the autopsies of Leyden in which myocardial degeneration was a prominent feature.

The prognosis is generally good in the functional cases, though recovery may be very slow, and even in healthy young men some irritability may remain for years. In a case of the writer's a young man took a series of senselessly long bicycle rides at a time when his general condition was depressed from other causes. Matters finally culminated in an extremely nervous and debilitated condition with albuminuria. When first seen, two years later, his heart was normal in size, but intermittently occasionally. After a year and a half of good health he was operated on during an acute appendicitis, and the operation, though brief and uncomplicated, was followed by great cardiac pain, intermittent and irregular pulse and albuminuria. Similarly, nine months later, a mild typhoid was attended by attacks of intense cardiac pain requiring morphia, and by slight intermittency of pulse.

Where organic changes have supervened the prognosis is worse. If apparent recovery occurs, relapses are prone to take place.

In treatment rest is of the first importance, its duration and degree depending on the severity of the case. Diet should be abundant and nourishing. Digitalis and other cardiac stimulants are of the greatest value, but they should be given, especially at first, with great care and their action closely watched. In prophylaxis careful training is important. Excesses in the use of tobacco and alcohol should be avoided by those whose occupations require unusual muscular exertion.

To summarize: Violent exertion normally causes changes in the blood pressure, temporary enlargement of the heart's area from dilatation or relaxation of the myocardium, and sometimes a fugitive murmur. The cause of the latter is not obvious. The chief result of training is hypertrophy. As abnormal results of exercise we have acute dilatation, rare in healthy young men, especially if well trained, and as a result of habitual overexercise, "irritable heart" and the other conditions associated with dilatation, hypertrophy, or myocarditis and generally due in part to other predisposing causes.

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SUPRAPUBIC CYSTOTOMY, WITHOUT DISTENDING THE BLADDER.

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THE suprapubic method of entering the bladder for the removal of stone not being the common one, it may be of interest to hear the history of the following two cases with the results obtained; also to call attention to the mode of operating and the conditions that permit of it.

Owing to the fact that a distended bladder draws the loose peritoneal covering away from the symphysis pubis sufficiently to permit of the bladder being opened without entering the abdominal cavity, the description of the several steps preparatory to the operation, in the various works on surgery, have this end in view, and they give instruction to distend the rectum that it may raise the base of the bladder, and then distend the bladder in order to obtain the desired result.

"The part of the bladder concerned in this operation is that portion which lies behind the pubes and the insertion of the urachus. Between the anterior wall of the bladder, the posterior surface of the pubic bones and the abdominal muscles in front, is a pyramidal shaped space filled with connective tissue. In and around this space takes place the surgical manipulation of this operation. The peritoneum can scarcely be said to be attached to the bladder at all, though when the bladder is empty, it lies closely opposed to its anterior surface. Distention of the bladder is the palpable means of elevating this peritoneal fold." ¹ This short description sums up the situation admirably, and the conclusion is the same as with all other writers on this subject to the effect that the "distention of the bladder is the palpable means of elevating the peritoneal fold." The fact is lost sight of that the loosely connected peritoneum can be pushed back and the bladder entered without distention. The peritoneum is so loosely connected to the pubes and top of the bladder that it

¹ J. Greig Smith, *Abdominal Surgery*, 1896.

can be pushed back and the bladder reached and entered without distending it, and at the same time without entering the abdominal cavity. That a perfectly flat and empty bladder can be opened quickly, easily, without injury to the peritoneum, and with perfect safety to the patient, is what the following cases will show:

CASE I. W. D. was first seen Sept. 21, 1897. A catheter had been tied into his bladder, as he was supposed to be suffering from an enlarged prostate. The urine was very foul. He was in a very poor, weak condition, and a most pitiable object to look at. The catheter was removed and the bladder irrigated at regular intervals. Two days later stone in the bladder was diagnosed, as five small stones, weighing 6 gr., were washed out through a large catheter, and sounding of the bladder detected others. Operation was delayed until the condition of the patient improved. From time to time small stones were passed during irrigation, until twenty in all were collected, the two largest weighing $5\frac{1}{2}$ and $7\frac{1}{2}$ grs. respectively.

