had to get up and go to the sick ward, as pain came on acutely with swelling, and he vomited.

The second case occurred in a lad of 20, who gave no history of injury. Clinically the case presented the same course as the former, and the result was extreme atrophy of the testis.

The treatment adopted in both cases was rest and support of the organ and hot fomentations, but in future, remembering the resulting atrophy, I shall strongly urge subcutaneous incision into the tunica albuginea to relieve pressure, and to prevent permanent damage to the organ.

VESICAL CALCULUS.

It think there is very little doubt that cases of stone in the bladder are gradually becoming rarer in this district. Looking through the annual reports of the North Staffordshire Infirmary one cannot help being struck by this fact, and the diminution seems to obtain for both young boys and old men, the two extremes of life when vesical stone is most common.

A gradual change, too, has taken place in the method of operation which my colleagues and I have adopted. Ten to fifteen years ago cases were treated by lateral or median lithotomy, or the crushing operation with evacuation in one sitting, but gradually the operation of suprapubic lithotomy has been adopted for all cases and now holds the field. It is easy to perform, permits of a thorough exploration of the bladder, wounds no sexual organs, permits free drainage, and leaves no chips or fragments behind to serve as the nuclei of fresh stones.

The experience of the surgeons at the North Staffordshire Infirmary seems to me to have been unique. The late Mr. T. Alcock repeatedly told me that he had never seen a death from the operation for stone by any method, and as far as I am aware out of 50 case of suprapubic lithotomy performed at the infirmary during the last ten years there have been no return cases of stone and no fatalities. This seems to me to be a remarkably satisfactory experience when one hears the results of other districts. One surgeon at the discussion at the annual meeting of the British Medical Association two years ago admitted a mortality of 50 per cent. for the suprapubic operation in his own hands. But the crushing operation was his speciality. But this discussion brought out the fact that in other hands the suprapubic operation was not without its tale of fatal cases. The one danger in the operation is, of course, wound of the peritoneum, but this is easily avoided if the bladder be properly distended. For some years we always used the rectal bag, but latterly this has been altogether discarded, and we rely on bladder distension only. The operation is, of course, not so showy or quite as rapid as lateral lithotomy, but it does not take very long to get into the bladder above the pubes, and the whole of the bladder is then easily explored. I have never seen troublesome hæmorrhage or extravasation or infection of the wound in the after-treatment of these cases.

Under these circumstances I feel that the suprapubic operation is the best for stone in the bladder, though I expect the devotees of the crushing operation feel equally secure of their position. Personally I like to see what I am dealing with, or at any rate to feel the area of operation with my finger. The crushing operation is not without its own peculiar difficulties and dangers, and unless all fragments are removed, return cases are frequent, and even with every care are too numerous.

THE VALUE OF CONTINUOUS IRRIGATION.

In dealing with open septic wounds and infected areas I hardly think that the great value of continuous irrigation, or lavage, is recognized as fully as it might be. In bygone days poultices of various kinds were largely used for this purpose, but the use of aseptic lotions and compresses is much more satisfactory. The following case is a good example of what can be done by continuous irrigation.

A lad fell in the pit, bruising his knee, on February 23rd. Two weeks later some swelling over the patella was noticed, and he stayed in bed for a month. I saw him on April 1, and found great gaping sinuses leading down to dead bone in the patella. On April 5th I removed dead bone and curetted the patella, but the joint rapidly became involved and suppurated. On April 7th the joint was opened on either side and drained, but high temperature set in, and on April 12th I excised the patella, removed all infected tissue, and opening the joint more thoroughly, set up continuous irrigation of the joint. For the first forty-eight hours mercury perchloride (1 in 10,000) was used, but the salt began to deposit on the tissues, and boiled sterilized water was used subsequently, and flowed continuously through the joint for sixteen days. The temperature kept

high till April 26th, and during the time two or three small abscesses were opened in the subcutaneous tissue round the joint. When irrigation was discontinued the sinuses rapidly closed, and the joint became shut off. The result will be, of course, a stiff joint, but the leg is saved. The method of irrigation adopted was by a reservoir raised above the bed on a stand, connected by a tube to a glass tube which entered the joint low down on the inner side; another glass tube, inserted into the joint low down on the outer side, afforded an exit for the fluid.

