STATED MEETING, APRIL 7, 1902.

The President, RICHARD H. HARTE, M.D., in the Chair.

RENAL CALCULUS IN A CHILD OF TEN YEARS.

DR. THOMAS R. NEILSON said that a girl, ten years of age, came under his care at St. Christopher's Hospital for Children in November, 1900, with the history that for some two years previously she had been subject to attacks of pain, sharp and lancinating in character, in the right loin, radiating downward and extending to the anterior and inner aspect of the thigh. At the time of these paroxysms, which occurred as often as once a week, the urine was, as described by the parents, very bloody.

When Dr. Neilson first saw the child, she was pale, anæmic, and feeble in appearance; her pulse was 100, weak, and irregular in character. The urine, which presented a cloudy, bloody looking sediment, contained albumen, pus, blood, and uric acid crystals.

The general condition was such that it seemed to him highly injudicious to submit the patient at once to an operation of the gravity of nephrolithotomy, for it was evident that any loss of blood, however small it might be, would be ill borne. Accordingly, the child was placed in bed, carefully watched for symptoms, and fortified by diet and treatment for the necessary operation. She gained strength but slowly, and it was several weeks before he considered her strong enough to undergo it. On but three occasions in the interim did she have attacks of renal colic, two of them being of but a few minutes' duration. Twice the operation was delayed by intercurrent troubles,—a cold with croupy attacks, and a sore throat.

The urine was repeatedly examined, and the microscope showed that it generally contained some blood-corpuscles and pus-cells, although no blood was visible to the naked eye after the first examination made on the day of admission. There were noted on several occasions crystals of uric acid, amorphous urates, and phosphates. The reaction of the urine was uniformly acid, and the test for albumen usually was positive in result.

The diagnosis of renal calculus was confirmed by a skiagraph

taken by Dr. Charles L. Leonard. This showed the presence of a stone in the pelvis of the right kidney at the lower pole.

Operation was performed on January 9, 1901, Dr. H. C. Deaver assisting. Dr. Neilson made the incision preferred by Mr. Henry Morris for exploration of the kidney and ureter, which afforded easy and ready exposure of the organ. The kidney was freely movable downward; the result, no doubt, of the long-continued attacks accompanied by straining. Delivering it through the wound, a small stone was easily felt at the lower extremity of the renal pelvis; the blood-vessels being firmly compressed between the thumb and fingers, an incision through the cortex readily enabled him to extract it with small stone forceps. A careful search was made to see if any other concretions might be present, but none were discovered. The wound in the kidney was packed with a strip of iodoform gauze to control oozing and to act as a drain, and the kidney was then replaced, a thick loop of iodoform gauze being first passed beneath both the upper and lower ends of the organ to hold it in position, the ends of the loop being brought out of the wound, which was packed with more iodoform gauze, sutures being employed only at the extremities.

The calculus, which is of irregular shape, weighed twelve and one-half grains; its greatest circumference being thirty-three millimetres, and its shortest twenty-five millimetres. In its long axis the diameter is thirteen millimetres, crosswise it measures nine millimetres, and its least diameter is six millimetres. At one extremity it comes almost to a sharp point near which its surface is rough and uneven, and at two other places groups of crystals protrude from the otherwise smooth surface.

Part of the gauze packing was removed in a few days, the loops not for some ten days. At this time the surface of the kidney, which could be seen partly in the wound, was covered with healthy granulations.

The little girl bore the operation well and made a good convalescence, being allowed to get out of bed in five weeks. Since her recovery she has remained perfectly well so far as urinary symptoms are concerned.

SARCOMA OF THE LEFT SUPERIOR MAXILLARY BONE IN A CHILD OF ELEVEN.

DR. NEILSON presented a boy, eleven years old, who was admitted to St. Christopher's Hospital on January 2, 1902, with

the history that something over a year previously he had been struck on the left cheek by a base-ball, and that soon afterwards a tooth (the first bicuspid) came out, and a small swelling on the jaw was observed. This growth had gradually increased in size, more noticeably shortly before the child's admission to the hospital. When first seen by Dr. Neilson, there was a marked prominence of the left cheek, and inspection revealed the presence of a tumor, the surface of which was traversed by several good-sized veins, the growth apparently springing from the body of the superior maxilla, extending downward as far as the alveolar border, upward into the antrum, and encroaching inward upon the hard palate. Measurements taken by the Resident Physician, Dr. G. J. Ewing, from whose notes the data for this report were gathered, showed that the tumor extended upward to within half an inch of the infra-orbital margin, outward to within one-eighth of an inch of a line drawn perpendicularly from the external canthus, and inward to within one-fourth of an inch of the nasal septum.

