must yield the sugar, and since they consisted mainly of proteid matter, which had a glucoside constitution, it was only necessary to suppose the existence of a ferment action. Phloridzin diabetes was possibly of this nature, the drug acting as a ferment.

FATTY DEGENERATION.

Fatty degeneration of proteid tissue was an analogous process. It might well be that one kind of ferment might lead to the cleavage-off of sugar, and another to the cleavage-off of fat. As hyper-oxygenation favoured cleavage-off of sugar, so hypo-oxygenation favoured the cleavage-off of fat. The manner in which the deficient oxygenation was produced made no difference—whether through deficient respiratory power, sluggish circulation, or deficiency in the number of the red corpuscular elements in the blood, as in idiopathic anæmia, in which disease fatty degeneration was of frequent occurrence.

CONCLUSION.

In a peroration, which was eloquent by reason of its simplicity, Dr. Pavy, after thanking the College for the opportunity of bringing forward results which he believed to be of the first importance to physiology and medicine, said that throughout his researches, which had occupied so large a part of the active time of thirty years, he had always sought to be guided by the injunction of Harvey, "to search and study out the secrets of Nature by way of experiment."

SUPRAPUBIC PROSTATECTOMY OR MCGILL'S OPERATION.¹

WITH REPORT OF A SERIES OF 12 CASES.

By A. W. MAYO ROBSON, F.R.C.S.Eng.,

Professor of Surgery in the Victoria University; Senior Surgeon to the Leeds General Infirmary; Member of Council of R.C.S.Eng.

It is only within the last decade that the operative treatment of hypertrophied prostate has received the attention it deserves, and I venture to think that to no one surgeon is the present position of the subject due so much as to my late friend and colleague, A. F. McGill, who, by a series of cases reported and shown at the British Medical Association meeting in Leeds, in 1889, clearly demonstrated that suprapubic prostatectomy was a practicable and effectual method of treatment. Both on this account and because of our desire to perpetuate the memory of our late colleague we speak of the operation in Leeds as "McGill's operation."

So far as I can see, all the minor operative procedures through the perineum and urethra have proved disappointing, and even perineal prostatotomy or prostatectomy, which has a number of advocates, shows a mortality of 13 per cent., and is only of use in the case of a projecting or pedunculated middle lobe. The experience of any one surgeon in suprapubic prostatectomy must be comparatively limited, not on account of the infrequency of prostatic disease but because of the unsuitability of the greater number of cases for operative treatment, either on account of sufficient relief being effected by catheterism or else because of kidney or other complications rendering the subjects unfit for any major operation. Hence my reason for giving the results of my personal experience in so small a number as 12 cases; but I should at the same time remark that my impressions are derived from a considerably greater number of cases, "about 30," which I have witnessed or taken part in, in the hands of my colleagues or other surgeons.

The following is a list of the cases that have come under my care, and in order to save time I hand round a printed table giving brief details of each case.

While it is unnecessary here to consider the subject of the diagnosis of prostatic enlargement, I may be pardoned for pointing out a method which, doubtless practised by some, is certainly not generally employed, namely, that by means of bimanual examination, either with or without an anæsthetic, the condition of the whole of the prostate may be mapped out, and the presence or absence of other organic disease of the bladder may be ascertained. The method I usually employ is with the patient on his back, and, after emptying the bladder, to bring him to the right side of the

bed, to prop the shoulders with pillows, and to ask the patient to flex the thighs; then, with the right index finger, well greased, inserted into the rectum, and the left hand well warmed placed on the hypogastric region and gently pressed backwards, the intervening bladder and prostate can be quite clearly felt, and the latter can be mapped out. If a catheter be then passed, the thickness of the middle lobe, or of the bar at the neck of the bladder, can be accurately gauged by the left hand pressing the catheter backward on to the finger in the rectum, which is then able to estimate the thickness of tissue intervening.

Next, with regard to the selection of cases. This comes under two distinct categories (1) those not requiring operative treatment, and (2) those disqualified by other disease. Whenever a patient has no large amount of residual urine, and can be made comfortable by the passage of a catheter at night, or night and morning, and where catheterism is well borne and not difficult or distressing, operative treatment is unnecessary. In the presence of complete atony of the muscular coat of the bladder, operation is advisable if the atony be only of short duration, say a few weeks; but if the conditions have existed for many months the removal of the obstruction to the urinary outflow, even if successfully accomplished, can probably lead to very slight ultimate benefit, but I am convinced that atony of less duration can be overcome by tonics and galvanism when the obstruction is removed.