Nothing suits septic wounds of the hand and arm better than continuous immersion in hot boracic acid. Where immersion is impracticable frequently changed hot boracic acid fomentations form the best substitute.

A Clinical Lecture

ON A THIRD SERIES OF CASES OF

TOTAL EXTIRPATION OF THE PROSTATE FOR RADICAL CURE OF ENLARGEMENT OF THAT ORGAN.

Delivered at the Medical Graduates' College and Polyclinic.

By P. J. FREYER, M.A., M.D., M.Ch.,
Surgeon to St. Peter's Hospital, London.

In two lectures published in the BRITISH MEDICAL JOURNAL of July 20th, 1901, and February 1st, 1902, I described my new operation of total extirpation of the prostate and the anatomical and pathological considerations which render the operation practicable. I have now to record a further series of 6 cases in which I have successfully performed the operation, two of whom are present, so that you can question and examine them as to their former sufferings and complete relief therefrom.

CASE IX.

C. B., aged 58, admitted to St. Peter's Hospital, January 14th, 1902. Had attended as out-patient since September 25th, 1900, for stricture of the urethra and enlargement of the prostate. On first coming under observation he suffered from hypogastric pain, difficulty in micturition, and great frequency—every hour by day and night. These symptoms had been gradually getting worse for five years, during which time he had to pass a catheter frequently. This pained him much, and at times caused bleeding. I found a stricture at 6 in., which admitted a bougie No. 8, English scale, tightly; and this was gradually dilated till 15 E. was reached in December, 1900, after which this instrument was passed occasionally to keep the stricture open. The prostatic symptoms, however, continued to increase, and early in January, 1902, practically the whole of his urine was passed by catheter, which caused him pain and annoyance.

On January 8th examination showed that the prostate was much enlarged bilaterally, each lobe being tense, elastic, smooth, rounded, and fairly soft. General health fair; urine, specific gravity 1020, acid, cloudy, some pus and albumen. Cystoscopy revealed enlargement of both lobes in the bladder. The case was thus regarded as a suitable one for total extirpation.

Operation.—On January 15th, chloroform being given, I opened the bladder suprapubically. The prostatic enlargement into the bladder was found to be collar-shaped, most prominent on the sides, and wanting above. The forefinger of the right hand being introduced into the rectum to steady the prostate and render it prominent in the bladder, with the nail of the forefinger of the left hand I scraped through the mucous membrane over the left lobe till the capsule was reached. The left lobe was then gradually separated from the sheath below, outside, and above, and then internally from the urethra, which, with the contained catheter, was pushed up to the suprapubic arch, the lobes separating along their superior commissure. The left lobe was separated from the sheath in the same way, through the same opening in the mucous membrane. Finally, the prostate as a whole was stripped off the triangular ligament, and pushed into the bladder by the finger in the rectum, whence it was delivered by forceps through the suprapubic wound. The urethra was felt entire, covering the catheter, and only the thickness of the bowel separated the fingers in the bladder and rectum. There was very little hæmorrhage, and this was controlled by irrigation by hot boric lotion. The cavity occupied by the prostate rapidly contracted, so that after the irrigation it could scarcely be noticed, its walls contracting on the urethra. A large drainage tube was inserted in the bladder, and the abdominal wound closed round this by silkworm sutures. This tube was removed in forty-eight hours, and the bladder irrigated daily through a large *coudée* catheter. There was scarcely any shock from the operation.

After-history.—The patient made an uneventful recovery, the temperature remaining normal except on the fourth day, when it rose to 99.7° F. Some urine passed naturally on January 21st, and the wound was completely closed on February 2nd. Discharged on February 7th. I saw the patient on March 25th, when he could retain his urine four or five hours by day and six by night. Urine clear, no albumen, no residual urine, and no trace of prostate per rectum. I have now the pleasure of showing you this patient in excellent health, retaining and passing his urine as well as he ever did in his life.

His prostate, weighing 2½ oz., a typical specimen of adenomatous enlargement of the organ, is shown in Fig. 1.

The lobes are separated along their superior commissure, but united posteriorly, the whole being covered by a thin fibrous tissue, the true capsule of the prostate.