Inquiry into the family history elicited the statements from the boy's parents, both of whom are living and healthy, that his maternal grandfather had been operated upon for a tumor of the groin, and that an aunt, also on the maternal side, was said to have had a cancer of the breast. Besides the patient, there are three other children in the family, all living and well.

A blood examination made by Dr. Ewing on January 6 gave the following result: Red blood-corpuscles, 5,184,000; white blood-corpuscles, 13,500; hæmoglobin, 68 per cent. On January 29 another examination was made, the report being, red blood-corpuscles, 5,120,000; white blood-corpuscles; 17,300; hæmoglobin, 90 per cent.

On February 7, an operation, in which he was assisted by his colleague, Dr. H. C. Deaver, was performed.

With the head well elevated, the patient in a semi-reclining position, the Fergusson incision was made, and the entire bone was removed. There was no excessive loss of blood, and the boy bore the operation well until just after the removal of the bone, when he suddenly collapsed. Stimulating hypodermic injections and oxygen were given during the closure of the wound, and immediately after the child was returned to his bed, a few minutes later, he was given normal saline solution by hypodermoclysis. The shock was severe, and for some time the condition remained

critical. Reaction, however, occurred before long, the temperature rising by 7 P.M.—some five hours after the operation—to the remarkable height of 106.8° F. The boy made a good recovery.

The growth was submitted for examination to the pathologist of the hospital, Dr. William Pepper, who reports that it was a giant-celled sarcoma. Surrounding it was a thin layer of bone as though the latter had been pressed out.

A blood count made on April 4, two weeks after the boy's discharge from the hospital, showed but little change in the number of leucocytes as compared with the count made just after admission to the hospital. The figures from the latest count are, red blood-corpuscles, 5,060,000; white blood-corpuscles, 13,000; hæmoglobin, 65 per cent.

DOUBLE ANKYLOSIS OF HIPS FOLLOWING COXALGIA.

Dr. John H. Jopson showed a girl, aged fourteen years, on whom he had operated one year previously for contracture of both hips following coxalgia. The patient also had a very marked kyphosis in the dorsal region, the result of Pott's disease. Both hips were much contracted, the left hip firmly ankylosed, the right hip partially so. She moved about by swinging herself along between crutches, and when standing rested in a crouching attitude, her hands and forearms supported on her thighs. The left hip was straightened by sawing the femur below the trochanters; and dividing subcutaneously the sartorius, the tensor vaginæ femoris, and the adductors. The right thigh was brought down without cutting the bone, after subcutaneous tenotomy of the adductors and division of the tensor vaginæ femoris, the sartorius, and the long head of the rectus muscle through one open incision. The result was better than expected. The limbs are of almost equal length, the patient walks very well with one crutch, and for short distances without any. She uses a chair which permits her to sit in a semi-reclining attitude. The operation shows the wisdom of preliminary myotomy and tenotomy in fibrous ankylosis, as recommended by Lorenz, before dividing the femur. Attempts have been made by Volkmann and others to secure a movable joint in these cases by chiselling out a new joint, to avoid the difficulty in sitting which is present after simple osteotomy. Where both hips are ankylosed in bad position we have a choice of three procedures

(Hoffa). (1) The formation of a new joint on both sides (Studensky and Maas). (2) The performance of double subtrochanteric osteotomy. (3) Resection and formation of a movable joint on one side, and simple osteotomy on the other side (Volkmann and König).

Dr. De Forest Willard remarked that cases of multiple tubercular foci demand careful attention. Where there is a spinal caries and a tubercular disease in one hip or, as frequently happened, in both hips, the resulting deformities are so great that the locomotion of the individual becomes almost an impossibility. The child shown has been improved from 50 to 75 per cent. by operation. She is still crippled, yet moves about without even crutch or cane, and will be able in time to take long walks and accustom herself to the new position. In ankylosis following a spinal caries and one following hip disease, especially if the ankylosis is at right angles, progression becomes so difficult that the individual is obliged to almost bow himself to the ground at every step. The rigidity of the spine renders it impossible for the lordosis or anterior bending to occur, which would otherwise take place to accommodate this ankylosis of the hip. This calls for osteotomy; and while the ultimate fixation of the hips in nearly a straight line to the body renders sitting much more difficult than in the former conditions, yet with a narrow chair and high back the patient is able to support himself partially lying and partially sitting, with moderate comfort. The new position of the hips is, of course, for a time difficult, and patients are obliged to throw the body from side to side, but they gradually accommodate themselves to this condition, and are able to have free and comfortable locomotion. It is an operation that should always be done in these cases. They should never be allowed to become helpless cripples, incapable of voluntary locomotion.

