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FELLOWS

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TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING, JANUARY 4, 1904.

The President, Richard H. Harte, M.D., in the Chair.

TREATMENT OF FRACTURES.[1]

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Surgery of recent years has advanced in almost all lines, but perhaps most markedly in the direction of the various internal organs. At present, surgical literature is almost monopolized by articles on operations affecting the liver, kidneys, stomach, intestines, and the abdominal viscera generally.

Operative surgery is *the* surgery of the day, and non-operative work has become somewhat ignored. Many of us will recall the days when the subjects of fractures, dislocations, etc., formed a far more important part of one's stock of surgical knowledge than they appear to do to-day. To those of us, however, who have large surgical wards under our care, the importance of fractures should especially appeal. They are as frequent now as they were formerly, and demand the same careful skill and attention if good results are to be achieved. Let us guard against the temptation to devote our attention to

[1] Annual Address on Surgery.

the operative cases and leave the fractures too much to the care of our assistants.

The extremely rapid progress of modern surgery has been largely due to our ability to maintain wounds aseptic since the introduction of Lister's method. The treatment of fractures has been influenced by this method as well as other departments of surgery; hence we find operative measures resorted to more frequently than was previously the case. The other discovery which has been of great importance in fractures is that of the Röntgen or X-rays. It has perhaps hardly met the sanguine expectations first raised, but it has proved of very decided utility.

In addition to the introduction of the antiseptic system and the X-rays, I find but comparatively few advances, and those mainly in the treatment of the individual fractures. Hamilton and Stimson, our old standard treatises, have not been surpassed nor displaced by any more recent publications.

The old battle between the use of plaster-of-Paris and splints is still being waged as industriously as ever. Perhaps a fair comment of present methods would be to say that the profession is hardly as conversant with the dressings at its disposal as it should be.

Bandaging used to be a fine art, but since the introduction of the gauze bandage it seems to have degenerated, and is but little studied. The gauze bandage so readily adapts itself to a part as to conduce to slovenliness in its application. Nevertheless, there is a right way and a wrong way of bandaging, and the right way is still the best.

As regards the use of immovable dressings, such as plaster-of-Paris, I have never been able to content myself to place recent fractures up in plaster and allow them to remain until union is firm. I desire to assure myself by direct inspection, once or twice a week, that the fragments are in proper apposition, and any dressing not allowing this is deemed unsuitable. For this reason, for the first ten days some form of splints is always used. In some cases the tendency to deformity is lacking, and in such fixed dressings can be used as soon as

the acute symptoms have subsided. If there is any tendency to deformity, the case is treated with splints until the deformity is overcome, and then the limb can be put in plaster.

It is the custom of some surgeons to correct the deformity and then immediately apply plaster, with the idea that the plaster will hold the limb in its corrected position. This is not my practice.

Should the displacement show a tendency to recur, the plaster dressing is often insufficient to overcome it. The swelling subsides and the limb shrinks, and the plaster is no longer closely applied to it. If a plaster dressing is used, it should be in conjunction with examinations by the X-rays. By them one is able to see the relative position of the fractured bones and be assured that they are properly placed.

The use of silicate of soda or soluble glass is hardly as common as it deserves to be. It makes a light, firm bandage, and is cleaner and more available than plaster. A physician in private practice can keep a pint bottle of it on hand, which is always ready for use; it does not deteriorate. In using it, it is only necessary to see that it really impregnates the bandage and is not simply smeared on its surface. In preparing a bandage for application, a quantity of the silicate may be placed in a basin and a gauze bandage passed through it and rolled with the hands; the surplus silicate is squeezed out and the bandage is ready for use.

Three or four bandages so prepared suffice for a broken leg. After its application, the hand is dipped in warm water, the bandage smoothed down, and the patient kept abed twenty-four hours, by which time the silicate will be quite hard. It can later be cut open with a stout knife and laced. If it is desired to lace it, it is my custom to have large hooks sewn to two strips of bandage. These are wet with the silicate and placed on each side of the cut. They are retained by a few turns of an ordinary bandage and will be hardened in place by the following day. These bandages can be prepared and kept ready for use covered with silicate in a wide-mouthed jar.

A strip of tin should be laid on each side of the leg and in-

cluded in the bandage, and tends to prevent it wrinkling while being applied and drying. It is better to smooth the outside of the dressing with water rather than silicate, as the bandage dries quicker and harder. The use of starch is also worth remembering. Bandages are liable to slip, and starch adds to their security. Gauze bandages are preferable. On the completion of the bandage, cooked starch, such as is used in starching clothes, is rubbed into its meshes until a smooth, even surface is obtained. This dries in a few hours and holds the turns together, adds greatly to the appearance of the bandage, and increases its stiffness and security. It may often substitute the inconvenient and messy plaster-of-Paris bandage, and obviates the necessity of using adhesive plaster, pins, etc., to prevent the turns from slipping.

Let me urge a trial of this starch bandage; it will be a revelation to those unaccustomed to its use. A neatly applied fracture dressing composed of bleached gauze bandages, into the meshes of which, when the bandage is completed, starch has been rubbed, is a work of art and a thing of beauty. A word on the question of bandages may not be out of place. The old bandage of unbleached muslin has been displaced in favor of the bleached gauze bandage. To neatly and correctly apply a muslin bandage requires both knowledge and skill. I almost regret to say that a minimum quantity of both often contents the surgeon in applying the gauze bandage. The rules of procedure are hardly the same in the two instances. Reverses are not so necessary in the gauze as in the muslin bandage, but it fails to give the firm support of the muslin one. With the muslin bandage, the spiral reverse was the typical form; with the gauze, the figure 8 is the standard. This is made by using figure 8 turns, one partly overlapping the other until the part is covered. Some surgeons use very narrow gauze bandages even for large parts, as the legs; this practice I hardly think is necessary. A two-and-a-half-inch gauze bandage can be used for both extremities, which can be neatly and satisfactorily covered without using a single reverse.

The question of operation in cases of fractures is a debatable one. Now that it is possible to operate almost always without wound infection, operations are justifiable when previously they were not to be thought of. The question of personal equation in the surgeon here becomes prominent. For an operation to be successful, the problems presented by the individual case must not only be skilfully handled, but the procedures must be carried out in such a manner as to insure prompt healing without suppuration.

This means that the technique employed by the surgeon must be efficient. To develop such a technique as will stand the test of the widely differing individual cases without failure necessitates both labor and experience on the part of the surgeon. Practice makes perfect. It is undoubtedly easier to carry out a rigid asepticism in a hospital operating room than it is in the home of the patient, where proper facilities are frequently lacking. For these reasons operations may be performed advisably by the experienced surgeon operating in a hospital that would be inadvisable in a private house by one who operates only occasionally.

The recommending of an operation entails certain definite responsibilities, and we should be prepared to meet them.

Before leaving the question of operation, I might state my belief that we do not operate on simple fractures with unbroken skin with sufficient frequency. Among such are fractures of the neck of the femur in people under fifty-five years; fractures of the upper third of the femur and some of other portions; fractures of the patella and olecranon with wide separation. In some fractures of the leg division of the tendo-Achillis is very useful. In bad fractures of the clavicle wiring is not a dangerous procedure. In elbow fractures, in which ankylosis is unavoidable, a resection will give a movable joint and much better result.

The question of operating is linked with that of failure of proper union. This is due in the larger number of cases to wide displacement of the fragments with the interposition of muscular or fibrous tissues. Hence an inability to sufficiently reduce the fragments is an indication to operate. It is not an

uncommon fault for fractures to be treated conservatively which should have been operated on primarily. Many of the deformities seen to follow fractures are not only unsightly, but often seriously impair or even destroy the usefulness of the member and predispose it, as I have seen in several cases, to refracture. Modern surgery demands better results than were satisfactory in the past. It used to be the custom to practically treat all fractures conservatively and accept the results with proper resignation. This is no longer permissible. If we cannot place the fragments in such a position as to insure a satisfactory result, it is our duty, if the circumstances permit, to do so by operative means. Not only does non-union result from misplaced fragments, but likewise excessive callus. The paralyses and interference with the function of nerves, which not infrequently follow fractures, are often attributed to the nerve being included in and being compressed by the callus. While not prepared to deny that this may sometimes be the case, it is my belief that these nerve lesions are almost always due either to a direct injury of the nerve, usually by the fragments, at the time of fracture, or else to consecutive changes induced in the nerve by its being stretched over the sharp edge of a displaced fragment. This I have verified on several occasions. It is evident that if a nerve is stretched over the sharp edge of a fractured surface, when the callus forms it will of necessity include the nerve. For this reason it by no means follows that, because a nerve is found enclosed in callus, the callus is the cause of the symptoms rather than the injury sustained by being stretched over the sharp edge of bone. These nerve injuries are sometimes attributed to callus because their presence is so often only discovered after the removal of all apparatus and the use of the limb is attempted. It is extremely disconcerting to find, at what one has expected to be the conclusion of treatment, the unexpected appearance of this complication. It is most liable to escape recognition if fixed dressings have been employed early in the treatment of the case. This is one of the reasons that disinclines me to use plaster-of-Paris early in fractures.

In some fractures the immediate results are so disturbing

as to prevent one for some days, and even longer, from ascertaining the full extent of the injuries. It is in these cases that it is particularly desirable to so dress our cases as to enable them to be examined at sufficiently frequent intervals. In some cases even a daily inspection for the first week and twice a week thereafter is not too frequent. Too often the pains of a neuritis are attributed to the broken bones and torn muscles and ligaments, and paralyses are allowed to exist unrecognized until firm union has occurred and use of the member is attempted. The formation of callus presents some interesting features. It is, I believe, due almost solely to the displacement of bone. In other words, the formation of callus is evidence that accurate approximation has not been achieved. I had a case a few years ago which demonstrated this quite clearly.

A man had sustained a fracture of the upper third of the thigh with the customary anterior and outward displacement of the upper fragment to an unusual degree. Operation revealed a spiral fracture about two and a half inches long running upward, backward, and inward.

Traction being made by an assistant, the two fragments were fitted accurately one to the other and fixed firmly in place by two thick silver wires encircling the bone an inch and a half apart.

At the end of the seventh week an incision was made and the wires were removed. Union was found to be firm and the site of fracture was seen winding round the bone as a thin dark line. There was absolutely no thickening nor the slightest indication of any provisional or ensheathing callus. It is evident that in this case the callus which united the broken ends was between the bone surfaces and in the medullary cavity, because there was none external.

The exact approximation of the fragments in fractures of the base of the skull is the reason why callus is also lacking there.

The presence or absence of callus has a marked influence on the functional results obtained, especially in fractures in the

vicinity of joints. If, as has been stated, callus is due to lack of proper approximation of the fragments, it is evident that if a joint is involved and the fragments are not approximated, we must expect limitation of motion. Limitation of motion due to this cause is almost insurmountable. The use of passive motion is usually of no avail, and healing progresses either with a resultant ankylosis or restricted motion. Repeatedly have I seen persistent passive motion practised much to the distress of the patient, with but little or no benefit resulting. It is in these cases that the X-ray is of service. Fractures which involve the joints not infrequently detach pieces of bone, which become more or less twisted out of their normal position, and later become fixed, thus interfering with the motion of the joint. It is not a hopeful practice to endeavor to retain motion by passive movements calculated to push the fragments away; they cannot be displaced far enough to prevent their influencing the joint movements. The condition of affairs having been recognized by the X-ray, it is better to follow the advice of Roberts and others and pin the fragment in place, or deliberately cut down and replace it as it should be, retaining it with wire or other suture material, or even resect the joint.

The recognition of the uselessness of passive motion in overcoming limitation of movements in joints has caused some surgeons to advocate the treatment of fractures of the elbow without it until the splints have been removed and union has occurred.

If the fragments are in good approximation and the joint is kept quiet, the inflammatory effusion and callus is kept at its minimum, and the joint soon limbers up when restraint is once removed. Restoration of function can be hastened by baking the limb. The use of hot air, while serviceable in cases of fracture of healthy limbs, is deleterious in tubercular affections; hence in old cases the possibility of tubercular disease should be carefully excluded.

The question of passive motion is allied to that of massage.

I regret to say that, in spite of the attention of the profession having been directed to the use of massage in fractures

many years ago, it still is not employed as much as it should be. This may be due partly to a distrust aroused by the extensive claims of some of its most ardent advocates, as Lucas Championnière and others.

Personally, while occupying a middle ground, the stand I take is none the less a positive one. I cannot follow those who treat fractures from the first by massage only without support. To my mind, the first principle in the treatment of fractures is that the two broken ends of the bone should be placed and held in as close approximation as possible. That this can be accomplished better with than without splints is at least my opinion. Even the ordinary movements of the body tend to disturb the fragments, and unusual movements, such as one is constantly experiencing, disturb them still more. The fact that fractures, such as those of the patella, radius, etc., frequently unite with little or no support or protection, is no proof that they should not have been afforded both. There are few cases, indeed, where a fracture would not be benefited by a proper support skilfully applied. It need not always be elaborate; a fractured leg is sometimes best treated and most comfortable if allowed to rest for a day or two folded in a pillow. The use of splints is not incompatible with massage. As regards the time of its use, in many cases it can be commenced at once as soon as the fracture is seen. A light stroking "effleurage" of a recently injured limb need not cause pain, but rather be grateful to the patient, and tends to restore the circulation and promote the absorption of effusion. Its efficacy depends on the manner of its administration; anything approaching roughness is obviously unsuitable in cases of recent injury; and if real pain is experienced it is evidence that the massage is either unskilfully administered or that it is unsuitable to that case, and most likely the former.

It is true that there are some cases in which the local injury is so great in simple fractures that the treatment should be of the simplest character, such as the use of evaporating lotions; cases in which there is much bruising of the skin may be of this character. After the first reaction has passed, say in a couple of

days, there is no longer any excuse for delaying massage. I regret to say that it is still too much the custom to use fixed dressings, which are allowed to remain on the part without removal for several weeks. This may promote the healing of the bones, but it does not tend to restore the soft parts to their normal functions. The worst effects of this treatment are seen in fractures of the leg. When the upper extremity is fractured, the patient rarely requires to be admitted to the hospital; but a fracture of the lower extremity interferes with locomotion, and consequently it is admitted for treatment in the wards. In order to make room for new patients, the temptation is great to put fractures of the leg up in plaster-of-Paris dressings and allow the patient to leave the hospital on crutches. When, after the lapse of several weeks, the plaster dressing is removed at the out-patient department, it is usually found that, while the bones themselves have united firmly in a fairly satisfactory position, the leg and foot are swollen, œdematous, and stiff. The slightest attempt at movement causes pain. If now the case is left off and the patient allowed to go around, it is often weeks or even months before the muscles, tendons, ligaments, and soft tissues generally have become loosened sufficiently and restored to their normal condition to allow of painless locomotion. This is needless. Suppose the patient had remained in the hospital and been treated with the old-fashioned fracture-box; and that each morning the sides of the box had been lowered and the soft parts gently massaged and, as healing progressed, the joints gently moved, we would then by the time that union had taken place have restored the normal condition of the soft parts and the leg would be ready and in fit condition to resume its functions. It is *prima facie* evidence of inefficient treatment when one is compelled to institute an elaborate further course of treatment to overcome effusion and stiffness after complete union of the bone has taken place. The frequency of the massage depends on the individual case. In some twice a week will suffice, but in others daily massage is necessary. It is true that to give fractures this amount of attention will consume much time. This is so; but it is the only proper way to treat

fractures, and when not carried out results in delayed convalescence and deprivation of the use of the injured member.

Limitation of movement may be the result either of displaced fragments, as already alluded to, or to inflammation and effusion in the soft parts. It is to this latter condition that massage is particularly applicable.

The primary treatment given to fractures varies with different surgeons. Many have wet applications applied; lead water and laudanum is a great favorite. Their importance seems to me to be overrated. Some have a habit of applying lead water to every case, and covering it with oiled silk or other impervious material.

This can hardly be necessary. Routine treatment is, and of necessity must be in many cases, bad treatment. Individual cases vary.

One frequently encounters cases in which there is little or no displacement, and which undisturbed give the patient no pain. What object is to be gained by wet applications in such cases is hard to see. They can be rendered perfectly comfortable by applying a nicely adapted and padded splint with gentle compression by a neatly applied bandage. Using a thin layer of cotton over the part under the bandage will be more acceptable than a moist dressing.

