LESSON LIII.

URETHROTOMY.

Operations for the relief of stricture only productive of temporary benefit before the introduction of dilating urethrotomy—Standard calibre for the urethra formerly accepted as a basis for operative measures—Error of this view—The author's dilating urethrotome—Description of the instrument—Mode of using—Complete division of stricture necessary to its permanent cure—This only to be expected by dilating urethrotomy—Early experiences with the dilating urethrotome—General summary of one thousand three hundred and thirty-one operations—Experience of Dr. Mastin, Professor Bevan, Professor Brown, Professor Pease, etc—Permanance of results—Clinical cases in illustration—Efficacy and safety of dilating urethrotomy demonstrated by the experience of various competent surgeons—Similar results within the reach of any intelligent and careful surgeon—The author's experience in nearly one thousand operations.

Operations for the relief of stricture of the male urethra by dilatation, divulsion or incision had been in use from time immemorial, but, according to the teachings of surgical authorities throughout the world, strictures were not absolutely cured by any one of these methods. All the numerous instruments and procedures which had been recommended and practiced for the treatment of urethral stricture were acknowledged to be inadequate to its radical cure; in other words, were unable to effect a removal of stricture so complete as no longer to require subsequent treatment by the occasional passage of bougies or sounds.

The operation of dilating urethrotomy, literally a dilatation of strictures up to the normal calibre of the urethra, and then thoroughly dividing—sundering—them at some one point, was first proposed by me some ten years since.

In order to effect these objects with any degree of certainty, it becomes necessary, in the first place, to ascertain with precision the exact normal calibre of the urethra in which the strictures are located.

At the time referred to a standard calibre for the human

male urethra was assumed by authorities, and accepted by the profession at large, as a basis for operative proceedures. This had been fixed at 8 or 9 of the English scale (corresponding to lines in circumference), and 21 of the French (representing millimetres in circumference).

It was claimed that when a presenting urethra, the subject of stricture, was by any means brought up to 8 or 9 of the English scale (among surgeons who followed the teachings of the English school), or 21 of the French scale (for those who preferred the French authorities), the urethra could no longer be considered as strictured, and that further active treatment was unnecessary. The occasional use of sounds or bougies was, however, to be continued indefinitely.

My dilating urethrotome, first presented to the pro-

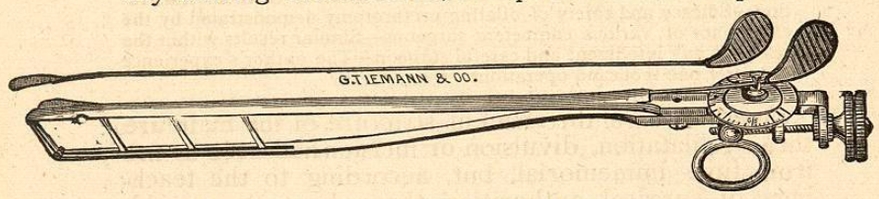

FIG. 10. THE AUTHOR'S DILATING URETHROTOME.

fession in 1871, was constructed for the complete division—the absolute sundering, of strictures, on a basis of exact knowledge of the normal calibre of the presenting urethra, and of the location and degree of stricture. This instrument consists of a pair of steel shafts (A and B) connected together with short pivotal bars, on the plan of the ordinary parallel ruler—as shown above in the expanded instrument.

Its expansion and contraction are effected by means of a screw which traverses the handle connected with the lower shaft, and is moved by the finger-button C. This screw acts against the upper bar of the instrument as a fixed point, and on being turned moves the lower bar, dilating or contracting the size of the instrument. To the screw is attached an indicator, which is thus made to traverse a dial placed upon the upper bar, which registers exactly in millimetres the degree of

separation of the bars, and thus the amount of dilatation which is being effected in any given case.

Up to this point the instrument is simply a dilator or a divulsor, and may be thus used by introducing it closed into the urethra until its distal extremity is beyond the ascertained point of stricture; then, turning the screw, the instrument is expanded, dilating the ure up to the previously-determined normal size of the urethra. The upper bar of the instrument is traversed by a steel wire, at the extremity of which is a thin blade, not exceeding two millimetres in breadth, and when in place is concealed in a deep slot at the end of the upper bar. Now, by means of its handle the urethrotome is drawn out of its concealment and made to traverse the stricture (firmly fixed and made thin by the previous dilatation), dividing it quickly and completely.

After an experience in over fifty operations, in 1873, I called public attention to the *results* of complete division of urethral stricture by dilating urethrotomy in six cases. A careful re-examination of these cases, three at one year from the date of operation, two at six months, and one at five months, showed entire freedom from stricture, although in the interval no instrument of any description had been passed through the urethra in either case.

