I admit that prostatectomy is not an easy operation. As the subjects are old and do not tolerate long continued anesthesia with safety, the operator should work with great rapidity. As a rule I have so far completed my operation that the anesthetic can be discontinued at the end of ten to fifteen minutes, the operation having been commenced the moment the patient becomes fully unconscious, and the last suture tied as consciousness returns. The wound should be so treated and the drainage tubes so adjusted that the patient remains comfortable after operation and free from painful surgical ordeals. Besides surgical, many medical and nursing details should be attended to with great strictness. The technique of the operation as I perform it, together with all the associated details, are fully described in my book of last year, "Diseases of the Genito-Urinary System," and consequently do not require reiteration in this connection. There is no reason why anyone naturally apt as a surgeon, who familiarizes himself with the theory of the subject and then practices it, should not master the operation and attain good results. If a surgeon keeps his patient under an anesthetic for two hours or so in the performance of the operation, and does not attend to all the details which experience has shown to be necessary, most, and perhaps all, of his patients may die. With such an experience blame and condemnation is apt to be unjustly attributed to the operation.

PERINEAL PROSTATECTOMY.*

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Obstructive hypertrophy of the prostate gland causes so much misery and is productive of death in so large a proportion of aged men, that the profession must welcome every advance that is made in our means of treating this serious disease.

It is only in recent years that anything more than palliative treatment was applied to this condition, but in the last few years a great many new procedures have been devised, aiming at a more or less radical cure. The most prominent of these are prostatotomy by means of an electro-cautery knife which is known as the Bottini operation, and the various forms of prostatectomy. The author has devoted a good deal of effort and thought to the subject of prostatectomy and has devised a modification of one of the principal methods in vogue whereby he believes the operation has been very much simplified, and he also believes the mortality from operation by his method will be found to be much less than that attributed to other similar procedures.

When the prostate gland has become so enlarged as to produce obstruction to the outflow of urine from the bladder, most serious results ensue. The obstruction may be but partial, preventing the patient from completely emptying the bladder; the retained or residual urine in time becomes infected, setting up a cystitis, and from then on the life of the patient is one of torture. In some cases the obstruction is so complete that the patient is unable to pass any urine until the

bladder has become fully distended, then the overflow may pass off by constant dribbling. This condition is often mistaken for one of incontinence of urine. The inflammation often extends from the bladder up the ureters to the pelvis of the kidney, resulting in pyelitis. After months or years of suffering these patients finally succumb to exhaustion and find a welcome release in death.

Of course, much may be done for relief of these patients by the judicious and careful use of the catheter and by proper washing of the bladder, but the catheter life is at best one of discomfort and jeopardy, some patients finding no relief whatever thereby, and all of them in constant danger of acute cystitis and all its attendant disasters.

The Bottini operation was introduced about twenty-five years ago. It was at that time very extensively exploited and tested, but was found to be unsatisfactory and was finally abandoned. During the last few years it has been revived and it has to-day many enthusiastic supporters. Its object is to cut a groove through the middle lobe of the prostate so as to lower the urethral canal at that point; it is performed by introducing into the bladder an instrument like a curved urethrotome. This instrument has a concealed cautery blade which is exposed when the instrument is in proper position, the electric current is turned on, burning its way through the floor of the urethra and into the surface of the lobe of the prostate. The author has had no personal experience with the Bottini operation and for many reasons it does not appeal to him as a sound surgical procedure. In the first place, it does not remove the hypertrophied prostate and can only partially relieve the obstruction in most cases. In the second place, it leaves a slough to separate and come away through the urethra. There being no other means of drainage than through the urethral canal, and this burned wound being in the presence of infected urine, it seems to the author that it can not be as safe a method as some of its advocates think it is. The only statistics which the author has read show that this operation is not free from danger, and that it does not result in complete cure in the majority of instances. The author believes that prostatectomy will be the favorite operation if the risks can be reduced so as to make it a feasibly safe procedure.

Unfortunately, prostatectomy, by most methods, has shown a large death-rate, though the results when the patient survived have been generally excellent. The author has so far been very fortunate, having lost no patient, and having had a complete cure in all his cases except the second one. In that case he was unable to remove the whole prostate on account of the fact that there had been a suprapubic cystotomy performed a year or two before he saw the patient, and at the time of his attempted prostatectomy there was a suprapubic abscess which had firmly fixed the prostate so that it could not be reached through the perineum. Since entering this field of work the author has been of the opinion that the high mortality rate was in part owing to the fact that the operations were too extensive and too complicated, and his object has been to devise some means whereby the prostate could be removed simply through a median perineal incision. He has felt that suprapubic cystotomy for this class of cases was a dangerous proceeding to be avoided. In an article entitled "Prostatectomy," read before the New York Surgical Society on Nov. 9, 1898, the author sug-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: Drs. W. J. Mayo, H. O. Walker and A. J. Ochsner.

gested the following modification of Alexander's method of prostatectomy: To make a small incision through the abdominal wall just above the bladder fold through which the operator could pass two fingers and with them push the prostate, bladder and all, toward the perineum, enabling him with a finger of the other hand to reach and enucleate the prostate through a median perineal incision. It will be remembered that Alexander accomplished this same object by making a suprapubic incision in the bladder, through which he passed two fingers of one hand and pushed the prostate down.