The use of wet dressings I am inclined to believe favors the formation of blebs by macerating the skin, and on that account are objectionable. In some cases, where redness and pain are prominent, some soothing application is of advantage; and here occasionally some form of wet dressing is desirable, and seems to add to the comfort of the patient and to aid in allaying the inflammation.

A favorite application is lint or gauze moistened with equal parts of glycerin and water. If the leg is the part involved, as is usually the case, the dressing is simply laid on its surface, and perhaps a light ice-cap added. In many cases a plain towel laid on the limb with the ice-cap is all that is necessary. No impervious covering is to be used.

The question of the extent to which it is desirable to use

ambulatory dressings occupied the attention of the profession some years ago to a greater extent than it does at present. That it is possible to treat fractures even of the thigh with a certain degree of success without confining the patient to bed has been amply demonstrated, but the method, even as applied to fractures of the leg, has not been found desirable. It is possible to do many things which it is inexpedient to do, and this is one of them. In stating this, I do not mean to say that ambulatory dressings are never to be used. On the contrary, the surgeon should be familiar with the method, so that when proper cases present themselves it may be utilized.

The method is only intended for use in fractures of the lower extremity, and one of the objections to it is the swelling and pain which arise when a recently fractured limb is placed for any length of time in the upright position. In fractures of the leg, when there is but little tendency to displacement, patients can, not infrequently, be induced to go around early in a fixed dressing and crutches.

I have made quite extensive use of silicate of soda or plaster dressings in which is incorporated a piece of strap iron which passes down one side of the leg and up on the other, being allowed to project about three inches beyond the sole. With a high shoe on the opposite foot and crutches the patient can go around with a considerable degree of safety. To make an efficient ambulatory apparatus that can be removed for purposes of massage entails considerable trouble, and the temptation is to allow the dressing to remain intact until consolidation of the bones is completed. For these and other reasons the method is only to be used in those cases in which it is impossible to retain the patient in the wards of the hospital, or where for special considerations one is willing to devote an unusual amount of time and trouble in order to obtain certain desirable objects.

When the thigh is the bone involved, if the fracture involves the shaft or upper extremity, the method is practically undesirable.

In fractures low down near the condyles, particularly in

children, some form of orthopædic appliance, such as the hip splint of Thomas or Taylor, can be successfully used; but children are usually not pressed for time, and adults commonly prefer the comforts of a bed to the discomforts of a splint and crutches. Nevertheless, it is our duty to know what can be done to enable patients to get around early; and, if the necessity for an employment of the method arises, we should be able to give our patients the benefit of the treatment.

DISCUSSION.

Dr. W. W. Keen took exception to the writer's commendation of the use of silicate of soda or starch as primary dressings. They will not hold the parts in place until the dressing hardens, and hence allow displacement of fragments. Dr. Davis had also spoken of plaster-of-Paris dressings, but did not specify the mode of their application. If applied simply by circular turns, then they are open to objections, such as interfering with proper cleansing of the parts, massage, etc. If they are applied as splints, they can be used as a fixed dressing, and still be removed to allow of access to the parts. Dr. Keen has recently seen a new form of plaster splint, his attention having been directed to it by Mr. Rebman, of London. It consists practically of a bag one metre in length and from two or three to five or six fingers wide. This is impregnated with plaster, a mesh passing down in the centre to give stability. One can take any amount, six inches to two or more feet, put it in water, prepare it properly, and apply as a splint. It adapts itself readily to the surface with which it is placed in contact, and thus furnishes a reliable support. This splint is the idea of Dr. Sahli, of Berne. Dr. Keen was glad to hear Dr. Davis speak words of caution regarding the injudicious use of passive motion in the treatment of fractures. In his early career he had under his care cases of Colles's fracture in which he wished to employ passive motion. This he did by flexing the fingers until the hand was made into a fist and then bending the wrist. If any one will try this manipulation, he will readily see what a small amount of flexion of the wrist can be given without causing pain even in a normal hand. If the fingers are straightened, the wrist can be flexed to a right angle with no pain. The

surgeon too often forgets the normal limit of movement when he is using passive motion in a fractured limb.

Dr. Oscar H. Allis said that Dr. Davis had in his address furnished enough material for a half-dozen or more papers. Any one point, such as treatment of fracture of the thigh or elbow, or massage in the treatment of fractures, would have been sufficient for discussion. He wished to speak regarding simple fractures of the femur. These fractures may be produced in one of three ways: (1) when the force is exerted at right angles to the long axis of the bone; (2) when the force is parallel or in the direction of the long axis; (3) by twisting. In many instances there is an independent fragment of bone. In oblique and especially in spiral fractures where the forces meet there will be found towards the central part of the bone one or more small fragments. In the X-ray we have a valuable adjunct in making a diagnosis. If the surgeon will make use of this and find the exact condition of the injured part, he will enter upon his work in caring for it with far more assurance. It is too true, even lamentably true, that surgeons do not often enough open joints when dealing with fractures that extend into them. In the case of fractures into the knee-joint, the semilunar cartilages may be torn or twisted out of their place, or the crucial ligaments be torn and form practically foreign bodies. Even if the fragments are brought together, there is often a lack of good results in these cases, because the torn structures are pinched between the bones. It should be almost an axiom in fractures involving a joint to open and remove any spicules that may be present. The prevention of angular deformity following fractures of the upper part of the femur is one of the most difficult problems in all surgery. When the fracture is oblique and can be wired above and below, fixation is possible. When the fracture is transverse, deformity is almost sure to follow even when wiring is resorted to.

Dr. Davis, in closing, said that it was a very difficult question what to include and what to exclude. He had avoided the discussion of individual fractures and confined his address to the consideration of principles. Regarding Dr. Keen's reference to silicate of soda and starch, he thought there was a misapprehension, as he had not intended to advocate their use as primary fixed dressings. The silicate of soda takes twenty-four hours to harden, and is not immediately adapted to hold bony fragments

in position. At the end of ten days, when the parts are fairly firm, this dressing may be used. Starch is not so firm as the former, but helps to keep the turns of a bandage in position and prevents slipping. When plaster-of-Paris is used as detailed by Dr. Keen, it resembles an ordinary splint.

RHINOPHYMA.

REPORT OF A CASE, WITH OPERATION FOR ITS RELIEF.

BY WILLIAM W. KEEN, M.D.,
OF PHILADELPHIA,
Professor of Surgery in the Jefferson Medical College.

F. W., aged sixty-five years, a tailor, was admitted to the Jefferson Medical College Hospital October 26, 1903. His family history is of no importance, excepting that no case of tuberculosis or of malignant disease is known to him. He himself never suffered from the diseases of childhood, but thirty years ago he had an attack of smallpox. He denies venereal disease. He was discharged from the German army in 1862 owing to the fact that he had convulsions at times. These came on eighteen months after he had enlisted, and were irregular in their occurrence. He has had none for over a year. There is no history of injury to his nose.

Fifteen years ago he had what appears from his description to have corresponded to an attack of acne rosacea, when his face became reddened with a marked eruption of small pustules. His entire face soon became involved, but the brunt of the attack was on his nose and over a considerable adjacent area of each cheek. The face improved, but the nose got worse, and began slowly and gradually to enlarge. It has not interfered with his breathing, but has seriously interfered with his eating. He cannot take any liquid, for example, soup, in a tablespoon without lifting his nose upward out of the way. The nose is painless. It is apt to bleed a little in the morning, owing to his rubbing it in washing his face.

On admission, a very large growth appears to involve all the nose except the upper quarter. The growth is very lobulated, with deep fissures between the lobules, the larger mass being on the right side. It is firm to the touch and, if one may judge from the color, would seem to be highly vascular. The

alæ of the nose are particularly thickened (Figs. 1 and 2). Urine normal.

Operation, October 28, 1903, under ether. I excised the central portion of the growth from the upper margin of the diseased area down to the tip of the nose by an elliptical incision, the long axis of which corresponded to the bridge of the nose. I then sutured the edges. The pressure of my finger in suturing the lobules of tissue squeezed out from the ducts of the sebaceous glands a number of columns of sebaceous matter, commonly known as "worms." On the alæ of the nose, as it was impossible to obtain a suitable ellipse, I contented myself by simply shaving off all the hypertrophied tissue. The hæmorrhage was not severe; not a single vessel had to be ligated. A few clamps applied for a few minutes and the sutures checked the hæmorrhage almost entirely, and a little adrenalin solution applied on the raw surface where I had shaved it completed the hæmostasis. Between the dressing and skin a bit of gutta-percha tissue was placed so as to prevent adhesion of the dressing to the wound, which would retard the cicatrization.

He made a perfectly smooth recovery from the operation.

On November 4, one week after the operation, a little further paring of the alæ of the nose, so as still further to improve its appearance, was done. On December 12 another operation was done, inasmuch as the second operation left a slight fissure between the ala and the tip of the nose on the left side. The edges of this were pared and approximated by a few sutures. December 17, five days later, these silk sutures were removed. The photographs showing the result of the operation were taken on December 21 (Figs. 3 and 4).

The operation on November 4 was done without any anæsthetic, as it was very slight and he suffered relatively little pain. At the third operation, I infiltrated the nose with a little β-eucaine and adrenalin, but the infiltration was not successful in allaying the pain. At the end of this little operation he had a brief, but marked, general convulsion, during which he seemed to lose consciousness.

Professor Coplin, to whom the specimen was sent, reports that the "histologic examination shows the majority of the sections to be composed mainly of fibrous tissue, a part of the border

being formed of stratified epithelial cells, such as are found in normal skin, though the layers of cells are rather fewer in number than is usually found. The corium and subcutaneous tissues are directly continuous with, and similar in structure to, the deeper parts of the sections, which are composed of fairly loose, cellular, fibrous tissue containing numerous lymph spaces and blood-vessels. The fibrils of this tissue are exceedingly wavy and irregularly placed. A very conspicuous feature of the sections is the sebaceous glands, which are greatly increased in size and in some areas apparently in number, presenting in the latter instances an adenomatous appearance. Around some of the infoldings of the skin are quite dense accumulations of small mononuclear cells.

"*Diagnosis.*—Soft fibroma of the skin with distention of the acini, and possibly a hyperplasia of sebaceous glands."

Remarks.—This is one of the most marked cases of acne rosacea terminating in a true rhinophyma that I have ever seen personally. In the *Beiträge zur klinische Chirurgie*, Band xxxix, Heft 1, von Brüns gives some excellent illustrations, some of them colored in a very lifelike manner, of this condition. The photographs of the present case show, without, however, the advantage of color, the condition before operation, and how successfully the patient was relieved from not only his deformity, but of a serious disability so far as his mingling in social life was concerned, especially at meals, for no one likes to eat at table with another person when the latter has to lift his nose out of the soup with each spoonful.

In some of these cases surgeons have been deterred by the fear of hæmorrhage, which the experience of von Brüns and the present case show is not well founded. The result of the operation was all that could be desired, as the photographs show.

My experience in this case would lead me to suggest that it is desirable, in case the entire skin is not removed and the edges sutured, but the skin shaved off, that this shaving should not go entirely through the skin. In only one place towards the tip of the nose on the left side did I shave away the entire thickness of the skin. At this point there is distinct scar tissue. In other parts of the nose, where I only shaved one-half or two-thirds through the thickness of the skin, there is a cutaneous surface which, though not entirely normal, is much better than the scar tissue.

STATED MEETING, FEBRUARY 1, 1904.

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

FRACTURE OF THE PATELLA TREATED BY SUTURING.

DR. JOHN H. GIBBON exhibited three patients in whom suture of a fractured patella had been done, and reported the facts of a fourth similar case. These operations had been done during the past two and a half years.

So satisfactory have the results been in these cases, that he thought it worth while to present the patients for examination. An inspection of the patella and examination of the function of the knee-joint in each of these cases will show a practically normal condition, and he is convinced that certainly in these individual cases no such result could have been obtained by any other than the open treatment. Operation was resorted to either because of non-union after other forms of treatment, or because of the impossibility of thoroughly approximating the fragments by any other method. That there has been a firm, bony union which has withstood the ordinary avocations is easily demonstrated, and consequently he thinks that there is absolutely no danger of refracture, which is not true when the union is fibrous, as it is in the large majority of the cases treated by other methods. Not one of these four patients is limited in any way by his injury. One of them is a paper-hanger, who does most of his work on a step-ladder. One patient was over sixty years of age at the time of operation, although the operation in his case was done because of non-union after four weeks of fixation.

The primary results were better in these cases than is usual in those treated by non-operative methods; that is to say, the patients were out of bed earlier and were earlier allowed to discard splints or any other form of restraint. He believes that in bad cases of fracture of the patella in which suturing is done, the results will compare favorably with those obtained in the simplest case treated by splints and other forms of apparatus. He was of course not prepared to recommend operation in every case

of fracture of the patella, and yet believes that the ultimate results will be better in every case treated in this way. One should not for a moment lose sight of the fact that the operation is accompanied by one great risk, namely, that of sepsis; and yet, if surgeons will exercise the same precautions as to cleanliness and technique in these cases that they do in abdominal cases, this risk will amount to practically very little. An occasional bad result may be obtained, but the results in the large majority of cases will be far better. His plan in the past has been only to operate upon complicated cases, those in which it was practically certain that a satisfactory approximation of the fragments was out of the question, and those in which non-union had taken place. He will, however, in the future reduce the restrictions on operative treatment and increase the indications for it. His experience has been, and he is sure that it will be confirmed by that of others, that whenever the patella is exposed in these cases there is always some material between the fragments, usually portions of the ligament, which will prevent the establishment of bony union.

Regarding the technique of the operation, there has already been an enormous amount of discussion. Personally, he believes that the U-shaped incision gives the surgeon a better opportunity to thoroughly cleanse the parts and to approximate not only the fragments of the patella, but also all the torn ligamentous tissue than do the straight or transverse incisions. Through this incision the parts are thoroughly exposed, the joint easily cleared of clots, and the torn lateral ligaments readily sutured. It presents another advantage in that in case drainage is desired it can be obtained at the sides of the patella, the space in which accumulations are most likely to take place. In all his own cases he has inserted a small gauze drain on each side of the patella, and in none of them has there been any suppuration or accumulation of fluid in the joint. These drains of course are removed within a few days. With the longitudinal incision such drainage is practically impossible. In making the U-shaped incision the transverse portion of it should be one-half or three-quarters of an inch below the line of fracture. This incision he has also employed with the greatest satisfaction in excision of the prepatella bursa, in which cases it is often difficult to thoroughly remove the bursa through a longitudinal incision. In but one of the cases which he showed was a non-absorbable suture employed, and in none of them was the

suture allowed to emerge upon the articulating surface of the patella. Dr. Gibbon does not think that wire is necessary for the repair of this fracture, and believes, moreover, that in a large number of cases the fragments may be held in absolute apposition by a careful suturing of the torn ligament about the bone. There is no likelihood of a large chromicized-gut suture passed through the fragments giving way if it is properly tied, if the ligament over it is sutured, and the quadriceps extensor relaxed by elevation of the leg. There is no lateral shifting of the fragments after operation, as sometimes takes place in long bones, and which is apt to break even a silver suture. The only condition after operation which gives rise to inconvenience and requires treatment is swelling, and this is no greater than in those cases in which other methods of treatment are employed. In the majority of cases the splint can be removed in from four to six weeks and the patient allowed to exercise the part. Massage after the wound is thoroughly healed does much to prevent subsequent swelling and stiffening of the muscles and joint, and should always constitute a part of the treatment. With this idea in view he prefers to dress these cases upon a posterior splint which is easily removed, rather than with a plaster bandage; although, if the latter is cut so that it can be removed and satisfactorily replaced, it serves the same purpose. He thinks, also, that elevation of the leg for the purpose of relaxing the quadriceps muscle should be insisted upon during the first two or three weeks.

The first case shown was that of a colored man, fifty-two years of age, operated upon at the Pennsylvania Hospital on the day of his admission, August 5, 1901. The reason for operating in this case was an enormous distention of the joint with blood. The fragments were exposed by a straight incision and approximated with a silver-wire suture. He was discharged on September 20, 1901. This patient was seen a number of months after the operation, when he had perfect use of the leg; but it has been impossible to discover his present whereabouts, although a careful search has been made.

