STATED MEETING, NOVEMBER 7, 1904.

The President, HENRY R. WHARTON, M.D., in the Chair

COMPENSATORY KNEE-JOINT BETWEEN THE TIBIA AND SEMILUNAR CARTILAGES.

DR. JOHN B. ROBERTS reported the case of a lady of middle age who some five or six years ago applied to him for treatment of a painful knee-joint. In early childhood the knee had been operated upon for what was probably tuberculosis. After a long period of treatment the joint had recovered, with a considerable amount of stiffness. As a result of this infantile disease, the limb had never fully developed, and was shorter than the normal extremity on the other side. Compensatory mobility of the pelvic joints had enabled the patient in adult life to walk with only a moderate amount of limp, notwithstanding the dissimilarity in length of limbs and the defective mobility of the knee. When the knee was examined by Dr. Roberts, he found the scar of an old operation on the inner side, and observed that movement was possible from the nearly extended position through about one-third the normal arc of flexion.

The patient had been treated for gout by various European physicians. He also for some weeks treated the painful knee as a condition due to lithæmia. Pain persisted, and interfered to a considerable extent with the patient walking up and down stairs, though it did not preclude a moderate amount of exercise. He finally concluded to open the joint, with the expectation of finding, perhaps, a floating intra-articular cartilage. Incision on the inner side of the knee revealed the interesting condition which he desired to report.

The motion of extension and flexion, which has been mentioned, was found to take place, not at the seat of the normal motion of the knee-joint, but between the semilunar cartilages and the head of the tibia. The semilunar cartilages were firmly attached by bony adhesions to the condyles of the femur, as the result of a destructive inflammation of the cartilage, covering

the ends of the femur, in infancy. He found no floating cartilage in the joint and no dislocation of the internal semilunar cartilage, which was the one exposed freely to view. There was no reason to suspect any such difficulty with the other cartilage. The synovial fluid was somewhat blood-stained, as though the condition giving rise to pain was a slight synovitis. The wound was closed, and, though some superficial infection took place, the final result was an improvement in the painful condition. The mobility of the joint was only slightly, if at all, lessened by the operation.

The case was reported simply to record an interesting pathological result of old tubercular inflammation of the knee-joint.

The method by which the condition arose is, however, easily understood. The semilunar cartilages became attached to the lower end of the femur by reason of inflammation causing erosion of the articular cartilage on the end of that bone. As a result of this occurrence in early life, a compensatory mobility was established between the semilunar cartilages and the head of the tibia by means of an increased relaxation of the ligamentous attachments.

TYPHOID PERFORATION SUCCESSFULLY TREATED BY MAKING AN ARTIFICIAL ANUS, WITH SUBSEQUENT INTESTINAL RESECTION.

DR. J. CHALMERS DA COSTA stated that he had operated five times for perforation in typhoid fever. Two of the patients died very soon after the operation. In one, the perforation was not found at the time of operation; and necropsy disclosed it in the hepatic flexure of the colon. This case was reported by Dr. Herman B. Allen. The fourth patient lived eight days after the closure of the perforation, but afterwards died rapidly from a second perforation. Necropsy disclosed the fact that the first perforation was completely healed. The fifth case, which he now reported, was the only successful one in the series.

The patient was a man thirty-four years of age, who was sent to the Jefferson College Hospital on the 26th of May by Dr. Godfrey. The perforation had taken place twenty-four hours before admission, and Dr. Godfrey had been unable to persuade the family to allow immediate operation. The patient was in

the end of the second or the beginning of the third week of the typhoid fever.

On admission, the man's condition was bad, but not hopelessly so. There were marked evidences of peritonitis; severe tenderness in the lower abdomen, most marked on the right side; muscular rigidity; respiratory immobility; diminution of hepatic dulness; and a pulse of 118, with a temperature of $102^{2}/_{5}$° F. Operation was performed immediately, the incision being made in the right iliac region.

The moment the peritoneum was opened, fæcal matter welled out. A perforation that would admit the index-finger was discovered in the ileum, a little over two feet from the ileocæcal valve, and opposite the mesenteric border of the ileum. This perforation was closed in the usual manner with two layers of sutures.