Dr. J. K. Young said that he had seen several cases of double osteotomy for hip-joint disease, and in one he attempted to remove a wedge-shaped piece of bone after the method described. Motion kept up for several days, but ankylosis finally occurred. He did not think it possible to produce a movable joint after an operation of this kind.

Dr. G. G. Davis thought that in ankylosis of both hips the condition is so deplorable that an effort ought to be made to get a movable hip. The difficulty, however, that will be encountered,

in all likelihood, in cases due to coxalgia is that they show a large amount of new bone thrown out about the joint, that the operation is apt to be such a severe one as almost to preclude its being done. The simple apposing of the ends of the divided bone, as would occur after a linear osteotomy, he would always expect to be followed by union, and nothing but the removal of a wide amount of bone would give a movable joint.

TENDON TRANSPLANTATION TO RELIEVE LEG PARALYSIS FOLLOWING ANTERIOR POLIOMYELITIS.

Dr. Jopson also showed a boy of eight years suffering from paralysis of the extensor longus digitorum and peroneal muscles of the right leg, the result of anterior poliomyelitis. To relieve the equinovarus he had transplanted the tendon of the healthy tibialis anticus to the two outer tendons of the extensor longus digitorum after division of the plantar fascia. As the operation had been done only one month before, and the bandage had been cut only a few days, it was too early to foretell the ultimate result. There had been as yet no restoration of function. The operation of tendon transplantation, although twenty years old, had only attracted much attention in the last few years. Nicoladoni, in reporting his first operation in 1882, laid down what were still recognized as essential features in the technique, viz., to secure moderate tension of the transplanted tendon, to approximate surfaces of tendon extensive enough to promise firm union, and to prevent premature strain upon the tendon by providing support of the part for a considerable period after operation. The operation is still in the stage of development as regards its application to various regions. The most recent advancements have been in the attempts made to overcome the paralysis of the quadriceps so common as a result of anterior poliomyelitis. Among these are the plan of suturing the sartorius and external hamstring muscles to the quadriceps extensor (Bradford); and the transplantation and suture to the patella itself of the biceps tendon on the outer side by perforating the vastus externus, and of the tendons of the semimembranosus, semitendinosus, and gracilis on the inner side, bringing them through an opening in the vastus internus (Krause).

Dr. De Forest Willard said that tendon transplantation is one of the operations which can be used in quite a number of cases

with very great advantage. The difficulty in employing it lies in the fact that in a very large number of cases there is no tendon which one can borrow, since all the neighboring muscles may be paralyzed. Where there is a lack of equilibrium, one can borrow from the stronger and attach it to the weaker side, whether in the foot, leg, thigh, or arm. The transplantation of the entire tendon or a part of it is very helpful. The peroneal engrafted upon the tendo Achillis will often give sufficient power to raise the calcaneum if proper gymnastics are pursued.

Dr. G. G. Davis said that it is certainly gratifying to note the effect which is produced in a successful case after a transplanted tendon has begun its work. Usually, before operation, the foot is stiff and more or less locked. After transplanting, if the muscle begins its work, the foot seems to become more supple; and, of course, you have, in addition, the advantage derived by the action of that muscle in the functions of the foot. He had recently transplanted the semitendinosus to the quadriceps, perforating the vastus internus, and the muscle was regaining its action when the boy went home. He had also transplanted the anterior tibial to the extensor muscles as well as the peronei to the tendo Achillis.

NON-DEFORMING CLUB-FOOT.

Dr. J. H. Jopson also reported the case of a girl, aged sixteen years, who had scarlet fever in childhood and typhoid fever four months ago. Trouble with her feet was noted more than eighteen months ago, the exact date of onset being uncertain. An increase in the arch first attracted attention. Later she complained of pain in the thighs and knees after walking, and developed a peculiar and awkward gait. It was noted that the ball of the foot struck the ground first. There was no muscular weakness, as she was able to walk long distances in spite of the pains which persisted up to the time of observation. When first examined, it was noted that the patient was rather short in stature, and underdeveloped for her age, a bright, intelligent girl, but indisposed to physical exercise. There is nothing, aside from the condition of the feet, to attract attention. There is no lateral curvature. Examination of the feet shows an increase in the height of the plantar arch, more pronounced in the right but also present in the left foot, associated with contraction of the plantar tissues. A

very tight band of plantar fascia is observed on the inner side of the right foot. There is contraction of the calf muscles in each leg, resulting in inability to flex the foot to a right angle on the right side, or beyond a right angle on the left. Passive stretching is equally ineffectual. There is no loss of power apparent in the anterior muscles of the leg, the inability to flex the foot being due to the contracture of the calf muscles. There is a peculiar condition of the great toe of the right foot, consisting in an overextension of the first phalanx and a flexion upon it of the second phalanx. This is present to a minor degree in the outer toes of the right foot. The muscles of the legs are poorly developed, but no distinct wasting is present. The knee-jerks are normal.

