in fact in which catarrhal affections of the intestinal canal are likely to be engendered. Although in both conditions the mental state is more or less affected, still it assumes a different aspect in each. In "lithæmia" the patient is irritable, fretful, peevish, and discontented with those around him, but he is rarely at fault with himself or hypochondriacal. In oxaluria, however, the patient is generally amiable and easy tempered with his relations and dependents, but is himself filled with the deepest gloom and forebodings, and is painfully hypochondriacal. In oxaluria the bowels are irregular, constipation at times alternating with a colicky diarrhoea of frothy yeasty character, and not infrequently accompanied with considerable discharges of blood. The urine is usually of a pale greenish colour, and the quantity passed in the twenty-four hours normal in quantity and specific gravity. Its chief characteristic is the deposit of crystals of oxalate of lime, which are found most abundantly in the morning urine passed on first rising. Owing to the presence of these crystals causing irritation of the mucous membrane of the bladder micturition is frequent and urgent, though the quantity of urine passed is not large. Traces of sugar are not infrequently present, and sometimes sugar for a while replaces the deposit of oxalates, and *vice versa*. This transformation has been accounted for by the hypothesis that whilst oxalic acid denoted a condition of imperfect oxidation, sugar represented a still lower. The appearance therefore of oxalates with a diminution of the excretion of sugar has frequently been taken as a favourable symptom of diabetes, an opinion, however, which I do not think altogether warranted. The urine occasionally contains an excess of phosphate of lime, though this condition is not nearly so frequently observed in this form of oxaluria as in the case where the deposit of oxalate of lime results apparently from increased tissue metabolism, and in which, as has been already stated, an increase of urea is also generally noted. Various reasons have been assigned to account for the associations of deposits of oxalates with occasional excess in the elimination of phosphate of lime in the urine. The most probable explanation is that it originates in two ways: (a) In those cases where there is an excess of urea the increase in the elimination of the phosphoric acid is the result of the increased metabolism of the tissues generally. (b) Where the deposits of oxalate of lime are associated with catarrh of the intestinal canal, and the formation of lactic and butyric acids is excessive, the phosphate of lime is derived not from the tissues, but from the alimentary canal, the lactic acid having a powerful solvent action on this salt; so that if it is introduced in excess with the food, a larger proportion will be dissolved out and pass into the system than would otherwise be the case. In addition to the mental depression already mentioned, patients suffering from this form of oxaluria are troubled with many anomalous symptoms indicative of nervous disturbance. Thus, a burning sensation is usually felt across the loins, accompanied by a feeling of tightness and dragging round the abdomen, shooting and burning pains in the lower limbs, twitching of certain groups of muscles, with often a feeling of numbness, deadness, and coldness in different parts of the body. These symptoms, when present together, may lead us to infer that the patient is suffering from an early stage of locomotor ataxy, as was the case with an out-patient at present under my care at the London Hospital, when he first came under observation. The fact, however, that other characteristic symptoms were absent, and did not develop, and that he improved on a treatment directed to the relief of the dyspeptic condition, dispelled any doubts on that point.

With regard to the treatment of the conditions we have been describing. In those cases where the deposit manifestly arises from the ingestion of articles of food containing crystals of oxalate of lime, it will be sufficient to point out what these are and to discontinue their use. If the deposits arise indirectly from the food, owing to incomplete oxidation of the saccharine, oleaginous, and albuminous principles, it will be necessary carefully to regulate the diet with regard to quantity and quality, and to promote the oxidising processes within the body by means of iron, change of air, sea-bathing, &c. In those cases where oxalate of lime deposits seem to arise from increased tissue metabolism, as evidenced by an increase in the amount of the urinary constituents, more especially the urea and phosphoric acid excreted daily, inquiry must be made into the nature of the conditions producing such disturbance, and the treatment directed accordingly. In the case of calculous deposits of oxalate of lime it will be profitable to remember that the oxalic acid has