Examination of the ileum on the proximal side of the perforation did not reveal any ulcerations that seemed liable to perforate. Between the perforation and the ileocæcal valve there were several ulcers on the point of perforating, one being at the extreme lower end of the ileum. To have inverted them would have destroyed the lumen of the bowel. The patient's condition was by this time absolutely desperate, and resection was not to be thought of, particularly as the situation of the ulcers would have made it imperative to resect a portion of the colon with a portion of the ileum. He therefore performed an enterostomy on the proximal side of the sutured perforation by Professor Bodine's method. He chose this method so that he might be able at a later date to readily re-establish the lumen of the bowel. After the performance of this operation, the belly was cleansed, strands of gauze were introduced for drainage, the abdominal wound was closed, and the patient was returned to the ward.

For two days the man's condition was absolutely desperate. On the morning of the second day after the operation, the temperature was still $96^{2}/_{5}$° F. On the evening of the second day, the condition notably improved; the temperature rose to $98^{1}/_{5}$° F., and the pulse dropped to 98. On the morning of the third day, the temperature was normal. Quantities of pea-soup stools passed from the artificial anus. During the next few days the temperature remained normal, the diarrhœa greatly lessened, and

there was no pain or discomfort. Each segment of the intestine was washed out gently, twice a day, with normal salt solution.

On the 5th of June, ten days after the operation, the patient was suddenly seized with violent pain in the right iliac region; the pulse rose from 80 to 108, and the temperature to 101° F. The pain continued throughout the night; but in the morning, before breakfast, it was relieved, and fæcal matter was found to be flowing out along the outside of the proximal section of the bowel. It seemed evident that another ulcer had perforated on the proximal side of the artificial anus, not into the peritoneal cavity, but into the zone of adhesions. The day after the appearance of this discharge, the temperature and pulse fell to normal; and from this time onward recovery was uninterrupted. The patient gained distinctly in weight.

The evidences of typhoid rapidly disappeared after the first operation, nothing but the nature of the stools remaining to suggest typhoid when the second perforation occurred, ten days later. After the second perforation took place, there was not a symptom of typhoid; and the stools, although soft, became normal in character. It was considered wise to wait for a time before operating for the closure of the artificial anus. The patient had been through a severe crisis and was much exhausted; and, as he was gaining in weight and strength, the delay would be advantageous. The bowel was probably still in a dangerous state, and might perforate from slight pressure. Delay would permit the peritoneum to attain that resistance to infection which is the rule in a case of long-standing artificial anus. During this wait, the skin of the abdomen became frightfully inflamed and infiltrated, from the constant contact with soft fæces; and the utmost care in cleanliness and the employment of a rubber cap, as used in iliac colostomy, failed to amend this condition.

On the 21st of October, he operated for the closure of the artificial anus. It was evident that he could not use Grant's clamp, on account of the existence of the second perforation on the proximal side of the artificial anus, an opening that was still patent, as shown by the continued oozing of fæces up from outside the bowel. He opened the abdomen above and to the outside of the anus; felt his way with the fingers inside; removed the portion of badly infiltrated skin, and resected the artificial

anus. The second perforation was observed about two inches above the opening of the proximal segment of the bowel; it had evidently not been into the free peritoneal cavity, but into the adhesions that had formed about the artificial anus. The distal segment of the bowel was very much smaller than the proximal, owing to having been so long out of function; consequently, an end-to-end anastomosis was not performed. The lateral method was selected, and was effected by simple suturing. When just ready to close the abdomen, it was found that the gall-bladder was enormously distended; consequently, a tube was inserted for drainage. It may be noted here that a bacteriological investigation showed the bile to be sterile. The patient went on to uninterrupted recovery.

Dr. John H. Gibbon had operated upon a perforating typhoid ulcer which was similar in many respects to the one reported by Dr. Da Costa. In his case there was an unusually large perforation. The perforation and ulcer involved so much of the caliber of the bowel that closure was impossible. A resection was done and an end-to-end anastomosis made. The patient died about thirty-six hours after the operation.

Dr. Gibbon was of the opinion that in cases such as this one it would be far better to surround the perforated bowel with gauze and establish thorough drainage. This he thinks would be better than withdrawing the bowel entirely out of the wound. If necessary, the bowel could be attached to the peritoneum by catgut. In cases of this kind, where the patient is in bad condition and where there has been considerable outpouring of intestinal contents, the performance of extensive operative procedures is not warranted, and the simplest treatment gives the best results. It is also thought that drainage of the intestinal contents through the wound is some protection against the perforation of other threatening ulcers.

