passage leading to the cavity. By the patient's constantly wearing a drainage tube, however, the possibility of the occurrence of such an accident is effectually guarded against, and when the discharge has become comparatively small a little rubber cup for receiving it may be attached to the end of the tube, which will give rise to little or no inconvenience. In addition, we should do all that is in our power to build up the general health of the patient, and a change of air is often of very great service. In most cases a locality where there is an elevation of from a thousand to fifteen hundred feet (not enough to put too much of a strain upon the unaffected lung) will be found to be very beneficial, as respiration can be more easily performed at such an altitude. The patient should remain in the open air as much as possible, but should avoid too violent exercise and all forcible expansion of the chest until he has almost completely recovered. Riding will be of service in exercising the muscles and distending the lungs, and the kind of exercise which is of the greatest amount of benefit in pleuritic troubles is riding a fast-walking horse. Of course, the most nutritious diet should be employed, and as far as direct medication is concerned cod-liver oil, iron, and similar agents will be found most useful.

STRICTURE OF THE PROSTATIC URETHRA.

BY CLAUDIUS H. MASTIN, M. D., LL. D. UNIV. PENN., MOBILE, ALA.

ALMOST every surgeon who has had any experience with urethral diseases will call to mind how frequently he has been consulted by patients who come from under the care of their regular medical adviser with the statement that they are suffering with stricture, and that "the stricture is just at the neck of the bladder;" still he knows how very seldom it is we find the contraction lower down the penile urethra than some four to four and a half inches, — indeed, rarely even so low as the bulbo-membranous junction. In fact, it may with safety be stated that *the great majority of strictures* are located in the anterior portion of the canal, that few are ever so far down as the bulbo-membranous junction, and fewer still in the membranous urethra. In a word, we may assert that the further we go from the external meatus the less frequently do we encounter true organic stricture of the urethra.

Although surgeons differ widely as to the precise location in which we oftenest find the contraction, still they are a unit as to its infrequency in the deep urethra, — and justly so, for being the result chiefly of urethral inflammation, we naturally expect to meet with it at that point in the canal where the inflammation first began, where it was most intense in its action, and where it lingered longest in its duration; and as that portion of the canal is bounded by the external urethral

meatus on the one side, and a point four to four and a half inches distant on the other, it is within this space that we would most reasonably expect to find the obstruction, should one exist.

Sir Henry Thompson, than whom there is no sounder authority upon genito-urinary pathology living, writes: "Most rarely is any stricture found in the membranous portion, and never in the prostatic portion." Again: "I may confidently assert that there is not a single case of stricture in the prostatic portion of the urethra to be found in any one of the public museums of London, Edinburgh, or Paris. I am disposed to believe that some observers have been deceived in reference to it, or that it owes its supposed existence to inferences drawn from the results of examinations of the living body, which can by no means be admitted as evidence upon this subject."

In the face of this assertion of Sir Henry, we have the positive assurance from Leroy d'Etoilles¹ and from Philip Ricord, both of whom were eminent in this department of surgery, that they have respectively met with stricture of the prostate; and Leroy had at that time in his possession a specimen showing the contraction located within the otherwise healthy prostate. In addition to this we find a paper from the pen of Mr. Walsh, published in the *Dublin Medical Press* of January 26, 1856, in which he states that he had examined a specimen of this nature which was preserved in the Museum of the Royal College of Surgeons of Dublin, the disease having begun in the posterior portion of the membranous canal and extended itself into the prostatic urethra, where it resulted in a well-defined stricture.

Although Sir Henry is not disposed to accept these as perfectly reliable cases, he yet seems to think the existence of prostatic stricture mainly rests upon the observations of Leroy and Ricord. He prefers to consider it possible that certain enlargements of the prostate, which sometimes narrows and frequently renders tortuous that part of the urethra which passes through that organ, may have given rise to a condition easily mistaken for stricture; but that the organic narrowing of the urethra only, that narrowing which commences within its own walls, and which we understand to constitute the stricture which affects all other portions of the urethral canal, is not found in the prostate.

Based upon the authority of this eminent special surgeon, the opinion has become fixed in the minds of the best informed surgeons of this country, as well as of Europe, that we do not meet with prostatic stricture; and that those cases which have been reported as such admit of a reasonable doubt as to whether or not the precise locality of the contraction was accurately demonstrated.

In view of this fact I almost hesitate to place upon record the following history of a case which has been of especial interest to me, and

¹ Des Rétrécissements de l'Urètre, etc., Paris, 1845, pages 82, 83.

which I feel assured will not prove uninteresting to that class of my readers who are giving their attention to the subject of genito-urinary surgery.