On Oct. 12 I did the suprapubic operation for stone. The bladder was so contracted that 4 oz. of water forced into it was returned by the side of the catheter, making the usual method of distending the bladder out of the question and the bag in the rectum of no avail. After thorough irrigation the metal catheter used was left in the bladder. An incision three inches long was made in the median line, down to the peritoneum, and starting one inch on the pubes. The loose peritoneum was easily and quickly peeled away from the pubes and over the bladder. An assistant at this point depressed the end of the metal catheter already left in the bladder; this pushed the bladder wall well into view and touch, and allowed one to judge when the peritoneum was pressed back sufficiently. The catheter was depressed so that the beak showed about an inch in front of the symphysis. The point thus indicates to the operator where the bladder wall is when the peritoneum has been peeled back enough to avoid the danger of being opened. At this stage of the operation the peritoneum is liable to rise and protrude with each inspiration of the patient; to avoid this, a gauze sponge was pressed down into the wound, and by hooking a tenaculum into the bladder just back of the promontory where the beak of the catheter showed, it not only held the sponge and peritoneum back, but also marked how far the bladder was freed of peritoneum. Just to the right and left of where the proposed incision was to be made, a thread was passed into the bladder and held to one side by the weight of artery forceps attached; this was to prevent the walls falling away when the final incision was made and the catheter no longer held up the bladder. With a quick plunge of the knife the bladder was entered just in front of the catheter's beak, and the cut enlarged enough to admit the index finger. Two stones weighing respectively 120 and 90 grs., and twelve small ones, making fourteen, were removed. The whole weighed 250 gr. Adding these to the twenty washed out before the operation, it makes a total of thirty-four stones.

After thoroughly irrigating the wound, the bladder opening was closed by a continuous chromicized catgut suture and the rest with deep silkworm stitches. A small gauze wick was left at the bottom of the cut. A sterile soft rubber catheter was tied into the bladder and a fresh one introduced daily, with irrigations of boracic acid solution for nineteen days. The object of this was to prevent any distention of the bladder and the possibility of stretching and opening of the cut in its wall, which would force the urine up into the abdominal wound.

No pain, or shock, or temperature of any moment followed the operation, and the condition of the patient rapidly improved throughout his convalescence. On the sixth day, while irrigating the bladder, a little water came out of the small sinus left by the wick. This occurred but three times. On the sixteenth day the abdominal wound and sinus were entirely healed.

On the nineteenth day the catheter was permanently removed. On the thirtieth day the patient was up and dressed, and a week later he went down two flights of stairs to meals, with an enormous appetite and looking another man.

CASE II. In 1894 W. H. P. presented himself for treatment with three sinuses in the perineum leaking urine, an abscess in the scrotum, and almost a total obstruction to the flow of urine. It was impossible to pass anything into his bladder. No stones at this time were detected.

I performed an external urethrotomy and so satisfactory was the result that when a year later I crushed two stones in his bladder, the lithotrite entered the bladder with no trouble. After crushing these stones the patient was well for two years, after which symptoms of stone returned, and, again in 1900, I crushed and removed another one. After this operation he was greatly relieved but not cured, and six months later symptoms of stone returned, more severe than ever before. Struggling for a while to keep about and do his work, he finally took to his bed, a most wretched sufferer, weak and worn out with pain. I now decided to do a suprapubic operation, to explore the bladder and remove every particle of foreign matter. This operation I did Sept. 5, 1901. Remembering the case with which the bladder was reached in the previous case, I made no attempt to distend the rectum or bladder. After irrigation I went through precisely the same steps already described. Cutting down to the peritoneum; depressing the end of the metal catheter in the bladder so that the beak was felt just in front of the pubes, peeled back the peritoneum beyond the point of the beak, hooked the bladder wall with a tenaculum; secured each side of the bladder where the cut was to be made, and made my cut. The first stone removed weighed 206 gr. Proceeding to explore the interior of the bladder with the finger, I felt at the bottom a roughness; pecking at it, the sharp point of a stone was made out. Being convinced that a stone was encrusted in the bladder an effort was made to set it free, but with difficulty; at last, after an assistant had introduced his finger up the rectum to its full extent, so as to make counterpressure to the finger working in the bladder, it was finally dislodged and removed. It seemed almost inevitable that the bladder wall would be perforated, so slight was the space between the stone and the rectum, but it was not. This stone weighed 149 gr. The bladder was sewed up in the same way as the first case, a small wick left in the wound and a catheter in the bladder. There was no shock and very little pain after the operation. The temperature, which had been running daily from 100° to 102° , dropped to normal the next day and remained so. On the eleventh day the catheter was removed, the bladder proved tight, and no urine at any time came through the wound. On the sixteenth day the wound was completely healed, and at the end of three weeks the patient began to walk around. The patient, having had two operations for the crushing of stone, was able to judge of the merits of the different operations in his case, and he repeatedly expressed himself in favor of the suprapubic method.

Clinical Department.

A CASE OF NEURITIS IN THE COURSE OF DIABETES.

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A. C., age forty-one, single; laundress. Patient was admitted to Long Island Hospital on July 18, 1898. She stated that she had had rheumatic fever thirteen years before, and that since that time she had had several minor attacks of rheumatism. In January, 1898, she was confined in the Boston City Hospital ten