The presence of a large amount of residual urine associated with fair vesical contractility and not diminishing after regular catheterism, the patient being otherwise in fair health, is a decided indication for prostatectomy, unless the relief given by the catheter is considered adequate by the patient.

Cystitis associated with enlarged prostate, especially if catheterism is difficult and painful, is an indication rather than otherwise for suprapubic prostatectomy, as at the same time the bladder can be thoroughly purified and drained. The presence of a calculus, or of calculous material associated with prostatic enlargement and residual urine, is an indication for suprapubic lithotomy followed by prostatectomy, as at the same time it enables the bladder to be thoroughly cleared, the coexisting cystitis to be treated by drainage, and the obstruction at the neck of the bladder to be removed.

Contraindications.—The presence of advanced kidney disease, especially if associated with a greatly diminished excretion of urea; chronic atony of the bladder; glycosuria; well-marked degeneration of the blood vessels associated with general senile debility, or other organic disease which would render any major operation inadvisable, would lead the surgeon to seek to give relief by catheterism or simple perineal drainage rather than by a more serious operation. It is unnecessary to enter into all the minutiae of the operation, but there are certain details which I may perhaps be excused for mentioning.

Besides asepticising the skin by a previous carbolic dressing and washing out the bladder with boracic lotion, I usually like to give my patient 5 to 10 grains of boracic acid and a little saccharin thrice daily for a few days before operation, so as to render the urine aseptic if possible. The rectal bag, by raising the prostate nearer to the manipulating finger, is of advantage, but I think it is important not to overdistend it, lest rupture of the rectum or inflammation in the meso-rectum ensue, and I only have 4 or, at most, 6 ounces of water introduced. The bladder is distended with boracic lotion until it can be felt above the pubes, no fixed quantity being employed. In two cases the peritoneum has been in touch with the pubes, and in Case 9 it was so fixed to it that I had to deliberately open the serous membrane to reach the bladder, after which I carefully separated it and closed the peritoneal opening before incising the bladder, the patient being no worse for the complication.

In removing the obstruction I have found McGill's scissors or the cutting-ring forceps invented by my colleague Mr. Jessop to answer best for the sessile or pedunculated enlargement of the middle lobe, and for the ring-like obstruction I have used the scissors, first at one side and then at the other, so as to cut out a V-shaped portion, making a clear channel from the vesical pouch straight into the urethra, down which the finger is passed to see that the passage is clear.

¹ Contributed to the International Congress held in Rome, March, 1894.

Mr. Mayo Robson's Cases of Suprapubic Prostatectomy, or McGill's Operation.