J. J. B., aged forty-six years, came to Mobile from North Carolina on the 18th day of June, 1877, for the purpose of consulting me as to the propriety of an operation for stricture of the urethra. His history was briefly as follows: In 1856 he contracted his first blennorrhagia, and subsequently in 1861 a second case. In both instances he was treated with strong injections of nitrate of silver, from which he suffered a great deal of pain and inflammation. In 1862 he first discovered a diminution in the size of his stream of urine, which gradually lessened, until, in 1871, he was suddenly seized with complete and perfect retention, from which he was relieved only by forcible catheterismus. After this attack he passed along with comparative comfort, although still with difficulty in micturition, until 1874, when the stricture had again closed so completely that his retention was absolute, and he resorted anew to the forcible introduction of the catheter for relief; from this date his stream gradually diminished in size until his arrival in Mobile in June, 1877.

The fatigue incident to a long trip by rail, at a season of the year when we were having our most intensely heated term, had so exhausted him that I considered it the part of prudence to wait a few days until he could recuperate sufficiently for me to make an exploratory examination of his urethra. The day after his arrival, however, he was again taken with partial retention, and I was forced to try to evacuate his bladder with the catheter; this I failed to introduce, and succeeded in relieving him only by the use of opium, hot baths, etc., so that he could by drops overcome the excessive distention of his bladder.

Repeated examinations of his urethra showed that a sound of twenty-one millimetres — equal to about $11\frac{1}{2}$ English — could be introduced with perfect ease down the urethra to the distance of seven and a quarter inches, and that, too, without any stretching of the penis or distention of the canal. Beyond this distance it was impossible to pass the sound; and even when I had recourse to the smallest filiform whale-bone probes which have yet been constructed, also to those of silk-worm gut, not over one third of a millimetre in diameter, I found it impracticable to effect an entrance into the bladder. His urine was voided only by drops, and for weeks prior to his coming to Mobile he had been unable to pass a stream even of the smallest dimensions.

Having carefully examined the entire canal, not only with the ordinary sound, but with the ball probe, and the urethra metre (of Dr. F. N. Otis, of New York), I found its normal calibre to be thirty-two m.; that it was free from contraction at all points, from the apex of the prostate to the external meatus, save at one spot about an inch anterior to the bulb,

where it was narrowed to twenty-one and a half millimetres. With this state of affairs, — an open urethra showing a normal calibre of thirty-two m., through which a sound of twenty-one and a half millimetres was easily passed to the distance of seven and a quarter inches, and still no urine being expelled from the bladder save by drops, — I considered myself justified in diagnosing the case one of stricture of the prostate. And that diagnosis was based upon the measurements of the length of the average urethra, as given by Sir Henry Thompson,¹ which are as follows: —

" Total length, from anterior border of uvula vesicæ to meatus urinarius externus		8½ inches.
Dividing the canal in the usual manner into spongy, membranous, and prostatic portions, we have —		
Length of spongy portion		6½ inches.
" " membranous ditto		¾ inch.
" " prostatic ditto		1¼ inches.
Total		8½ inches."

If this be the usual average length of a normal and healthy adult urethra, without stretching, and in the case given I was enabled to insert the sound of twenty-one and a half millimetres to the depth of seven and a quarter inches without obstruction, but beyond which point it was impossible to pass the smallest urethral instrument which as yet has been constructed, it is obvious that the impediment which did exist to the passage of both the urine and the filiform sound was situated somewhere within the last one and a quarter inches of the urethra; and as that distance is comprised within the prostatic urethra, it is safe to assert that the stricture was within the prostate. How far correct this diagnosis was I think will be proved by the succeeding history of the case.

Unable to effect the passage of any instrument into the bladder, I determined to operate by external perineal urethrotomy without a guide, as follows: On the 16th day of July, nearly a month after his arrival in Mobile, and after the usual preliminary preparation, I opened the membranous urethra upon the point of a staff just in front of the apex of the prostate, and holding the edges of the wound apart with the excellent contrivance of Mr. Avery, of Charing Cross Hospital, London, I placed my finger accurately against the point of the prostate to satisfy myself that there could be no possible mistake as to the exact locality of the stricture. Finding that the obstruction was clearly and unmistakably within the prostatic urethra, I at length succeeded, after long and patient endeavors, in passing an Anel probe through the coarctation on into the bladder; having removed this, I passed through the incision and into the prostatic canal a very small silk-worm gut

¹ *The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ.* By Sir Henry Thompson, F. R. C. S. London. 1869. Page 3.

conductor attached to the staff of a Maisonneuve urethrotome, which was carried into the bladder, and the obstruction freely cut by the passage of the blade. The case progressed without anything worthy of note, and by the 25th of July the external wound having so far healed that I determined to cut the contraction, which has been mentioned as existing just above the bulb. This was accomplished with the dilating urethrotome of Dr. Otis, and the canal at that point restored to its normal size of thirty-two m. French.