possibly its origin in the mucus of the urinary passages, and not necessarily in the blood, a reflection which ought to direct our attention rather to the treatment of any local morbid condition that may exist in them than to the employment of remedies designed to act on the system generally. Lastly, with regard to those cases of dyspepsia associated with more or less persistent deposits of oxalate of lime, and to which alone, as I have stated, the term "oxaluria" seems applicable. Our effort at treatment must be directed, almost entirely, to the relief of the catarrhal conditions on which the dyspeptic symptoms depend. This is best effected by the systematic employment of small doses of Carlsbad salts largely diluted; a teaspoonful of the salt dissolved in ten to fifteen ounces of hot water, as hot as the patient can bear it, should be taken every other morning an hour before breakfast. This diluted warm saline solution seems to have the power of dissolving and removing a considerable quantity of the abnormal mucus, which in undergoing fermentative changes gives rise to lactic and butyric acids, the motions which result from its use containing not only faecal matter, but much offensive glutinous-looking slime. Thirty-grain doses of bismuth should be administered once or twice a day before meals, and Dr. Routs' mixture of nitro-muriatic acid and nuxvomica may be prescribed with advantage, especially in long-standing cases when there is much mental depression, about two or three hours after food. The patient should remove to a dry soil, but if that is not possible the greatest attention should be paid to the subsoil drainage of his house. The use of a cold-water compress over the abdomen at night will be found advantageous, not only in relieving the abdominal catarrh, but in protecting the patient against a return of the malady. The diet should be nutritious and digestible, with a liberal allowance of meat, fish, poultry, and game. The bread should be eaten stale, or, better still, toasted. Sugar and all farinaceous food should be avoided as much as possible without actually restricting them, and flatulent vegetable food altogether discarded. Tea may be used in moderation, but coffee and alcohol are positively injurious.

ERRATA.—In the former part of this article, published last week, on page 51, line 12 of the second column, for "urea" read *uric acid*; and in the tenth line from the bottom of the same column, for "uric acid" read *oxalic acid*.

ON THREE CASES OF LITHOTOMY.

By HENRY T. BUTLIN, F.R.C.S.,

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THE following three cases—the only cases of lithotomy which came under my care in Mr. Willett's wards during the last academical year—form so interesting a series that I venture to publish them. It would, of course, be easy for those who are engaged especially in the surgery of the urinary organs to publish from their hospital and private records many cases similar to these—nay, much more interesting. But the difficulties which were serious to me would probably be so trivial to them that they would not think them worthy of mention. I therefore relate them in somewhat greater detail for the advantage or entertainment of those whose fortune does not favour them too frequently with cases of lithotomy which deviate, however slightly, from the common type.

CASE I.—While staying for a few days at Ashford, in Kent, during the long vacation of 1880, I was asked by my friend, Mr. Philip Phelps, to see R. F—, the occupier of a small farm cottage in the neighbourhood. He was sixty-two years old, tall and hale, but much troubled by the symptoms of stone in the bladder. Those symptoms had existed for about eight years, and between four or five years ago he had been sounded, but no stone had been discovered. As he had great faith in the practitioner who had sounded him, and who had since retired from practice, he had obstinately refused to allow the sounding to be repeated, and had been content to bear his pain with what little alleviation he could obtain from rest or the avoidance of very active exercise. From the time the symptoms were first noticed he had drunk only soft water, in place of the hard water which is found abundantly in the neighbourhood of Ashford. Mr.

Phelp and I sounded him and immediately struck a stone, apparently of large size. On the 15th of November he was admitted into the hospital, and on the 17th was again sounded. His case appeared suitable for Bigelow's operation, and on that account an attempt was made exactly to measure the stone. But there was very little urine in the bladder, and the lithotrite employed for the purpose could only be made to grasp the stone in one diameter, which measured only an inch. Feeling over the surface of the stone convinced us, however, that it was of very considerable size; and as the patient appeared to be an excellent subject for a cutting operation, Mr. Willett, who saw him with me, agreed that it was desirable he should be cut. There were no signs of visceral disease; the urine was clear, acid, without albumen, and having a specific gravity of 1016. On the 22nd lateral lithotomy was performed; and with some difficulty, owing to its large size, a uric-acid calculus was extracted. It measured $2\frac{1}{2}$ inches by $1\frac{3}{4}$ inches and 1 inch, and weighed nearly two ounces (830 grains). The wound was plugged with a padded cannula on account of the free oozing which occurred.—24th: Slight swelling and oedema of the scrotum. The plug was loosened. Pulse 102.