Dr. James P. Hutchinson cited a case to illustrate the difficulty met with at times during attempted turning in of typhoid ulcers with subsequent fistula. The patient was a woman in whom perforation had occurred, the opening being about the size of a lead-pencil. The size of the ulcer and the condition of the bowel prevented turning in of the ulcer, and instead the thickened omentum was employed to cover the damaged intestine. The patient made a slow recovery, foul pus being discharged for some weeks. In this case Dr. Hutchinson believed a fistula existed, which eventually closed without operation. This result was accomplished by simply walling off the area of perforation with gauze. Dr. Hutchinson feels that recovery would not have followed turning in of the ulcer in this case as obstruction would almost surely have resulted. He employed resection in one case where there was an intussusception in addition to several perforations, one and one-half feet of the bowel being removed. The patient lived thirty-six hours, death being due to peritonitis. Dr. Hutchinson believes the patient's chances would have been better had the method used by Dr. Da Costa been employed in this case, or in any case in which resections may be necessary.

Dr. Robert G. Le Conte agreed with Dr. Da Costa that resection of the bowel is a most hazardous procedure when the perforation is so large that it cannot be closed by suture. He had done it once and lost his case. He did not, however, approve of making a formal artificial anus, as described by Dr. Da Costa, where other portions of the bowel were deeply ulcerated, as under the circumstances, should another ulcer perforate, a successful termination, as shown in Dr. Da Costa's case, will but rarely occur. Where the opening is large and other portions of the bowel seem seriously inflamed, he agrees with Dr. Gibbon that the safest plan is to wall off this area of the intestine with gauze from the general abdominal cavity. He had resorted to this expedient twice, and in both instances his patients recovered.

PERFORATED GASTRIC ULCER, FOLLOWED BY THE DEVELOPMENT OF AN ABSCESS BETWEEN THE LIVER AND STOMACH.

Dr. J. Chalmers Da Costa reported a case of perforated gastric ulcer in a girl of sixteen years. The perforation was encompassed by adhesions, and was followed by the development of an abscess between the stomach and the liver. In this case the diagnosis was extremely obscure, one suggested diagnosis having been tuberculosis and enlargement of the kidney. The patient had tuberculous consolidation of the apex of the right lung.

He referred to this case in order to show a deceptive skiagraph, which seemed clearly to show two calculi,—one, it might be thought, in the kidney, and the other in the ureter. He,

however, followed a rule that he believed to be sound, that is that the clinical symptoms form the best guide; and accordingly he opened the abdomen, found and drained the abscess, and closed the perforation. On conducting a search to discover whether or not there was trouble with the kidney and ureter, he quickly found the cause of the deceptive skiagraph; there were two calcified colic glands. He had no doubt that such deceptive pictures had occasionally misled surgeons into operating for stone in the kidney when none existed.

Dr. John H. Gibbon referred briefly to two cases of perforated gastric ulcer which he had operated upon since his report of four cases made before the Academy about a year ago. The first patient was a man fifty years of age, who gave a typical history, and had the typical symptoms of gastric ulcer. He was seen twenty-four hours after the onset of acute symptoms. He then had a general peritonitis; the abdomen was scaphoid and intensely rigid. The diagnosis of perforated gastric ulcer was made and the abdomen opened. The peritoneal cavity was found filled with sero-pus. In the lesser curvature of the stomach near the pylorus was an indurated area supposedly marking the site of an ulcer, but there was no perforation. Opening of the lesser peritoneum revealed no perforation on the posterior wall. The duodenum contained no ulcer, and the appendix appeared normal. The abdomen was closed with drainage, and eighteen hours later the patient died. Post-mortem examination revealed an ulcer in the indurated area of the stomach; there was no perforation, nor even signs of threatened perforation, and there was no other ulcerated area in the stomach or intestinal tract. Dr. Gibbon believes that peritonitis was caused by the ulcer, without perforation. A second patient, operated on twelve hours after the onset of acute abdominal symptoms, had a perforation of the anterior wall of the stomach near the pylorus. He lived four or five days after the operation. He had been a hard drinker, and died apparently from delirium tremens, as he manifested all the symptoms of that condition, and there was no evidence of spread of the peritonitis. This man had been treated for three years for gastric ulcer, and operation revealed adhesions between the stomach and liver; these probably had ruptured and allowed the escape of material which had been held between the two organs, thus giving rise to the acute peritonitis.

GASTRO-ENTEROSTOMY FOR ULCER OF THE ANTERIOR WALL OF THE STOMACH, NEAR THE PYLORUS.

Dr. Da Costa reported a third case in which an operation had been performed for ulcer of the anterior wall of the stomach, near the pylorus. He performed gastro-enterostomy, according to the method recently described in the Annals of Surgery, by Scudder, of Boston. In ease of performance and in perfect cleanliness, he found the operation most satisfactory.