It was apparent that stretching would not suffice for the contractures in the right foot; the plantar fascia and tendo Achillis were at once divided under anæsthesia, and the foot put up in an overcorrected position in plaster of Paris, which was retained for five weeks, the patient being permitted to walk on the cast after three weeks. A pair of light braces was then applied, consisting of a steel sole plate with a light bar fastened to the inner side and extending upward to a point just below the knee, where it was fastened by a band. There was a stop-joint at the ankle preventing extension of the foot beyond a right angle, and the foot was fastened to the plate by a band making pressure over the arch. The shoe slipped on over the brace after adjustment, and as the upright piece was lacquered, the brace was almost invisible. This brought both feet into good position, and the use of the braces was followed by steady improvement. After a couple of months she was sent to the Orthopædic Gymnasium of the University Hospital and active and passive corrective exercises ordered. She has now improved to such a point that the braces have been left off. There is a slight tendency to contraction of the left tendo Achillis, which was not divided; but this is yielding to the gymnastic exercises.

This case is a good example of the class of cases described by Newton M. Shaffer, in 1885, under the title of "Non-deforming Club-foot," a name which has been retained by most writers. An examination of the systematic text-books on orthopædics written since that time adds very little to the admirable description of the affection as given by Shaffer. Whitman includes it as one of the two subdivisions of the so-called "contracted foot," under

the head of "compound variety," and identifies it with the condition described by Fisher, of London, in 1889, as talipes plantaris. For a concise description of the deformity, one cannot do better than refer to Shaffer's original description. He describes the deformity as one in which "all the conditions found in certain forms of talipes exist with the exception of the exaggerated deformity. That is, there is a loss of normal relation between the articulation at the ankle and the muscles which act upon it, involving, also, in many instances, the tarsus, producing a condition which prevents normal flexion at the ankle-joint, and modified mobility, with slight deformity at the tarsal, metatarsal, and phalangeal articulations." In other words, the whole complicated mechanism of the foot and ankle are thrown out of equilibrium, and the pain, deformity, and disability which are present in all grades and degrees are the results. The etiology of the deformity is one of the most interesting features connected with it. That such a condition may and frequently does result from a temporary or permanent extensor palsy, the result of an anterior poliomyelitis, is of course unquestioned. According to Whitman, a mild poliomyelitis or neuritis occurring in childhood is the cause in most instances, often following scarlet fever or some other acute infection, and while recovery is apparently complete, a slight weakness is left which, during adolescence or adult life, develops into the condition described. The "talipes plantaris" of Fisher, with which Whitman identifies it, is certainly a deformity of paralytic origin, as Fisher expressly states. Among the causes which Shaffer enumerates as etiological factors are anterior poliomyelitis, traumatism, the infectious diseases of childhood, especially diphtheria and scarlet fever, and malposition, habit, etc. There still remains what might be called the idiopathic form, by far the most interesting because the most obscure, to which the case reported belongs, in which there is no evidence of any spinal cause, no history of traumatism, neuritis, or long-continued malposition, and which is observed, according to Shaffer, more frequently in the female sex, especially in those whose growth has been apparently arrested before the average height is reached. The very frequent association of lateral curvature and non-deforming club-foot, which he states were present in more than 50 per cent. of his cases of scoliosis, led Shaffer to look for some common cause, and this he views probably some

trophic lesion in the motor tracts of the brain, resulting in a misdirection of growth, affecting first the muscles, later the joints and other structures, and causing now a torticollis, again a scoliosis, again a foot deformity. Whatever the cause of this class is, indications all point to a central nervous origin.

While Shaffer treated his cases successfully by the application of his extension shoe, the indications for rapid correction by division of contracted structures in cases of any severity are generally recognized. The application of some simple and convenient retentive apparatus is of benefit after correction, and whatever course of treatment is employed, it should include a thorough course of gymnastic exercises to develop the muscles of the anterior aspect of the leg, which would seem to be the most rational means of preventing recurrence.

ANGIOMA OF FACE; REMOVAL AFTER LIGATION OF EXTERNAL CAROTID ARTERY.