Nov. 25th: Plug removed; pulse 92, irregular.—26th: Restless; temperature a little higher; pulse 98, irregular.

CHART 1.

Wound offensive. Not being satisfied with his condition I made a thorough examination, and found that the stench, which appeared to arise from the wound, really proceeded from the bed, for the borders of the round hole in the mattress were neither carefully nor widely enough covered with waterproof sheeting. In consequence of this the mattress was gradually becoming soaked with decomposing pus and urine, and even the woodwork beneath was soiled and stinking. These defects were at once remedied, and from that time the wound no longer stank.—29th: Pulse 73, still slightly irregular; tongue dry and coated; wound flagging. Milk diet changed to minced chop, milk, beef-tea, and eggs. Ordered two grains of quinine and iron three times a day.

Dec. 3rd: Pulse irregular; wound healthy.—9th: A small quantity of urine passed by the urethra.—15th: All the urine passed by the urethra.

Jan. 3rd, 1881: Discharged, well.

With the exception of the danger we ran of allowing this man's wound to be poisoned by the emanations proceeding from an imperfect bed, the only features of special interest in this case were his age and the large size of the stone. He was, however, a young and strong man for his years, and the stone, though bulky, was smooth and not of a kind to bruise or tear the soft parts during extraction.

CASE 2.—F. H.—, a baker, twenty-four years old, was admitted into the hospital on December 9th, 1880, because the night before, according to his own account, a doctor, attempting to pass a catheter on him on account of stricture, had broken off the end of the instrument. He did not know how far down the fragment lay, but thought it was in the "passage." Gas and ether were administered, and a careful search was made. But no foreign body was detected; so, suffering no pain or other inconvenience, he discharged himself on Christmas Eve.

On April 11th, 1881, he returned, complaining that ever since he left the hospital he had been troubled with frequent desire to pass water, and with pains along the penis and over the region of the bladder. An attempt was made to sound him, but his stricture was so narrow that even the smallest catheter could not be passed. On the following day a No. 3 silver catheter was passed after chloroform had been administered, and a calculus was plainly felt. The catheter, which had been introduced with difficulty, was tied in.

During that night and the next day (13th) he was very restless and in pain, but the catheter was left in, and his discomfort was allayed by means of a morphia suppository. On the 14th the No. 3 was changed for a No. 5, and in this manner the urethra was dilated by April 19th to admit a No. 12.

On the next day I performed the median operation of lithotomy (Allarton's) for Mr. Willett, who was out of town, and removed the last inch and a half of a gum-elastic catheter, which was coated with phosphates so thickly that it formed a calculus as thick as the little or ring finger. The bladder was washed out with a weak solution of carbolic acid. There was no bleeding.

April 22nd: A small quantity of urine passed by the urethra, on account apparently of the difficulty of exit through the median wound.—30th: Urine passes first along the urethra, then the wound bursts open, and urine escapes through it.

May 5th: All the urine passes through the wound.—13th: Urine again passes both ways.—17th: No. 9 catheter passed just beyond the stricture (situated five inches down the urethra).—20th: No. 10.—24th: No. 11.—29th: No. 12.

June 3rd: No. 6 silver catheter passed into the bladder. From this time till the end of the month a larger sized catheter was passed every few days until No. 11 was reached.

CHART 2.

Each instrument was passed only with considerable difficulty. On July 10th the wound had entirely healed, and a few days later the patient left the hospital.

