precise point where the blade projects has to my mind been obviated in no other dilating urethrotome. The latest modification, I believe, of Dr. Otis' instrument makes the blade certain to bear upon the constricting bands, but at the same time involves the risk of incising the healthy urethral wall. As you are all aware, it is the dilating principle adapted to the Maisonneuve urethrotome.

Each bulb or wedge of my instrument has a flexible copper tip, to enable the operator to traverse the deep urethra, even to enter the bladder, if desirable. In the latter case urine will flow out at the handle. In the event of false passages, for instance, this might be necessary in order to be certain that the instrument is not outside the urethra. But the chief advantage is in being able to operate on strictures in the curved portion of the canal.

If for any reason divulsion alone is preferable, we have the means of accomplishing it. In spasmodic strictures, of whose existence I have no doubt, usually occurring in the membranous portion and probably due most often to local irritation following or accompanying unnatural habits, I believe that sudden over-distension of the passage may, as in the case of the rectum or female urethra, by temporarily paralyzing the part, afford time for the local disturbance to subside.

For a few days after internal urethrotomy it is thought best to pass, at short intervals, a full-size sound to prevent recontraction. Instead of a sound I use this instrument as a dilator, and which serves, possibly better, as it can be introduced through an ordinary meatus, and at the point of stricture expanded as desired. A serious drawback to gradual dilatation of many strictures is the comparatively small size of the normal meatus. It can be enlarged by incision, but this is not free from objections. There may follow troublesome bleeding, or inflammation with the formation of cicatricial tissue, thus destroying the elasticity of the part. Unless freely cut it will probably have to be repeated, or it may be so enlarged as to cause actual deformity, and perhaps to render the organ more liable to contract gonorrhea, or more serious disease. Some persons, also, are so jealous of "private appearances," as to object to any such measure, however necessary it may seem to be. With this instrument, unless the meatus or contiguous urethra is abnormally contracted, there is no need to enlarge it.

Finally, it is simply constructed, has no bars or braces liable to break within the canal, will not pinch the urethral mucous folds, is easily cleansed and not expensive, especially when we consider how many indications it can fulfill. By providing a few more bulbs and removing the outer, dilating part, we have all that is required in the way of bulbous bougies for exploratory purposes.

To F. G. Otto & Sons I am greatly indebted for its perfect construction, as well as for numerous hints regarding its mechanical details.

Let me now present the histories of eight cases taken from my note-book without selection, except as they there appear in alphabetical order.

Case 1.—A. C., single, aet. 22, consulted me Aug. 20, 1874. Had first gonorrhea two and half years ago, lasting several months. A second attack six months ago, since when he has had a chronic muco-purulent discharge. Meatus measures 23 F., with induration extending half an inch along the canal. For the relief of this I employed the Divulsing Urethrotome. Having introduced it with wedge No. 20, and dilated so as to produce marked tension, the blade was drawn forward across the floor of constricted urethra. Again expanded more,

pushed blade back to the groove in wedge, and withdrew the instrument; immediately passed a bulbous bougie No. 30 without finding obstruction. There were indications of rather free hemorrhage at the time of operation, but the wound was packed with styptic cotton and no trouble followed. It is my practice after incision of the meatus and adjacent urethra to so pack the wound, and allow it to remain two or three days. The cotton adheres to the cut surfaces, prevents their union, and need not interfere with urination. Besides, the iron used in its preparation prevents it becoming offensive. The gleet ceased with healing of the wound, and on examination two months after operation found urethra of normal calibre.

Case 2.—I. E., married, 41, had first gonorrhea in 1856, a second in 1871, which ended in gleet, accompanied by dribbling of urine. Found a tight stricture in bulbous urethra, through which a filiform bougie was passed with difficulty. Practiced gradual dilatation, which cured the gleet and urinary trouble. Three years later, Nov. 7, 1874, he returned, complaining of frequent desire to micturate, and which caused smarting pain. After a prolonged effort introduced a whalebone bougie No. 2 F. During the next two weeks dilated to No. 18. Then with small outer tube and flat wedge of the Divulsing Urethrotome incised band at $5\frac{3}{4}$ inches from meatus until 24 F. was passed.

