

CHAPTER IX.

RETROSPECT.

SOON after the foregoing discussion in New York, viz. on March 16th, 1876, Mr. Berkeley Hill, Professor of Clinical Surgery in University College of London (as well as a representative writer on Diseases of the Genito-urinary organs), devoted a lecture to the consideration of my views and operations as they had come to be understood after the lapse of nearly a year from my personal enunciation and demonstration of them in that college. This lecture was subsequently published in the London *Lancet*, in the issue of April 8th, 1876.

In order to show the status of urethral science in Great Britain at the time of my visit (pages 215, et seq.) and to illustrate misunderstandings of my views which may have obtained elsewhere I reproduce this Lecture in full, as well as my "Explanatory Remarks," in reply, which, with a good sense of "English fair play," were promptly published by the editor of the *Lancet*, in the issues of June 3d and June 10th, 1876.

A Clinical Lecture on the Treatment of Incipient Stricture, by Otis's operation, delivered at University College Hospital, London, Eng., March 16th, 1876, by Berkeley Hill, Professor of Clinical Surgery in University College.

Gentlemen:—In a lecture which I had the honor of delivering before you more than a year ago,* I endeavored to describe and classify the various causes of the scanty urethral discharge known by the term "gleet." I pointed out that,

* Reported in The London *Lancet*, of Feb. 13, 1875.

produced by affections of very different nature and in different parts of the urethra, these discharges required very distinct kinds of treatment for their cure. I still adhere to that opinion—one common to most who study urinary disorders.

Last July, you recollect, Dr. Fessenden N. Otis, a distinguished surgeon of New York, demonstrated in our operating theatre his mode of curing gleans and Stricture of the urethra, in a lecture remarkable for its clearness and for the skill with which his manipulations were performed. In that exposition Dr. Otis enunciated views which vary considerably from, and indeed are opposite to, the doctrines usually taught in this country. I propose to-day to examine what we were told on that occasion with the light that some experience we have been able to gain in our own hospital has thrown upon it. In doing this I would not have you suppose that there was little to be learned from our American *confrere*; on the contrary, I am satisfied that much of what he told us is perfectly true, and a real contribution to our knowledge of urethral affections.

The chief points of Dr. Otis's demonstrations were:

1. The human urethra varies much in its calibre in different persons. Hence an instrument that is a full size for one man may be either much too great or too small for another.
2. The urethra is, really, much wider than is generally taught.
3. The meatus urinarius is normally as wide as the rest of the canal.
4. The gleet is always due to Stricture. It is "the signal that nature hangs out to call attention to the fact that Stricture exists somewhere."
5. In the term Stricture Dr. Otis includes those early indurations which have not sufficiently advanced to interfere with the passage of urine or to produce any symptom beyond a discharge. But he maintains them to be really bands of contractile tissue fibre produced by inflammatory action.
6. Stricture is most frequent in the first inch from the

meatus, and is less frequent as the distance from the entry increases.

7. Complete division of a Stricture and maintenance of the incised part at its natural width until the incision is thoroughly healed prevents return of the contraction, and, moreover, *causes absorption of the indurated tissue from the affected part.*

I propose to examine the novelties, one by one.

That the urethra should vary in calibre in different persons, considering that the penis also varies greatly, might well be presumed *à priori*; and Dr. Otis has most satisfactorily demonstrated that it does so. But I trust you have not forgotten the description of the urethra given by Sir Henry Thompson in his lectures to you before Christmas. He there showed how the urethra is not a tube at all except while some body is passing along it, and defined it to be a *closed valvular chink*, capable of distension to a different amount in different parts of its length. It will be well to bear this in mind, and also that for our purpose to-day we are concerned only with the *spongy portion* of the urethra.

