rupture in the urethra and also behind the distal end of the stricture. I was unable to trace any sign of a canal on the surface of the sections.

Dr. Earl, to whom I sent the piece, very kindly examined it for me, making sections from the middle and both ends. The normal tissue of the corpus spongiosum was found to have been completely replaced by fibrous tissue. Dr. Earl was unable to do more than suggest a possible site for the location of the absent canal, so completely had traces of it disappeared.

It was very difficult to get details and a history from the patient. His statements were sometimes contradictory and impossible of belief. It is hard to believe that during the interval between the time at which extravasation and the establishment of the fistula took place and death—that is, about sixteen days—would have been sufficient to allow of the changes which led to such complete obliteration of the

urethra and disappearance of its constituents at the site of stricture. It would appear much more probable—the patient's statement to the contrary notwithstanding—that one of the scars observed in the perineum represented the obliterated remains of a fistula which had been open for a considerable time, during which these changes occurred, and that before admission this fistula became blocked, leading to a second extravasation. The orifices of a perineal fistula, it is well known, are frequently so minute as to be difficult of discovery, the time between the occurrence of the recent extravasation and death allowing for the final obliteration of the original fistula. This seems to be a solution of the difficulty "in the line of least resistance." It is not one against which objection cannot be raised.

[For permission to use the notes on this case I am indebted to the kindness of Dr. N. Roberts, Visiting Physician to the Park Hill City Hospital, Liverpool.]

HARVARD MEDICAL SCHOOL.—The late Dr. Calvin Ellis, some time Dean of the Harvard Medical School, has bequeathed his estate, amounting to about £80,000, for the advancement of the department of anatomy, physiology, and pathology in the school.

EXTRACTION OF LIGATURES FROM THE BLADDER.

By MURRAY MACLAREN, M.D., M.R.C.S.,
St. John, New Brunswick.

MRS. J. A., aged 24, was operated on by me for pyosalpinx on November 6th, 1895. There was a history of attacks of pelvic inflammation for several years. The mass, which was considerable in size and consisted of abscess of the right Fallopian tube and ovary, could not be raised up from the pelvis; numerous ligatures of silk, therefore, were required to be applied across the broad ligament. Recovery from the operation was prompt and satisfactory. The temperature on the evening of the day of operation reached 100.2° F., but after that, up to the time of leaving hospital on November 28th, 1895, it was normal, with a pulse of about 73.

In July, 1897, one year and eight months after operation, symptoms of cystitis appeared. There was pus in the urine with frequent and painful micturition. A cystoscopic examination detected merely some vascular injection of the bladder wall.

On August 10th, 1897, a silk ligature was passed by the urethra. The knot was encrusted with calcareous salts. On November 20th a red swelling was observed by the cystoscope on the right side of the bladder wall. Across the centre of the swelling was a greyish mass, having the appearance of a slough. It was somewhat movable, but moderate traction with forceps did not detach the mass, although it separated some of the calcareous coating (Fig. a). The ligature with encrusted

a November 20th, 1897, calcareous deposit on knot of ligature. b November 27th, 1897, calcareous deposit on knot of ligature. c December 21st, ligature. d January 6th, 1898, no ligature.

e January 21st, prominent granulation in depression. f February 25th, ligature. g March 3rd, ligature. h March 19th, no ligature.

knot was passed by the urethra on November 25th; it was being protruded through the bladder wall when seen on November 20th.

On November 27th another ligature was found to occupy about the same position (Fig. b), and was pulled out with forceps. The knot was somewhat encrusted. On December 21st a further ligature was seen (Fig. c) and removed. Fig. d shows the red swelling as seen on January 6th, 1898. No ligature was then evident. On January 21st the swelling had largely subsided, leaving a prominent granulation situated in a depression (Fig. e).

On February 25th (Fig. f) and March 3rd (Fig. g) further ligatures were removed. The last three specimens showed hardly any calcareous deposit. Fig. h shows the appearances on March 19th, when no ligature was present. The forceps used in extracting the ligature were Turck's laryngeal forceps.

It will be observed that in the case of the earlier ligatures there was a distinct swelling about the point of exit, and that later after passage of several ligatures (which were the largest) the swelling was followed by a depression with a prominent granulation in the centre, from which the remaining ligatures were protruded.

I am much indebted to Dr. W. L. Ellis for his kindness in making the drawings. They are excellent representations of the various conditions.

The bladder symptoms largely disappeared with the removal of the ligatures. A final ligature, however, was passed by the urethra on May 6th, 1898.

During the past year the condition has been fairly satisfactory; the urine has been free from pus, and the frequent and painful micturition has subsided.

A CASE OF ABDOMINAL NEPHRECTOMY FOR RENAL CALCULUS.

By WALTER L. BELL, M.D.,
Surgeon to the Lowestoft Hospital.

THE diagnosis of renal calculus is admittedly uncertain. Symptoms may point so decidedly to the presence of a stone in the kidney that an operation is undertaken, and yet the most careful search may fail to reveal the existence of a calculus. On the other hand, a renal calculus may for a lengthened period give rise to such slight symptoms that its presence may be totally unsuspected; or the symptoms may suggest an entirely different condition either of the kidney itself or of some other abdominal organ.