In this case the median incision was practised, not because there is very clear evidence that it is a less dangerous operation than the lateral, but because it is regarded as particularly suitable for the removal of calculi of this description, and I was desirous that the students should witness the operation which I am in the habit of recommending for similar cases to the practical surgery class. I cannot but think, however, that the patient's comfort was lessened owing to the operation which was chosen, for the drainage through the wound was for several days very imperfect, and he consequently suffered much. His temperature, too, was high, partly, no doubt, from the same reason, and partly on account of his nervousness, for he was an exceedingly bad subject for operation. No cannula was employed after the operation, as there was no bleeding; but should I again perform the median lithotomy I would introduce a cannula merely for the sake of draining away the urine. Another difficulty in the after-treatment was the management of the stricture. Bearing in mind the tendency to tolerably quick contraction, I attempted to pass a catheter a few days after the operation, but the attempt produced great pain and a rise of temperature, so it was not repeated until May 17th, nearly a month after the operation, when a No. 9 was passed beyond the stricture, but not over the wound.

CASE 3. — When I took charge of Mr. Willett's wards during the long vacation (1881), I found a German Jew (L. K.—), forty years old, apparently suffering from cystitis. His micturition was attended with extreme difficulty, the urine being passed only drop by drop. During the day he moaned, and at night he positively roared, with pain, keeping the whole ward awake. The urine was alkaline, very thick and slimy, containing nearly half albumen, and an abundant deposit of pus and mucus. On inquiry I was told that for at least three years he had suffered from stricture, which had become so troublesome a year ago that external urethrotomy was performed at the London Hospital. He had left this hospital in January, 1881, appa-

rently quite cured; but a fortnight afterwards noticed pain at the end of the penis, and a little later a cloudy condition of the urine. His symptoms had increased in severity up to the time of his admission to St. Bartholomew's. He had, of course, been sounded by Mr. Willett, who was able to introduce a full-sized instrument, but nothing more definite had been discovered than some very small phosphatic concretions. The bladder had been daily washed out for many days with a solution of quinine and nitric acid, while buchu and hyoscyamus, and opium (compound soap pill) had been administered internally.

On Aug. 12th he was restricted to an absolute milk diet, after the method of Dr. George Johnson; but during the following ten days no improvement was manifest. He suffered as much pain, his urine was as offensive as formerly, and he often passed tiny fragments of phosphatic concretion. A thorough examination of his condition was made, and as he appeared otherwise healthy, I determined to cut into his bladder, with the object of removing the concretion and establishing free drainage. I was pleased to learn that Mr. Willett had been of opinion that an operation of the kind would probably be required. On the 24th the operation as for lateral lithotomy was performed. The bladder was reached without difficulty. A small scoopful of phosphatic concretions was removed. A soft object felt far up on the left side of the bladder was grasped with a pair of forceps, and removed. It proved to be a piece of india-rubber tubing three inches and a half long and more than

CHART 3.

a quarter of an inch in diameter, open at both ends. After he had been put to bed a very abundant oozing of blood took place, which was only arrested, when he had been placed under the influence of chloroform, by repeated plugging. Before the hæmorrhage ceased he was white, and cold, and pulseless, so that I verily thought he would have died. Hot-water bottles, brandy, and essence of beef, however, restored him, and there was no recurrence of the bleeding. On the 26th the plug was taken out.

From the 22d to the 5th of September a small abscess formed and was opened in the septum of the scrotum. On Sept. 22nd urine passed for the first time along the urethra. On Oct. 28th the wound was entirely closed. A No. 11 silver catheter was passed, to be sure that the stricture had not contracted, and on Nov. 8th he was discharged quite well. The chart shows how uniformly the temperature was maintained after the operation, despite the severity of the hæmorrhage which followed it. We were not able to obtain any history of the introduction of the drainage-tube—for such it appeared to be—into his bladder. There was no evidence to prove its connexion with the former operation of external urethrotomy. It was quite soft and pliable, with here and there a small phosphatic deposit upon it. The loose concretions had, I suppose, been displaced from its surface. This case affords an excellent illustration of the truth of Sir Henry Thompson's remark, that "cystitis has almost always some ascertainable cause," although it is not always easy to discover what that cause may be.