After its performance,—that is, the day after the operation,—this patient vomited quantities of bile. The second day after operation, this condition still continuing, he was obliged to consider what he could do for the girl if it was not quickly arrested. Fortunately, however, it was arrested by frequently washing the stomach; but the development of the vomiting led him to think that a serious objection to Scudder's operation is that, should a vicious circle be formed, it could not be remedied by entero-anastomosis, on account of the bowel having been picked up too close to the duodenojejunal junction.

The following facts seem perfectly clear:

1. If a vicious circle exists after this operation, entero-anastomosis is impossible; and there is open only one of two methods: First, as was suggested by Dr. Francis Stewart, ligation of the pylorus; and, second, as occurred to him, the opening and drainage of the gall-bladder. This suggestion may have been made before, but he was not aware of it.

He did not know what percentage of the bile that comes down the hepatic duct is taken externally when the gall-bladder is drained, but certainly a great quantity of it escapes. If one could by this method remove a large percentage of the bile that would otherwise enter the duodenum, one would thus intercept a great amount of the bile that would otherwise enter the stomach; and it seemed to him that this method of procedure should at least be thought of in any case of vicious circle. This patient, fortunately for her, recovered without the employment of either of these procedures.

It has been affirmed by some operators that the vicious circle does not occur after posterior gastro-enterostomy; but, personally, he believed that it may occur after any form of gastro-enterostomy, if the pylorus is open.

Dr. William L. Rodman regarded as most valuable the suggestion of Dr. Da Costa to drain the gall-bladder for overcoming the vicious circle following gastro-enterostomy. This sequel is not so apt to follow posterior gastro-enterostomy, but it does follow both the anterior and posterior methods, and perhaps more frequently than is generally admitted. One surgeon recently stated that a large number of his cases developed the vicious circle. Dr. Rodman is surprised that no one has before suggested the expedient mentioned by Dr. Da Costa, and in a future case he would not hesitate to employ it.

Dr. Robert G. Le Conte could not see that, in cases of vicious circle after gastro-enterostomyy, any advantage would be derived from draining the gall-bladder. Reasoning from analogy, where the gall-bladder is drained and no obstruction exists in the cystic duct, large quantities of bile will be drained off from the gall-bladder, but at the same time the color of the stools remains normal, showing that a considerable portion of the bile must escape through the common duct into the bowel.

In the vicious circle no obstruction to the common duct exists, and it did not seem to him that much would be gained by opening the gall-bladder and draining off the bile that enters that organ while the remainder passed freely into the intestine. Where the vomiting is obstinate after gastro-enterostomy, and is not relieved by washing out the stomach and the sitting posture, he believes the obstruction is generally due to adhesions, and nothing short of an exploration of the field of operation should be attempted.

Dr. Francis T. Stewart said he had been convinced of the plausibility of Scudder's operation which had been mentioned in the case reported. In two cases of gastro-enterostomy in which he had employed this technique, the vicious circle was established. One patient died, the other vomited for days, and finally recovered after refusing a second operation. Dr. Stewart's intention in this case, had permission to operate been obtained, was to ligate the pylorus or some point near it. He does not believe that drainage of the gall-bladder would aid recovery in these cases. Scudder's operation differs from Moynihan's in location, being at the beginning of the jejunum, and thus rendering entero-anastomosis impossible.

Dr. Da Costa, in closing, said that Dr. Le Conte had raised

an important point regarding the utility of draining the gall-bladder in cases of vicious circle. Dr. Le Conte is of the opinion that only a part of the bile passes externally after draining the gall-bladder. This same point had occurred to Dr. Da Costa; but he thought that such a large amount passes externally that the stomach would be considerably protected by the procedure, for it seems to have been demonstrated that after every gastro-enterostomy some bile enters the stomach, and that a small amount of bile apparently produces little or no disturbance. The disturbance occurs only when there is a quantity of bile; and, by taking a large amount externally every day, one would certainly diminish greatly the amount that would be present in the duodenum and which could enter the stomach.

Dr. Da Costa, of course, recognizes the fact that the suggested expedient is a pure experiment, and might completely fail on trial; but he believes that, had the vomiting continued in the case reported, a trial of the operation would have been justifiable. Dr. Le Conte's objection that this would not prevent the intestinal contents from points further down from entering the stomach did not seem weighty to Dr. Da Costa, as he does not believe that in most of these cases any of the intestinal contents from farther down reaches the stomach. If it should do so, it would give evidences of its presence; and these evidences would, of course, contraindicate the operation of draining the gall-bladder.