1.—Prostate, weighing $2\frac{1}{2}$ oz., removed from patient, aged 58. Actual size. Catheter lies in position occupied by urethra.

CASE X.

C. C., railway guard, aged 59, attended St. Peter's Hospital on May 21st, 1901, suffering from prostatic symptoms, which had been gradually increasing for twelve years. There was great frequency of micturition—every half-hour by day, and hourly by night; straining and inability to pass urine at times, necessitating the use of the catheter; hypogastric pain when bladder was full; hæmaturia, but only after using the catheter. Residual urine, 4 oz., alkaline. Prostate much enlarged by rectum, soft, rounded, scarcely bilobed, and placed high up in the rectum; sounded, but no stone detected.

Admitted for cystoscopic examination June 6th, 1901, when two small, smooth, oval, fawn-coloured calculi were seen lying side by side in a pouch behind the prostate, like eggs in a bird's nest. Both lobes of the prostate equally prominent in the bladder. Litholapaxy was at once performed, the debris of the calculi, which were uric, weighing 42 gr. Uneventful recovery; discharged June 15th. He returned, on the advice of Dr. Collins, Peterborough, January 28th, 1902, with prostatic symptoms much worse. Residual urine, 11 oz.; using catheter regularly, which is painful and attended by much thick blood.

Fig. 2.—Prostate weighing $2\frac{1}{2}$ oz., removed from patient aged 50. A B, lateral lobes; C C' muscular and fibrous band from sheath outside prostate. (Actual size.)

Operation.—On February 5th I opened the bladder suprapubically, and felt the prostate prominent in the bladder in the form of a collar, most marked on the left side. The mucous membrane over this lobe was scratched through by the finger nail, a finger of the other hand being placed in the rectum to steady the prostate, and the enucleation of the gland proceeded with as usual. The patient was very stout, and the tissues around the prostate very adherent to it, so that much difficulty was experienced in its removal, considerable force being required for its detachment from the sheath. I was unable to separate the lobes along either commissure, so I deliberately tore the

urethra and ejaculatory ducts across and removed the prostate as a whole. There was considerable bleeding, which was controlled by hot irrigations. Large drainage tube inserted, and suprapubic wound brought together by suture as usual.

After-History.—Next day a catheter was introduced and much blood clot removed by irrigation through the drainage tube. On February 7th the temperature rose to 102° F.; pulse 120, irregular; abdomen distended, pain and tenderness in left groin and loin over the kidney. The question of exploring for infiltration of urine arose, but as there was no dullness or other indication of localized mischief, I considered the patient's best prospect of recovery lay in non-operative treatment. On February 10th on passing the catheter some stinking pus escaped, which was evidently confined in the prostatic cavity, and soon after the temperature fell to normal. The patient, however, continued very ill for a few days and caused much anxiety, but he gradually improved, the abdominal distension subsiding. Some urine passed naturally on February 17th; on February 22nd he was up on a couch and passed 24 oz. by the urethra. On March 7th there was thrombosis of the veins of the left leg, requiring confinement to bed for another week. On March 15th the wound was quite healed, and the urine retained and passed naturally. Left for home March 24th in good health. Recent accounts indicate that he continues quite well.

The prostate (Fig. 2), which weighs $2\frac{1}{2}$ oz., is less adenomatous—if adenomatous at all—and more fibrous than any other specimen in my possession. If closely examined it will be found that the two lobes, which are symmetrically enlarged, have separated along their commissures, but are held together by a fibrous and muscular band of tissue encircling them both. This is evidently part of the sheath which came away in the enucleation, owing to the prostatic capsule being tightly adherent to it at parts.

CASE XI.

R. T., civil engineer, aged 73, came to St. Peter's Hospital in September, 1901, with the usual symptoms of enlarged prostate and stone in the bladder. Urinary troubles for five years, much aggravated during last eighteen months. Stone detected by sound, and litholapaxy performed by me, September 4th; phosphatic; weight, 25 gr. Remained fairly well for about a month, since when urinary troubles have gradually increased. Great frequency and dribbling of urine, pain in penis, rectum and hypogastrium; a little blood passed occasionally. Returned to hospital on February 10th, 1902. Urine alkaline, specific gravity 1022, some albumen; pain in right kidney region, probably due to pyelitis. Prostate moderately enlarged by rectum, soft, round, smooth, tense, elastic. Cystoscopy on February 12th: left lobe seen very prominent in bladder, right lobe slightly so; phosphatic calculus seen lying on the trigone below the gap between them. Litholapaxy at once performed, and phosphatic stone (45 gr.) removed. The pain and bleeding passed off, but the frequency of micturition caused much annoyance and want of sleep, so I decided on removing the prostate.