The apparent radical cure of the strictures through complete division, and simple maintenance of the normal calibre of the urethra until the wounds of operation had healed, without subsequent passage of sounds or bougies, seemed to warrant the expectation of similar good results in other cases similarly treated. After an experience with this method of over twelve years, it may now, I think, be safely claimed that this expectation has been amply met by the results given to the profession during this period.

A general summary of 1331 operations made in accordance with the principles above enumerated, may be found recorded in my volume on stricture of the male urethra, published by Messrs. Putnam's Sons, New York, and by Smith, Elder & Co., of London, p. 279.

This covered my own experience in 635 operations;

that of Dr. C. H. Mastin, LL.D, of Mobile, Ala., 296; Dr. Thomas R. Brown, Professor of Surgery in the College of Physicians and Surgeons, Baltimore, 300; Dr. R. W. Pease, Professor of Surgery in the University of Syracuse, N. Y., 100; total, 1331.

Since that report Professor Bevan, of the College of Physicians and Surgeons in Baltimore, has reported 300 operations; Dr. Eldridge, Surgeon-in-Chief of the General Hospital at Yokohama, Japan, 100; Dr. J. L. Little, Professor of Clinical Surgery in the University of New York, 30; Dr. E. L. R. Thompson, of New Haven, Ct., 211; my own additional operations, 325; making a grand total of 2297 operations without a death or permanent disability of any sort. There have been *re-examinations* reported at various dates subsequent to operation, with the following results: Dr. Bevan, of Baltimore, out of his 200 tabulated cases, reports thirty re-examinations at periods varying from four and a half months to two years. Recontractions of stricture were found in but *two* cases.

Dr. Mastin, of Mobile, reports twelve re-examinations at from four months to two and a half years, with re-contraction in *three* cases. Professor Pease, of Syracuse, reports that out of his first series of forty-five cases (operated on from 1875 to 1877) in twenty-one re-examinations at dates between four months and two years—thirteen of which were over one year—no re-contractions had taken place (see Otis on Stricture, p. 262).

Of his subsequent experience in 296 operations under date of July 21st, 1881, he writes as follows: "The whole number of cases in my private practice of which I have a record, not published, is 273, comprising 395 strictures. Of this number forty-seven were deep, or between six and a quarter and seven and a quarter inches. Out of this series of 273 cases eighty have been re-examined at from six months to four years from the date of operation. Out of this number of re-examinations fifty-nine gave perfect results, twenty cases had recontraction in one or more strictures, upon twelve of whom re-operations were made, and subsequently dis-

missed cured; two have drifted away, and six are awaiting a favorable time for re-operation. Urethral fever followed in nine cases, in three very severe. All recovered, however, with no bad results. In three of the deep operations severe hæmorrhage followed, controlled by the perineal crutch. In fourteen cases there was curvature of the penis, lasting from one to fifteen months.

Dr. Mastin, in answer to my request for his latest experience to be incorporated in a paper before the Surgical Section of the International Medical Congress held in London, August, 1881, writes under date of July 21st, 1881:

"I have thought it would serve at this very late date if I would drop you a line, and in it permit you to use my *unqualified approval* of your method of the radical cure of stricture. It would be useless for me to add new cases in which I have done the operation, because it is not increased numbers, but rather a few cases, of *long duration* which go to prove the value of the method. Five hundred cases done in the past six months, would prove less than five cases done six years ago. It is the *permanency* of the cure, and not the number of operations done which will go to prove the radical results. To this end I have thought it best to take up the list of thirty cases, already published in the first edition of your work on stricture (see page 248 et seq.), and give you the result of recent examinations.

CASE I.—Operated upon by dilating urethrotomy in December, 1874, six years and six months ago. This case has been under constant observation, and after repeated examinations I have been unable to find the least recontraction. He has married since the operation, and has had no trouble whatever with his genito-urinary functions. He *has not* used a sound to keep patent his canal, and I find his urethra up to its normal calibre. I consider his cure perfect and believe that six years is fully long enough to show whether a return is liable. He has been engaged all the time at hard work, being an engraver and machinist.

CASE II.—Operated upon in February, 1875. This man passes my office four or five times every day, and, as a consequence, I have had ample opportunity to have him under close and continued observation. Repeated examinations in the past six years have shown there has been no recontraction; and on more than one occasion I have put a No. 40 m.f. sound easily into the bladder. It will be remembered that I cut him to 38 m. f., but afterwards I carried the sound up to 40 m.f., and find that they can be passed without force to that size now.

The prostatic irritation which remained for some months after the operation has gradually subsided, and at this date he enjoys perfect health. Being unmarried he has led a life of some irregularity, but fortunately has not contracted a discharge, nor has he been intemperate in drinking.

CASE III.—Operated upon in September, 1875, 35 m. f., near six years ago. Two months ago he had no recontraction and remains perfectly well. Neither of these cases have used a sound to keep the urethra open; nor have they complained of any urethral trouble.