No.	Date.	Age.	History.	Operation.	Result.	After-History.
1	December, 1887	67	Frequent micturition at night for several years, and every half hour during day for a year. Hæmaturia and signs of calculus four years. Cystitis. General condition bad	Uric acid calculus, 322 grains. Projecting middle lobe removed by scissors and forceps	Recovery. Urine by urethra ninth day. Healed fourth week	Two years after patient in good health and at work.
2	June, 1888	63	Nocturnal frequency eight years. Frequency of micturition in day 20 to 40 minutes. Hæmaturia. Retention—65 ounces drawn off by catheter, after which catheter thrice daily up to operation. Cystitis and atony	Lateral lobes much enlarged. Removal by scissors and forceps and enucleation. Bladder pouched and reticulated. Fifty calculi removed, largest, $1\frac{1}{4}$ inch; smallest, size of pea	Recovery. Urine by urethra in 3 weeks. Discharged in seven weeks. Could hold urine six hours in day, and only once disturbed in night	Two years after quite well and at work.
3	September, 1888	62	Symptoms eight years. Of late up in night 20 times. Retention on admission. Catheter night and morning. Cystitis	Middle lobe size of walnut and enlarged lateral lobes. Removed by scissors and forceps; weighed $\frac{1}{2}$ ounce. Calculi in pouch removed	Recovery. Wound healed slowly and some cystitis persisted	Patient perfectly well and at work in 1892. No need for catheter since operation.
4	March, 1890	66	Four years catheter life. Seven years nocturnal frequency. Bed or couch for seven months. Cystitis relieved by washing out bladder. Catheterism increasing difficulty, and only bicaudée catheter would pass	Ring of prostate surrounded entrance to urethra and middle lobe enlarged. V-shaped wedge removed by forceps and scissors. Three calculi removed from pouch below prostate	Recovery. Healed within month. Slight cystitis persisted for a time	In January, 1892, patient in good health and leading active life.
5	J. M., November 1890	73	Four years' symptoms. Atony of bladder due to overdistension. Dribbling of urine due to overflow. 16 ounces residual urine. Urine acid and free from albumen	Prostate very large. Middle lobe removed, and over $\frac{1}{2}$ ounce from lateral lobes enucleated. Free bleeding stopped by washing out with hot water, with $\frac{1}{2}$ ounce tr. hamamelis to the pint	Recovery	Recovered from operation and was able to sit up during second week. Urine passed by the urethra. Patient was feeble and decrepit at the time of operation, and in a few weeks succumbed to asthenia. <i>Post-mortem Report:</i> Bladder normal. No disease to account for death, which was due to old age.
6	August, 1891	61	Eleven years since first catheterism. Nocturnal incontinence for several years. Feeble power. Cystitis. No calculus. 10 ounces residual urine. Six months' catheter life	Pedunculated middle lobe size of walnut and small growth from left side of prostate removed by scissors, forceps, and enucleation	Recovery. A month after was passing urine without pain	Phosphatic calculus removed three months after. Recovery. At work 1893.
7	January, 1892	61	Nocturnal frequency for years. Difficulty in micturition six months. Regular catheterism one month. Capacity of bladder, 20 ounces. Atony	Middle lobe forming a collar round orifice. V-shaped incision and removal of a wedge by forceps	Recovery rapid. Up within a week. Began to pass urine by urethra within a week of operation	Unable to trace patient after complete recovery.
8	H. J., March, 1892	64	Symptoms over a year	Collar around entrance to bladder. Wedge removed	Recovery	Passed good stream a month after. Three months after passing free stream.
9	June, 1892	72	Operation, March, 1889, by another surgeon; small portion of middle lobe removed, giving relief for nearly two years. Immense prostate felt <i>per rectum</i> , June, 1892. Complete retention; cystitis. Great suffering	Six ounces of adenomatous prostate enucleated and phosphatic stone removed. Wound healed in three weeks	Recovery. Great relief and regaining of health	Good health for some time. In October, 1893, a phosphatic stone was crushed without any difficulty. Patient now quite well (1894).
10	H. A., August, 1892	73	Bladder symptoms for several years. Much worse during first two years. Catheter required. Blood in urine. Cystitis	Phosphatic material in bladder. Enlarged prostate and pouch behind it, in which was encysted a uric acid calculus with the top just capable of being felt. By removing the piece of prostate between the entrance to the urethra and the pouch, the stone was freed and could be removed, and the exit from the bladder was relieved from obstruction	Recovery	Rapid recovery. Patient passed urine by urethra within three weeks. Sometime afterwards in good health and free from urinary symptoms.
11	December, 1893	62	Symptoms for five years. Catheter life for six months. Urine offensive and cystitis severe. In November, 1893, phosphatic stone ($\frac{1}{2}$ oz.) crushed and bladder regularly washed out afterwards, curing the cystitis. Catheter required thrice daily, though no atony. Prostatectomy in December	Wedge removed from collar of prostate surrounding entrance to urethra. Tube removed third day; patient up seventh day; urine passed by urethra fourteenth day	Recovery	When last heard of. March, 1894, was quite well, and passing urine by urethra.
12	R. J., January, 1894	73	Nocturnal incontinence for years. Retention on admission. Atony subsequent to catheterism, which had to be performed thrice daily. General condition feeble. Pus and albumen in urine, but no casts found	Collar around entrance to urethra. V-shaped piece excised. Bladder sacculated and very large and atonic. Four ounces of fluid in rectal bag not being sufficient to elevate the prostate within reach of the finger, more was added, and the rectum was probably overdistended, leading to the subsequent abscess in the meso-rectum, which was apparently not connected with the wound.	Death	Patient died in third week when apparently recovering. <i>Post mortem.</i> Suppuration between bladder and rectum, extending into meso-sigmoid and meso-rectum. Wound healthy and nearly closed, and no irritation around or near it. Large sacculated and sacculated bladder free from cystitis. Aortic disease and granular kidney.