NEPHROLITHOTOMY.

Dr. Gwilym G. Davis reported four cases in which he had removed renal calculi by incision into the kidney.

Case I.—Laborer, aged thirty-three years. Six years ago he had several attacks of what were probably renal colic. His present illness dates back five months. He contracted a heavy cold with cough, fever, and pains all over his body. During this illness he was seized with a sharp pain in the right lumbar region. It was localized and cramp-like in character. He was confined to bed for two days, and then went back to work and remained at it for a month. He then fell sick and indisposed, with sharp pain in the right lumbar region. He also had headache. The pain in the side lasted thirty-six hours, and then suddenly ceased, and there was a sensation as of something passing into the blad-

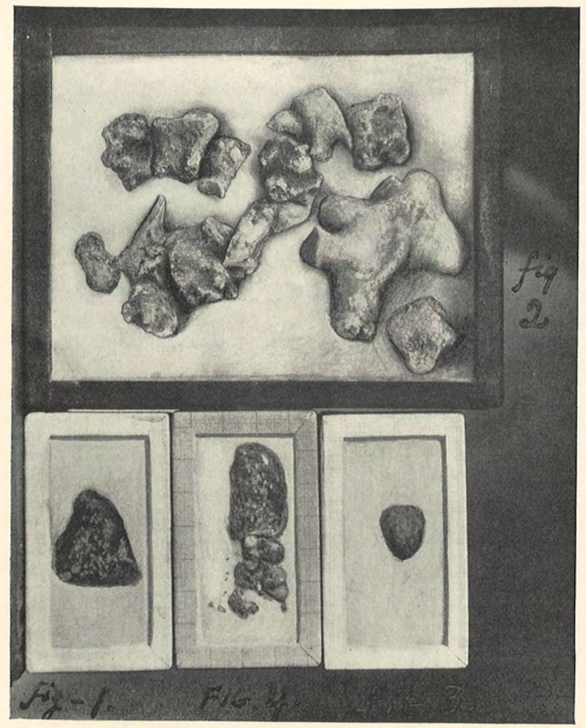
der. Since that time he had vomited a great deal, had some difficulty in urinating, and passed bloody urine. The urine stopped suddenly, but sounding failed to find any stone in the bladder. There was a skiagraph taken by Dr. C. H. Leonard, and, while the indications were not at all marked, he still expressed the opinion that a stone was present. Urine was sometimes acid, sometimes alkaline, and at others neutral. Sometimes it contained pus and blood. Specific gravity, 1018 to 1022; few bacteria.

Operation.—An incision about four inches long was made on the right side obliquely downward from the twelfth rib. The kidney was drawn out and the stone located by a needle. An incision about an inch long was made on the convex surface of the kidney, through which a triangular-shaped stone was extracted. (Fig. 1.) This incision was closed with four catgut sutures passed directly through the kidney with a round needle and tied with sufficient firmness to close the wound and stop the bleeding. The external wound was closed at each end and packed in the middle. In attempting the removal of the gauze, free hæmorrhage occurred. The packing was allowed to remain for several days longer, and was eventually removed, and subsequent convalescence was rapid and uneventful.

The first examination of his urine showed it to be red in color from blood. Specific gravity, 1018; alkaline in reaction; no crystals, but plenty of bacteria.

Ten days later it had a specific gravity of 1020, was pale straw color, faintly alkaline, and contained some pus-cells and bacteria as well as some alkaline phosphates. A still later examination gave a neutral reaction, no albumen, pus, or blood, and but few bacteria. There were some urates and uric acid crystals. The calculus was heart-shaped, twenty-five millimetres (one inch) wide by thirty millimetres long, and about ten millimetres thick. An examination by Professor John Marshall showed that it was composed of calcium oxalate (mulberry calculus), and that it weighed 7.3 grammes (110 grains).