The following case is interesting, first, because of the unusually large size of the calculi, and, secondly, because the diagnosis was obscure, as the history, signs, and symptoms were not those characteristic of renal calculus:

History.—A. G., aged 27, wife of a fisherman, was admitted to the Lowestoft Hospital on February 8th, 1899, with the history that for seven years she had suffered from pain in the left iliac region. This pain was of a constant aching and bearing-down character, always much aggravated at the monthly periods (which were regular and apparently normal), and made worse also by full extension and flexion of the thigh on the abdomen. There was no lumbar pain, no exacerbations, no renal colic, no history of hæmaturia, or passage of gravel. Her labours had always been severe and prolonged. Her last full-term labour, two years ago, was instrumental. In November last, when six months pregnant, she suffered from severe accidental hæmorrhage, necessitating the induction of labour. During this last pregnancy she was never well, and suffered much from pain in the left iliac region. Since getting up after delivery this pain had been severe. She first noticed that she had a swelling within the abdomen about a year ago; it lay in the left iliac region, and was tender, hard, and somewhat movable.

Condition on Admission.—I found a densely hard, tender, slightly movable, oval swelling in the lower half of the abdomen to the left of the middle line, extending from the region of the pelvic brim to within 2 inches of the umbilicus (see diagram). The uterus was retroflexed and

A. G., showing portion of left kidney containing large calculi.

freely movable, and the sound entered readily for the normal distance. The tumour lay above and to the left of the uterus, and was apparently connected with it, as some degree of movement could be communicated from one to the other. The right ovary and tube were felt, but I could not make out the position of these structures on the left side.

Diagnosis.—The history and results of physical examination were, therefore, not at all suggestive of renal calculus, but pointed rather in the direction of a tumour connected with the uterus or left broad ligament, and this, in fact, was the view taken of the case by all who saw it.

Operation.—On February 16th, with the assistance of Mr. W. A. Shann, I opened the abdomen in the linea alba, and found uterus, ovaries, and broad ligaments healthy. It was apparent that the tumour was retro-peritoneal, so I tore through the layer of the mesocolon, and dissected down to its surface. It then became evident that one had to deal with an enlarged misplaced kidney containing large calculi. The question then arose whether one should incise the kidney and remove the calculi, or should extirpate the entire organ—that is, nephrolithotomy or nephrectomy. After making sure that there was a right kidney, which so far as could be ascertained felt normal, I chose the latter course, and decided on nephrectomy; because, first, with an organ so full of calculous masses, it was improbable that much functional kidney substance should remain; secondly, these large calculi evidently could not be extracted without the most extensive incision and laceration of the renal tissue; thirdly, if, as was likely, there was pyelitis, one ran very considerable risk of fouling the peritoneum with septic material. I therefore separated the numerous adhesions, dividing each between catgut ligatures. The renal vessels were tied and divided without difficulty, leaving the ureter to the last. This was ligatured with medium-sized silk and cut across, the cut end being cauterised with pure carbolic acid and inverted. To render it additionally secure I passed some fine catgut sutures through the fibrous coat, drawing it together over the end of the stump. Very little oozing followed the enucleation of the kidney, and the tissues fell together so well that I did not suture the divided edges of the mesocolon. The abdomen was sutured in layers without drainage.

Description of the Kidney.—The kidney after removal weighed a little over 11 ozs., the kidney itself being 7 ozs., 2 drms., and the calculi nearly 4 ozs. They were four in number: one large calculus, the size of a hen's egg, with processes fitting into the calyces, weighed 1.330 grs., and three small stones together weighed 280 grs., making a total of 1,610 grs. They were composed of uric acid.

After-History.—The after-progress of the case was uneventful. There was considerable pain for the first two days, but by February 16th this had ceased. The temperature never rose above 99.6° F. The sutures were removed on the tenth day, when the wound was found healed throughout. The patient got on to the sofa on the twenty-fifth day, and into the garden about a month later, quite free from pain, and feeling better than she had done for several years.

The only further point requiring mention is the excretion of urine after the operation. This was carefully measured for a period of eight weeks. During the first twenty-four hours 14 ounces of highly albuminous urine were excreted, but after this it remained free from albumen. During the second twenty-four hours there were 15 ounces, next three days 28 ounces each day, after which the amount passed generally varied from 35 to 45 ounces.

FRAGILITAS OSSIUM AMONGST WORKERS IN LUCIFER MATCH FACTORIES.

By W. F. DEARDEN, M.R.C.S.ENG., L.R.C.P.LOND.,
D.P.H.VIC.,

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WHEN considering the dangers arising from the use of yellow phosphorus in the manufacture of lucifer matches, prominence has always been given to the liability amongst "dippers," "mixers," and "boxers" to necrosis of the jaw. The so-called "phossy jaw" is a very serious disease, but that it is the sole important pathological condition incidental to this trade is open to strong doubt. There are grounds for believing that a certain condition is brought about in the bone tissue of the body through constant exposure of the individual for a lengthy period to the action of phosphorus and its oxides, as a result of which fractures of the long bones may very easily be produced.

I have come across two "dippers" working at the same place under exactly similar conditions for about an equal number of years, each of whom has had separately and at different times both thighbones broken in a ridiculously simple fashion.

CASE I.—J. S., a man, aged 46, had been in constant work as a mixer and dipper for thirty years, and had spent the last ten years at a works in my immediate neighbourhood. On January 1st, 1896, he fractured his right thigh, in its upper third, through stumbling down a single step. There was evidence of old fracture of the upper third of the left femur, and I learned that such had taken place nine years previously in just as simple a manner. This man, I may state, never had any symptom of necrosis of the jaw.

CASE II.—J. R., a man aged 39, had worked as a "dipper" and "mixer" for over twenty years, the last eleven being spent at the works previously alluded to. He fractured his right femur at the junction of its middle and upper third in January 1898 through catching the tip of his right foot on a piece of thin planking lying loose in the works yard and being thrown to the ground. I ascertained that the left thigh had been fractured in an exactly similar manner two years before, the offending obstruction on that occasion being the sunken board at the edge of a