The second case was that of a man sixty years of age who was operated upon four weeks after his admission to the Pennsylvania Hospital. Operation in this case was done because there was absolutely no union after fixation upon a splint for more than four weeks. The operation was done on October 1, 1902,

and the patient discharged on December 31, 1902. The line of fracture was near the tip of the patella. The bone was exposed through a U-shaped incision, the fragments and ligaments surrounding it sutured with chromicized gut. The result in this case is all that could be desired, the patient having no inconvenience and practically no limitation of flexion.

The third case was that of a man twenty-eight years of age operated upon at the Polyclinic Hospital on December 16, 1902, four days after admission. In this case the operation was done because it was found impossible to approximate the fragments. The U-shaped incision was employed and the fragments and ligament sutured with chromicized gut. This case presented a beautiful illustration of interference with approximation due to the interposition of ligamentous tissue. The patient was discharged on January 2, 1903, sixteen days after operation. There was some subsequent swelling, more than in any of the others; and it is thought that it was probably due to the fact that the patient was allowed to get out of bed and leave the hospital too soon after operation. The ultimate result, however, as is shown, is a practically normal knee-joint. The patient is a paper-hanger, doing most of his work on a step-ladder.

The fourth case was that of a man thirty-four years of age who was operated upon at the Pennsylvania Hospital on October 10, 1903, two days after his admission. There was considerable swelling in this case, and approximation of the fragments was impossible. The two modes of treatment were explained to the patient, and he elected the operative. The patella was exposed through a U-shaped incision and found to be fractured transversely near its lower extremity, and the lower portion of the bone was split longitudinally. The fragments were united with chromicized gut, which in the tying cut partially through the lower fragments. The ligament over the bone and at the sides was firmly sutured. The subsequent treatment was the same as that in the other cases, and the result promises to be as satisfactory.

Dr. Richard H. Harte said that while the U-shaped incision had many advantages, he preferred the straight incision. With it the operator gains access to the fracture, and can also clean out the joint and suture the fragments of the patella without disturbing the tissues around the joint. The operative method is the

rational way of treating fractures of the patella if the patient is a suitable one for undergoing an operation. The surgeon sees cases that are not suitable,—old people, alcoholics, etc. With these he must do the best he can with extension and counter-extension, posterior splints or other appliances. The trouble with cases treated in this way is that in a very large majority of instances there is not perfect apposition of the fragments, torn ligaments intervening, and thus preventing perfect union, either ligamentous or bony. For suture material Dr. Harte has used silver wire, which is usually too stiff to work easily. It can be made more pliable by heating and then plunging in water, but whenever used it is open to the objection that it is a foreign body, and in nine cases out of ten has to be removed. Some surgeons claim to have no trouble with it, but this has not been his experience. Chromicized catgut answered all purposes in the cases reported by Dr. Gibbon, and in future cases Dr. Harte will employ it instead of wire. The gut will of course not stand extreme tension, but as the only object of the suture is to put the fragments of bone in apposition, this is not a valid objection to its employment. As to the use of motion in cases of fractured patella, Dr. Harte has been conservative, and prefers to leave the leg in a plaster case for a long time. In some instances, if the support is removed in six weeks a refracture results, the newly-formed material not yet being solidified. When the fragments are put in apposition by operation good bony union should result. The bone breaks as does a bent lever with weight on both ends, and hence the necessity of firm union before use of the leg is allowed. Instead of taking off the splint in six weeks, he would prefer to leave it on for an additional three or four weeks. The cases of Dr. Gibbon, however, which were released earlier, show excellent results.

Dr. William L. Rodman agreed with the previous speakers that operation is not advisable in all cases of fractured patella, yet an increasing number should be operated upon. In none of the cases upon which he has operated could satisfactory union have occurred without such intervention, as there were large blood-clots in the joint, the fragments of the bone were tilted, or torn ligaments projected between them. In all favorable cases occurring in young people who lead an active life, and where the use of the limb is of great importance, the surgeon should explain the dangers of operation, for it is accompanied by certain dangers,

and then, if the patient so elects, he is entitled to operation. Dr. Rodman has never used the U-shaped incision, employing instead the transverse or slightly curved incision, practically that of Kocher. If holes are to be drilled in the fragments of bone, the transverse is better than the longitudinal incision. That the U-shaped incision increases the facility of drainage, as stated by Dr. Gibbon, he is ready to admit, but he has never employed drainage, and thinks it is not desirable in the majority of cases. In his last few cases he has obtained excellent results from the employment of Stimson's operation. Where the joint is thoroughly emptied, irrigated, and the limb elevated, as good results follow suturing of the fibroperiosteum alone as in cases where the bone is drilled and sutured. Drilling the fragments adds traumatism and increases the danger of infection. The question of suture material is an important one. In his earlier cases Dr. Rodman used silver wire, which in the first two remained without producing irritation or in any way causing trouble. In the third case one suture produced some pain, and later was removed under cocaine. He agreed with Dr. Harte that silver wire is not always a perfectly safe suture material, as it may cause pain, be extruded, or necessitate removal. Chromicized catgut may answer the purpose, but he prefers wire or silk, which are safely and quickly sterilized by boiling. Gut is uncertain. In his last cases he has employed the Pagenstecher or celluloid suture, and finds that it does well. In two cases it gave absolute satisfaction, and he will continue its use, suturing the fibroperiosteum instead of drilling the bone. In conclusion, Dr. Rodman said that he fully believed in the operative treatment for fractured patella in the vast majority of men under fifty years who lead an active life. In patients beyond fifty, especially if there is visceral disease, it is a dangerous operation. Furthermore, it is an operation that should never be performed outside of a thoroughly appointed hospital, and then only by a trained operator, with the aid of competent assistants and nurses. Asepsis is here of the greatest importance. The subcutaneous operation of Barker is very dangerous, and if any operation is to be done it should be an open arthrotomy with thorough irrigation of the joint with sterile salt solution, no antiseptics being employed. Then drill and suture the bone or do the operation of Stimson.

Dr. William J. Taylor said that within the last two weeks

he had operated upon a fractured patella in a woman, and found the joint full of blood-clots, with lacerated soft tissue between the fragments of the bone. An important point was that the lower fragment had become tilted in such a manner as to bring its articular surface in apposition with the fractured surface of the upper fragment, although externally reduction appeared to be complete. In cases of fractured patella in people who are actively employed in earning their living, operation should be done. Dr. Taylor has never yet regretted its employment, in every instance finding something interposed between the fragments that would have prevented union.

Dr. William G. Porter said that examination, years after the receipt of the injury, of many cases of fractured patella not treated by operation will show that, while the anatomical result is not perfect, the function of the part is as good as before the injury. In some instances three or four fingers may be placed between the fragments, and yet the patients have good use of the leg. He believes that opening the joint in cases of fractured patella, unless under very exceptional circumstances, is not warranted.

Dr. John B. Roberts said that arthrotomy did not seem to be so desirable an operation as we ought to have for cases of fractured patella. If it is to be done only by the most experienced surgeons, in the best appointed hospitals, etc., it is evidently not the kind of an operation to be done in the majority of cases. He believes that while the majority of surgeons are competent to perform this operation, there is something better for the average surgeon in the average hospital with the average nurses in attendance. He has employed a simpler method with as good results and with less danger of sepsis and less necessity of perfect surroundings. This is the passing of a silk suture around the broken patella to act as a purse-string. It has been stated by several speakers that we must open the joint because clots and serum are present. If we open the joint in these cases we find the blood and serum, but if we do not open it, nature cares for them by absorption, as she has been doing for years before the open operation was advocated. Dr. Roberts is not convinced that union will not occur even if there be fragments of periosteum between the bony surfaces after fracture. Every surgeon has seen that condition present in cases of comminuted fracture, and has seen that the periosteum did not hinder union, it being a tissue closely allied

to bone. It is desirable to remove such portions of periosteum from between the fragments, and it can be done when operating without opening the joint. If the limb be elevated until flexion of the hip is secured, the tension of the rectus muscle attached to the patella will be relieved and the fragments may be approximated. If now the fragments be grasped firmly and rubbed together, the pieces of periosteum between them can be displaced. It may be noted in some of these cases that a dull, obscure crepitus at the beginning of the manipulation will be followed by a sharp, bony crepitus as the fragments of periosteum are crowded away. A long needle armed with silk, or catgut if preferred, is then used to encircle the patella with a suture through tendon and aponeurosis, four punctures being made. This can be done without opening the joint unless that be done occasionally by making a puncture deeper than it should be. This suture insures apposition of the parts whether the aponeurosis or the bone, or both, be torn or fractured; any one of which conditions may be present in an individual case. This method of coaptation is a simple procedure and does not invade the joint. Hence the absolutely perfect aseptic surroundings needed for open arthrotomy are not absolutely necessary here. The union of the bony fragments following this method may not always produce such anatomical smoothness of the patella as seen in the cases exhibited by Dr. Gibbon. A slight tilting may result, but satisfactory function has been secured in the cases thus treated by Dr. Roberts. One man is able to carry kegs of beer up and down stairs as well as before the fracture.

Dr. Gibbon, in closing, said that the surgeon treating a case of fractured patella should bear in mind that he is dealing not only with a fractured bone but also with a fractured ligament. The lateral ligaments of the joint beyond the patella are practically always torn, there often being more bruising and tearing here than over the bone itself. With the U-shaped incision these areas can be reached and the ligament repaired. By drainage in these cases he does not mean to drain under the patella, but only the points where the ligaments are sutured. He always feels safer with drains from those injured areas. As to the method of rubbing together the fragments of bone in order to liberate the ligaments, and passing a subcutaneous suture, as advocated by one of the speakers, entering the joint may be avoided, but he thinks there

will be encountered as much risk of infection as though the joint were opened. Arthrotomy is unquestionably an operation of gravity, but its successful performance is simply a question of aseptic habit. Dr. Porter's large experience in the treatment of fractured patellæ without operation is of great value, but he has seen stiff joints follow treatment by the old methods. Where there is separation of the fragments, the person may be able to do his work fairly well, but there is always the tendency to stumble, particularly when going upstairs. Refracture is also not uncommon in these cases. In answer to a question by Dr. Taylor, Dr. Gibbon said that he used a splint at first and plaster dressing later, if at all. A straight splint is applied, and the leg kept well elevated on pillows. If the fragments of the patella are approximated for three or four weeks without tension, bony union will be secured as in fractures elsewhere.

CLEFT PALATE.

Dr. Richard H. Harte exhibited this case as an illustration of what can be accomplished in unpromising cases if they are dealt with vigorously. The patient was a young man who had been operated upon unsuccessfully when he was five years of age. When first seen by Dr. Harte there was present a large cleft bounded partially by scar tissue resulting from the previous operation, and benefit from operative interference seemed doubtful. A trial was decided upon, a modification of Langenbeck's operation being employed. The various steps in the procedure were illustrated by blackboard drawings, two points made emphatic, being the avoidance of injury to the blood supply of the part and the working up of sufficiently large periosteal flaps to close the cleft without tension on the tissue. Failure will ensue in all cases where tension results from suturing, and its avoidance is of first importance in all cases. Dr. Harte has met with failure in the use of Ferguson's operation. There the operator has to secure osteoplastic flaps, and this, in his experience, has led to very unsatisfactory results. In the case exhibited he was much handicapped during operation by the difficulty of using the mouth-gag, due to the absence of molar teeth in the patient, who was also difficult to etherize, as he constantly struggled. The operation was performed with the head of the patient lower than his body in order to allow the material collecting in his mouth to escape

instead of being drawn into the air-passages. A large, pendulous uvula was removed. In these cases the surgeon seeks to attain two results: first, to close the communication between the nasal fossæ and the mouth; second, to improve the speech of the patient. Many people are under the impression that they can speak plainly as soon as the opening in the palate is closed. This is not the case, as speech follows partly as the result of education of the parts. Hence, there is a certain time in which it is most desirable to operate. This is about the time that the child is beginning to talk, as the ability to make sounds will then be more easily acquired. Operation on children under one year of age is followed by a large mortality. One child operated on by Dr. Harte spoke with great difficulty until it was put under the care of an elocutionist, who was also a throat specialist. As the result of this training the child now speaks very well.

Dr. James K. Young approved the use of Roser's position in such cases, as it makes the operation easier and safer. He has seen sloughing occur in cases operated on by the method described, but in this instance the incisions were not carried back far enough to endanger the blood supply. Closure at the age mentioned is preferable to operating on very young children. In one case he operated at the age of one month, removing a large part of the maxillary bone, but hæmorrhage was severe. In double harelip and cleft palate it is best to operate between the ages of seven and fourteen, doing the plastic operation of the French.

Dr. James P. Hutchinson, who had seen Dr. Harte operate upon the case reported, said he had seen many cases operated upon, but in none had a better result been secured. The operative difficulties were here very great, because two surgeons had at different times trimmed away portions of the tissue surrounding the cleft. The difficulties were also increased by the fact that the patient took ether very badly. When the heads of the patients are not lowered during these operations, they take ether very much better, and thus make the work of the surgeon much easier. The Roser position is therefore not approved.

Dr. John H. Gibbon spoke of the management of the premaxillary bone. In operating upon one case of double harelip with complete cleft of the palate, forming a Y-shape opening with the premaxillary projecting forward, he made an unsuccessful attempt to push back that bone, finally being obliged to remove it.

When attempting to push back the bone, it was found that it twisted upon itself, as stated by some authorities, who speak of the teeth rotating in such a way that it is almost impossible for dentists afterwards to align them. The opening in the lip and palate can be better closed, in many cases, if the bone be removed. Dr. Gibbon has by this means secured good results in two cases.

Dr. John B. Roberts spoke of the frequency of unsatisfactory results as to speech in his own cases; and that he had recently been trying obturators with a flexible velum instead of operative closure of cleft palate. He asked whether the speech was good in Dr. Harte's case.

Dr. Henry R. Wharton said that he employed practically the same operation as that described by Dr. Harte. The important point is to get free, thick flaps which can be approximated without tension. He uses silkworm-gut sutures, clamped by shot. Operation on children under three years is not recommended, between three and four being the best age. In one series of three cases operated upon recently perfect union was obtained in two. The third had a profuse mucopurulent discharge from the nasopharynx. This was washed out thoroughly before operation, but it persisted and infected the wound, causing every suture to cut out, leaving a wide gap in the tissues.

Dr. Harte, in closing, said that for suture material he uses the black, iron-dyed silkworm gut, which is allowed to remain in for eight to twelve days. The sutures are clamped by small shot, this method giving better approximation, and also enabling one to judge of the degree of tension employed. The nutrition of the flap is of the very greatest importance. If one goes indiscriminately into the roof of the mouth, sloughing is apt to occur. This result is sure to follow the sacrifice of the palatine vessels. A good working rule to follow is to keep close to the alveolar border and secure a wide flap. In doing this there is apt to be furious bleeding, but this can usually be controlled by temporary packing. Dr. Harte considers it preferable to keep the head down during operation, as the air-passages are thus kept free of blood.

APPARATUS FOR DETERMINING ASYMMETRY OF THE LOWER EXTREMITIES.

Dr. James K. Young said that the study of asymmetry in the lower limbs has attracted the attention of the surgeon for a

Fig. 1.

Fig. 2.

Apparatus for determining asymmetry of the lower extremities.

quarter of a century. Prior to the excellent work of Morton in 1880, the subject was a menace to the medical profession in medicolegal cases, and Hunt has left us a record of the first trial for malpractice in which these facts collected by Morton were successfully used before a legal tribunal.

The excellent work of directors of physical training in our schools demonstrates the fact that asymmetry has not decreased, but that it is more frequently recognized to-day than formerly.

In order to determine the degree of unilateral development of the lower extremities, it is important to have some apparatus which will record any inequality quickly and certainly. It is also important to determine the degree of inclination of the pelvis both posteriorly and anteriorly. For this purpose he had constructed an apparatus consisting of a box with two movable platforms (Figs. 1 and 2). To the under surface of each is attached a vertical ratcheted bar worked by a horizontal pinion, the end of which projects beyond the box and is operated by a lever. By depressing the lever, the platform is elevated one-sixth of an inch for each tooth, and secured by a catch which may be instantly released at any point. The surface of the platform should be tested with a spirit-level before use.

The method of using the machine is as follows: The patient with clothing removed stands upon the platforms with one foot on each side of the median line. The anterior superior spines of the ilium are marked with a skin pencil, and a spirit-level is held in position while the foot-piece is gradually raised. If the longer limb be raised the deformity is increased, the spirit-level is made more uneven; but if the shorter limb be raised the deformity will disappear, and the spirit-level will indicate the equality of the limbs.