Dr. W. Joseph Hearn reported the case of a child, four months old, who was brought to the Jefferson Hospital with an angioma the size of a large walnut in front of the ear. It was first noticed as a small red mark soon after birth. When admitted the tumor measured one inch by one and a half inches, and stood off from the side of the head one inch. It did not pulsate. From its color, there was a large admixture of venous with the arterial vessels. As dissecting out the tumor was the only means of removing it, and as it was fed by large vessels from the external carotid, he first ligated that vessel. The hypoglossal nerve served as an excellent guide to the vessel. After ligation of the external carotid, the tumor was removed without loss of any blood. One large artery supplied the tumor.

PERINEAL DISLOCATION OF HIP.

Dr. W. J. Hearn reported the following case: A man sixty-eight years of age, weighing 200 pounds, five feet five inches high, on stepping out of his door on ice, one leg suddenly separated from the other and he fell backward. He was unable to arise. He was carried to bed. Dr. Hearn saw him the next day, and found much suggillation in the perineum. The great amount of fat prevented him from feeling the head of the bone in its new

position as satisfactorily as he could have wished; but there was extreme abduction of the limb, and the knee stood far out from his body at an angle of sixty degrees. It was impossible to abduct the corresponding limb to the same degree. There was some shortening. Reduction was easy under an anæsthetic. Recovery with a useful joint followed. He reported the case on account of its rarity. Stimson reports but three cases of his own, and recorded cases are not numerous.

THE ACTION OF X-RAYS ON INOPERABLE CANCER.

Dr. W. Joseph Hearn reported the case of a man, aged forty-five years, who came to the Jefferson Hospital, October 3, 1901, with the following history: Ten weeks previous to admission he discovered an ulcerated lump on the inner side of his right jaw, which he thought was a gum-boil. It grew rapidly, and on admission was twice the size it was when first discovered. He was somewhat emaciated, and complained of gastric disturbances and constipation. The disease involved the mucous membrane at the angle of the jaw and extended to the membrane covering the pterygoid plates. An incision from the commissure of the lips to the angle of the jaw was necessary to expose the tumor, which was removed, but not satisfactorily, as the growth ramified in every direction. Three months later the tumor had returned, and its location and size made it inoperable. X-rays were then used twice weekly by Dr. Buchanan with a most gratifying result. The tumor has almost entirely disappeared, but that the disease is eradicated, the reporter did not pretend to claim. The health of the man has much improved, and altogether he is greatly benefited to a degree that no other treatment could accomplish. Dr. Hearn could not explain how the rays act, unless they cause a fibroid change in the cells of the growth, and this diminishes their power of proliferation.

In a second case, in the person of a man, seventy years of age, who was operated upon in Jefferson Hospital in July, 1900, for an epithelioma of the ala of the nose, a degenerated wart which he had for twenty years, there was complete removal and no return of the disease for eighteen months, when it again returned not only in the scar tissue, but also in the gum of that side. It was very painful. He neglected to return until the tumor was very large and involved much structure. His age and general health precluded an operation. The X-rays have reduced the tumor at least three-quarters of its original size and diminished pain. He has also been under the care of Dr. Buchanan.

Dr. De Forest Willard said in cases of epithelioma treated by the X-rays, the preliminary step to the application should be the removal of a large portion of the growth itself. By this means are removed millions of diseased cells, and the X-rays have a very much better opportunity to do their work. Their effect does seem to be favorable and hopeful.

Dr. Robert G. Le Conte said that his experience in epithelioma and its treatment by the X-rays had been limited to two cases. Both had epithelioma of the nose. In the first woman there was an involvement of the glands of the neck and also a portion of the lower eyelid. This case was treated by the X-rays; sometimes one treatment a week, sometimes two were given for a period of several months. For the first eight or ten weeks an improvement apparently took place. At the end of that time the growth on the nose remained in about the same condition for a period of two months, and then it rapidly grew worse, ending fatally possibly six or seven months after the X-ray treatment had begun.

In the other case, also a woman, there was a small area of ulceration on the tip of the nose, but, as far as discernible, no other portion of the body was involved. In this case the X-rays were applied two or three times a week, and there was a slow improvement. The ulcerated area cicatrized and the growth apparently diminished in size, but after three months it was still not cured. Induration was still present, although the ulcer had healed.