Dec. 1.—Bulbous bougie No. 26 fails to pass the stricture. Introduced Divulsing Urethrotome, wedge 23, and by a rapid expansion to its fullest extent doubtless ruptured the remaining fibres of the constriction. This was followed by a few drops of blood.

Dec. 5.—No. 27 bulbous bougie passed and returned without meeting any obstruction. Up to the present there has been no return of the gleet or difficult micturition. Have not since been able to explore the urethra.

Case 3.—W. E., 29, single, had gonorrhea in 1869, which he says was promptly cured. He formerly masturbated excessively. Nov. 17, 1874, consulted me for frequent nocturnal emissions. Nervous system below par, with decidedly morbid mental condition. Stream of urine twisted and divided. Obstructions at fossa navicularis at 2, $2\frac{3}{4}$ and $5\frac{1}{2}$ inches from meatus. Greatest contraction at $5\frac{1}{2}$ in., through which a bulbous bougie No. 24 passes with difficulty. Gradual dilatation reduced the number of emissions somewhat.

Dec. 29.—With Civiale meatotome incised the band at fossa navicularis and enlarged the meatus.

Jan. 23, 1875.—Bulbous bougie No. 32 goes to $5\frac{1}{2}$ in., beyond which No. 28 can be passed. Conical sound No. 30 enters bladder.

Though his general health is better, the urethra continues irritable and emissions frequent.

Feb. 6.—At my office, with Divulsing Urethrotome, divided the band at 2 in. from meatus and overstretched the one at $2\frac{3}{4}$ in.

Four days later over-distended the stricture in deep urethra, carrying the expansion to 35 F. Twice a week for a month continued to pass a sound of full size.

Jan. 29, 1876.—Eleven months after last operation a bulbous bougie No. 30 finds no trace of obstruction at any point in urethra. General health excellent and seminal emissions not oftener than every eight or ten days.

Case 4.—P. H., 22, single. In 1872 had urethritis for the first time, and early in 1874 a second attack. He consulted me Oct. 29, 1874, for frequent micturition, eighteen to twenty times a day, with acute pain at the termination of the act. Aching in perineum. No discharge since July. Has been under continuous treatment by means of suppositories and internal remedies for three months without much benefit. During urination I observed a small stream of corkscrew character. During expulsion of last few drops he showed signs of pain about glans penis, by nervously pulling at the prepuce. Introduced a catheter, but found bladder empty. Per rectum prostate tender but not enlarged. Exploration of urethra revealed stricture about bulbo-membranous junction admitting No. 20. Another at $2\frac{1}{4}$ in. from meatus which admits 24. Tender spot at fossa navicularis, but No. 26 passes it. Practiced gradual dilatation until No. 25 sound entered bladder. As is true in many cases, the use of conical metal sounds was found less painful than the flexible bougies.

Nov. 29.—Enlarged meatus and first three-quarters inch of urethra to 32. Continued use of sound No. 25 at short intervals until January 7, 1875. This size could be passed without much discomfort, but a larger one excited spasm of the constrictor muscles and caused intolerable pain on entering the membranous urethra. Every fourth day for six weeks one or other side of the perineum was blistered with cantharidal collodion.

Feb. 20.—Urinates but five or six times a day and once at night, without pain. Urine contains a small amount of pus and blood. Now find strictures at one inch, $2\frac{1}{4}$ in. and $5\frac{1}{2}$ in. from meatus. That at $2\frac{1}{4}$ offers most resistance. This I dilated to No. 35 with my instrument, but no fibres seem to have been ruptured and recontraction soon occurred. Repeated the process with same result. Then with Divulsing Urethrotome incised on roof and passed bulb No. 30. Reversed and cut on its floor, followed by easy passage of bulbous bougie

No. 32. Not more than two drachms of blood were lost. During the following three nights, owing to painful erections, had repeated small bleedings. Following these incisions, the bladder was frequently washed with tepid water, and various applications made to the prostatic urethra.