CASE IV. Has died from heart trouble, but from the date of operation in November, 1875, to 1878, he had no return, and examination showed an urethra without any lessening of calibre.

CASE V.—Was not considered a fully tested case, and doubt was expressed as to whether the operation would prove a success as the urethra was not opened to its normal calibre, and a considerable amount of discharge kept up. The operation was done in December, 1870. In the fall of 1880 he still had a degree of urethral irritation and occasionally some discharge, but the patency of canal remains up to 31 m.f. Although I do not consider this case cured of his stricture, still I do consider that his contraction has been prevented from growing worse, by reason of the character of operation which was performed. It is furthermore worthy of notice to state that he has not resorted to the use of sounds to keep the canal open.

CASE VI.—Operated upon in November, 1875. Has since resided in New Orleans, and I have had no opportunity to make a personal examination of his case, but

hear from him that he is perfectly well and has had no diminution in the size of his stream of urine.

CASE VII.—Operated upon July, 1876, five years ago. Has married since, and is the father of three children; an examination in February, 1880, showed his urethra open to 36 m.f., and no evidence of the least trouble. A letter from him contains this sentence: "Another bouncing boy; I am perfectly well, and you can score me down among the list of *radical cures*.

CASE VIII.—Operated upon December, 1876. This case examined a year ago shows the same condition that he was in when discharged; no recontraction, and general health perfectly good.

CASE IX.—The history of this case as given in your book, page 252, is interesting and worthy of notice. He was seen some two months ago and remains perfectly well. From the varied kinds and number of operations performed upon him; his frequent and rapid relapses from September, 1869, to November, 1875, will show the permanent value of dilating urethrotony over any other method. I consider this a test case.

CASE X.—Operated upon November 19th, 1875. He continued perfectly well, and had no evidence of recontraction after his death, which occurred some two years since. He died from "phthisis."

CASE XI.—Operated upon in February, 1877. Was examined in 1879; no recontraction found. Have not seen him since 1879, but a recent letter informs me that he is perfectly well, and has had no trouble in urinating. No sounds have been used to keep open the urethra.

CASE XII.—Operated upon in 1875; not given in your book. Urethra opened to 38 m. f. A physician who has had some considerable experience in treating these cases; reports himself cured and from his own examinations says he has no recontraction.

Other cases could be given equally convincing, but as they are of more recent date I prefer to take old operations as more reliable, and better calculated to prove the value of your operation. As you will see, I have written in very great haste, as but little time remains for this to reach you before the meeting of the Congress."

Dr. E. L. R. Thompson of New Haven, Conn., reports the results in his 211 cases as follows, viz.:

In 174 cases re-examined at varying periods after operation there was no recontraction.

Twenty-two cases which were not re-examined were perfectly well when last heard from.

In 8 cases there was perfect relief for a length of time, then a return of symptoms, when on re-examination recontraction was found to have occurred.

In three cases which were still under treatment, most of the symptoms were relieved, some still remaining.

There had been only partial relief in four cases.

Of my own first 100 tabulated cases, out of 36 re-examinations with the bulbous sound, 31 were found free from stricture, 12 over six months, 3 over one year, 1 two and a half years, and 1 three years after operation (Otis on Stricture, p. 100).

In my second series of 136 tabulated cases (ibid., p. 324), out of 82 re-examined, 67 cases were found entirely free from stricture.

3 cases 6 years and six months after operation.
2 " 5 years and over.
3 " 4 " "
10 " 3 " "
7 " 2 " "
20 " 1 year "
10 " 6 months and over, (ibid., p. 319).

In the second edition of my work (prefatory remarks), two cases were cited, re-examined in May, 1880, thus *over eight years from the date of operation*, and found to be free from every trace of stricture, the urethra being free to the passage of 30. bulbous sound in one case, and 32. in the other. In the first case five strictures were originally present, the smallest of a calibre of 22 f. In the second case there were also five strictures operated on, the smallest 16 f.

In addition to these cases was one, a surgeon, operated on March 6th, 1875, for four strictures defined by a 24 bulb in a urethra of normal calibre 36 f.

Re-examined May, 1880, and found free from stricture by the easy passage of 36. bulbous sound, six years

after operation, and no instrument introduced during the interval.

Again, in 1881, I had an opportunity of re-examining two other cases, one (the first), whose strictures, four in number, were divided from 27 f. to the normal urethral calibre (in this case), viz., 36 f. The second, where six strictures were originally present, ranging from 24. to 30. in a urethra of 38 f. and when an acute inflammatory discharge had been present for over four months. In each of these cases a radical cure was demonstrated, the former seven years after operation and the latter over eight years. In May, 1883, I examined a case operated on in May, 1871—two strictures—and another operated on in June, 1874, in which not the least recontraction had taken place, thus showing a permanence of results with, in the first place, thirteen years, in the second nine years' interval between operation and re-examination.