Dr. Francis T. Stewart said that he had had a case of an extensive epithelioma of the neck and side of the face under treatment by the X-rays for the past month. The patient is an elderly man, who has never submitted himself to an operation. The growth in the neck soon ulcerated, so that at the present time there is an immense irregular excavation in the side of the face and neck extending from the ear almost down to the clavicle, a clearly inoperable case. It had been making rapid progress, the pain was very severe, and the discharge extremely fetid and profuse. He was put under the X-ray treatment, Dr. Mitchell, of the Pennsylvania Hospital, applying the treatment every second day.

In a short time it was distinctly noticeable that the progress of the ulceration had been hindered; it had not been stopped; and there was no cicatrization; but it was not growing as rapidly as it had been. The discharge had markedly diminished, and the fetid character was entirely absent; the pain had practically disappeared. The patient had gained some in general health and his mental condition was very much better; it had been a ray of hope to him, for he had been told that some cases were cured by X-ray treatment. While this case does not promise much because of its extensive character, it does prove that there is a marked benefit from the rays in lessening the fetor, in ameliorating pain, and in prolonging life. The patient has been under treatment for a month.

Dr. John H. Gibbon said that after the recurrence took place in the man, described by Dr. Hearn, he came every day to the dispensary to have the growth dressed. The growth projected far out from the cheek and was about the size of a hen's egg, or even larger. At this time the odor he carried about him was so disagreeable that they had to give the dispensary over to him or else hurry his dressing. The picture shown was taken three days after the treatment was begun, when great improvement was shown.

In another case, a woman had an epithelioma, which extended over nearly the entire one-half of the nose. She had submitted to two operations. It was at first diagnosed lupus, but later the diagnosis of epithelioma was confirmed by the microscope. In this case complete healing took place, the result being very impressive.

Dr. Buchanan said that he was not so sanguine about the permanent cure of these cases as some other physicians who had used the X-rays for therapeutic purposes. He cited a case of lupus, the first of the kind treated by him with the X-rays. A man came to the hospital in August, 1901, with a patch of lupus in the region of the glabella about the size of a quarter, which had existed for a year and a half. He had been treated by the family physician during that time, who had used various forms of treatment, without any response. He also curetted this area once. When he came to the hospital, Dr. Buchanan subjected him to the X-ray treatment. After sixteen exposures of five minutes' duration each, twice a week, the lesion had entirely disappeared. He

was discharged at the end of this time as cured. After three months he came back to the hospital with the same condition existing as before. He stated that the sore had returned one month after his discharge from the hospital. He was again subjected to the X-ray, and after eight exposures with the time and distance as before, the lesion disappeared, and he was again discharged, which was two months ago. Whether it has recurred again or not, Dr. Buchanan did not know.

The case of cancer of the nose cited by Dr. Gibbon, involving the entire nose, had been under treatment for four years at the Jefferson Hospital. She was subjected to various modes of treatment in the surgical department for three years. As the sore made but little progress, she was then referred to the skin department, where she went at stated times for one year. She was then referred back to the surgical department, with the suggestion that it would be advisable to remove the nose. Dr. Da Costa suggested that we try the X-rays, and after eight exposures of five minutes' duration each, the patient being seated twelve inches from the tube, and the face being protected with a papier-mache mask covered with lead foil, a complete cure had apparently been effected. She then disappeared from the hospital, and up to the present time they had not been able to locate her. Dr. Buchanan further said that a great deal had been said about the kind of tube to be used. The majority of X-rays experimenters have said that the low tube is the better. A soft or low tube is one that gives but a faint shadow of the fluoroscope. He believed, however, that a strong tube, that is, one that will make a good skiagraph, is the best for all-around purposes. Furthermore, a high tube is less apt to burn than a low tube. The proper distance of the patient from the tube is about twelve inches, as the danger of a burn increases as the square of the distance decreases from the tube.

Dr. Hearn made the statement that the cure of cancer may be due to some fibroid changes produced by the X-rays in the tissues. Dr. Buchanan's theory is that it is due to some trophic disturbance in the trophic nerves of the blood-vessels and skin, and the fact that a burn or an erythema does not present itself for some time after the exposure, and the progressive character of said conditions, he believes supports his theory. As a cancer is a pathological new growth, he believed the trophic disturbance in the blood-vessels of these growths causes it to atrophy and disap-

pear, just as an epithelioma of the tonsil is caused to atrophy by the ligation of the carotid arteries.

The only case apparently completely cured in his experience is that of the old lady with the cancer of the nose. His experience had not led him to be very sanguine about the complete cure of all cases. If he were to make longer exposures and take chances of burning his patients, he would probably make more rapid progress. Whether this is advisable or not remains to be seen by further experiments.

ACUTE INTESTINAL OBSTRUCTION CAUSED BY AN ENTEROLITH.