The author has never tried the laparotomy as suggested above, because he was able to devise a much simpler means for accomplishing this same object. At the meeting of the American Medical Association, held at Atlantic City, June 5 to 8, 1900, the author presented a bladder retractor which he had invented, which enables one to pull the bladder and prostate down into the perineum so that the lobes can be reached and enucleated with the index finger. This retractor consists of a soft rubber bulb, cemented on to the end of a strong rubber tube of a caliber of 38, French scale. It is introduced into the bladder through an opening in the membranous portion of the urethra, the bulb is then distended till it has a diameter of two and a half to three inches. This distension of the bulb is effected by forcing a definite quantity of water through the tube with a piston syringe. The tube is then clamped, and when pulled upon it will draw down the bladder.

of fully two and a half inches. The rubber tube is clamped so that the water will not escape, traction is made on the tube till the prostate comes satisfactorily within reach, then an assistant holds the rubber retractor firmly, bending it up over the perineum and it will not be in the way. Now, with the index finger of the right hand, the operator perforates the capsule of the left lobe of the prostate and begins its enucleation. If the proper line of cleavage is found the lobe will shell out quite readily, and finally it can be grasped with vulsellum forceps and removed. Next, the operator removes the middle lobe in the same manner, and finally, the right lobe, thus completing the operation. Now the retractor is emptied by removing the clamp; it is withdrawn from the bladder and a large perineal drainage tube is introduced through the urethra to drain the bladder. The wound around this tube is thoroughly packed with iodoform gauze, the tube is secured by one suture, a pad is applied with a T-bandage and the patient is ready for bed. When in bed, the patient's bladder must be again irrigated through the drainage tube, and then continuous drainage is carried on by syphonage, a long tube being attached to the drain, the distal end of it being kept submerged in a disinfectant solution. The quantity of this solution must be measured so that one may know the quantity of urine being voided.

The gauze packing is removed on the fourth day and replaced by a much smaller piece. The drainage tube is removed on the fifth or sixth day, and thereafter the

Dilated to 2½ Inches by Water.
Parker Symms' Bladder Retractor, for Perineal Prostatectomy.

The author operates in the following manner: The patient is prepared by a few days' rest in bed, during which time he is kept on a milk diet, and his bladder is carefully catheterized and irrigated if he has cystitis. Ether narcosis is used; the patient is placed in the lithotomy position; the perineum and adjacent parts are properly shaved and scrubbed, and the urethra and bladder are again carefully irrigated with boracic acid solution. A free median incision is made which shall open the perineum from just behind the bulbous portion of the urethra to the vicinity of the anus. The dissection is carefully carried down to the urethra in the median line, and if possible to reach the prostate at once, it is freed as far as may be by blunt dissection, carried on mostly with the index finger of the right hand. From time to time the operator must introduce a finger protected with a rubber cot, into the rectum, so as to be sure that this organ is not wounded. A staff is introduced into the urethra and an incision about an inch long is made in its membranous portion. The staff is removed and a catheter passed through the opening in the membranous urethra and the bladder is again repeatedly washed. The author's retractor collapsed is introduced into the bladder through this opening in the urethra; when it is known to be well inside of the bladder it is dilated in the manner described above, with a quantity of water which is known to give it a diameter

bladder is washed by means of a catheter passed through the perineum, until the wound has nearly healed.

These patients are allowed to sit up by the seventh to the tenth day. When the wound is considerably contracted a full-sized steel sound is passed through the entire urethra, at first every third day, then at longer intervals until healing is complete.

To one accustomed to operations on the prostate this particular method will be found to be comparatively simple and not a very difficult one to perform. Of course, one should be thoroughly familiar with work in this region and on these organs in order to use the best judgment as to how much should be done, and in order to be expeditious. When properly performed the operation is not a formidable one, the hemorrhage is very slight and the patients suffer comparatively little shock.

The author feels that prostatectomy will be proven in the future to be a thoroughly sound and proper procedure. He believes the death rate will be no more than is compatible with a condition that is in itself so grave and menacing. He feels, however, that prostatectomy should not be left as a last resort. It should be performed before the patient is in a dying condition, or not at all. Any man who is not physiologically very old, whose arteries are in fair condition and who is not suffering from marked kidney lesion may be expected to undergo this operation with comparative safety, pro-

vided it has not been left till his bladder is badly inflamed and till he is suffering from sepsis. The author feels assured that by his method every hypertrophied prostate may be removed through a simple median incision in the perineum, and after this is accomplished it will be seen that there is not a formidable wound; in his experience it has been found that the patients have been actually better the day after the operation than they were the day before, on account of the relief afforded by the immediate drainage of the bladder.