Operation.—On February 26th I performed suprapubic cystotomy, and felt the left lobe of the prostate prominent in the bladder, forming a rounded lateral valve to the urethral orifice. This was made still more prominent by the finger introduced into the rectum. The mucous membrane over it was scraped by the sharpened finger nail, and detached off it all round, and then the enucleation of the prostate from its sheath proceeded with as already described. It was found, however, that the lobes did not separate from each other under manipulation, so I deliberately tore the urethra and ejaculatory ducts across, and removed the prostate *en masse*, with shreds of the urethral mucous membrane attached to it. There was considerable hæmorrhage and shock as in Case X.

After-History.—The patient made a rather slow recovery. Urine began to pass naturally on March 12th, and the wound was closed at the end of five weeks. Patient remained in hospital to pick up strength till April 26th, two months after the operation, when he went home, untroubled by any urinary symptoms. I saw this patient yesterday, and he was in excellent health.

The prostate weighs $1\frac{1}{2}$ oz., and is entire; in fact, like the specimen in Case X, there are some fibrous bands from the sheath encircling it.

CASE XII.

A. T., aged 76, sent by Dr. J. S. Anderson, Hornsey; first seen April 1st, 1902, with bad attack of hæmaturia. Prostatic symptoms set in fifteen years before, and gradually increased in intensity, so that he could get no sleep at night from the pain and frequency of micturition, till he had recourse to the catheter thirteen years ago; since then practically complete catheter life. Has had frequent attacks of hæmaturia for thirteen years, with difficulty in passing the catheter of late years. General health fairly good; very thin, but wiry. Prostate much enlarged per rectum; bilobed, smooth, tense, and movable beneath rectum; both lobes fairly soft; left harder and denser than right. Bimanually prostate felt prominent in bladder, more to the left than the right; quite movable, between the fingers in the rectum and above the pubes. Haemostatics given, and bladder washed out daily by astringents and antiseptic lotions for a few days, when bleeding had ceased, and patient was allowed to use his catheter. Dieted to improve health.

Operation.—April 16th, chloroform administered and prostate removed. Having performed suprapubic cystotomy I found that there was a large "middle lobe," the size of a walnut, projecting into the bladder. The mucous membrane over this was scratched through with my finger-nail, and gradually peeled off the tumour. Pushing my finger along the under surface of the pedicle, the lobes were gradually detached on either side from the sheath, and on the inside from the urethra, which, with the contained catheter, was pushed up towards the pubic arch, and the whole prostate peeled off the triangular ligament in front and pushed into the bladder by the finger in the rectum. It was then withdrawn through the suprapubic wound by forceps. There was very little hæmorrhage. Dr. A. B. Mitchell of Belfast, who was present, informed me that he had timed the operation, and that fifteen minutes had elapsed between the

time of my taking the scalpel in my hand to open the bladder and the delivery of the prostate.

After-History.—The patient made an uneventful recovery. Some urine passed naturally on April 23rd, and the wound was closed on May 16th. Patient went home on May 20th. I saw him on June 3rd, in excellent health, with no urinary symptoms; he retains his urine all night from 10.30 p.m. till 8 a.m., and passes it "better than he ever did previously," that is, more freely and easily. On June 4th Dr. Anderson wrote: "The results of the operation have been most successful. I should never have conceived it possible for any one to obtain such complete relief as Mr. — has done from an affection that had lasted so long and was daily becoming more and more dangerous to life." The patient, who has kindly come here to-day, will tell you of his terrible sufferings and his complete cure.

The prostate, which was removed entire in its capsule, is shown in Fig. 3. It weighed $3\frac{1}{4}$ oz. It is trefoil, with a dis-

Fig. 3.—Prostate weighing $3\frac{1}{4}$ oz., from patient, aged 76. Exact size. B, C, lateral lobes. a, "middle lobe" growing from C.

tinct "middle lobe," which is, however, mainly continuous with, and an offshoot from, the left lateral lobe.