Books on anatomy tell us that the bulbous portion is somewhat wider than the rest, having a circumference of seven-tenths of an inch, and that the remaining part is one or two-tenths less in circumference; further, that the meatus does not exceed one-quarter of an inch in width. These measurements are doubtless taken from the dead body, and if we conclude that they represent the dimensions of the living urethra, we shall be in error. The practical importance of ascertaining what is the usual extent to which the "valvular chink" is dilated during micturition is this; diminution of capacity in the urethra means impediment to the flow of the urine from the bladder. If the balance between the natural expulsive force of the bladder and the friction of the stream along the urethra is disturbed, the bladder is irritated, the kidneys are affected, and the beginning of the long chain of events, which terminate not infrequently in death, is made. To know if a man has Stricture, we must first know what the

natural distensile power of his urethra is, and to ascertain this, Dr. Otis discards any arbitrary standard, which, you know, is set at about No. 12 of the English scale, but measures each urethra before he proceeds to operate upon it. For this purpose he has invented a most ingenious instrument which he calls the "urethra-metre." It consists of a slender cannula marked in inches, at the end of which a set of steel springs can be expanded into a bulb by advancing a stem within the cannula. This movement is obtained by turning a screw at the handle, and the amount of expansion is recorded by an index on a dial-plate. When screwed close the instrument is not larger than a No. 6 English sound—that is a circumference of less than half an inch. It can be expanded to a maximum circumference of an inch and three-quarters—two and a half times the seven-tenths of an inch which your anatomical guides tell you is the circumference of the widest part of the spongy portion. To measure the urethra the expanding sound, covered by a thin india-rubber sheath (c., Fig. 1), is introduced in its contracted form as far as the bulb, between five and six inches. It is then screwed up until the patient announces he has a sense of fulness, but not so tightly that the instrument cannot be moved without being grasped by the passage. This gives the size of the canal at the bulbous part. The urethra-metre is gently withdrawn, the expanding part being enlarged or diminished as tight places or slack ones are passed, and the several dimensions are noted by observing the index, and the distance of the expanding part from the meatus. Any diminution from the widest measurement Dr. Otis holds to be a Stricture, and abnormal. For the further examination of these contracted areas, Dr. Otis employs a series of bulbous sounds ranging from about No. 4 English catheter to one much greater than any size in our scale. But before describing them I must remind you that Dr. Otis, like nearly all who work at urethral affections, has discarded the English scale, one entirely arbitrary, ascending from the smaller to the higher numbers by wide grades of unequal length. He chooses the French scale, which is per-

fectly scientific. It takes the millimetre for its unit, and the number of the instrument denotes its circumference in millimetres. Thus No. 1 French is one millimetre in circumference; No. 20, twenty millimetres; and so on. Compared with these, No. 1 English is equal to No. 3 French, and No. 11 English to No. 20 French.

Here is a gauge Mayer and Meltzer have made for me, with forty sizes cut in the plate. The plate is marked on one side with the French numerals, and also graduated with a decimetre divided into centimetres and millimetres. On the other side the English numerals are marked opposite their respective sizes, and there is also a scale of six inches, divided into sixteenths of an inch. Thus the catheter-gauge forms a ready means of comparing French with English measures.

Dr. Otis's series of bulbous sounds are spread out before you. They have a slender stem of about four millimetres screwed into the wider end of a bulb or bullet. The best shape for the bulb is that of a turkey's egg, which you know is a little more pointed at the small end than the egg of a common hen. The bulbs range in size from No. 8 to No. 40. Their number corresponds to the big end.

With these instruments Dr. Otis has measured over 500 urethræ, from which he tells us that the expanding capacity of the urethra bears a constant ratio to the circumference of the penis below the glans. Hence if you measure the outside of the penis you can foretell the size of the urethra. Further, that the average size is between thirty-one and thirty-two millimetres, or an inch and a quarter—that is more than half as large again as the measurement hitherto accepted. From these observations also, Dr. Otis finds that the meatus, when not congenitally narrowed or contracted by balanitis in boyhood, a frequent occurrence, is as wide as the rest of the urethra. I have not measured a number of urethræ approaching to 500, but I will give you the results of my measurements so far as they go. Since last spring I have measured ninety-five urethræ (all of them in subjects of urinary disease, by the