Sept. 14—Seven months later passed No 28 solid sound without pain. Bulbous bougie No. 30 finds no obstruction until 5½ in. is reached, and then only temporary hesitation, apparently due to slight spasm. The first ounce of urine contains a few pus and blood cells. The remaining portion still less, showing that urethra is the seat of principal remaining trouble.

Nov. 19.—Two months later find urine acid, it contains no blood, and only an occasional pus cell. Suffers no pain or inconvenience.

Case 5.—C. H., aet. 27, single. Has had urethritis four times within seven years, the last time a year ago. In 1872 I fully dilated a stricture at the bulb. He then believed himself impotent, and was without sexual desire. He was cured by phosphorus, iron, and the use of sounds.

Nov. 19, 1874.—Has symptoms similar to those of 1872. Has been addicted to sexual abuses.

Find an annular stricture between 5½ and 6 in. from the meatus, which barely admits bulbous bougie No. 22.

Dec. 23.—At my office with Divulsing Urethrotome incised this band on roof, and passed bulb 28 to bladder. Scarcely any bleeding and no subsequent irritation.

Dec. 23.—Passed sound No. 29.

Feb. 23, 1875.—No. 28 bulb enters readily, but on returning detects a roughness of urethra at point of operation.

Nov. 29.—Bulbous bougie No. 25 fails to note any stricture, but 27 feels very slight obstacle at site of former contractions. Probably all the fibres were not completely severed. The instrument used was my earliest attempt, and the want of complete success is partly, at least, attributable to defects, both of design and construction.

The result, however, is much better than followed the preceding treatment by gradual dilatation.

Case 6.—A. L. H., 24, single, came to me through the kindness of Dr. Thayer.

Nov. 26, 1875.—Has gleet, the result of his first and only gonorrhea, contracted nine months before. The first half inch of canal, including meatus, indurated, and admits a No. 24. At 1¼ in. from meatus is a slight band, recognized by No. 30. No. 31 bulbous bougie, on returning, meets with faint resistance at 1¾ and 2¼ inches from mouth, but believed to be only folds of mucous lining. A distinct annular stricture ⅜ inch wide, and contracted to No. 20, between 5¼ and 5¾ inches from meatus.

I enlarged the meatus and first half inch of canal to No. 33. During the next twelve days passed flexible bougies to No. 25.

Dec. 12.—With Divulsing Urethrotome, at my office; incised the band at $1\frac{1}{4}$ in. until No. 30 bulb passed without hesitation. Very slight bleeding and pain not complained of.

Jan. 7, 1876.—At his house, operated on the stricture in deep urethra, and passed No. 30 bulbous bougie beyond it. No bleeding of moment.

Jan. 9.—With instrument simply distended the part to No. 35. This was followed by a few drops of blood, but no constitutional disturbance. Jan. 11, repeated the dilatation.

Jan. 13.—After exposure to cold and fatigue had acute orchitis with intense pain. Testicle swollen and very tense. Half a grain of sulphate of morphia subcutaneously, with poultices containing lead and opium, relieved the pain completely and permanently. In one week he returned to business.

Jan. 30.—Has no gleet, and feels quite well.

Apr. 8.—No return of gleet. Did not examine urethra for lack of opportunity. The case is cited to show that with this instrument a stricture of the largest calibre can be severed; also to show the value of such treatment for the cure of a gleet which had resisted gradual dilatation and other standard methods.