If, as in Cases 5, 6, and 9, the lateral lobes are much enlarged the finger can be insinuated within the capsule and the adenoid masses can be enucleated with very little difficulty.

Lastly, all loose pieces of tissue are cut away and the parts are left as smooth as possible. In order to disturb as little as possible the cellular surroundings of the bladder the edges of the vesical opening are fixed temporarily to the margin of the wound by a suture on each side before any intravesical manipulations are commenced.

I have found suprapubic drainage efficient in all the cases, and have not thought it necessary to drain through the perineum. In the after-treatment boracic acid is given thrice daily, and the bladder is washed out once or twice daily by syringing a solution of boracic acid through from the urethra to the drainage opening. The drainage tube is removed if possible on the third day, and the patient is allowed to sit up within a few days of the operation. I find that as a rule recovery is attended with very little general disturbance or discomfort, and that the urine begins to be passed by the urethra soon after the patient is allowed to sit up.

In conclusion, I consider that the operation of suprapubic prostatectomy in properly-selected cases is one attended with less danger than is usually thought, and that if thoroughly and completely performed it is capable of affording such relief as may be in many instances genuinely termed a cure, and that in a class of cases which until a few years ago were looked on as incurable.

A MODIFICATION OF THE OPERATION OF CIRCULAR ENTERORRHAPHY.

By R. COZENS BAILEY, M.S.LOND., F.R.C.S.

Senior Assistant Demonstrator of Anatomy, St. Bartholomew's Hospital.

THE history of the operation of circular enterorrhaphy shows a constant effort on the part of surgeons to invent some method which would render the insertion of sutures into the bowel more easy, or make their employment partially or wholly unnecessary. Some, however, who speak with authority maintain that all mechanical appliances are unsurgical, useless, or positively harmful.

OBJECTIONS TO SUTURES.

Before drawing attention to a new method of operating in which sutures are supplemented by the use of a decalcified bone tube, I had therefore examined the case for sutures alone, and tried from published cases to justify the position taken up by those who advocate their employment unaided; but this led me to such lengths that I have been obliged to omit the grounds on which my conclusions are based, and simply to state these unsupported by the facts from which they have been deduced.

Briefly the cases in which sutures are employed alone show a high rate of mortality, death being due either to (1) collapse, (2) peritonitis, or (3) intestinal obstruction.

Collapse, when the operation has not been undertaken in an already hopeless case, depends on the length of time necessarily taken for its completion.

Peritonitis is due in a large number to faecal extravasation owing to defective suturing.

Intestinal obstruction is caused by the swelling of that part of the bowel turned in towards the lumen in order to secure apposition of the serous surfaces.

I am convinced, therefore, that sutures in all cases take an excessive time for their accurate introduction, in many when introduced do not hold, and in some, when holding, defeat the ends in view by failing to relieve the condition for which the operation was undertaken.

No better argument that sutures are defective could be advanced than the number and variety which have been from time to time advocated; and the same may be said of the tubes, rings, plates, and bobbins, many of which have been described since mine were first made, now some three years ago.

THE USE OF DECALCIFIED BONE TUBES.

The form of tube which I have employed in seven experiments performed upon dogs during the past year at the

laboratories of the College of Surgeons, the results of which are detailed below, is shown in Fig. 1.

Fig. 1

It is made of bone decalcified in nitric acid, and hardened and preserved in spirit. For use in the human subject the most convenient length is 2 inches, and sizes vary-

Fig. 2.—First stage of operation.

ing in diameter from $\frac{1}{2}$ inch to $1\frac{1}{8}$ inch should be kept in readiness, as the rapidity with which the operation is completed depends largely upon the tube fitting easily, but,

Fig. 2. Operation complete.

at the same time, without too much room to spare. Around