way), and in only three did I find the meatus as wide as the rest of the canal. One of the three exceptions was that of a man who never had gonorrhœa, but an exceedingly narrow traumatic Stricture of the bulbo-membranous part. In him No. 32 sound slid easily down to the Stricture by its own weight. This would show that the meatus may be either normally narrower than the rest of the canal, or that morbid contraction is exceedingly common. Be that as it may, practically we have generally to deal with a narrow meatus, the average size being twenty-two millimetres. The measurement of these ninety-five urethræ, has satisfied me that we have under-estimated the size of the urethra, and that Dr. Otis is correct in claiming larger calibres for that canal. But I have not found the bore, so to speak—the capacity for distension, in more accurate diction—to be uniform from the bulb to the meatus. At the bulbous part the urethra is widest, and remains of even width for about two inches. It then narrows gradually, and for the rest of the passage is about three millimetres less, being most narrow at the outlet. This is, as you well know, in agreement with the description of anatomists, only that the distensile capacity of the urethra measured in the living body was greater than the limits they set down. Thus the spongy urethra is conical in shape, resembling the tapering nozzle of a syringe. Whether this be a provision of nature to make the escaping stream more forcible I know not, but you will recollect that the special *raison d'être* of this part of the urethra is to conduct, not the urine, but the semen. Of this I am persuaded, that the less calibre of the urethra at this point is natural, and not the result of inflammation, so long as it is gradual and not abrupt. Morbid narrowings are easily perceived by the sudden way in which they obstruct the bullet, and by the suddenness with which it is released when they are passed.

Next, with regard to the invariable presence of a non-dilatable area of the urethra, a band of contracting fibres, that is, a Stricture of more or less development, in every case of gleet. I repeat that I still think that Stricture in any

shape is not the sole cause of gleet, though doubtless this is the most frequent condition in such cases.

With respect to Stricture being most frequent in the first inch and a quarter of the urethra, out of 258 Strictures, Dr. Otis found 115 within that distance of the meatus, and the remainder in decreasing frequency in each succeeding inch. This you know is contrary to the received doctrine, which places Stricture most frequently at the bulbo-membranous part. My experience does not support Dr. Otis's statement. In 1870 I recorded 63 Strictures, examined with bulbous sounds, at the Male Lock Hospital in 1869, when I found them 43 times between four and a half and six inches—a position, allowing for variation in inches length of the passages in different persons, almost the same in all.

Next, having ascertained the presence of some unnatural narrowing of the spongy urethra, does internal division cure it, and prevent its return or further development, and consequently cure the gleet? If we adopt Dr. Otis's teaching, our course is simple. A patient applies for cure of a gleet. His gleet must be the consequence of Stricture; cut completely through it to the erectile tissue, so as to make the urethra a little wider than before, and take care to maintain this artificial patency while the incision is healing: the cure is then complete and permanent. This is the result of operating in a large number of cases, a report of which has been published in several forms. In 100 published cases, 31 patients were found without recontraction when examined at a considerable period after operation; 52 others were not examined, but reported themselves well; the remaining 17 were not quite cured, though relieved. Such evidence induced me to give a trial to this method. I may state that all the cases operated on here were those of long standing gleet with contraction in one or more parts of the spongy urethra, and had undergone multifarious treatment. The number of patients is sixteen; fifteen of my own and one of Dr. Otis's—the case in which he operated in our theatre on the 6th of July last. In five cases the gleet stopped after the