Case 7.—H. D. M., 48, married. First gonorrhea 20 years before. Two attacks of urethritis since, following intercourse with his wife, who was being treated for uterine disease. March 11, 1875, he consulted me for very frequent micturition, especially at night, preventing sleep and impairing health. No pain, but constant sense of hypogastric fullness. Urine alkaline, with copious ropy deposit, including mucus, pus, blood and triple phosphates. Diagnosed chronic cystitis. Desired him to urinate in my presence, so as to observe the stream and amount passed. Made but two ounces with small and feeble stream. With catheter immediately drew 14 oz. Believing cystitis to be exceedingly rare as an idiopathic disease, its cause was looked for. Meatus urinarius admitted No. 32 bulb. No. 27 detected slight induration and contraction at the fossa navicularis. A well-marked annular stricture, through which No. 20 hardly passed, was found about $5\frac{3}{4}$ inches down. This was dilated with sounds to No. 28. Bladder emptied twice a day with catheter. He was also taught how to wash it out with tepid water. The method adopted proved both convenient and efficacious. A Davidson syringe with smallest nozzle can readily be adapted to a catheter. Having introduced the catheter, always a flexible one if possible, with eye near extremity, attach the nozzle of the syringe previously filled, and slowly throw in the contents of one, two or more bulbs, or until there is painless

distension of the bladder. Allow the contents to escape through the catheter and repeat the injection until the water returns clear.

June 2.—Has used catheter and washed bladder faithfully. No irritability remains, but still unable to pass voluntarily more than one-eighth of urine. A small amount of gelatiform substance expelled with first portion and probably from prostatic urethra.

The stricture at $5\frac{3}{4}$ inches has recontracted to No. 22. To pass a conical sound No. 27 twice a week.

July 2.—Bulbous bougie finds no change in the deep urethra. Simple dilatation is evidently not the remedy of this case.

Aug. 14.—Can pass but one-eighth of urine voluntarily.

Introduced Divulsing Urethrotome, wedge No. 25. The instrument was firmly grasped by the stricture. I expanded a little and drew blade across the band on its roof. Increased the expansion and pushed the blade forwards, when all resistance ceased. Dilated to 34, and again passed blade back and forth. Very slight bleeding. Immediately passed sound No. 30 to bladder, and bulbous bougie No. 32 beyond the point of incision. Some hours later the necessary passage of a Jacques' catheter to empty bladder was followed, first by aching in his right testicle and groin, then a sharp chill, with severe pain in pelvis and loins. Then came high temperature followed by profuse sweating. Anodynes and fomentations soon relieved the acutest pain, and with the sweating his temperature fell to normal. The use of catheter the next day produced a similar, though less violent attack. Quinine in large doses was then given for a few days. This paroxysmal tendency upon the use of the catheter did not entirely disappear for six days. One lesson to be learned from this case, is to avoid as nearly as possible all instrumental interference for at least two days after internal urethrotomy, especially in deeper urethra.

Sept. 8.—Twenty-five days after operation he passes rather more than half his urine.

Dec. 9.—Four months after, bulbous bougie No. 32 enters bladder and returns without obstruction. Urine is acid and contains a few pus cells, doubtless from the urethra.

April 6, 1876.—No stricture to be found with No. 32 bulb. Passes all his urine voluntarily, except from one to three ounces. His general health is restored, and but for the small residue of urine requiring catheter, he would not be aware of any trouble. Still washes bladder regularly.

This case was not improved by gradual dilatation even up to No. 28, but was practically cured by operative treatment.

Case 8.—G. Y., aet. 36, single. Says he never had urethral discharge, though he had a stricture dilated in 1868. Consulted me Jan-

uary 22, 1875. For a few weeks preceding had noticed a semi-transparent viscid matter oozing frommeatus. Stream of urine small and feeble. Has an annular stricture ¼ inch wide, and which barely admits No. 16, in membranous portion. No. 28 bougie finds slight obstructions at fossa navicularis, 1½ and 2¼ inches from meatus. Practiced gradual dilatation until No. 26 sound passed, yet bulbous bougie 22 was arrested in membranous urethra.