The restoration of the asymmetry can be readily recognized by observing the outline of the body, the spinal column, the cleft of the nates, and the ileofemoral folds. When the deformity is corrected, the spinal column will be straight, the cleft of the nates will be continuous below the spinous processes, and the ileofemoral folds will be level. The same method is employed to determine the inclination of the anterior superior spines in order to discover any anterior obliquity of the pelvis.

In making all measurements, old fractures, unilateral rhachitic deformities, flat foot, etc., should be recorded, or eliminated from the test in order to make it more valuable.

This machine resembles that devised by Dr. T. S. Morton, but differs from it in several respects. In general form the top is the same, but the action is quicker, the release instantaneous, and the mechanism is a ratchet and pinion arrangement instead of strong vertical and horizontal screws. This machine is also more portable, and is less cumbersome in appearance.

THE TREATMENT OF FRACTURES OF THE CONDYLES OF THE HUMERUS.

Dr. E. Hollingsworth Siter said that he had found that this injury occurs more often to children than to adults, as of forty-eight cases, of which he had taken memoranda from his case-books, nine were adults and the remainder were children.

All the fractures of which he spoke were about the condyles of the humerus. Some of them involved both condyles, some of them only one. He had found no favoritism as to the arm (whether right or left) or of the condyles (whether external or internal).

The method of treatment employed was what is usually called the Jones method, that is, without splints. The method briefly is, after reduction hang the arm by the wrist to the patient's neck at an acute angle. It can be hung by a piece of broad bandage or any apparatus or material thought best.

After the reduction a bandage was loosely applied from above the point of fracture down to and including the hand while the arm was acutely flexed. Over the injury any lotion or ointment may be applied before the bandage is adjusted.

The arm is then hung about the neck as described. In twenty-four or forty-eight hours the dressing is removed, the arm and hand washed with alcohol, the bandage is reapplied and rehung from the neck at a slightly less acute angle.

The patient should be seen certainly every other day, and the angle changed, and made either more or less acute. At the end of three weeks the angle will be about a right angle.

The patient, if a child, is then allowed the free use of the arm, and is only to be seen every three or four days for the next two weeks. This is done more as a precaution than from necessity, as he had found that the patient has practically recovered in three weeks from the first dressing.

This method seems to be practically painless. There is no

complaint when the angle is changed, and there are no adhesions to break up.

In adults it seems best to retain the dressings a week longer. He had frequently had children unconsciously remove their arms from the sling at the end of two weeks, use them, and only return them to the sling when told to do so by the parent or attendant.

He detailed the following cases selected at random from his memoranda.

Case I.—J. M., aged nine years. History of having fallen off some steps. Found to have fracture of external condyle of left humerus.

Fracture was reduced. Dressed by Jones method. Dressing changed on second day. Angle lessened. No pain, some tenderness. Dressed every other day and angle changed. In two weeks angle was a right angle, and patient wished dressing removed permanently. At three weeks dressing removed, and there was found no deformity. A limit of motion just perceptible.

Case II.—R. T., aged seven years. History of having fallen from a wagon. Both internal and external condyles of right humerus fractured.

Dressed with lead water and alcohol in Jones's position and angle changed every second day. Right angle reached in seventeen days.

Dressing removed on twenty-third day. No limit of extension or flexion.

Case III.—C. L., aged twelve years. Fell from tree. Fractured both condyles of right humerus. Reduction was accomplished and the arm dressed. Angle changed in forty-eight hours, and thereafter every two days. Dressing removed and arm free on the twenty-second day. No loss of motion.

Case IV.—F. M., aged ten years. History of falling on the ice. Fracture of external condyle of left humerus. Reduced and dressed. Angle changed at intervals. Dressing removed on twenty-third day. Motion was unimpaired. This patient, eighteen months previously, fractured her external condyle of the right humerus by a fall from a wagon. This injury was kept on an internal angular splint for four weeks, and after repeated breaking of adhesions and manipulations her motion is only one-half.

Case V.—M. S., aged twenty-four years. Fell from car. Fractured external condyle of right humerus. Reduced and

dressed. Angle changed in forty-eight hours, and afterwards every second day. Dressing removed on the twenty-ninth day. Motion was normal.

CASE VI.—F. P., aged fourteen years. Fell from a hay-wagon. Condition was not diagnosed, but an anterior angular splint had been applied. He was seen one week after the injury, and at that time had some swelling, and motion in any direction was painful. He had fracture of both condyles of the right humerus. He was dressed in an angle as acute as possible in view of the pain occasioned by movement. This was approximately a right angle. He was dressed daily, and the angle made more acute at each dressing until he was at extreme flexion, which was accomplished in ten days. The hand was then gradually lowered until it was at a right angle again. On the twenty-fourth day the dressing was removed and the motion was normal.

The conclusions he drew from his cases were that, with this dressing applied and the patient seen at short intervals, fractures of the condyles of the humerus can be made to unite with practically no loss of motion. The change of position is so gradual that it causes no amount of distress. There is none of the painful, forced motion, there is no swinging of weights for months, with probable loss of one-half of the motion.

In the few cases he had treated with splints he had lost from a quarter to a half of the range of flexion and extension.

This dressing he had also found of great service in all injuries about the joint, except, of course, injuries to the olecranon.

DR. JOHN H. GIBBON reinforced the remarks of Dr. Siter regarding the use of the Jones position in the treatment of fractures about the elbow. For the past seven years he had used no other method. It has a great many advantages over the splint. He usually puts the arm between the shirts of the patient in order to keep it in position, and does not use rubber bands about the wrist, as they are a source of discomfort. A child will get extension if the arm is thus treated in flexion, but one is never sure of obtaining perfect flexion if the arm is treated in extension. Nearly all the usual forcible movements of a child's arm tend to develop extension, such as throwing, climbing, etc., and but few tend to the development of flexion.

DR. WILLIAM J. TAYLOR indorsed all that had been said regarding the value of the Jones position. In the first case in

which he employed that method he etherized the patient and produced a forced supination of the arm, and then placed it in flexion. The final result was perfect. He thinks it is wise, in a majority of cases, to etherize and forcibly supinate the forearm. It is a mistake to bind the arm to the side after it is put in position, as no displacement of the fragments can occur if the hand is kept to the neck.

DR. FRANCIS T. STEWART said there were two contraindications to the employment of the Jones position. One is great swelling of the parts, which mechanically interferes with flexion; the other is intense pain caused by the engagement of the ulnar nerve between the fragments of the fractured bone. In instances of the latter complication, it will be found that the patient is comfortable only when the arm is placed in extension.

DR. JOHN B. ROBERTS asked if the carrying function of the arm was preserved in the cases treated by the method under consideration. This is as important a question to consider as is that of ankylosis of the elbow.

DR. SITER, in closing, stated in reply to the question of Dr. Roberts that the carrying function in the arms of patients treated by the Jones method was normal.

VOLVULUS OF THE ENTIRE MESENTERY.

DR. A. D. WHITING reported the following two cases, which he was privileged to report through the courtesy of Dr. John B. Deaver. P. K., male, aged five years, was admitted to the Mary J. Drexel Home with a history of having been sick for five days, during which time he suffered from nausea and vomiting, with inability to expel flatus or fæcal matter. When admitted to the Home, he was shocked, being very weak, with cold, clammy skin, and a rapid running pulse. The abdomen was markedly distended. Rectal enemata were retained, being recovered through a rectal tube, not discolored. The patient did not react under treatment and died twelve hours after admission. Partial post-mortem examination revealed the following: Peritoneal effusion of a serosanguineous character was present in large amount. The omentum was small, irregular in shape, with small amount of fat. There were no peritoneal adhesions and no exudate. The stomach was normal in size, but was pushed upward by the distended small bowel. The duodenum was normal, but slightly congested.

The remainder of the small bowel was markedly distended and of a dusky hue. The bowel was drawn out of the abdomen, when it was found that the root of the mesentery was so twisted on itself that it appeared like a cord. The turns of the mesentery were from right to left. The number of turns was not noted. By lifting the small bowel *en masse* the mesentery was readily untwisted.

The doctor who made the necropsy became infected during the examination; the infection being so virulent that, in spite of the most active treatment, he suffered from general septicæmia, from which it was feared he would not recover. This unfortunate termination was, however, happily replaced by a perfect recovery after a tedious illness.

The second case was C. B., male, aged thirty-four years. He had had an attack of acute appendicitis in October, 1902, for which he was operated in the German Hospital. The appendix was gangrenous, the intestine was injected, inflated, and covered with lymph. There was a local collection of pus at the base of the appendix. The appendix was removed, the abdominal cavity was cleansed as thoroughly as possible, and four pieces of gauze were inserted for drainage, no attempt being made to close the wound. A fæcal fistula developed, which, however, closed without operation before the patient left the hospital. After his discharge, he suffered from intermittent pains in the right iliac fossa and along the line of the cicatrix. He was examined on May 22, 1903, at which time he complained of constipation, loss of appetite, and dull pain in the right iliac fossa. The scar was firm, the abdomen soft, with no points of tenderness. At 5 A.M., May 29, 1903, while the patient was walking upstairs, he was suddenly doubled up with most severe pain at the site of the cicatrix. He was nauseated, but did not vomit. He had had a bowel movement in the morning, but from the time of the onset of the violent pain until after a subsequent operation he did not pass either flatus or fæcal matter. He was admitted to the German Hospital about 8 P.M. of the same day. He was in great distress, with severe cramp-like pains over the entire abdomen, but most marked in the right iliac fossa. The abdomen, which was slightly distended, was very tender. The recti were rigid. There was a large hernial opening at the site of the cicatrix which had not been present one week before. The temperature was $97^{2}/_{5}^{\circ}$ F.; pulse,

58, and respirations, 26. A diagnosis of acute intestinal obstruction was made, probably due to adhesions, and immediate operation advised, to which consent was given.

Operation at 9 P.M., about four hours after the onset of pain. Under ether anæsthesia, an incision was made round the cicatrix. In dissecting the cæcum from the anterior abdominal wall, to which it was firmly adherent, it was unintentionally opened, but immediately closed with two rows of Lembert sutures. Inspection showed the intestine near the ileocæcal junction to be bound together by dense adhesions, some of which were as large as the little finger, with partial obstruction. With the exception of the last portion of the ileum and the duodenum, the entire small intestine was partially collapsed, lustreless, and of a dusky red color. This portion of the bowel had a doughy feel. All adhesions were separated, the denuded surfaces being covered with cargile. The small bowel was then drawn out of the wound in a search for the cause of the peculiar condition of the gut. It was discovered that the entire mesentery was twisted upon itself, about a three-quarter turn, from left to right. The bowel was lifted up in a towel and the entire mass turned from right to left. This relieved the twist in the mesentery and returned it to its normal position. The circulation of the bowel was immediately re-established, the normal color and lustre rapidly returning. The separate layers of the abdominal wall were dissected out and the wound was closed with tier sutures of silk. Five hundred cubic centimetres of salt solution were injected into the rectum before the patient left the operating table. He reacted well. Flatus was passed through a rectal tube six hours after the operation, and voluntarily six hours later. The bowels moved freely on the second day. With the exception of slight infection of the lower part of the wound, the patient had no unfavorable symptoms, and was discharged from the hospital on the seventeenth day after operation.

These two cases demonstrate the value of early operative interference in cases of intestinal obstruction. The first case was brought to the surgeon when the patient was practically moribund, and of course no relief could be afforded. It is probable that the perfect recovery made by the second patient was largely due to the short interval which elapsed between the onset of the acute symptoms and the time of operation, about four hours. The

second case also shows the value of thorough inspection of the abdomen in cases of obstruction.

In a very interesting article published in the *American Journal of the Medical Sciences* for May, 1903, Dr. George Tully Vaughan cites twenty-one cases of volvulus of the entire mesentery. Seventeen of these were operated with four recoveries, a mortality of about 76 per cent. This mortality, as stated by Dr. Vaughan, is due to three causes: First, the serious nature of "a condition which strangulates almost the entire small intestine, injures the sympathetic plexus, and perhaps produces a rapidly fatal toxæmia." Second, delay in operating, and, third, "the difficulty in recognizing the true conditions in order to act intelligently, four of the operators cited confessing their inability to do so after opening the abdomen. The patients died without relief, the true condition being at last discovered at the necropsy."

Dr. John B. Roberts gave brief notes of a case upon which he had operated about a year ago at the Polyclinic Hospital. The man was in an extremely bad condition, with marked abdominal distention and other signs of intestinal obstruction. When the abdomen was opened, there was some difficulty in determining the exact nature of the lesion. It was finally found that the entire mass of small intestines was twisted on the mesentery. The obstruction was relieved, but the patient soon afterwards died.

STATED MEETING, MARCH 7, 1904.

The President, Henry R. Wharton, M.D., in the Chair.

HERNIA OF THE UTERUS THROUGH THE INGUINAL CANAL.

BY JOHN HOWARD JOPSON, M.D.,

OF PHILADELPHIA,

Surgeon to the Children's and Bryn Mawr Hospitals and to the Out-patient Department of the Presbyterian Hospital.

The following is the report of a case of inguinal hernia of the uterus, with operation and recovery.

H. B., colored, aged twenty-seven years, occupation, housewife; married nine years; has had three children (all living), now aged eight, seven, and three years. No miscarriages; menstruation normal. Patient has had a small, right inguinal hernia as long as she can remember. This was about the size of a walnut, a small, hard, painless protrusion, which always descended when she was upon her feet and disappeared on lying down. It never was observed to be irreducible, and gave her no trouble. A truss had been recommended, but she had never worn one.

On January 20, 1904, one week before admission to the hospital, and while occupied in washing clothes, but not, according to her account, making any especially severe exertion, a large protrusion, much larger than ever before observed, made its appearance in the right groin. Its development was accompanied by severe pain in that region, forcing her to lie down. She remained in bed, the pain becoming more severe. She had neither vomiting nor constipation, and was not aware of the presence of fever, and had no chill.

She was seen by Dr. J. H. Cloud, who sent her to the Bryn Mawr Hospital on January 27, 1904. She was in excellent condition at that time. Examination showed a swelling, half the

size of the fist, in the right inguinolabial region, coming from the external abdominal ring; hard, irreducible, somewhat tender, evidently an irreducible, complete, inguinal hernia. The absence of symptoms of obstruction, with her history, made probable the diagnosis of omental hernia,—epiplocele. Operation was advised, and consented to, and the patient was admitted about noon of the same day. The temperature on admission was 98 2-5° F., her pulse and respiration normal. In the evening the temperature was 100° F. Dr. Walter Christie, the physician on duty, also examined her, and concurred in the advisability of operation.

Operation, January 28, Dr. Christie assisting. Under anæsthesia the hernia was again examined and found to be irreducible. No prolonged taxis was attempted. An oblique incision over the neck of the tumor showed it to be pear-shaped, the wider end presenting, the sac adherent at the fundus or peripheral portion, and free at the constricted base. The sac was opened at the latter point and peeled away. The examination of the contents was at first confusing, although we were still under the impression that the bulk of the mass was omentum. While endeavoring to unfold it, it suddenly split longitudinally, and about three-quarters of an ounce of yellow, odorless pus escaped from its interior. This was quickly sponged away, and an ovary was then seen to be protruding from the inguinal canal to the right side of the neck of the mass, and what had been supposed to be a large intestine flattened out by pressure, was found to be the broad ligament and Fallopian tube of the right side. It was then discovered that the herniated mass was the uterus turned over forward, the supravaginal portion running backward, downward, and inward towards the cervix. A vaginal examination determined the continuity of the cervix with the mass, and the examining finger was easily felt through the upper vaginal wall immediately in front of it. The necrotic and infected condition of the body of the uterus forbade its reduction, and it was decided to remove it with the right ovary, which was now prolapsed through the external ring. This was done, after applying a series of silk ligatures to the broad ligaments, tubes, and supravaginal portion of the uterus, which formed the pedicle, and the adherent sac was also cut away. The presence of pus in the cavity of the uterus rendered infection of the wound possible, and it was not deemed advisable to drop back the stump or to open up the inguinal canal and perform the

Bassini operation as we had intended. To secure drainage from the possibly infected stump, to exclude it from the peritoneum, and to close, as far as possible, the canal, we decided to fasten the pedicle in the external abdominal ring, and closely sutured the pillars of the latter with chromicized catgut above, around, and below it. A small gauze wick was then laid over the stump, and the wound closed in its deeper portion by a continuous chromicized gut suture, and the skin with silkworm gut, the gauze being brought out at the lower angle.