CASE XIII.

J. H., aged 68, was admitted to St. Peter's Hospital, May 1st, 1902. Has suffered for twelve years from the usual prostatic symptoms, which latterly have grown much worse. Retention of urine two years and a half ago; since then has used catheter regularly, through which he passes practically the whole of his urine now. His doctor writes that he has had several attacks of cystitis and probably pyelitis, with extreme feebleness, weak irregular pulse, and extreme pain, "rendering life almost unendurable." Urine alkaline, specific gravity 102, albumen, and much mucus. Large right inguinal hernia complicates the case. Prostate per rectum much enlarged, plump, rounded, slightly bilobed, smooth, tense, elastic and movable. By the cystoscope both lobes were seen prominent in the bladder.

Operation.—On May 14th I performed suprapubic cystotomy and felt the lobes as seen by the cystoscope. By my finger nail I scraped through the mucous membrane covering the right lobe till the capsule was reached, and then gradually separated it from the sheath and urethra as described in Cases IX and XII. The left lobe was similarly dealt with. The lobes came away separately, leaving the urethra and ejaculatory ducts intact. There was very little bleeding or shock. Tube inserted and suprapubic wound sutured as usual.

After-History.—Some urine passed naturally May 30th; patient sitting up June 5th, and passing nearly all his urine by the urethra. He is now (June 11th) going about with the wound quite healed, passing and retaining his urine as well as he ever did.

Fig. 4 shows the entire prostate, covered by its proper capsule. Lobes placed in proximity along their inferior commissure.

CASE XIV.

D.N., stoker, aged 66, admitted to St. Peter's Hospital, May 13th, 1902, with prostatic symptoms which had existed for ten or twelve years. Passing a catheter for nine years; completely dependent thereon for two years. Great irritability of the bladder, necessitating the use of the catheter every hour by day and night; much difficulty in passing the instrument, which is accompanied by pain and scalding. There is also much suprapubic pain. Profuse hæmorrhage at times. Urine acid, specific gravity 1020; history of much pus and mucus in the urine, which is clear at present. Prostate enormously enlarged per rectum, fairly soft and elastic, but nodular and only slightly movable.

This patient had come to the hospital in October, 1901, when I detected a stone in his bladder, which I removed by litholapaxy, October 30th. The debris consisted of urates, weight, drachm. On recovery from the operation he went on well for a time, the catheter passing fairly easily. But the symptoms soon assumed their old aggravated character, necessitating his return to hospital in the condition already described. Again sounded, but no stone detected. Cystoscopy on May 14th showed both lobes of prostate prominent in the bladder. The prostatic urethra was very long and tortuous, so that the cystoscope reached the bladder with difficulty. The patient, being extremely weak and anaemic, was kept in hospital for a fortnight to improve his general health.

Fig. 4.—Prostate weighing $2\frac{1}{2}$ oz., from patient, aged 68. Actual size.

Operation.—On May 28th I opened the bladder suprapubically and felt the lobes of the prostate prominent in its cavity, also a roughness over the left lobe, which I at first imagined was due to phosphatic coating, but which subsequently proved to be a phosphatic stone embedded in the left lobe of the prostate on its urethral aspect. The mucous membrane was easily stripped off the prominent portion of the right lobe by the finger nail, which was then enucleated from the sheath in the manner already described. The left lobe was similarly dealt with, but being soft and friable from inflammatory changes came away in two pieces. The prostatic urethra was closely adherent to the lobes as the result of chronic inflammation, so that it could not be detached from them, but came away partly attached to either lobe, leaving the catheter bare. A phosphatic stone, weighing 44 grs., was found embedded in the left lobe on removal, near the neck of the bladder. There was considerable shock and hæmorrhage, but the patient soon rallied.

After-History.—Usual after-treatment. The patient has gradually improved, and began to pass urine on June 6th. He is now convalescent.

The prostate weighed $4\frac{1}{2}$ oz. The elongated, narrow lobes are covered on their outer aspects by their proper capsule, but lined on their inner surfaces by the mucous membrane of the urethra, which came away with them. Their outer surfaces are covered by numerous rather dense nodules. They both show signs of inflammatory softening, particularly the left, in the vicinity of the cavity or gap where the stone was embedded.