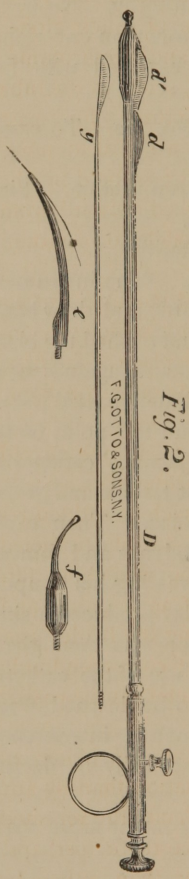

Fig. 2.

D, Bulbous Urethrotome, showing at *d* were blade is concealed and at *d'* where exposed.
e, Flexible tunnelled tip with filiform guide.
f, Bulb, (of which there are several sizes) with flexible copper tip.
g, Blade.

Feb. 20.—Introduced Divulsor, (instrument without blade,) wedge 22, and expanded rapidly until a drop of blood appeared at the meatus and the stricture was felt to yield. Made no incision, but withdrew and passed bulbous bougie No. 28 to bladder. With several subsequent urinations a few drops of blood were seen. Afterwards I operated by divulsion and incision combined on the ante-scrotal constrictions.

Six weeks after the rupture of stricture in deep urethra, bulbous bougie No. 27 failed to detect it. The discharge had ceased entirely.

I have notes of other cases operated on more recently, some of which are still under treatment. The foregoing are reported, as before stated, without selection, and are not offered in proof of the theory that stricture can be radically cured by complete division whilst on the stretch, but to demonstrate the ability of my divulsing urethrotome to deal with those of large calibre. Sufficient time has not elapsed in either case to warrant the assumption that recontraction will not occur. Some of them, however, seem to prove that the combination of divulsion and incision effected what neither gradual dilatation nor divulsion alone was able to accomplish.

Figure 2 represents a simple instrument, called a Bulbous Urethrotome, designed for the treatment of strictures of all calibres between 9 and 30 of the French Scale, or 3 and 18 English. It consists of a metallic tube, near one end of which is attached a ring to serve as handle. Into the other extremity is screwed one of a series of grooved bulbs of various dimensions. Through the tube passes a steel rod, one end of which is a blade half an inch long, from one-eighth to one-twelfth inch deep, and which is concealed until required. The entire length of instrument is eleven inches.

Knowing how unreliable are the most careful measurements of the penis for determining the precise locality of a given stricture, this is so designed that the operator can depend upon the sense of touch alone. It therefore combines the merits of a bulbous bougie and urethrotome.

Having a case upon which it is proposed to operate, screw to the tube a bulb nearly corresponding with the calibre of the stricture. First pass it through the constriction, which no practiced hand will fail to note. Return the bulb to just beyond the stricture, and whilst so held by the middle finger in the ring of handle, the blade is pushed forward from its concealment by the thumb of the same hand, and made to surmount the most prominent part of the bulb.

Thus situated, the instrument is drawn forwards and made to cut its way through the stricture. If a single incision does not sufficiently enlarge the canal, a bulb several sizes larger may take the place of the first, and the process be repeated. The cutting may be done either on floor, roof or sides of urethra.

A flexible copper tip can be attached if the stricture is in the curved part of the canal or beyond the reach of a straight instrument.

For those of small calibre, or when for any reason, such as sudden retention, speedy relief is demanded, there is provided a flexible tunneled tip instead of a bulb. Having first introduced a long whalebone filiform bougie, the tunneled tip can be slipped over it as a guide and safely carried through the obstruction. Then projecting the blade, and there is a broader one for such cases, the canal can be correspondingly enlarged. Without removing the guide a tunneled catheter can be passed over it into the bladder.