The subsequent treatment consisted in keeping the urethra free by the regular introduction of a sound of this size until all the parts were thoroughly healed, and the patient left for his home on the 3d of August, with a urethra free from contraction or disease, and able to insert without force or pain a thirty-two m. steel sound evenly into the bladder.

Owing to the extreme rarity of stricture in the deep urethra, and the doubt which exists in the minds of the best-informed surgeons of the day as to whether it is ever found in the prostate, I have thought it would be proper to place this case upon record. As to the correctness of the diagnosis I feel certain no doubt can exist, and I am assured that when we take the measurements of an average normal urethra, which, according to the highest authority upon this subject, Sir Henry Thompson, is eight and a half inches, the penetration of a sound without force or stretching of the canal to the depth of seven and a quarter inches is a reasonable proof that its point has reached the apex of the prostate. Such being true, the case is made still stronger by the fact that when the membranous urethra was opened I was enabled to place the point of my index finger evenly and squarely against the apex of the gland. Now, although the eminent British surgeon asserts that some observers — referring to Leroy and Ricord — have been deceived in reference to this affection, and “that it owes its supposed existence to inferences drawn from the results of examinations of the living body, which can by no means be admitted as evidence upon this subject,” I feel that when in addition to the measurements of the canal by his own rule, as to length, I bring to bear the further proof, as demonstrated by the eye and the touch through an opening made directly upon the point of the gland, I am justified in making the positive assertion, “from the results of examination of the living body,” that this stricture was situated within the prostatic urethra. If, then, it be granted, — and it cannot be denied that the obstruction was in the prostate, — it may be urged in argument against me that this was one of those cases mentioned by Sir Henry “where certain enlargements of the prostate, which sometimes narrows and frequently renders tortuous that part of the urethra which passes through that organ, may have given rise to a condition easily mistaken for stricture.”

To guard this point, I was very careful to examine the outlines of the prostate with the finger in the rectum and the *sonde coudée* of Mercier in the bladder; the result was that I found the prostate small, with no evidence of disease. If any change existed, it consisted in the diminished size of the gland, which was so marked that I called the attention of the gentlemen who were assisting at the operation to the fact.

The probability is that the patient had in the first instance a prostatitis, and when he was taken with retention the forcible introduction of the catheter lacerated the urethra, and subsequently a deposit of in-nodular tissue took place, which in time narrowed down and finally blocked up the channel. The case is interesting mainly to the extent of showing that although stricture of the prostatic urethra is exceedingly rare, it is nevertheless by no means impossible that such a contraction may take place, and that, too, independently of any of those enlargements, either centric or eccentric, to which the prostate is so liable.

MOBILE, April 1, 1879.

RECENT PROGRESS IN OTOTOLOGY.

BY J. ORNE GREEN, M. D.

Opening the Mastoid Process by Surgical Procedure.—In previous reports mention has been made of articles by Professor Schwartze on this subject, which have been appearing in the *Archiv für Ohrenheilkunde* since 1872. They are now completed, and form a most valuable and scientific investigation of the whole subject based on his observation of fifty cases.

He begins with a review of the history of the procedure which was known for a long time as Jasser's operation, from Dr. Jasser, a Prussian military surgeon who performed it in 1776. In reality, however, it had been performed already by J. L. Petit, who died in 1750; he bored through the healthy bone and evacuated decomposed pus from the mastoid cells, and seems to have partially appreciated the value of the operation both on caries of the mastoid and on chronic otorrhœa. Jasser, almost accidentally, opened a carious mastoid with a probe, and was greatly shocked to find that water syringed into the opening ran from the nose; but as the result of the procedure was very favorable upon the ear disease he did the same operation upon the other ear, with the result of curing the chronic otorrhœa which existed there. Great expectations were now formed that the operation would relieve all forms of deafness, but on account of disappointment in this respect it soon fell into disrepute, yet was tried occasionally as a last resource, till Von Bergen, a prominent Danish physician who desired it performed on himself as a relief to deafness, dizziness, and subjective noises, died from purulent meningitis, the result of perforating the brain instead of the mastoid