These, then, complete the details of 14 cases of total removal of the prostate performed by me during a period extending over 18 months. These are the only cases in which I have undertaken this operation. During this period I have only had one case of partial prostatectomy.

Partial Prostatectomy.

A farmer, aged 63, was sent up from the country with supposed cancer of the prostate, and had suffered very severely from prostatic symptoms for two years, namely, gradually increasing difficulty in passing water, with occasional complete stoppage of the stream; much pain of a burning or scalding character at the end of the penis during micturition; great frequency—about every hour by day and night. He also suffered from backache of a distressing character. The prostate as felt by the rectum was found somewhat but not markedly enlarged, very dense, and immovable. Cystoscopy, however, revealed a distinct nipple-shaped projection of the right lobe into the bladder, and a less marked prominence of the left lobe. The case was not regarded as a suitable one for total extirpation; but, considering these projections the cause of his troubles, I determined to remove them, and to proceed to extirpate the whole prostate if this should be found practicable. On March 26th I opened the bladder suprapubically and found that the prominent portion of the right lobe formed a flap valve to the urethral orifice. Dividing the mucous membrane over this, I endeavoured to enucleate the prostate, but found that this was impossible, the organ being dense and undefined.

with no line of demarcation between the gland and its sheath. I therefore tore away by my finger the prominent portions on both sides. There was considerable haemorrhage, which was eventually arrested by hot irrigations. Though suffering from shock, the patient did well for 24 hours, the urine draining well through the tube; but on the evening of the 27th, tubular breathing was marked at the bases of both lungs, the temperature rose to 104° F., the pulse was 120, feeble and irregular, and distressing hiccough set in. On March 28th, when the suprapubic drainage tube was removed, there was a large quantity of clot found in the bladder. In the afternoon the patient rapidly grew worse, and died from heart failure. Examination of the portions of the prostate removed, which weighed $\frac{3}{4}$ oz., showed them to be mainly oedematous.

[The anatomical and pathological considerations which render the operation of total extirpation of the prostate possible were then described, but need not be repeated here, as they are given in my previous lectures, and more fully in the second edition of my work on *Enlargement of the Prostate*.*]

In my previous lecture, in giving details of my eighth case of this operation, I described how, whilst endeavouring to separate the prostatic lobes along their superior commissure so as to leave the urethra behind intact, the urethra was undesignedly torn across, and the prostate propelled as a whole into the bladder by the force of the finger in the rectum. This patient made an excellent recovery and is now in good health, untroubled by any urinary symptom. The success that attended this case emboldened me to deliberately tear the urethra across in Cases x, xi, and xiv, and to remove a portion or the whole of the prostatic urethra, when it was found that the enlargement had not sufficiently advanced to define and loosen the lobes along either the superior or inferior commissure, so as to enable one to peel the prostate off the urethra and leave the latter behind intact, with the successful results already described. The success that has attended these latter cases is of weighty import, indicating, as it does, that we may remove the prostate at an earlier stage in its growth, and that when it is found impossible to separate it from the urethra we may without hesitation boldly tear across or even remove the latter with impunity.

How, you may ask, is continuity between the bladder and urethra secured when the prostatic portion of the latter is partially or wholly removed? There is no doubt to my mind that what takes place is this: By the contraction of the cavity left by the removal of the prostate the neck of the bladder is advanced to the posterior aspect of the triangular ligament, and direct union takes place between it and the membranous portion of the canal, the daily passage of a large catheter for irrigation purposes keeping the passage open till success is secured and urine flows naturally, as the suprapubic wound closes. This is proved by the fact that in all the cases operated on by me, after complete recovery urine flows as soon as about 6 in. of catheter are introduced, instead of about 8 in. as in the normal urethra,—thus showing that the urethra is shortened by the length of the prostatic portion; and further proving that the true sphincter of the bladder lies in front of the prostate, namely, in the membranous portion of the canal. When the prostatic urethra is left behind intact I believe that, the support of the prostate being removed, it widens out in funnel fashion and becomes practically part of the bladder. These are, of course, theoretical considerations. The practical aspect of the question is, that the patients recover, and with the power of retaining and passing urine naturally. The only difference that I have noticed in the two classes of cases is, that when the urethra is torn across or removed the operation is attended by somewhat more haemorrhage and shock than when it is left behind intact.