After operation the patient's condition was excellent. The temperature in the evening was 98 3-5° F., the pulse 92. The following day, the 29th, a bloody vaginal discharge appeared. The highest temperature recorded after operation was on the evening of the 29th, 100 1-5° F., the pulse 80. The wound was dressed on the 30th, and when the gauze wick was removed, a small quantity of bloody mucus followed it, and again on February 1, when a small rubber tube was inserted instead of the gauze, to drain away the mucus discharging from the stump. This was removed two days later, and the wound quickly healed without infection, being solid, and the stitches removed on the tenth day. The vaginal discharge lessened and disappeared in a few days after operation. The patient complained of some pain across the lower portion of the abdomen after the wound was healed, but this soon disappeared. Menstruation appeared on February 25, was profuse, as usual, and lasted four or five days, with the usual slight pain in the hypogastric region. The patient was allowed to get up after four weeks, and suffered no further inconvenience. An examination made February 29 showed the wound solidly healed, no hernia or unusual impulse on coughing on that side, the stump of the uterus easily palpable by bimanual examination and slightly movable, upward and downward, the cervix being tilted somewhat downward.

Sections through the body of the uterus were made by Dr. W. Bradford Eaton, Pathologist to the Hospital, who very kindly furnished me the following report:

"The section studied was taken from the uterine wall, bordering the large abscess ruptured at time of operation (uterine cavity). The wall was of average thickness, and showed direct evidence of pyogenic infection. The sinuses in places were densely infiltrated with polymorphonuclear leucocytes, and scattered through the

specimen were many foci of densely crowded pus-cells. The part of the specimen bordering upon the abscess showed what at first seemed to be a remnant of placental tissue, but which further study showed to be particles of blood-clot that were held by the necrotic remnants of the endometrium. Here and there could be seen remains of mucous glands and occasional strips of degenerated uterine mucosa. The condition corresponded to that found in intense hæmorrhagic and pyogenic infection, such as was apparently present in this case."

The persistence of menstruation is explained by the fact that the amputation was done some little distance above the internal os, and the left ovary was not removed, although its tube was, of course, tied off with the pedicle. It was not drawn out or observed during the operation.

While the presence of an ovary in the sac of an inguinal hernia is not very uncommon, most operators of large experience having encountered it one or more times, the presence of the uterus is one of the rarest phenomena of hernia. But while of great rarity, its occurrence has not escaped the attention of some of those who have made a special study of hernia and of affections of the female genitalia, and cases of umbilical, ventral, inguinal, crural, and of alleged obturator and ischiatic hernia have been recorded. The ventral forms occur most frequently, being usually situated below the navel, from separation of the recti muscles during pregnancy, and will not be considered here. The cases of other varieties than umbilical and ventral, except inguinal and crural, which are on record, viz., ischiatic and obturator, are probably apocryphal. Careful studies of the cases of inguinal and crural hernia of the uterus which are on record have been made from time to time by Cormack,[1] Klob,[2] Eisenhart,[3] Adams,[4] Winckel,[5] and Küstner,[6] who have compiled lists of the cases, more or less complete. A careful study of these papers shows that considerable confusion exists as to some of the cases in the early literature, both as to their authenticity and their exact nature. Thus the oldest case, that of Nicholas Pol (1531), has been claimed to be identical with one of those mentioned by Senertus and

Hildanus (1610), while another described by these authors, and attributed to Doringius, is variously classified as inguinal and crural, or omitted. Another case, given by Skrivan and Lumpe as a true hernia of the pregnant uterus, has been excluded on the ground that it was an extra-uterine pregnancy. By a study and comparison of these papers and of many of the original references, and a review of the literature since their appearance, the following classification of the cases seems justified. It is practically the same as Küstner's, with the addition of six cases which he excluded, or overlooked, or which have been published since his article appeared. The pregnant uterus has occupied the sac of an inguinal hernia in whole or in part nine times (observations by Pol, Senertus, Saxtorph, Ladesma, Fischer, Rektorzik, Scanzoni, Winckel and Eisenhart, Rosanoff). The non-pregnant uterus has been previously observed in inguinal hernia at least twelve times (Maret, Lallement, Chopart, Olshausen, Leopold, Schwarz, Brohl, Krug, Defontaine, Legueu, Rouffart, and Diederich). Two undisputed cases of crural hernia of the non-pregnant womb have been recorded by Lallement, and Boivin and Dugès, and the case of Doringius previously mentioned, a hernia of the pregnant uterus, has been variously classified as inguinal, crural, or possibly between the muscular fibres of the abdominal wall, or altogether excluded.

The case of F. Krug[7] has not been included heretofore, Winckel and Küstner, writing since its publication, not mentioning it, but is an undoubted example of hernia of the non-pregnant uterus, left ovary and tube, of the left inguinal variety. The case of De Gouey,[8] of removal of a fœtus from a hernial sac, is, judging from the quaint and interesting account translated from the Sloane Manuscript, apparently an example of extra-uterine gestation, as the much-discussed case of Skrivan and Lumpe was finally decided to be. Other cases not included in previous statistics are those of Defontaine,[9] Legueu,[10] Rouffart,[11] and Diederich,[12] abstracts of which follow.

The unimpregnated uterus may be congenitally herniated,

or the accident may occur in early life, or during or after the child-bearing period, usually when the pregnancies have been multiple and numerous; and the uterus may become impregnated in this condition. The pregnant uterus may also enter a pre-existing hernia and pregnancy go on until the full term.

The etiology, symptomatology, and diagnosis of this condition have been given at length in the articles quoted, and it is unnecessary to dwell upon all of them. There are, however, several points suggested by the history of our case which are of interest. She was the mother of three children. Multiple pregnancies are an important predisposing factor to hernia of the womb. She had had a small, right inguinal hernia all her life, probably a congenital hernia, and perhaps of the ovary. The presence of a pre-existing hernia is a predisposing factor, and an ovary may be in the sac, and by its traction on the uterus, especially when adherent to the sac, and the latter is increasing in size, aid in drawing the uterus outward. In a relatively large proportion of these cases there are congenital anomalies present, as a rudimentary uterus, bicornute uterus, congenital hernia, imperforate vagina, pseudohermaphroditism, shortening of the round ligament, associated with increased liability to uterine hernia. In pre-existing hernia the sac probably often enlarges at the expense of the broad ligament on that side, making direct traction on the womb. The only organs in the sac were the uterus and its ligaments, the right ovary and tube, and part of the left tube. Both ovaries may accompany the uterus in its excursion, usually only one, that of the side on which the hernia is located. There was no omentum present, adhesion of which to the uterus might have caused its displacement by traction (Chopart's case). The patient was washing clothes when the accident occurred, probably bending over and exerting herself more than she acknowledges. Severe sudden exertion, causing increased intra-abdominal pressure, is an important exciting cause. It is a curious fact that both of Lallement's cases occurred in washerwomen. The uterus was probably practically strangulated, a unique accident. It was necrotic, splitting open under manipulation and discharging pus from its cavity. The microscopic examination also showed inflammatory changes in the tissues of the uterus.

Diagnosis.—No suspicion of the true nature of the contents of the hernia was entertained before operation. The diagnosis made was of probable omental hernia, from the absence of symptoms of intestinal obstruction. The presence of a pyriform mass, hard, perhaps irreducible, would be consistent with the presence of the uterus, and in some cases a smaller round or ovoid movable body alongside of it, the ovary, has been described, and a correct diagnosis arrived at. A vaginal examination before operation would have revealed an absence of the uterus from its normal position, and a change in the direction of the cervix and vagina. As Eisenhart points out, the introduction of a sound is difficult. A painful swelling of the herniated uterus during menstruation has been described. In pregnancy occurring in a herniated uterus, or in one horn of a bicornute uterus, the usual objective signs of pregnancy may be elicited as pregnancy progresses, the uterus meanwhile steadily increasing in size.

Return of the uterus would have been indicated had its condition permitted, but under the circumstances there was no alternative but hysterectomy. The left ovary was not prolapsed, and its removal was unnecessary. Conservation of the pelvic organs as far as possible, at least where functionating, would seem to be indicated.

In addition to the case here reported, operations for hernia of the non-pregnant uterus have been done by Leopold, Schwartz, Brohl, Krug, Defontaine, Legueu, Rouffart, and Diederich. Leopold [13] successfully excised one horn of a bicornute uterus, with the tube and ovary, from an inguinal hernia. There was an imperforate vagina in his case, as there was also in Schwartz's [14] case, in which there was a double congenital hernia, with failure of union of Müller's ducts, the right hernia containing a "uterus in miniature," which was replaced, the left containing a muscular cord, which was excised. The patient recovered.

Brohl's [15] case was a pseudohermaphrodite of the female sex, thirty-six years old, with a left inguinal hernia of six years' duration, which was correctly diagnosed before operation to contain the uterus and ovary. He amputated the uterus and both ovaries, one of which was rudimentary, and fastened the stump to Poupart's ligament to close the canal. The uterus was bicornute. This patient also recovered. His treatment of the stump was practically the same as that followed in our case.

Krug [7] operated on a left inguinal hernia of the uterus and ovary, congenital, the uterus reducible, the ovary adherent, in an unmarried girl aged nineteen years. The hernia had existed as long as she could remember; symptoms for five months only. A correct diagnosis of the contents was made before operation. The sac was apparently formed from the left broad ligament, explaining the irreducibility of the ovary, which was adherent to it. The uterus was reduced, the left tube and ovary removed, and the sac excised; closure by the McBurney method. The patient died fifteen days after operation, apparently of an intense anæmia, with cardiac degeneration; no sepsis. Post-mortem examination showed the right broad ligament exceedingly long, running behind the posterior surface of the uterus, so that the right tube and ovary were on the left side of the uterus.

L. Defontaine [9] performed radical cure on a hernia, left inguinal, existing for five months, in a child aged seven months. It contained the uterus and both ovaries, being complete of the uterus, and the contents were returned to the abdomen after digital divulsion of the rings.

Legueu [10] reports a case of left inguinal hernia in a girl of eighteen years, congenital, and containing the uterus, which was very small, one ovary, and both malformed Fallopian tubes, one ovary being wanting. The vagina was imperforate. He operated, reduced the organs into the abdomen, and the patient recovered.

Rouffart [11] reports a case in a girl aged twenty-two years, with congenital hernia, which for three weeks had been very

painful and sensitive. The vagina was imperforate, the other sexual characteristics well developed. On operation the uterus was found rudimentary, apparently unicornute, adherent to the sac, the left tube and ovary in the abdomen, the right absent. These organs were removed, and the patient recovered. It may be noted that this case is an exception to the almost universal rule that at least one ovary is present in the hernia with the uterus.

Diederich [12] reports a case similar to Rouffart's, in a girl of twenty-one years, also with imperforate vagina, in which the rudimentary uterus, with the left ovary and tube, was removed. The right adnexa were not discovered.

The frequent association of imperforate vagina with a rudimentary congenitally herniated uterus in the cases reported in recent literature is of interest. It is probable that the more frequent performance of operations for radical cure has revealed cases of this nature which were previously assumed to be herniæ of common types.

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THE ADVANTAGES OF ABDOMINAL OVER VAGINAL HYSTERECTOMY IN CARCINOMA.

Dr. John B. Deaver said that he saw a large number of cases of uterine carcinoma each year, many of which have passed beyond the stage for operation. Unfortunately, many of the subjects of this disease suffer from symptoms not at all well defined, are free from pain, and have but little discharge until the growth has become so extensive as to forbid radical interference; for this reason the family doctor is often unaware of the real nature of the disease until it is too late to resort to surgical interference.

Irregular bleedings from the uterus, whether before, during, or after the menopause, should excite the apprehension of the general practitioner, as well as the surgeon, to investigate, at any rate. It is absurd to consider feelings of delicacy and allow them to prevent an inspection of the cervix and palpation of the body of the uterus, nor in doubtful cases fear of consequences deter resort to curettage with examination of the scrapings. Negative findings by the pathologist should be accepted with great reserve and not be allowed to controvert unmistakable clinical symptoms, especially in women approaching or past the menopause. He emphasized the latter, because, as is well known, epithelioma rarely begins until after the child-bearing period.

The differentiation between hæmorrhagic endometritis and commencing maligant disease is not always possible; in fact, it is the practice of the writer, in those cases of hæmorrhagic endometritis occurring about the change of life with a large and flabby uterus and family history of malignancy, to make a complete removal of the uterus.

In hæmorrhagic or hypertrophic endometritis with foul-smelling discharge, the uterus should be curetted and the findings examined microscopically. A negative finding does not necessarily prove the absence of carcinoma, as the curette may have escaped the cancer area, or the carcinoma be within the uterine muscle. Excision of a small portion of the uterine tissue for microscopical examination can only be considered where the disease is of the cervix.

The class of cases of carcinoma of the uterus which perplex the surgeon most in determining what is best to do are those

which are not seen early; when it is questionable whether the tissues outside the uterus are involved, rendering it difficult to determine even the propriety of radical interference. The most common site of carcinoma of the uterus is the cervix, which is usually squamous-celled, and early in the disease is essentially a local process, hard and indurated, with papillæ elevated from the surface of the mucous membrane. These papillæ increase and enlarge, giving rise to the cauliflower-like growth so often seen; ulceration and necrosis soon follow, implicating the vaginal vault, the broad ligaments, the bladder, and rectum. When the case has assumed this stage radical treatment is, as a matter of course, not to be considered. One of the important questions to be decided in the operation for radical cure of carcinoma, be it situated in the uterus or elsewhere, is, Can the excision of the cancer area be performed by section through normal tissue?

For the relief of the discharge, the bleeding, or the pain in advanced carcinoma of the uterus, local measures, as the curette and cautery, are more efficacious than the use of the knife. The most careful bimanual examination must be made to determine the advisability of radical operation, also must the patient's general condition and the absence of other organic lesion be favorable. The radical operation is, in the speaker's judgment, only to be considered in the early stages of the disease. He had found that the pain consequent upon the recurrence of carcinoma following late and extensive operation is greater than in cases of the kind which have been curetted and cauterized.

The speaker practises and strongly advocates total ablation of the uterus by the abdominal route in early carcinoma of the cervix. He felt sure this operation promised more, both immediately and ultimately, than does the removal by the vaginal route. In the early stages complete removal of the uterus, broad ligaments, and the lymph channels in the latter, with possibly the iliac lymph glands in some cases, should guard against recurrence with reasonable security.

It is interesting to note that Professor Jacobs, of Brussels, one of the earliest advocates of vaginal hysterectomy for cancer of the uterus, has entirely changed his views, and now only does the vaginal operation when the abdominal route is impracticable. Jacobs states that he never has had a case of uterine cancer operated upon by the vaginal route to live more than three years, and

that the majority of them were dead at the end of one year. In contrast to this he has a number of cases, upon which he operated by the abdominal route, that are living and well after four years. Jacobs practises the removal of the pelvic glands.

Professor von Rosthorn, of Heidelberg, also practises cleaning out of the glands of the pelvis in carcinoma of the uterus; in fact, this is the common practice at the present time on the Continent. It would seem as reasonable to remove the glands of the pelvis in connection with removal of the uterus in early carcinoma as it does to remove the glands of the armpit in early operation for the removal of cancer of the mammary gland. It scarcely seems necessary to say that this is a useless procedure where there is already systemic involvement. The Halsted operation for carcinoma of the mammary gland, as practised by Dr. Deaver, is only done in the early cases. It is useless to make so extensive a dissection after there is advanced involvement of the axillary, subclavian, and supraclavicular glands. When the latter condition is present, it is evident that the disease has advanced beyond the reach of the surgeon's knife, particularly in the shape of involvement of the intrathoracic glands.

He strongly opposed vaginal hysterectomy in carcinoma of the cervix, except in the presence of obstacles necessitating such a course, for instance, a very stout abdomen, nephritis, etc. Early carcinoma of the fundus of the uterus is the condition in which he practised vaginal hysterectomy, and not in the cases where sufficient time has elapsed to have allowed the lymphatics of the cervix uteri to have become involved.