operation, and the patient was at the last report—taken in none less than three weeks, in most some months, after the operation—able to pass a bougie of the estimated size of the urethra. In short, they may be claimed as cures. But of these five the operation was serious to two; one had free bleeding for three days, the other three attacks of rigors. Of the remaining eleven, among whom Dr. Otis's own operation must be included, the gleet persisted in all; in several the urethra shrank again to its size before the operation, and in some very serious complications ensued. In four bleeding lasted several days, and in one was even alarming. Three patients had rigors; in two the shivering was unimportant, being that which follows the first transit of urine along the incised urethra in certain individuals, but is not repeated or attended by further consequences. In the third patient the rigors preceded abscess in the buttock. One patient had orchitis. Thus in seven the operation might be termed a trifle, causing no pain nor any after-fever; but in five only was the operation successful. It may be contended that want of practice on my part, or imperfect performance of the operation, were the causes of this small success. But I am protected against this danger by having had the benefit of Dr. Otis's personal instructions, and by the fact that one of the least successful cases was that in which Dr. Otis operated himself. The man was in sound health with the exception of his gleet and contraction of the urethra at two and a half inches from the orifice. He made light of the operation, submitting most patiently to the somewhat prolonged manipulations; being animated by the patriotic resolve, as he afterwards told us, that "No Yankee should make *him* flinch." The patient bled copiously after the operation; the hæmorrhage not stopping altogether for six days. No other complication ensued, the man was able to get up as soon as the bleeding had stopped, and would have left the hospital at once if permitted. However, though he remained some weeks longer with us, and afterwards attended assiduously for the regular passage of the sound, his gleet persisted till

Christmas, and was at last cured by other means. There still remains a scar or induration in the erectile tissue, which gives a crook to the organ during erection. Whether the division of the contracting band caused permanent absorption thereof in any of these patients I do not know, but have very little expectation that it did so. Certainly it failed of this effect in almost all.

When telling you, as those who frequent my wards already know, that I have abandoned this operation for curing gleet accompanying slight contraction of the urethra, I should not omit to tell you that in one point I have varied from Dr. Otis's operation. His urethrotome, which I hold in my hand, is used as follows:—The instrument is passed along the urethra until the end is well beyond the Stricture. The instrument is then dilated until it stretches the urethra to its full capacity, or, to make sure, to one or two millimetres beyond that capacity. Next a small cutting edge, previously concealed, at the end of the dilating part, is drawn along the tightly-stretched tissue to the meatus. This long furrow is made in the mesial line in the roof of the urethra. Disliking this long cut, which divides uncontracted parts, as well as the strictured parts, I have employed, except in one case, a Stricture incisor, which, while it stretches the urethra to the size previously determined, cuts only where it is strictured. Its mode of action I shall explain when speaking of the division of narrow Strictures. As the contracted areas are as freely divided by this plan of cutting, I cannot fairly charge it with the numerous failures that have attended Otis's plan of treating wide Strictures.

The plan of treating these affections to which I have returned is that which I adopted before—namely, the repeated passage of bougies, large enough to distend the Stricture, but not large enough to be tightly grasped. The size of the bougie is increased at each visit—that is, about twice a week—to keep pace with the increasing expansion of the urethra until the capacity of the uncontracted parts is reached, when the same size is continued by the patient himself for several weeks

longer. When the meatus is greatly smaller than the rest of the passage, I cut it either by Otis's meatome, this straight probe-pointed bistoury, or by a bistouri caché, to which Coxeter has added a second shield, which can be separated from the first by a screw-pin, and so make the fibres tight before they are divided. The incision is made in the floor, and must be pretty complete, as the little ring of fibres is very tough, and often needs two or three applications of the knife to divide it fairly.

But do not misunderstand me. I do not mean that every gleet requires instrumentation forthwith as a matter of course; on the contrary avoid the use of instruments whenever you have satisfactory evidence that the discharge is not of long standing. The exact length of time that indicates Stricture is uncertain, for the inflammatory induration constituting Stricture is formed very slowly in some persons, but comparatively fast in others. As a general rule don't search the canal when the discharge has lasted only six months or less. Be sure, however, that the whole duration of the discharge is really contained in six months, and that there have not been previously periods of clap or gleet to which the present discharge is only a successor. Several relapses of gleet are very strong evidence of Stricture. Bear constantly in mind that the introduction of an instrument of any kind into the urethra is an evil, and though in time the canal gets accustomed to the foreign body, this, like many other faculties, is not acquired without discomfort or pain. Resort to instrumentation only when you are satisfied there is legitimate cause for it. Nevertheless when you do employ instruments to search for Stricture, use such as are adapted to the end in view; and at our next meeting I will explain to you why I prefer bulbous sounds and bougies to those of equal thickness throughout.