Dr. A. D. Whiting reported the case of a woman, aged sixty-eight years, who was treated in the German Hospital about one year ago for chronic rheumatism and chronic interstitial nephritis. At that time she complained of pain in the right iliac fossa. Vaginal examination revealed a hard, freely movable mass which was thought to be an ovarian tumor. Radiographic examination was negative. The patient had been an invalid for years, and had suffered greatly from persistent constipation.

Three days before her second admission to the hospital, the patient experienced a sharp pain in the lower abdomen. This was followed by complete obstruction of the bowels, and later by vomiting, which became fæcal in character. On admission, the abdomen was remarkably distended, the walls being tense and rigid. There was much pain in the lower quadrant, with tenderness on pressure, most marked in the right iliac fossa. Vaginal examination was negative; a rectal examination was not made. The temperature was 99° F.; pulse, 108, and respirations, 28. The pulse was intermittent.

Under ether anæsthesia an incision was made through the right rectus muscle, above the pubes. When the peritoneum was opened, a distended portion of the ileum bulged into the wound. Immediately below this was collapsed bowel, which was drawn into the wound and traced towards the distended portion. These merged into each other about four feet from the cæcum, with but slight indication of the point of obstruction. The bowel was perfectly free, there were no bands or adhesions, the pelvic organs were normal. Examination of the bowel to the proximal side

of the seat of obstruction revealed the presence of a hard, oval-shaped mass within the lumen. This mass was worked towards the collapsed bowel, and was found to engage in the beginning of that portion of the intestine. It had probably been displaced during the manipulations. It was removed through a longitudinal incision made opposite the attachment of the mesentery. The bowel wound was closed with two layers of silk, and the bowel then returned to the abdominal cavity. The external wound was closed with through and through sutures of silkworm gut and a dry dressing applied.

The patient left the operating-table in fairly good condition, the pulse being 116, intermittent, but of good volume. She reacted well, but was drowsy and had considerable abdominal distress. A purgative enema was followed by a free escape of flatus which afforded much relief. Uncontrollable vomiting began about twenty hours after the operation, and the patient gradually grew weaker and more drowsy until she died about fourteen hours later.

A partial post-mortem examination showed that the proximal portion of the bowel had not regained its tone, and was still distended; the distal portion had returned to its normal condition. The intestinal wound was in good condition. Both kidneys showed decided interstitial change. Death was attributed to the general infection consequent upon the interference of the functions of the intestine, complicated by the lesions in the kidneys.

The mass which had been removed from the intestine proved to be an enterolith, with a small body forming the nucleus. It weighed a little over an ounce (33.5 grammes) and measured two and a half inches (fifty-seven centimetres) in length and one and three-eighths inches (thirty-five centimetres) in width.

An examination of the stone made by Dr. A. O. J. Kelly, in the Pathological Laboratory of the German Hospital, proved the stone to be a true enterolith, with a small mass of inspissated fæces as the nucleus. There was an absence of cholesterin or other constituents of the bile, thus excluding a diagnosis of gall-stone which might have been made.

Treves, in his monograph on "Intestinal Obstruction," divides enteroliths into three classes:

"1. Concretions formed in great part of phosphate of lime, or of phosphate of magnesia, or of the triple phosphates, or stones

formed of mixtures of these salts. Such calculi on section show a concentric arrangement of chalk-like or dirty white layers. With such layers alternate others of a brownish color. In outline they are oval or rounded, and often appear to be polished by peristaltic movements. They would appear to be always formed around a nucleus of some indigestible substance. Among such may be mentioned vegetable fibres and husks, hair, fruit-stones, biliary calculi, pieces of bone, and little foreign bodies that have been accidentally swallowed.

"2. Enteroliths of low specific gravity and of irregular form, which are porous in appearance and have the consistence of compressed sponge. They are composed mainly of densely matted masses of vegetable fragments mixed with particles of fæcal matter, and with a certain amount of calcareous material similar to the above species of stone." These are known as "oat-stones" or avenoliths.

"3. Concretions formed of insoluble mineral matters that have been swallowed as medicine. These are most frequently composed of magnesia."

The present case belongs to the first class.

Enteroliths usually lodge in the large bowel, especially in the cæcum. They may be found in the rectum, more rarely in the ileum, and in false and true diverticula. Kassai has reported a case in a female, thirty-six years of age, who had had abdominal pains for fourteen months. A long, hard, movable tumor could be palpated in the left iliac fossa. On account of an existing cachexia, a diagnosis of malignant new growth was made. A large dose of castor oil was administered, which resulted in the evacuation of three enteroliths varying in size and the disappearance of the supposed malignant growth.