The vaginal operation in carcinoma of the cervix offers no advantages over abdominal section when the latter is properly performed, and suffers from the charge of being an incomplete procedure, dangerous to the ureters, and liable at any time to be followed by secondary bleeding. The abdominal operation certainly gives the only chance for the proper cleaning of the pelvis, offers greater security against hæmorrhage and less risk of injuring the ureters; the field of operation is kept constantly in view, the patient in the Trendelenburg position, and the intestines kept out of the way of injury and infection by the proper placing of gauze pads. That we can cut farther away from the diseased area in the abdominal than in the vaginal operation, we must admit.

In the abdominal operation, he never had any fear of injuring the ureters if the bladder with the anterior serous flap was carried well forward and upward behind the pubic bone. If the operator is not content with this, it is a simple matter to expose the ureters. The introduction of ureteral catheters or bougies to safeguard the ureters had not been his practice. He had always feared more the consequences of carrying an instrument from the bladder into the ureters and exposing the kidneys and ureters to the danger of infection than injury to the ducts.

He was an advocate of dissection of the lymphatic glands of the pelvis in all cases of carcinoma. He did believe, however, that in certain selected cases this operation is not only feasible, but in order. In this connection he furthermore said that the dissection of the pelvis should be done as readily, the conditions requiring it, as a deep dissection of the neck; the same amount of care in exposing the lesion and the structures in relation therewith, thus avoiding unnecessary mutilation, should be carried out in the same anatomical manner as in the dissection for the removal of an enlarged thyroid gland. This being done, fewer ureters will be injured, fewer cases of secondary hæmorrhage, of postoperative vesical fistula, intestinal fistula, etc., will have to be noted. The individual ligation of vessels of any size as opposed to the mass ligature or the use of that abominable instrument, the angeiotribe, be it the plain or electrical hæmostatic instrument, he strongly urged.

In connection with the discussion of the propriety of the removal of the pelvic lymph glands, it is interesting to note that the lymphatic system of the uterus is composed of a rich network of vessels, those from the vagina and lower portion of the cervix following the uterine vessels to glands at the bifurcation of the common iliac arteries, usually three in number, whence they pass upward. The lymphatics of the body of the uterus anastomose with those of the cervix uteri, travel downward to the deep inguinal glands by way of the round ligaments, and pass through the utero-ovarian ligament, emptying into the lumbar glands. Notwithstanding these abundant lymphatics, carcinoma of the uterus spreads more rapidly by continuity of tissue than through lymphatic metastasis; therefore, the argument in favor of removal of the pelvic glands is weakened. Certainly the only cases that promise anything are those where the glands have not yet become

involved. Experience teaches that extension of the cancer downward into the vagina and backward into the rectum is much more common than metastasis into the pelvic glands.

Epithelioma of the vagina has been overlooked as a point of metastasis or implantation, the diseased area resembling so much an excoriation and has been mistaken for such, believed to have occurred in preparation for operation. Early involvement of the bladder may be recognized only by means of a cystoscopic examination.

The technique of the abdominal operation is comparatively simple. The abdomen opened through the right rectus muscle, the contents of the pelvic cavity palpated to determine the presence of adhesions, and if the disease has extended beyond the uterus, the patient is placed in the Trendelenburg position, the intestines and great omentum are protected by gauze pads carefully placed. With the gauze pads properly placed the field of operation in the pelvic cavity is well exposed. Traction is now made upon the fundus of the uterus, drawing it upward and backward, when an incision is carried from the pelvic end of one round ligament to that of the other, and through the serous covering of the anterior surface of the uterus at the point of reflexion of the peritoneum from the uterus on to the bladder. This serous flap is displaced downward, carrying the bladder with it; the dissection is carried as far down as possible, in this wise displacing the bladder upward behind the pelvic bone, thus exposing the anterior wall of the vagina and carrying the ureters out of harm's way. The next step in the operation is tying off the ovarian arteries to the outer or inner side of the ovary or ovaries, depending upon the advisability of removing or leaving them. It is his practice to leave the ovaries in cases of carcinoma occurring in early life. The uterine arteries and veins are next exposed as they pass from the side of the pelvis to the cervix uteri and tied between two ligatures and divided; in making the dissection to expose these vessels the ureters are exposed, and thus rendered less liable to injury. The next step in the operation is cutting the cervix out of the vagina with the removal of the organ. The vaginal walls are now whipped over with a continuous catgut suture, a piece of iodoform gauze placed in the vagina allowing a small portion of it to protrude into the pelvis, when the anterior serous flap is brought over the protruding gauze and stitched to the posterior surface of the vaginal wall or

the serous covering of the sigmoid flexure, as the case may be. The gauze pads removed; the intestines and great omentum placed in normal position; the abdominal walls closed with tier suture; the abdominal wound dressed and an aseptic dressing applied to the vulva, and the patient returned to bed. The head of the bed is elevated, unless there are symptoms of temporary shock, when this is not done until the patient has recovered from shock.

In making a vaginal hysterectomy, he preferred to use clamps rather than ligatures.

Dr. William J. Taylor said he agreed in every particular with the statements made by Dr. Deaver. He had performed his last vaginal hysterectomy. In the last patient upon whom he did this operation, for a malignant growth of the uterus, it was followed by infection, with a resulting peritonitis. The peritonitis was followed by embolism and dry gangrene in the right forearm that necessitated amputation above the elbow. The patient left the hospital minus not only her uterus but also her right forearm; this result occurring in spite of the fact that all possible care was used in the operation. It decided Dr. Taylor against further use of the vaginal method.

Dr. Deaver said that Dr. Taylor was fortunate in that his patient did not lose her life. His brother had an experience with a similar condition, but his patient died. She was a large, stout woman, and during the operation her limbs were held by assistants. They did what residents are prone to do,—use the limbs as a hammock and go to sleep,—and as a result of the excessive flexion during a long operation thrombosis, gangrene, and death occurred. The case demonstrated that assistants should be awake.

LOOSE BODY REMOVED FROM THE KNEE-JOINT.

Dr. Henry R. Wharton reported the case of a man, aged fifty years, who was admitted to the Presbyterian Hospital January 19, 1903, with the following history: Early in November he wrenched his right knee, but, although the knee gave him some pain, he was able to continue his work. Shortly after the accident he began to suffer with occasional pain and disability in the right knee, and experienced a sensation as if something had slipped out of the joint upon certain motions of the joint. In December the symptoms became aggravated, so that at times when walking the body slipped out of the joint, produced intense pain, and caused the

knee to give away under him, so that he would fall. He became so uncertain in his movements that he was compelled to give up his work. There would often be intervals of several days when he suffered from no displacement of the body.

After his admission to the hospital, upon certain movements of the joint he was able to bring the body out of the joint, so that it could be located, when the joint was flexed, near the inner edge of the patella.

After the body had been located, it was fixed by a needle passed into it through the skin, and a firm compress was also applied above it to prevent its slipping back into the joint. The patient was then anæsthetized and an incision made through the skin over the body, and it was removed. It proved to be a bony body, convex upon one surface, partially covered with cartilage, and about the size of a Lima bean. The wound was closed by two layers of sutures, and the joint fixed by a plaster-of-Paris bandage. The superficial sutures were removed upon the tenth day, and the wound was found healed.

The etiology of loose or movable bodies in the knee-joint is not definitely settled. Their presence is attributed by various authorities to detached synovial fringes, which remain free in the joint; or to detached osteophytes; or to the detachment of portions of bone or cartilage from a wrench or twist of the joint; or the detachment of a portion of the articular surface of the bone or cartilage by a quiet necrosis without suppuration. Fibrous bodies are said to frequently result from the organization of blood-clots following injury of the joint. The body may be entirely loose, or attached by a long or short pedicle. The bodies vary in size from a pea to a body an inch or more in diameter, and may be cartilaginous, fibrous, or bony in structure. The symptoms vary in intensity, and may disappear at intervals, and appear to be due to quiescence or mobility of the body. Fixation of the joint occurs at intervals, as the body occupies certain positions in the joint. Nausea when the body becomes displaced is not an uncommon symptom in many cases. The presence of the body sooner or later causes disability and weakness of the joint from chronic synovitis, with stretching of the ligaments.

The most satisfactory treatment of this affection is the removal of the body by incision. It is wise, however, not to attempt to remove the body unless it can be definitely located, as it may

be difficult to find even after an extensive exposure of the knee-joint. The operation, with careful aseptic details, is accompanied by little risk.

Dr. John B. Roberts said that he once undertook to remove what was thought to be a movable body from the knee-joint and was surprised to find that it was an osteoma or osteophyte on the femur. The fascia slipping over this gave the sensation of a movable body. The treatment for both conditions being the same,—removal,—the mistake in diagnosis was not of importance.

Dr. James K. Young mentioned two cases that he recently had seen. One, under the care of Dr. Willard, was in an athlete from whose knee the loose body was taken out in two pieces, the tissue being cartilage. The second case, under his own care, is in a woman of fifty years. In this instance the movable body, which is larger than those usually found, is situated above and internal to the patella. The patient has not as yet been operated upon.

Dr. W. Barton Hopkins said that he had seen in the laboratory of the Pennsylvania Hospital several loose bodies that recently had been taken from the knee-joints of an aged colored man who died in the medical ward of that institution. The largest concretion measured 6½ by 4½ by 2½ centimetres and weighed fifty-five grammes. The two smaller concretions in the right knee-joint were not measured or weighed. It was mainly fibrocartilage, but had a small bony nucleus.

Dr. George G. Ross mentioned a case which illustrated a point made by Dr. Wharton regarding the difficulty of securing a loose body that has not been accurately located or anchored before opening the joint. In this instance the body could not be found until the finger was introduced and the joint explored. Fortunately, infection did not follow this manipulation.

FRACTURE OF SPINE, ACCOMPANIED BY AN ENORMOUS PROSTATIC CALCULUS WITH PYONEPHROSIS, AND FINALLY A GUNSHOT FRACTURE OF THE SKULL.

Dr. W. Barton Hopkins presented the following outline of the history of this case:

M. S., aged twenty-eight years (?), born in Germany; was admitted to the late Dr. J. M. Da Costa's ward in Pennsylvania Hospital, January 6, 1899, with pneumonia. The evening of his admission he became wildly delirious, requiring restraint in bed.

Later on he succeeded in slipping his straps, jumped out of the window, and fell upon the grass, a distance of fifteen feet.

On being brought back into the hospital he was found to have sustained a fracture of the lower dorsal or upper lumbar vertebra, accompanied by complete paralysis from the waist down. The shock of the injury in conjunction with his serious illness rendered his condition desperate. Note of the physical signs of his chest showed pneumonia of the right lung. His breathing was rapid and shallow and he was much shocked. He slowly reacted, and at the end of a week his general condition having improved, Buck's extension apparatus was applied to both legs and counter-extension to the head; but a fortnight later, there being no benefit from the latter, it was removed.

In six months his general condition had very much improved, but the paralysis remained unchanged.

Having had occasional attacks of hæmaturia, the presence of vesical calculus was detected about this time. From then on the urine contained blood and pus, varying in quantity but always present. About this time (1901) the patient was able to sit up in a wheel-chair, thus relieving the pressure over the bed-sores which were present. His flesh was good and he was strong and able in his upper extremities. A pair of adjustable crutches was applied to the chair so that he could elevate and lower them, and thus take more or less weight off of his buttocks. In this way not only were the bed-sores made to heal, but his ability was much increased to wheel himself out of doors, and thus obtain exercise and fresh air.

His mental state was generally quiet and contented. The stone which was thought to be vesical, but proved post-mortem to be prostatic, had increased enormously in size, and the urine contained large quantities of pus, but he obstinately declined to be relieved by operation.

January 26, 1904, his stomach gave out, and this apparently being the last straw, he became hopelessly despondent, and four days later, obtaining a pistol, shot himself in the right temple and died in about ten minutes.

An autopsy was made January 30, 1904, by Dr. Longcope, who has furnished the following notes:

The body is that of a young man 163 centimetres in length. Rigor mortis absent. Body still warm. There is very slight post-

mortem discoloration over back and shoulders. Pupils equal and dilated. The upper extremities, neck, and thorax show a moderate grade of muscular development. Below the umbilicus there is extreme emaciation of all the muscles. The pelvis and lower extremities are almost literally skin and bones. The abdomen is scaphoid, and the anterior superior spines of ilium stand up prominently. The circumference of the middle portion of right thigh is seventeen centimetres; on the left side it is seventeen and one-half centimetres; about the middle portion of right tibia, fifteen and one-half, and left, fifteen centimetres. The feet are in talipes equinovarus position. There is no œdema of lower extremities. Penis is small. There is a narrow band covered with skin which goes from prepuce to glans on dorsal aspect of penis. Over the tuber ischii there are purple splotches, and over the sacrum the skin in places shows shallow ulcerations.

In the right temporal region, six centimetres above the zygoma and in a line with the middle of this bone, the hair for an area of two and one-half centimetres across is matted with blood. Around the margin the hair is singed. The tip of the ear is blackened, and there are black marks at the outside of the supraorbital ridge. In the centre of the area where the hair is clotted with blood a small, ragged, round hole one-half a centimetre in diameter is found in the scalp.

Muscles are pale.

Abdominal Cavity. The omentum is pale, delicate, and has very little fat, but covers the intestinal surfaces well. Peritoneal surfaces are smooth and glistening. Appendix measures twelve centimetres in length, lies behind the cæcum, and is patent throughout.

Thorax. Lungs collapse upon removal of sternum. On left side the lung is bound down to thoracic wall by old fibrous cobweb adhesions. On the right side the pleural cavity is free from fluid and adhesions. Pericardial cavity contains a small amount of clear, straw-colored fluid; serous surfaces are everywhere smooth and glistening.

Heart. Weight, 200 grammes. The heart is of medium size; epicardium everywhere smooth and glistening and contains some fat. The right side is distended with firm red and white post-mortem clots. All the valves are thin, delicate, and normal. The endocardium is slightly thickened over left ventricle. The heart

muscle is firm and brownish gray in color. Left ventricular wall averages from ten to fifteen millimetres in thickness. The aorta shows some slight sclerosis. Walls of coronary arteries are thickened, but the arteries are patulous.

Lungs. The left lung is rather small, soft, and crepitant throughout. The surface is dark purplish blue mottled with black. On section, the cut surface is everywhere pale pink, soft, and crepitant. Bronchi at the root contain a small amount of mucus. Vessels are clear. The posterior part of pleura is covered with old fibrous adhesions.

The right lung is exactly like the left, the pleura being everywhere smooth and glistening.

Spleen. Weight, 190 grammes. Size, 13 by 8 by 5 centimetres. The capsule is delicate, smooth, and free from adhesions. The color is dark purplish brown. Consistency not decreased. On section, the cut surface is smooth, somewhat mottled brown, and red. Malpighian bodies are of medium size. Trabeculæ are not increased.

Liver. Weight, 1220 grammes. Size, 21 by 17 by 9 centimetres. The liver is rather small, not increased in consistency, regular, smooth, and dark purplish brown in color. The capsule is free from adhesions. On section, the cut surface is smooth and brownish in color. Lobules are fairly well marked, their centres are small and reddish. Portal connective tissue not increased. Bile ducts patent. Gall-bladder apparently normal.

Urinary bladder, ureters, and kidneys removed together. While the bladder is being removed, a large concretion escapes from the prostatic portion of urethra which has been cut through. On opening the urethra and bladder the solid portion of prostate has entirely disappeared; instead of a gland there is a large, thin-walled sac which contained the concretion, and apparently surrounded it completely.

The stone is rather soft and crumbling.

It is quite regular in shape and looks as if moulded into the form of a large prostate. It is divided into three or four more or less well-defined lobes and presents a general heart shape, the apex pointing towards the neck of the bladder. On the under surface there is a rounded depression about one centimetre in diameter, into which fits the verumontanum. At the base the stone measures six centimetres in diameter, at apex, three centimetres.

It is six centimetres in length and four and one-half centimetres in thickness at the base. At the anterior portion of base there is a rounded mass about two centimetres in diameter. This ends in a round process with a broken end. This process is apparently a cast of the membranous urethra. A second tip-like process extends from the superior lobule into the neck of the bladder. The wall of the sac containing the concretion is gray in color, and is covered with much pus and some mucus. The verumontanum is about the size of a cherry-stone. The ducts leading into the seminal vesicles are patent. Neck of bladder rather small. On opening the bladder the cavity is small, and is entirely filled with a thick, stringy, yellow pus having a rather foul odor. A few masses of calcareous material are also found.