Case II.—Young man, aged twenty-one years. He stated that a doctor had removed a stone from his bladder when he was four years old. Present illness began three and a half years ago with sharp, lancinating pain in the right lumbar region, extending as far forward as the mid-axillary line. For a year after this attack he felt well, when he had another, and then two more,



Figures showing the calculi removed in Dr. Davis's cases of nephrolithotomy.

two months apart, in which last one he had continuous pain for two months, when it ceased, and was absent for four months. The first of these attacks confined him to bed, and the pain was relieved by lying on the right (affected) side, while it was increased by lying on the left side. He has never had sick stomach, nor has the pain ever radiated down the ureter or testicle. On admission to the hospital he was a moderately well-nourished young man, sallow complexioned, with acne of the face. Pulse good, tongue normal; he complained of pain in the right side of the lower half of the chest and in the right lumbar region. There was tenderness on pressure, but no fulness. A skiagraph, taken by Mr. Riedel, showed a faint shadow about two inches from the median line and just below the costal margin. During the week previous to operation he had a slight chill, with temperature 100° to 101° F. Headache, coryza, slight conjunctivitis, and cough. These symptoms disappeared previous to operation. The urine was cloudy, yellow, with a dense white sediment; faintly acid in reaction; a few blood-corpuscles, and a marked trace of albumen. No casts, but an abundance of pus. Later it still continued turbid, contained pus, and its reaction became alkaline; it contained crystals of the triple phosphates.

Operation.—Under ether anæsthesia, a four-and-one-half inch incision was made down and out from the twelfth rib. The kidney was found much enlarged, capsule inflamed, thickened, and densely adherent. Kidney delivered with difficulty. A thin sac from three to ten millimetres (one-eighth to three-eighths inch) thick was all that remained of the kidney substance. This covered a large mass of stones, which were removed through an incision on the convex border. (Fig. 2.) The wound was packed and drained. Recovery from the operation was prompt, there being but little shock. In the course of the week following the operation he had an attack of congestion of the lungs, which cleared up and the gauze packing was removed without difficulty. He passed from fifty-one to sixty ounces of urine per day, and the urea ranged from 1.9 per cent. to 2 per cent. The wound healed rapidly and was soon entirely closed, and, though the urine remained turbid, he seemed in excellent health, and later left the city. The calculus was composed of triple ammonium, magnesium phosphates, and weighed 953 grains, nearly two ounces or sixty-two grammes.

Case III.—This was a young married woman aged twenty years. Present illness. For the past four months complained of attacks of pain coming on at irregular intervals, but bearing no relation to the menstrual periods. The pain was described as dull and "pressing;" at times it was sharp, commencing in the right lumbar region and radiating to the iliac and umbilical regions and down the right leg as far as the knee. No history of other attacks of renal colic. The pain was somewhat relieved by bending forward; vomiting occurs at times during these attacks. She had chilly sensations, but only one chill previous to operation. Was unable to bear the constriction of the clothing around the waist. She had had trouble with her urine for months. It dribbles away, and its passage was accompanied by straining. There was increased frequency of urination but no burning. It has been milky in color and ropy in consistency. No history of the passage of gravel or calculi. Urine, specific gravity, 1028; moderately acid; heavy trace of albumen. No casts; light amber in color, cloudy, and contained an abundance of pus.

On admission she was of a rather spare build, face flushed, tongue coated, abdomen not distended, no tumor discoverable. There was tenderness, not marked, in the region of the right kidney and right iliac fossa. A skiagraph showed a fairly distinct shadow indicating a probable stone in the right kidney. The urine previous to operation was acid in reaction. Specific gravity, 1013 to 1018; turbid; marked trace of albumen; dense sediment of pus. No casts; a few blood-corpuscles, and no tubercle bacilli. A later examination showed some hyaline and granular casts and bacteria in short and long chains. Some oxalate crystals were found at times. The urea varied from 1.6 per cent. to 2.3 per cent.

Operation.—An oblique incision was made downward and forward from the twelfth rib and a stone ten by fifteen millimetres removed through an incision in the cortex. It weighed about two grammes, and was composed of oxalate of calcium, mulberry calculus. (Fig. 3.) The wound was packed, and on attempting its removal two days later the bleeding was so free that it was reinserted and left five days longer, when it was removed without further bleeding. The wound promptly healed and she was discharged cured.

Case IV.—Married woman aged forty-four years. Present illness began two years previously with a sharp pain in the right side, at first this was intermittent, but later became constant. It radiated downward into the right groin. A skiagraph was made by Dr. Leonard, and he gave it as his opinion that a stone was present. Another skiagraph in another hospital failed to show the stone. An operation was done seven months ago and a large amount of pus evacuated from around the kidney and under the liver. Since this operation a sinus persisted in the loin, which led up under the liver and discharged large quantities of pus. The pains in the side still persisted of the same character and intensity. The urine was yellow, cloudy; specific gravity, 1022; acid; trace of albumen and an abundant white sediment. There were no casts. No crystals, but abundant leucocytes, no red blood-corpuscles.