As before stated, however, it is my belief that strictures below 20 French are more satisfactorily treated by gradual dilatation than by any immediate method. Still, some urethrae will not tolerate the repeated use of any instrument. Then it is better, under an anæsthetic perhaps, to operate by divulsion, internal urethrotomy, or better than either, by a combination of divulsion and incision. It may also happen that the patient or surgeon lacks time for any prolonged method. Besides, there is a class of cases, by no means small, that cannot be cured or even much relieved by gradual dilatation, and usually described as resilient strictures. For such we are compelled to adopt more radical treatment. Other reasons demanding operation might be mentioned.

Since this instrument was devised it has come to my notice that the idea of adapting the size of the bulb to the calibre of the constriction is not an original one. But I know of none other which combines the principles of the bulbous bougie and urethrotome that is applicable to the treatment of strictures of all calibres below 30 F.

In addition to the tunneled tip, each instrument is provided with five bulbs, numbered, 15, 18, 21, 24 and 27 F.

If more are needed they can be easily obtained at small expense. In the absence of a set of bulbous bougies, it would be advisable to have several others of different sizes—so provided there is no need of other exploring bougies. The curved tip permits a ready introduction to the deepest parts of the urethra.

Let me now relate a single case to illustrate the working of this instrument.

June 7, 1873.—L. M., aet. 40, consulted me for copious gleety discharge, which had lasted twelve years. Urination frequent, slow and painful. Meatus and adjacent portion of urethra contracted and indurated from old chancroidal cicatrices. Six other strictures, at distances from the meatus of about 1½, 2, 2½, 3¼, 4½ and 6 in. The one at 3¼ in. admitted only a No. 14 F. bougie, and felt like a large shot beneath the skin. Enlarged to 30 F. the meatus and as far back as the fossa navicularis. Then with conical bougies dilated the canal to 21. It was a slow and painful process, the bands at 1½ and 3¼ in. especially, grasping the bougie very firmly. Treatment was omitted fourteen days, when his urethra, except at meatus, was as contracted as when first examined. It was again dilated to be followed by like recontraction. It was done a third time and with precisely the same result. These proceedings lasted from June to October.

Oct. 1, 1873, assisted by Dr. Wunderlich, attempted, with Thompson's Divulsor modified by Gouley, to incise the band at 3¼ in. from meatus. But we had the usual difficulty with this instrument of not being able to prevent the stricture from slipping off the greatest convexity of the dilating bars. We finally enlarged it to 22 F.

Oct. 24.—With my instrument, now shown, then just devised and less perfect than this one, we again incised the same constriction on roof, using bulb 22. Then with bulb 25 incised on the floor of urethra. Coming outwards cut on floor a slighter band at 2½ in., a third at 2 in., a fourth at 1½ in., and finally the remains of one at the fossa navicularis. Here were five strictures within four inches of the meatus, incised at one time with a loss of not more than two drachms of blood. Immediately passed solid sound 29 to bladder. No. 25 was passed every second day for a week, when 29 was again introduced. All his uncomfortable symptoms were relieved, a full stream of urine restored, and scarcely a trace of gleet remained, when he left the city for eight months. On his return a bulbous bougie No. 23 passed readily, but detected some roughness of canal at each point incised. The two bands nearest meatus being well defined, were again cut, using bulbs 23 and 26. Afterwards

passed 27 bulbous bougie to bladder without the least difficulty. Still had a slight gleet. The stricture at 4½ in., which had not been operated on, grasped solid sound 29 rather firmly.

Oct. 5, 1875, two years after first operation with bulbous bougie No. 26, find slight hesitation at 2½ in. and 4½ in. from meatus. The former strictures at 1½, 2 and 3¼ in. were not felt. The induration at latter point, so distinct two years ago, had quite disappeared. This case has been detailed somewhat minutely because the first operated on, and one more than usually difficult. Not an unfavorable symptom arose during the treatment.

The two instruments are presented together, each one being in a certain sense the complement of the other. The second and smaller may be employed as preparatory to the use of the first, yet for the treatment of appropriate cases each is complete in itself.

96 Clinton Street.