The wall of the bladder is much thickened and the organ is very small; wall measures in places one and one-half centimetres in thickness. The mucous membrane is corrugated, thickened, and red in color. There are some adhesions about the seminal vesicle. Both ureters are distended to the size of one's thumb, and on pressure the ureteral orifices, which are difficult to find, are marked by a spurt of yellowish pus. The intravesicular portion of both ureters is very small and shows some actual constriction, for it is difficult to get even a small probe through the orifice. When the ureters are opened the stricture in the bladder wall is very noticeable, above this the ureters are dilated into tubes about two and one-half centimetres in circumference. The wall is thickened and the mucous membrane is very much reddened. Both ureters contain thick yellow pus. The dilatation continues up to and into the pelves of the kidneys.

The left kidney measures 13½ by 7 by 5½ centimetres. The kidney is very large and very soft, having almost a fluctuating feel. It is somewhat irregular in shape. The capsule strips readily, leaving a fairly smooth but lobulated surface, which is mottled purple red and gray.

It is dotted with irregular opaque yellow points and areas which measure from one to ten millimetres in diameter. The largest ones are quite soft. On section, the pelvis and many of the calyces are enormously dilated, and all are filled with stringy yellow pus. At times the dilated spaces reach within one and one-half centimetres of the surface, in which event the kidney substance appears as a gray or red line destitute of normal markings

and dotted with yellow points. In other places the cortex and medulla vary from one to three centimetres in thickness. In these portions the medullary pyramids are swollen, reddish, and ill defined from the cortex. The cortex is very irregular; it measures from five to ten millimetres in thickness. Sometimes the triæ are fairly well marked and the glomeruli stand out as red points. In these areas the cortex has a general red look. In other places the markings of the cortex are lost, and the kidney shows extreme red and yellow mottling, while opaque, yellow streaks extend from the medullary pyramids into the cortex. The wall of the pelvis and calyces are much thickened, reddened, and in places covered with soft yellow material.

The right kidney measures 13 by 12 by 5½ centimetres. It is much softer than the left, has a more nodular appearance, and feels much like a thick-walled cyst. The surface is paler, and shows many more of the soft yellow areas. On section the pelvis and calyces are so much dilated that very little of the kidney substance remains, and almost none that retains its normal markings.

Many of the calyces end in abscesses, the wall of which reaches within two or three millimetres of the surface and is covered with thick, tenacious, yellow pus. Adrenals are apparently normal. Pancreas, stomach, and œsophagus apparently normal. Intestines are apparently normal.

Aorta fairly smooth.

Testes are apparently normal but rather soft.

The spine from the sacrum to the fourth cervical vertebra is removed *en masse*. At the level of the twelfth dorsal or first lumbar vertebra there is a slight deformity. The body of the last dorsal vertebra is small and compressed, and the spine curves somewhat forward and to the left side. Over the lamina there are bony exostoses which fill almost entirely the space between the spinous processes and lateral processes. On sawing through the laminæ and exposing the cord it is seen to be rather small, except just beneath the deformity, where there is a hard, irregular swelling about the size of one's thumb-nail. Here the dura mater is adherent to the bony canal.

Brain. The skull immediately beneath the wound in the scalp shows a ragged round opening two centimetres in diameter. On the inner surface of the temporal bone the inner table is somewhat torn. There is extensive hæmorrhage beneath the dura mater and also beneath the pia mater in places. Corresponding to the hole in

the scalp and dura beneath it there is a large tear in the substance of the brain which involves the fissure of Sylvius about four centimetres anterior to the foot of the fissure of Rolando. About it there is an extensive hæmorrhage beneath the pia mater. In the superficial portion of the laceration, a piece of bone two centimetres in length, one centimetre in width, and one-half centimetre in thickness together with a small mass of lead is found. On the median surface of cerebrum a second laceration is found midway between the fornix and the surface of cortex and five centimetres back of anterior point of fornix. The falx cerebri is perforated by an opening one centimetre in diameter, the perforation corresponding exactly with the situation of the laceration in cerebrum. The left hemisphere shows two lacerations, one on the inner surface and the other on the cortex; they are only two and one-half centimetres apart. Embedded in the brain substance on left side just below the pia mater there is a small piece of lead; it lies in the foot of the postcentral lobe one and one-half centimetres above the fissure of Sylvius.

Anatomical Diagnosis. Double pyelonephrosis; chronic cystitis; calculus of prostatic urethra; old fracture of last dorsal and first lumbar vertebræ; laceration of brain by a leaden bullet.

Dr. John B. Roberts described briefly a similar case upon which he recently had operated. The patient had attempted suicide and was unconscious when seen. Marked exophthalmos was present; it being readily surmised that the bullet had passed just behind the orbits and that the cavities were probably filled with blood. The skull was trephined at the point of entrance of the bullet and fragments of bone and a great deal of blood were removed. On the opposite side of the head was an increasing swelling of the scalp, which, when opened, showed that the bone was broken but not perforated by the bullet which had passed through the brain. The bullet had caromed and was found in the brain one and one-half inches posterior and below the wound in the skull. The patient had lost a great deal of blood and soon afterwards died.

PULMONARY COMPLICATIONS FOLLOWING ABDOMINAL OPERATIONS.

Dr. R. P. McReynolds said that in looking over a series of 100 cœliotomies in order to determine the frequency of postoperative pulmonary complications, he had found two cases of bronchopneumonia, one of bronchitis, one of abscess of lungs, and three of pleurisy. The case of bronchitis followed an operation for mistaken perforation of a typhoid fever ulcer, and may possibly have been due more to the fever than to the operation. It was of short duration, and the patient made an uneventful recovery from the bronchitis, the typhoid fever, and the operation. The cases of pleurisy have been of the simple plastic variety, and were easily cured by strapping the affected side with adhesive plaster. He gave brief histories of the other cases:

Case I. (*Bronchopneumonia following Hysterectomy for Uterine Fibroid.*)—Operation, August 12, 1902; ether anæsthesia. Mrs. P., aged thirty-five years, sought relief from pain and hæmorrhage caused by a small uterine fibroid. He hesitated to do a radical operation upon her because of a tubercular family history and an undoubted latent tubercular foci in her own lungs. An attempt was made to relieve her by dilating and curetting the uterus, but this was a complete failure, and one year later he was forced to do a hysterectomy. The day following the operation she began to cough and temperature suddenly went up to $101^{2}/_{5}°$ F.; during the next three days there gradually developed a typical bronchopneumonia of left lung. Frequent examinations of the sputum failed to demonstrate the presence of tubercular bacilli. She made a slow recovery, and left the hospital still suffering from a slight hacking cough. Sixteen months after the operation she died from pulmonary tuberculosis. There were no abdominal complications throughout. The ether and the Trendelenburg position were probably the cause of the pneumonia.

Case II. (*Bronchopneumonia following Double Salpingo-oöphorectomy for Bilateral Tubo-ovarian Abscess.*)—Operation, November 28, 1903; ether anæsthesia. Glass drainage.

The temperature began to go up immediately after the operation, and the following day it was 103° F., and there were present the physical signs of bronchopneumonia of right lung. The coughing caused the through-and-through abdominal stitches to cut out, which retarded her convalescence somewhat. She, however, made a good recovery and is perfectly well to-day. The patient had developed a slight cough (which had been overlooked) the day before the operation. The pneumonia resulted probably from the inspiration of some foreign substance into the lungs at a time when their resisting forces were impaired.

Case III. (*Opening and Draining Abdominal Abscess caused by Perforation of Typhoid Fever Ulcer.*)—Operation, March 23, 1902; Chloroform anæsthesia. The convalescence in this case was normal up to the second week, when he developed a slight cough, and a little later there were present physical signs of consolidation of right base. Frequent punctures with aspiration-needle into the pleural cavity and the lung substance itself failed to locate the pus, which finally ruptured into a bronchial tube and was coughed and spit up. He made a tedious but perfect recovery and is strong and well to-day. No abdominal complications throughout, wound granulated and healed normally.

The numerous lymphatics running along the psoas muscle enable the infection to travel upward towards the diaphragm; it is then conveyed to the lungs through the blood current and there forms a foci of infection, around which an abscess gradually develops (metastatic pneumonia).

In these cases were illustrated the most frequent causes of postoperative pneumonia, *i.e.*, the irritating effect of ether itself; the inspiration of foreign substances during etherization; septic emboli.

Other causes are, exposure and wetting during an operation; prolonged use of Trendelenburg position and the forced retention of the intestines upon the diaphragm; intravenous injection of normal salt solution.

To prevent chilling during the operation the electric pad laid over the operating table has been recommended. It is theoretically all right, but practically it is worse than useless, and he mentioned it in order to condemn its use. In prolonged abdominal operations upon patients who are very weak and debilitated, pulmonary complications can to a certain extent be prevented by having the extremities and the chest covered with cotton during the operation.

The best way to prevent the patient from becoming wet is to use as little water as possible during the operation.

Dr. Körte, of Berlin, has a technique which he had copied and found most satisfactory. The hands after being sterilized are

wiped dry, and this is repeated after each washing during the operation. The instruments after boiling in soda solution are dried and placed upon a sterile sheet spread over a glass top table. After using an instrument it is taken by a nurse, washed in hot soda solution, dried and placed back upon the table,—another nurse, wearing sterile dry gloves, threads the needles, hands the instruments, etc.

The indiscriminate use of intravenous injection of normal salt solution is capable of producing serious and even fatal cardiac and pulmonary complications. It is a very nice little operation itself and should not be intrusted to one who has not had some surgical experience. One must always bear in mind the possibility of causing an embolism from the introduction of air into the veins during the administration of the solution. When the lungs are congested from the irritating effects of the ether or from any cause whatever, and the right heart is already embarrassed, the sudden introduction into the circulation of a large quantity of fluid may cause complete cardiac failure, or further embarrass the heart, and so aggravate the existing congestion of the lungs. This is especially apt to occur when the patient is in the Trendelenburg position and the intestines are pushed and held up against the diaphragm, thereby preventing the normal downward expansion of the lungs.

A large number of patients requiring abdominal operations have been ill for years, and during this time their bodies have become more or less worn and emaciated. The heart and lungs have adapted themselves to the change and are no longer capable of responding to a sudden call for extra work. If in these cases there is the one indication for intravenous injection of salt solution during an abdominal operation, *i.e.*, loss of blood, it should be given slowly, and the temperature of the solution not allowed to drop from 110° F. during the administration.

Dr. John B. Roberts said that patients get pulmonary complications after operation as a result of oversight in their care. In some instances it is a question of too much ether and too little undershirt. It is the common failing of hospital residents to give too little ether at first, when a great deal is needed, and too much afterwards. When patients are overloaded with ether, particularly if in the Trendelenburg position, it is little wonder that they contract pulmonary congestion, pleurisy, and pneumonia. It is the practice in many hospitals to take off the underclothing of new

patients and give them only a night-shirt of thin muslin that is open in the back. The patient is then operated upon, given too much ether during the operation, and afterwards taken to a ward where the beds are placed with the head towards and under the window. Such practice is responsible for some cases of pulmonary complication. Too little thought is given to the care of the patient before and after operation. It is customary to combat these shock-producing agencies by infusing saline solution. The practice of putting salt solution into a vein at the bend of the elbow is becoming entirely too much of a fashion among hospital residents.

Dr. Joseph Spellissy, apropos of the reference of Dr. McReynolds to the unsatisfactory results from the use of the electric pad during operations, said that one had been used at the University Hospital, in the service of Dr. Willard, during the past five years. The appliance has given a great deal of comfort and is efficient in keeping the patient warm. No burn of a case has occurred, and many patients have undoubtedly been much benefited by its employment.

Dr. Richard H. Harte referred to the scrupulous care exercised by the late Dr. Ashhurst in keeping his patients covered during and after operation as an effective means of preventing complications. Certain surgeons in the West are reported as having ceased to employ ether anæsthesia because of the frequency with which it is followed by pneumonia. That such results can be attributed to ether is not borne out by his own experience, as he does not lose cases from postoperative pneumonia. He is very careful to keep his patients covered, and this unquestionably has its effect in preventing complications. Hospital residents are often careless in such matters, and the routine of admission in many hospitals is to take off the patient's flannels, bathe him, and put on him a thin muslin shirt. This cannot help but cause a tendency to take cold. Patients will not get pneumonia if they are carefully looked after before, during, and after operation. The intravenous injection of salt solution is a very good thing in many instances, but its use is at times abused.

Dr. John B. Deaver concurred with the statements of Drs. Roberts and Harte. Regarding the shirts worn by hospital patients, he fought out that question years ago, and now it is a standing rule in the German Hospital that every patient dons a flannel shirt, and wears it to the operating room if operated upon.

Dr. Deaver has never used the electric mattress, but employs the hot-water bed for all cases of operation upon the upper abdomen, as gall-bladder and stomach cases. Burns from this appliance will not occur if reasonable care be used. In the classes of cases mentioned, the arms, chest, and lower extremities are before operation enveloped in cotton and bandaged. With all these precautions, pneumonia may develop. Often too much ether is given. He watches the anæsthetizer. He is often asked how he manages to do this, but it is part of a surgeon's duty. Everybody in the operating room should be watched. Dr. Deaver never allows the use of any anæsthetic but straight ether, opposing the use of nitrous oxide, and other combinations, to the extreme. There is one trouble with many trained nurses, and that is that they kill people with fresh air; opening windows in the operating or recovery room may easily cause a fatal complication. Saline infusion has its place, but only trained house physicians should be allowed to use it. Air will not enter the vein if proper precautions are observed. Infusions are seldom called for except in cases of hæmorrhage. As to the statement made regarding dry hands and instruments, dry surgery is preferable to wet surgery in every instance. Shock comes from prolonged operations. It is no wonder that patients die after hysterectomy lasting two hours or longer; when fifteen to thirty minutes should suffice, as a rule. The patient is necessarily overetherized in long operations. The hot-water bed is not used to prevent shock but to prevent complications in the thoracic cavity. We hear much about shock from loss of blood, but unnecessary manipulation of the abdominal contents is a more fruitful source. In answer to a question of Dr. Taylor as to whether his patients had backache after being on the hot-water bed, and if he attributed this to the heat or to the surface of the bed fitting the inequalities of the patient's body, Dr. Deaver said that nearly all his patients complained of backache after abdominal operations, but he had never thought of the bed as being the cause.

Dr. James K. Young endorsed what had been said in favor of the electric mattress. No shock has occurred among the children operated upon in the University Hospital since it has been used. Prior to its use, four children were severely shocked, apparently from cold during operations. Recently, while performing a double astragalectomy in another hospital, the lack of the mattress was forgotten for the time, and the patient became severely shocked, although the etherizer reported his condition good after one side had been completed. No burns by the mattress have occurred. Dr. Young believes that some of the burns reported from the use of the mattress are due to the combination of solutions used to wash the patient,—alcohol, green soap, etc. These run under the patient and then on the mattress, and burns result.

Dr. John H. Gibbon, in speaking of the effect of air entering the vein while saline solution is being given, related a personal experience met with at West Chester during the past year. The infusion was being given hurriedly after an operation for a perforated gastric ulcer. The salt solution was allowed to run through the nozzle before it was introduced into the vein, but afterwards, through the glass coupling in the tube, a considerable amount of air was seen to pass into the vein. Some untoward result was at once expected, but no bad effect upon the patient was noticed. Dr. Gibbon has heard of the same thing occurring in the experience of other surgeons, and, while he would not consider it advisable to relax every care to prevent the passage of air into the veins, he thinks the danger of this occurrence may have been exaggerated.

Dr. Henry R. Wharton said that he formerly used the electric mattress and found it of service in combating shock. One patient afterwards had an immense slough eight inches in diameter over the buttocks, however, and since that time he has been very careful in its employment.

INGUINAL HERNIA OF THE UTERUS.

Dr. John B. Deaver put on record a case of strangulation of the fimbriated extremity of a Fallopian tube of the right side, which was thought to be a femoral hernia.

Dr. John H. Gibbon described briefly a case of left femoral hernia in a woman of seventy years, operated on by him at the Pennsylvania Hospital. The patient had been operated on some years previous, the later condition being a recurrence. When the sac was opened, it was found to contain the cæcum, with the appendix, the ascending, transverse, and descending colon as far as the sigmoid and the entire omentum. He had previously reported two left cæcal hernias, this making the third. The patient made a good recovery, and had no return of the hernia when she left the hospital. Transposition of the viscera was not present

in any of these cases. The two reported cases were left inguinal herniæ.