Enteroliths are of very slow formation and may lie dormant for years. It is very probable that the supposed ovarian tumor found at the first examination of the patient was this enterolith which had lodged temporarily in a coil of bowel occupying a position near the right ovary. As stated above, no ovarian tumor was found at the time of operation.

Enteroliths very rarely cause acute, sudden occlusion of the bowel. Their presence is usually noted by long-continued digestive disturbance with occasional attacks of pain, and always associated with constipation. The main symptoms indicative of their

presence, as noted by Treves, are those of persisting, incomplete, and inert obstruction of the bowel which may continue for years.

Dr. W. L. Rodman recalled a case of intestinal obstruction caused by an enterolith which was in the practice of a former colleague in the Kentucky School of Medicine, Dr. J. M. Holloway. It was an enterolith in the ileum, exactly the same shape as the bowel, more like a section of a large corn-cob than anything else. That case was operated, but was also fatal, the patient dying within a few hours after the operation.

Dr. Robert G. Le Conte described a case of acute obstruction of bowels due to a large gall-stone which occurred in a woman of sixty-seven years of age, a stout, large, plethoric person, of probably gouty history, with an enlarged and weak heart.

This woman suddenly developed symptoms of complete obstruction of the bowels. After vomiting had begun, one or two enemas, with some concentrated purges, caused a movement of the bowels with flatus. Operation at this time was not undertaken. She had some three movements, the distention of the abdomen which had previously been present subsided, and a large amount of flatus passed. A few hours later symptoms of obstruction again presented themselves; vomiting again appeared, and in the course of two hours became stercoraceous. At this time operation was undertaken, and the following condition was found:

Incision was made in the median line below the umbilicus and a portion of the intestine speedily presented, which was very much thickened, congested, and felt hard and indurated as compared with the rest of the small gut. This portion was six to seven inches in extent, and was probably in the middle portion of the ileum. The inflammation had extended into the mesentery, and from this appearance it portended a very speedy gangrene and death of the part. Shortly below this inflammatory area, a dark body was seen through a normal part of the gut, which on section of the intestine and removal of the body proved itself to be a gall-stone of almost pure cholesterin. It was three and a half inches at its greatest circumference by two inches at its least circumference.

A probable theory which will explain the inflammation of the bowel is that this gall-stone became impacted, producing the first attack of obstruction, and permitting the bacterial invasion through all the coats of the bowel and into the mesentery. As the result

of active purgation in concentrated form, the stone was dislodged from its position in the small intestine and passed on, but the damage it had left behind caused the second attack of obstruction.

At the operation, this portion of inflamed bowel was resected, and an end-to-end anastomosis done with the O'Hara forceps. The case terminated fatally in a few hours. Microscopic sections of the resected bowel showed a destructive inflammation of a gangrenous order, with the presence of numerous cocci and bacilli.

STATED MEETING, MAY 5, 1902.

The President, RICHARD H. HARTE, M.D., in the Chair.

OSTEOTOMY FOR BOW-LEG.

DR. JAMES K. YOUNG presented a girl, aged ten years, who, for the relief of deformity of the left leg, was subjected to osteotomy below the knee three months before.

SUBCUTANEOUS RUPTURE OF THIGH MUSCLES.

DR. OSCAR H. ALLIS presented a man, forty years of age, brakeman, who, on February 15, 1890, was standing on the rear end of an empty box freight car, weight 60,000 pounds, when it was hit unexpectedly by other cars coming slowly against it. The momentum knocked the man down. He fell with his body outside the track, but the advancing car ran over both thighs. The car was an eight-wheeled one, and two wheels passed over the thighs. He was taken promptly to the Presbyterian Hospital, where, on admission, the right limb was greatly swollen and bruised; the left limb much less so. In the right limb the wheel seemed to have passed a trifle above the midlength of the limb; in the left limb the apparent track of the wheel was at the junction of the lower with the upper two-thirds. The skin was not broken in either limb. The swelling was too great to permit of any satisfactory examination. Peripheral sensation was lost in the region of the injury to right limb, but not in the left.

Two weeks after the injury the hæmatoma broke down and was evacuated. No part of the skin sloughed in either limb. He was discharged at the end of thirteen weeks. Result, sensation returned to right limb; function so completely restored that the usual recklessness of brakemen was again indulged in, viz., the jumping on and off cars while in slow motion.

The track of the wheels can now be distinctly seen as two broad shrunken belts. When the patient contracts the flexor muscles, they act as two-bellied muscles, especially marked on the right limb.