Dr. Stuart Eldridge, (formerly Professor of Anatomy in the Georgetown University, U. S. A., and now chief surgeon of the general hospital at Yokohama, Japan), reported a case in the New York *Medical Journal* of May, 1879*, where from long-standing disease the urethra was contracted to a filiform size, throughout the ante-bulbous portion. The operation of M. Maisonneuve was first performed, and this immediately followed by the introduction of my dilating urethrotome, and the urethra raised through its use to the supposed original calibre of the canal. The patient made a good recovery, and on a post-mortem examination of the case, made two and a half years after the operation, the urethra was found to be entirely free from stricture. In his description of the post-mortem appearances, Dr. Eldridge says, "The most careful examination of the specimen failed to discover the slightest pathological constriction at any point, while neither thickening nor induration could be discovered by the most pains-taking search." This statement was fully verified through the

* Reprinted with wood-cut in the appendix to 2d edition of "Otis on Stricture of the Male Urethra." Putnam's Sons, New York, 1880.

specimen which was forwarded to me by Dr. Eldridge, and presented to the New York Pathological Society in the latter part of the year 1879 (see Appendix, "Otis on Stricture," Putnam's Sons, 1880).

When it is considered that the operations reported in the foregoing pages have occurred in the practice of but six surgeons, and that many hospitals in America and nearly, if not quite, every hospital in the City of New York, is supplied with instruments for the performance of dilating urethrotomy, and that this operation there is no longer a novelty; when, also, it is considered that the operation is practiced by many surgeons in private practice in America and in Europe, it will be understood that the record of operations, considerably exceeding two thousand, might have been greatly increased, and have still further confirmed the statements as to the safety and utility of the operation of dilating urethrotomy. The fact that when properly performed its benefits are so prompt and pronounced, and that it is so readily done, has doubtless induced many surgeons to venture upon it without sufficient knowledge of the operation or without sufficient surgical experience, or without the proper instruments. For these, and often for other reasons, the strictures have not, in many cases, been thoroughly divided or properly cared for subsequently, and the results have, in many instances, been imperfect. I do not, however, hesitate to say that with the (my) well-made, short, straight, dilating urethrotome, used with the knowledge, skill, and judgment, necessary to the performance of any operation for the relief of difficulties of like gravity, and followed by judicious treatment until the healing has taken place, any good surgeon may attain results similar to those which I have cited. When the operation is confined to the limits of the ante-bulbous portion of the urethra, where alone it should be employed (and where, fortunately, by far the greatest proportion of strictures will be found), it may be said, practically, to have been demonstrated to be a safe operation. Not a death has yet, as far as my knowledge extends been fairly recorded against it, and surgical accidents may be justly claimed to be fewer than in any

other operation, of like importance, in the whole range of operative surgery.

In my own experience of over nine hundred operations, *not only have I never had a death or a permanent disability of any sort, but I can say to-day that I have never performed the operation as advised in the foregoing pages, either to my own regret or without marked or acknowledged benefit to the person operated on.*

LESSON LIV.

Consideration of the operation of dilating urethrotomy continued—Important in proportion to the degree of difficulty presenting—Subjects of disease of bladder and kidneys most liable to suffer from any operative procedure—Dilating urethrotomy less grave than any other mode of relief—Strictures in the anterior portion of the urethra less liable to cause trouble from operation than those seated more deeply—Greatest proportion of strictures shown to be located in the anterior portion of the urethra—Strictures of large calibre most frequently the cause of trouble—Easy and safe relief to such strictures by dilating urethrotomy—Details of operation in cases of strictures of large calibre—Strictures at or near the meatus urinarius—Mode of operation—Strictures more deeply seated—Mode of operation by means of the dilating urethrotome.

The operation of dilating urethrotomy, like any other legitimate surgical procedure, is important in proportion to the amount of difficulty present and the gravity of the troubles complicating it. In subjects affected with grave disease of the bladder and kidneys, any operation on the urinary apparatus is more or less hazardous. Dilating urethrotomy, however, has been fully demonstrated to be the least so, as in its performance the least degree of injury is inflicted necessary to division of stricture, and besides, in the very greatest majority of cases, it is not necessary to pass any instrument through the deep urethra or beyond the locality of the stricture.

In direct opposition to the statements of authorities who have not examined the urethra by means of the urethrometer, but who have made up their statistics from post-mortem inspection, it will be found that by far the greatest proportion of strictures calling for operation or any treatment, are situated in the penile urethra, and will be found in less frequency the farther we recede from the meatus urinarius. In point of fact, being the result of inflammatory action, stricture will be found most frequent in the anterior portion of the urethra, where inflammations are most frequent and severe.