I have now given full details in these lectures of 14 cases of total extirpation of the prostate performed by me in patients varying from 58 to 76 years of age, all in broken health and some of them almost in a dying state before operation, the prostates removed varying from $1\frac{1}{2}$ to $10\frac{1}{4}$ oz. Thirteen of these have been completely successful in all respects. The other case had recovered from the operation and was passing urine naturally when he was seized by acute mania, from which he died. As I have before stated, whilst recording this death in connexion with the operation, it in no way militates against it. Many of the patients I see from time to time, others I hear from periodically. They can retain and pass urine naturally as well as they ever did. Some of them have resumed the pursuit of their occupations which they had abandoned, in some cases for years, through the pain and discomfort incident to catheter life, and some have regained their

sexual powers which had been lost through the debilitating influence of the disease.

In a previous lecture I have quoted the opinions of the two most eminent surgeons living, I may say, in this branch of surgery—Sir Henry Thompson and Professor Guyon, of Paris—to the effect that it was impossible to remove the enlarged prostate successfully or restore to the bladder its function of expelling the urine naturally after that function had been lost through entrance on catheter life for a certain time. It was therefore a source of much pleasure and satisfaction to me to receive recently from Sir Henry Thompson a letter intimating his conversion to my views in the following words:

I am much obliged to you for sending me your lecture, and cannot resist the evidence you have produced that the operation of total extirpation of the prostate is possible, and has led to excellent results.

And again:

I am surprised by the results which you have found in your cases of power to empty the bladder by the natural powers, which were not believed on *a priori* grounds by my old friend Guyon and myself to exist.

Sir Henry was good enough to favour me with a visit for the purpose of examining the prostates removed in these 14 operations, and I have had the invaluable aid of this veteran surgeon in the interpretation of certain features which they present.

THE MEDICAL CURRICULUM OF THE SCOTTISH UNIVERSITIES.

By E. A. SCHAFER, F.R.S.,

Professor of Physiology in the University of Edinburgh.

It may be taken for granted that a curriculum should be arranged in such an order that any subject for the understanding of which a knowledge of other subjects is essential should be studied after such other subjects. Thus, a knowledge of physics and chemistry is essential to the understanding of physiology, and a knowledge of anatomy and physiology is essential to the understanding of surgery and medicine (in all their branches) as well as of pathology and pharmacology. This principle involves the arrangement of the subjects of a medical curriculum in the following sequence: (1) Physics, chemistry, and biology; (2) anatomy and physiology; (3) pathology, pharmacology, medicine and surgery. The principle in question is violated in the order of study which is suggested by all the Scottish Universities except the University of Glasgow by the interpolation of surgery and clinical surgery (including the holding of dresserships and clerkships) amongst the subjects of the second year (the first year being devoted, as elsewhere, to the preliminary sciences). Surgery is based upon a knowledge of human anatomy and physiology, and it cannot be taught without constant reference to those subjects. It is, therefore, quite impossible for students who have not acquired a thorough knowledge of anatomy and physiology to learn surgery properly. And the same may be said with still more force regarding clinical surgery. To expect these subjects to be learned before a precise knowledge of the sciences upon which they are based has been acquired is on the face of it an absurdity—such as would be an attempt to study algebra without a knowledge of arithmetic—and the fact that this practice is still recommended in the Universities of Scotland, although long since abandoned in all important schools of medicine, not only in England, but throughout the world, needs only to be stated to be condemned.

Such interpolation of the teaching of surgery and clinical surgery into a place in the curriculum which does not belong to it has, however, consequences which are far more harmful and widespread than the disadvantage under which it places the student who desires to attain a proper knowledge of surgery. For it practically necessitates the inclusion of lectures on anatomy in the first year, which offers none too much time for the acquirement of such knowledge of physics, chemistry, and biology as is essential to the proper understanding of anatomy and physiology. It has the effect of materially limiting the time which can be devoted to the practical study of anatomy in the dissecting room and of physiology in the laboratory, and to the reading which is necessary to accompany the lectures and practical work in these subjects. It

* Published by Baillière, Tindall, and Cox.