The author has operated on nine of these patients; the last six were done in the manner just described. His first case was done by the method of Alexander. His second case was incomplete for reasons already stated. His third case was done entirely through the perineum, the prostate being easily reached, an assistant making pressure on the abdominal wall, which was thin and yielding. This was before he had devised his retractor.

His patients have ranged in age between 53 and 75 years. All have had cystitis except one case. Two of his patients had bladder stones—one had a simple large calculus, the other had five of moderate size. The residual urine in his cases varied in amount from 3 to 51 ounces.

The author's patients have all lived. In his second case relief was only partial. In all the other cases cure has been complete, the patients having no obstruction to the passage of urine and no remaining cystitis and no residual urine. In two of his cases there was incontinence of urine for some weeks, but this condition gradually subsided and the patients regained control of the bladder.

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NOTE:—Since presenting this paper the author has learned that one of his patients has had some trouble from incontinence of urine. Otherwise no unfavorable result has been reported.

PROSTATECTOMY VERSUS PROSTATOTOMY IN THE RADICAL TREATMENT OF SENILE HYPERTROPHY OF THE PROSTATE.*

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In senile hypertrophy of the prostate there is sometimes obstruction to the outflow of urine, due to an enlargement or deformity of the middle or lateral lobes, giving rise to a series of disagreeable symptoms, such as frequency of urination, pain, tenesmus, burning or acute retention, and resulting in complete or incomplete retention, followed in nearly every case by cystitis, pyelitis, and fatal nephritis or pyelonephritis.

With the object of overcoming this condition the following various procedures have been resorted to: The use of the catheter to relieve the retention by drawing off the urine as frequently as indicated by the amount of residuum; suprapubic fistula, by means of which an artificial urethra is made in the hypogastric region, through which the patient urinates, or draws his urine by a catheter or tube; dilatation of the prostatic urethra with sounds or dilators every few days; galvano-puncture, by means of a platinum needle attached to the negative pole of a galvanic battery, and inserted into the gland; hypodermic injections of iodid of potassium and iodine, or ergot and alcohol into the gland; ligation of the internal iliac arteries; castration; vasectomy; prostatotomy, and prostatectomy.

Of these various methods none are now employed in this country excepting catheter life, prostatectomy and prostatotomy. The catheter can at present be said to be used only when the patient is in need of an operative procedure for the relief of his urinary symptoms, and when it is considered dangerous to do a prostatectomy or prostatotomy on account of his general condition; it is also used prior to either of the operations, with the object of treating the bladder and reducing prostatic edema or congestion. The catheter is also employed in the after-treatment following prostatotomy and prostatectomy until an accompanying cystitis has been cured and the bladder has regained some of its tone. In many cases drainage by a retained catheter may be necessary. A description of catheter life and the uses of the catheter in prostatic hypertrophy has been given by the writer in a previous article.¹

PROSTATOTOMY.

This consists in making incisions through the gland by the knife or cautery, with the object of reducing the impediment. During the latter part of the nineteenth century great interest was taken in this procedure, which was considered the coming operation for the relief of senile hypertrophy, and the leading genito-urinary surgeons of the world advocated the operation.

Robinson recommended incising the prostate through the rectum. His method consisted in introducing his left forefinger into the gut as a guide, and then inserting the knife along it and dividing the prostate into two halves.

Harrison, at the International Medical Congress in Copenhagen, in 1887, advocated performing an external perineal urethrotomy, and then inserting the knife into the prostatic urethra, and dividing the prostatic bar on the floor of the gland, after which he stretched the prostatic urethra forcibly with his fingers or a sound. He was personally very much pleased with this method, and many surgeons, both in this country and abroad, followed his footsteps.

Mercier devised the prostatotome for cutting the middle lobe of the gland through the urethra. This resembled the Bottini incisor in that it had a sharp male blade which he drew forcibly through the floor of the prostatic urethra, making an incision through the impediment.

Gouley modified Mercier's operation, inserting the instrument through a perineal incision into the urethra and cutting or punching out segments of the enlarged gland. In this way he often removed large portions of the prostate.

Maisonneuve then devised the sécateur, by means of which he incised the prostate through the floor of the urethra. It was one of the most ingenious instruments ever brought before the public, although not so useful or as lasting as his famous urethrotome. The instrument was shaped like a sound. In the center of the convexity, working on a pivot and lying concealed in the groove, as far back as the end of the instrument, was fastened a cutting blade. After the beak was caught behind the vesical base of the gland the blade was made to move in the arc of a circle, thus making an incision in the gland through the floor of the urethra and landing in a slot in the straight part of the shaft, where it again concealed itself, or else was pushed forward to its former position before the instrument was withdrawn.

In 1877, Bottini of Padua, Italy, invented the galvano-caustic incisor, an instrument very similar to Mercier's in its general form, but differing from it in that

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: Drs. W. J. Mayo, H. O. Walker and A. J. Ochsner.

1. N. Y. Med. Jour., March 2, 1901.