Operation.—The sinus leading under the liver was slit up by following along the edge of the ribs and a very large amount of pus evacuated. The incision was then prolonged backward and the kidney exposed, and a stone of considerable size extracted. It consisted of calcium carbonate and triple ammonium, magnesium phosphates. It weighed 5.66 grammes (88 grains). (Fig. 4.) The wound was packed, and again there was troublesome bleeding before the packing was finally removed. Healing was rapid and the sinus closed in a little over a month's time.

Dr. Davis said that the question of diagnosis in cases of renal calculi is not always readily settled. In two of these four cases the presence of a calculus had not been previously recognized. Personally, his belief is that exploratory incision is justified when marked local symptoms point to kidney involvement. Probably the best means of diagnosis is the X-rays, but even they are not absolutely conclusive. The value of an opinion depends largely on the personal skill of the examiner. In Case I the X-ray indications were not at all marked, yet Dr. Leonard expressed the opinion that a stone was present, and such proved to be the case. The stone was a good-sized one of oxalate of calcium, and should have given a good shadow. Case II likewise gave a faint showing, but Mr. Riedel claimed that it showed the presence of stone, and he was right; but the amount of calculus present was enormous, and should have given undoubted evidence. The fact that it was phosphatic in character may have been the cause of its not showing a stronger shadow. Case III had the smallest

stone, oxalate of calcium, and threw a distinct, clear shadow, satisfactory in every way. It also was taken by Mr. Riedel. In Case IV Dr. Leonard had pronounced a calculus present, and another operator had failed to demonstrate it. The former proved to be correct. There can be little doubt but that in the hands of a skilled operator the X-rays will almost certainly show the presence of a stone if one is really there. Negative evidence is only to be accepted after repeated failures, and the positive evidence is to be interpreted by one accustomed to examine skiagraphs for the presence of calculi. The fact of all these cases involving the right kidney was worthy of note. It seems to show that the right kidney is more liable to calculous disease than the left, as well as more liable to dislocation. Recently a case came under his care in which the symptoms pointed to the presence of a renal calculus in which two skiagraphs were negative. Operation revealed an abscess of the kidney with no stone present, although small calculi had some time previously been passed from the bladder.

The urine in renal calculus is more often acid than alkaline. It may vary from time to time. In two of these cases it was alkaline at some period of the disease, but was most often acid. For part of the time it was acid in Case II, in which the whole kidney was blocked up with large masses of triple phosphates.

The presence of blood in the urine seems to be a reliable symptom. It was present in all the cases at some stage. In the first case there was a history of large amounts of blood coming away with the urine, but in the other three it was small in amount and only occasionally seen. Often it is only to be detected by microscopic examination. Pain in the region of the affected kidney also showed itself quite a reliable symptom.

As regards the operative procedures, the incision used was an oblique one, extending from the anterior end of the twelfth rib downward and forward towards the anterior portion of the crest of the ilium.

This is preferred to the straight incision of Edebohls along the edge of the erector spinæ muscle because it can be extended both upward and downward if desired. Particular care is necessary in making the upper portion of the incision. The pleura crosses the twelfth rib about at its middle, or a little farther posterior; and if the incision is made up to the rib posterior to

that point the pleura is liable to be wounded. The twelfth rib should be carefully identified, as, if it is short, it may be overlooked and the eleventh rib mistaken for it. Additional space can be gained if necessary by prolonging the lower end of the incision along the crest of the ilium. The question of bleeding may prove a serious one. That of the soft parts is readily controlled, and if the kidney is delivered externally the bleeding from it likewise can be checked. There is a temptation in these cases, when a stone is felt beneath the examining finger, to simply incise and lift it out with the forceps. In doing this the bleeding is apt to be exceedingly free and persistent, and only controlled with the greatest difficulty. For this reason no attempt should be made to either search for or extract a stone unless the kidney has been rendered accessible by drawing it out of the wound, or placing strips of gauze beneath each end. When it is once outside, an incision can be made in the convex edge just posterior to the median line and a digital examination made of its interior. After the extraction of the stone the wound is closed by three or four catgut sutures passed directly through the organ a half an inch or more posterior to the edges of the incision, with a round needle, and tied over the wound. This checks all hæmorrhage. While bleeding can be checked by packing forced into and on the kidney while it is lying in its bed, the procedure is dangerous and unreliable. Much blood will almost certainly be lost, and the patient is liable to be lost also. If packing has been resorted to its removal is likely to be followed by a renewal of the hæmorrhage, and it may be profuse. For this reason it is well to wait for several days and then inject peroxide of hydrogen to loosen the gauze, and if it does not come away readily to allow it to remain until it becomes loosened of itself. It is well to put a rubber tube around each end of the kidney, securing them outside the wound, so that the kidney can be lifted up if necessary to control bleeding. These tubes can be taken away after the gauze has been removed and all danger of hæmorrhage passed. Healing in his cases had been prompt, and, though urine began to discharge externally almost at once, it ceased in a few weeks as the wound closed. It will take longer for the urine to clear, and it may remain turbid for a long while after the wound has healed and all calculous symptoms have disappeared.