POLLUTION OF THE THAMES.—The Woolwich Local Board of Health has unanimously passed the following resolution:—"That a deputation be appointed to seek an interview with the Secretary of State for the Home Department respecting the pollution of the river Thames through the metropolitan sewage, by which the health of the inhabitants of the town of Woolwich, the men in the Government works, and the troops in the garrison, is endangered; also to direct attention to the intention on the part of the Metropolitan Board of Works to enlarge the reservoirs in this and the adjoining parishes, not with a view to the utilisation of the sewage, but to perpetuate the present dangerous and insanitary method."

THE INFLUENCE OF BRIGHT'S DISEASE IN DEVELOPING LATENT VALVULAR DISEASE OF THE HEART.¹

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I HAVE not infrequently been led to observe that cases of rheumatic valvular disease of the heart may remain latent for many years, during which the organ performs its functions with efficiency, and this is particularly true of cases of stenosis of the mitral valve in which the narrowing of the orifice is not extreme in character. Some years ago I examined the body of a man, aged sixty-five, whose mitral valve showed well-marked stenosis, probably dating from an attack of rheumatic fever which had occurred forty years before. But the point to which I wish to draw especial attention is the sinister influence of the supervention of renal disease on such latent valvular lesions. Six or seven months ago I saw a man, aged fifty-nine, who complained of swelling of his legs and feet, but stated that he had been quite well up to six weeks previously. At the time I saw him he had a well-marked systolic murmur at the apex, his urine was clear, pale, sp. gr. 1004, and contained a trace of albumen. For the last three months, he told me, he had been getting up three or four times at night to micturate. Forty-three years ago, when he was sixteen years of age, he had an attack of rheumatic fever. This patient improved under treatment, and I lost sight of him, but the view of the case that seemed probable was that a valvular lesion which had remained latent all these years was now becoming manifest under the strain on the circulation produced by Bright's disease. As Bright's disease alone often gives rise to dilatation of the heart with a systolic mitral murmur, this hypothesis might be considered unnecessarily far-fetched; but a few months later I met with the following case:—

G. H—, forty-eight, a policeman, was admitted into the General Hospital on August 11th, and came under my care during Dr. Russell's absence from town. He complained of general dropsy. His own account of his illness was that nine months before he had been knocked down by half a brick, which hit him in the side; a month later he threw up about a quart of blood; three months ago he threw up some more blood and his feet began to swell. Twenty years ago he had an attack of rheumatic fever, and had since frequently suffered from palpitation, but he had been otherwise quite active and strong, and last year he took part in a pedestrian contest at Wolverhampton, in which he walked 105 miles in twenty-four hours. For the last three months he had been obliged to get up to urinate four or five times every night. When I saw him there was general anasarca; his pulse was rapid (108), small, but regular; the heart's impulse was inside the nipple-line in the fifth intercostal space; a systolic murmur was audible in both the mitral and tricuspid areas. The bases of both lungs were dull on percussion, and over the same area the vocal fremitus was diminished and the breath-sounds were faint. Under careful treatment and with rest in bed and milk diet his condition improved, but the management of the case was complicated by the extreme contraction of the urinary meatus, which interfered with micturition to such a degree as to necessitate surgical interference; but in spite of all we could do free diuresis could not be induced. On the 27th of August he left the hospital against advice, but applied again for admission on the 29th, and died rather suddenly on Sept. 1st.

At the post-mortem examination made by Mr. Cecil Birt, the heart weighed twenty ounces. The pericardium was firmly adherent to the anterior wall and apex by old fibrous attachments, while there was recent lymph over the right auricle. The segments of both the mitral and tricuspid valves were fused together and the orifices contracted, so that the former admitted only the tips of two fingers, and the latter the tips of three. The cavity of the left ventricle was dilated; the papillary muscles were hypertrophied; but the ventricular wall was not thicker than normal. The kidneys weighed seventeen ounces; their surfaces were un-

¹ Read before the Midland Medical Society.