Dr. Robert G. Le Conte said that in his first operative cases

of renal calculus he was very greatly concerned about the hæmorrhage, which appears very alarming. As a rule, however, the hæmorrhage will lessen in a few minutes, or can readily be controlled by gauze packing. He did not fear to incise a kidney which could not be delivered through the wound, as he had seen two cases where delivery of the organ was impossible, and after incision the hæmorrhage was readily controlled by packing. If packing has been used to control hæmorrhage it should not be removed for a number of days, and then only after every precaution has been used to loosen it, namely, salt solution, peroxide, etc.

In answer to a question by the President, Dr. Le Conte said he had seen a renal calculus in a child under one year, the stone having been found at the post-mortem examination.

Dr. Henry R. Wharton, speaking of the age of subjects of renal calculus, said he had seen one in a child of nine years. The patient had an abscess of the pelvis, and after operation the calculus was discharged from the abscess cavity.

Dr. Davis, in closing, said the line of incision in opening the kidney should be at the point of anastomosis, of the anterior and posterior vessels, which is slightly posterior to the middle line. Regarding hæmorrhage, he felt a stone in the kidney in one case and thought it could readily be lifted out; he at once incised the organ and introduced forceps, which brought away only part of the stone, several trials being necessary to clean out the fragments. Hæmorrhage was severe, and he believes it would have been better to first secure control of the kidney before making attempts at extraction.

SARCOMA OF OVARY.

Dr. John H. Gibbon exhibited a solid ovarian tumor which he had removed the same morning. The patient was a woman fifty-two years of age, who had passed her menopause seven years. The duration of the tumor was said to be three years. The patient's abdomen was so distended with ascitic fluid that she was obliged to occupy a semi-sitting posture all the time. The tumor was easily palpable through the abdominal wall, and was quite movable. The tumor was easily removed, there being no adhesions. It involved the ovary only, the tube and broad ligament being entirely free from disease. A number of quarts

of fluid were removed from the cavity. The patient recovered promptly from the operation.

The tumor was a large, rather elongated, irregular, lobulated mass, with a central constriction and a definite cavity large enough to admit an egg on the under surface. Its largest diameter was 20 centimetres by 1.3 by 6 centimetres. To one end was attached the remains of the Fallopian tube, which was quite small, and the tubo-ovarian ligament. The surface was quite smooth and practically free from adhesions. The tumor was mottled yellow, white, and pink. Large blood-vessels ran over the surface and a few small cysts were seen containing clear fluid. The margins of the cavity on the under surface were overhanging, rounded, and contracted in appearance; the cavity itself in places was lined by soft, yellow, stringy material. The tumor generally was exceedingly hard. On section, one received the impression that the main portion of the tumor formed a wall for the cavity, this wall averaging from two to three centimetres in thickness and was very firm in consistency. The cut surface was granular, irregular, and decidedly gritty to the knife, and was of a pale canary color streaked with white. At one pole of the tumor the wall gradually faded into a mass which formed the broadest portion of the growth; here the cut surface was quite granular, irregular, moist, streaked or mottled red, white, and yellow. The Fallopian tube was apparently normal. Weight, 800 grammes. A microscopic examination of the growth showed it to be a fibrosarcoma.

Dr. Warfield T. Longcope said the tumor was probably a carcinoma or an endothelioma. It is quite surely malignant now, even if it did not start as a malignant growth. The shape of the specimen and the necrotic area in the centre suggest its origin from the wall of a corpus luteum, but such a diagnosis could hardly be ventured without further study.

Dr. Robert G. Le Conte said that the tumor shown was one of the most remarkable growths he had ever seen. He had never encountered a pure carcinoma of the ovary, although he had had several cases of proliferating papillomatous cyst. In these cases ascites was uniformly present, even when the malignant disease was confined to the cyst, and did not involve the peritoneum.