Dr. Henry R. Wharton mentioned the case of a woman who was thought to have incarcerated omentum in a right inguinal hernia. She was then four or five months pregnant. Operation revealed the contents of the sac to be a pedunculated fibroid of the uterus This was removed and the patient went to full term.

Dr. Jopson said that where a hernia of the Fallopian tube was present it was also possible to have hernia of the ovary. He had at first but little hope of curing this patient's hernia, but there were no signs of recurrence several weeks after the operation. There apparently never had been a hernia of the bowel. In answer to a question by Dr. Ross, Dr. Jopson stated that at the time of operation one could not say if the hernia was direct or indirect, but, judging from the history, it was probably congenital and indirect.

STATED MEETING, APRIL 4, 1904.

The President, Henry R. Wharton, M.D., in the Chair.

SEPARATION OF THE QUADRICEPS EXTENSOR FEMORIS TENDON FROM THE PATELLA.

Dr. Henry R. Wharton presented a man, fifty-one years of age, who fell while walking and injured his right knee. He was unable to walk after the accident, and was treated for some weeks at his home; the nature of the treatment he received is not known. He applied for treatment at the Surgical Dispensary of the Presbyterian Hospital six weeks after the injury, and was referred to the Surgical ward.

Admitted to Surgical ward, May 29, 1903. Examination showed that he walked with difficulty, owing to weakness and loss of extension of the right knee-joint. It was found upon careful examination that there was complete loss of extension of the right knee, and a gap existed in the tissues just above the patella, due to a separation of the quadriceps extensor femoris tendon from the patella.

After the patient was anæsthetized, a longitudinal incision was made from the centre of the patella, which extended up the thigh for four inches. The upper portion of the patella and the lower portion of the quadriceps extensor tendon were exposed, and it was discovered that the injury was not merely a rupture of the tendon, but that the fibrous capsule of the patella over its upper surface had been torn off and drawn upward with the tendon, and that the lower portion of the capsule was separated from the bone by a layer of partially organized blood-clot and blood-stained synovial fluid. The knee-joint also contained a considerable amount of blood-clot.

All blood-clots were removed from the joint and from the surface of the patella; to accomplish the latter object, it was necessary to curette the upper surface of the patella. The lower portion of the capsule attached to the patella was sutured to the

bone by drilling the patella at the edges and in the centre, and passing chromicized catgut sutures through the capsule and drill-holes. The upper end of the patella was next drilled, and a heavy silver wire suture was passed through the lower portion of the tendon and through the drill-hole in the patella, and when this was secured the tendon was brought down in contact with the patella. It was considered wiser to drill the patella and use a heavy wire suture to secure the tendon to the bone, rather than to trust to sutures passed through the capsule, as the line of separation was irregular, and the edges of the capsular tissues were very much frayed. Portions of the capsule adherent to the tendon were next sutured to the lower portion of the capsule by a number of chromicized catgut sutures. The fascia was then brought together by a number of chromicized catgut sutures, and the skin and superficial tissues by a second layer of sutures. The wound was dressed with a sterilized gauze dressing, and the knee-joint fixed by a plaster-of-Paris bandage, including the foot and thigh.

The patient did well after the operation. The bandage was trapped on the twelfth day and the sutures removed, as the wound was found healed.

The fixation dressing was retained for six weeks, and after this time the patient was allowed to go about on crutches. He was discharged from the hospital, August 11, 1904, at which time the attachment of the tendon to the patella seemed to be firm, and he was regaining the motion of extension of the knee-joint.

At the present time he walks well and has fair extension of the knee-joint.

Dr. Wharton added that at a meeting of the Academy last year he reported a somewhat similar case, in which the patient had suffered from a simultaneous rupture of both quadriceps extensor tendons, in whom, six weeks after the injury, he exposed the seats of rupture of the tendons and sutured them, and the patient recovered with absolute restoration of function.

GALACTOCELE.

Dr. W. W. Keen presented a woman, aged twenty-one years, who was admitted to the Jefferson Medical College Hospital December 14, 1903. She had had a lump in her left breast almost as long as she can remember, and believes that it began about the

time that her menstruation was first established at twelve to thirteen years of age. At first it was only about the size of a lady apple. She was confined March 8, 1903. When she was about three months pregnant, the tumor began to grow. At the time of her confinement, it was about twice as large as at the present time. After her confinement the tumor began slowly to shrink. The breast contained milk after her confinement, but the nipple was flat and retracted, and she did not nurse the child from that side.

When admitted to the hospital, the tumor occupied more than one-half of the left breast, involving all of the inner lower quadrant and parts of the two adjacent quadrants. It was ten centimetres in diameter, was rather firm, markedly lobulated, elastic, not attached either to the chest-wall or the skin. Apparently, the skin, however, is attached to the septa dividing the lobules. The nipple is flat but not retracted; milk can be expressed from the nipple. There are no glands perceptible in the axilla or neck. The urine is normal.

December 16 an elliptical incision was made, through which the entire breast was removed, but nothing more. The skin over part of it was so thin that, in spite of the utmost care, two of the smaller cysts were opened and their rich, creamy semifluid contents was discharged. A culture was taken from it, and the breast also was sent to Professor Coplin for examination. After its removal, it was found by section that the major part of it was one large galactocele with a number of subsidiary cysts.

She made a perfectly smooth recovery, her highest temperature being 99.4° F. She was discharged one week after the operation with the wound entirely healed.

Practically the entire mammary gland was involved in the cystic change, the largest cyst being about six centimetres in diameter; many others being one or two centimetres. Examination of the milky fluid, which in some of the cysts was quite thick and creamy, showed it to be made up almost wholly of globules of fat, which gave the characteristic reaction of that substance with Sudan iii.

Professor Coplin and Dr. Ellis, by whom the specimen was examined, report that the microscopical appearances of the tumor after embedding and staining the sections with hæmatoxylin and eosin, hæmatoxylin and Van Gieson, Mallory's reticulum stain,

toluidin blue and Weigert's elastic tissue stain, show some increase of the inter- and intra-lobular fibrous tissue, though this is not at all a prominent feature of the specimen. The most conspicuous change in the stroma is a marked periacinous infiltration of mononuclear cells, practically all of which are of the small, round variety. Similar, but less extensive accumulations are present around the ducts. Many of the acini and ducts show marked distention, several of the former having in certain instances coalesced to form cysts, some of which are of large size. These cysts are lined by one or several layers of cuboidal or slightly flattened cells and possess a fibrous wall which in many instances is quite thick. Some of the cysts are partially filled by large cells having a more or less deeply stained periphery, the interior of which is made up of granular material containing numerous small, transparent, circular areas that are apparently fat globules. In some of these cells the granules predominate, in others the fat globules are more numerous. Nuclei are present in some, being flattened and peripherally placed in those cells containing most fat. In addition to the distinct cells are large masses of débris evidently resulting from cell fragmentation. In some of the cysts there is distinct evidence that these large cells are in process of formation from the lining cells which increase in size, become globular, and finally show within them the presence of fat.

Sections stained for elastic tissue show no evident increase in that tissue, though there is possibly some splitting of the elastic laminæ of the blood-vessels.

To the diagnosis of galactocele, Dr. Ellis, who made the examination, added "acute non-suppurative interstitial mastitis; slight chronic productive mastitis."

Dr. Keen said that he had reported this case of galactocele, because in his experience it was extremely rare. He had amputated the breast fully 500 times in addition to seeing a large number of cases, probably 300 to 500 more, in which no operation had been done. This, so far as he remembered, was the only case of galactocele that he had ever seen among these 800 to 1000 cases.

Almost all writers declare it to be rare; indeed, it is so rare that in some cases he had found practically nothing beyond a bare mention of it.

As to the pathology, Ziegler ("Special Pathological Anatomy," American edition from the eighth German edition by MacAlister and Cattell, 1897, Section xiii, p. 1100) says, "When one of the ducts of a milk-secreting breast is occluded or partially obliterated by some previous disease, the part of the duct behind the obstruction occasionally but not very frequently dilates into a milk-containing cyst, known as a milk-cyst or galactocele. It does not usually lead to inflammation of the surrounding tissue; but in some cases changes take place in the milk, and these excite inflammation and proliferation in the fibrous stroma. According to Küstner, the mammary tissue may even soften and break down into pulpy detritus from such inflammation."

Sometimes they are attributed to injury. Much more commonly they begin soon after confinement during lactation.

Dennis, in his "Text-Book of Surgery," quotes a case by Atlee which began sixteen months *before* the patient's confinement, and another from Bouchacourt, which began twenty-four years after her last confinement. Each of these cases clearly began independently of normal lactation. In the present case it seems probably to have had some connection with the tumor which developed at the time when menstruation first began, when she was twelve or thirteen years of age, and therefore about six or seven years before her present pregnancy. It is to be noted that a year after her marriage, she had a miscarriage at two and one-half months. She did not notice that that pregnancy had any effect upon the tumor, very probably because it was terminated by accident before the breasts became functionally active. She is an unusually intelligent colored woman and gave a very clear history.

The symptoms and diagnosis can be practically considered together. The appearance of the tumor is usually rather sudden, usually soon after parturition, or at least during lactation, without any inflammatory changes, and with only the pain and discomfort incident to the tension and weight. Some of these tumors become excessively large. Scarpa reports one in a patient just the same age as the one reported which occurred ten days after her confinement and from which ten pounds of milk were evacuated. Milk was demonstrated to be present in the breast of the present case by pressure upon the tumor, which caused the milk to escape from the nipple.

The tumor often varies in size, as was indicated in the present case. She stated that at the time of her confinement the tumor was

twice as large as when she was admitted to the hospital. It had slowly shrunk after her confinement, doubtless from the absorption of the watery part of the milk.

The contents of such tumors varies extremely: sometimes it is like simple human milk; sometimes, when the watery parts have been absorbed, it is changed, as in this case, to an extremely rich cream almost as thick as castor oil. Gross states that they may be filled with what appears to be pure oil which coagulated into a substance resembling lard, intermixed with crystals of margarine. In other cases the contents are like butter or cheese. In other words, all or any of the various products from milk may be present.

As to treatment, sometimes aspiration or drainage is recommended. No tumor so large as the present one, and with so many independent cysts, could by any possibility have been treated by either of these means successfully. Moreover, as was seen by the more minute microscopical examination of Dr. Ellis, the entire breast was permeated with these cysts even in those parts which were not visibly enlarged. The determination, therefore, to treat it by amputation of the entire breast seems to be amply justified. If a galactocele is incised and drained, especially if this is done during lactation instead of waiting until lactation is terminated, it is very apt to result in a milky fistula, or, if by any possibility infection takes place, an abscess of the breast develops.

Dr. William L. Rodman said he had seen but one case of lacteal cyst, which occurred in a married white woman of twenty-five years. This case differed from the one reported by Dr. Keen, inasmuch as the patient had never borne children, and, so far as known, had never been pregnant. Instead of there being a single cyst, there were multiple cysts; some very small, others as large as a small walnut. The upper and outer quadrant of the breast was chiefly involved. Microscopic examination by Dr. McFarland showed that the tissue surrounding the cysts was the site of a marked interstitial mastitis. Before operation, the masses were so hard that the diagnosis of multiple fibromata was made. Removal of the entire breast was insisted upon and performed. Incision of the breast after removal showed the presence of milk, and no surprise was occasioned by the pathologist's report of galactocele. These cases are exceedingly rare, particularly in persons who have never been pregnant. They usually take the form of a single

globular swelling behind the areola, due to the dilatation of a duct. Dr. Rodman agreed with Dr. Keen that the removal of the entire breast is the proper treatment in such cases as he had. Aspiration or even partial removal is not at all satisfactory in multiple cysts.

GASTROPLICATION FOR DILATATION OF THE STOMACH.

Dr. W. W. Keen reported the history of a man, aged thirty-one years, who was admitted to the Jefferson Medical College Hospital at the instance of Dr. Dunn, of Clifton Heights, Pa., on April 6, 1900. His father died of pneumonia at fifty-three; his mother and one sister are living and well; two sisters are suffering from pulmonary tuberculosis; his paternal grandmother died of cancer of the breast. He has never had any serious illness since childhood. He has used alcohol and tobacco in moderation. He states that he has had a weak stomach all his life, and for over a year has had a burning pain in the stomach below the ensiform cartilage, somewhat to the left of the middle line. Soon after taking food, the stomach becomes very sore, and the contents are often regurgitated into the mouth. He only vomits when the acidity becomes very great, and this is usually three to four hours after taking food. He has never vomited any blood. The gastric pain is not affected either by the taking of food or the vomiting of the food. He never remembers vomiting any food eaten one or more days prior to vomiting. A year and a half ago he weighed 210 pounds, his present weight is 180 pounds. His appetite is good, his bowels are habitually constipated, so that very often he does not have a stool for nearly a week. He has at times noticed dark material in the fæces.

Urine clear, amber, 1022, acid, no albumen or sugar, urea 2.3 per cent. Heart, lungs, and the abdominal viscera were normal, excepting the stomach, which is markedly dilated.

Three days after he entered the hospital his stomach was washed out with sterile water; the contents were not offensive. A test meal was then given and free HCl found, but no lactic acid. On the next day, four pints of sterile water were introduced into the stomach before he complained of discomfort. After the stomach was emptied of the water, eighty-four ounces of air were introduced through the stomach-tube before he complained of discomfort.

The greater curvature of the stomach lies a handbreadth below the umbilicus.

Operation, April 11, 1900. A vertical incision was made three centimetres to the left of the middle line; the stomach was drawn out and found greatly dilated. A forefinger was easily passed through the pylorus by invaginating the wall of the stomach. The stomach was then folded on itself by three rows of continuous Lembert sutures of silk, the last row of sutures bringing the greater curvature nearly up to the lesser curvature. The abdomen was then closed.

His highest temperature after the operation was 99.6° F. He was discharged from the hospital, May 3, in excellent condition. He could then eat food without regurgitating it, and the pain which he had noticed before the operation had entirely disappeared.

On account of an accident, he reported at the hospital again on February 25, 1904, nearly four years after the operation. His stomach has never given him the least trouble since the operation.

Dr. Keen remarked that the operation of gastroplication was of very recent origin. The first paper was by Bircher (*Correspondenzblatt für Schweizer Aerzte,* 1891, p. 713), and in this country independently by Weir (*Transactions of the American Surgical Association,* 1892, p. 149). This makes it desirable that we should know definitely the remote rather than the recent results of operation. Recovery, of course, by modern surgical methods is practically assured; but whether the operation will benefit the patient is quite another matter; hence he was glad, after the lapse of four years in this case, to report the final success of the operation in relieving the patient from all his discomfort.

Dr. William L. Rodman believes that the so-called cases of atonic or myasthenic dilatation of the stomach are rare; very generally, mechanical obstruction at or near the pylorus is the etiologic factor. The operation of gastroplication has a distinct field, but modern research has made this a more restricted field than even five years ago. The case reported by Dr. Keen indicates that the operation was not only indicated, but completely successful in every way. Dr. Rodman believes that Moynihan's is perhaps the best method for performing gastroplication.

Dr. Le Conte said that on purely theoretic grounds the operation of gastroplication did not appeal to him as a reasonable mechanical procedure. When dilatation of the stomach exists without pyloric obstruction, it is due to gastroptosis with accompanying atony of the stomach wall; in other words, the gastroptosis preventing the complete emptying of the stomach, the food retained produced the atony of the stomach wall. Under such circumstances the dilatation would affect equally the anterior and posterior walls of the viscus. By gastroplication the anterior wall of the stomach is alone reefed up, lessening, to be sure, the size of its cavity, and at the same time bringing the greater curvature nearer to the lesser; but the posterior wall is not dealt with, and the dependent portion of the stomach is simply changed from the greater curvature to some point on the posterior wall. The case which Dr. Keen has reported shows that such an operation is sometimes followed by most excellent results; but it would seem to the speaker that the dilated and thin posterior wall would remain as a constant menace for the reproduction of the symptoms. To the speaker's mind, the ideal mechanical procedure would be to drain the most dependent portion of the stomach by a posterior gastro-enterostomy, in this way placing the organ at rest and permitting the muscular fibres of the wall to regain their tone. Gastroplication only in part overcomes the mechanical condition present. It decreases to a certain degree the size of the stomach, and at the same time elevates it slightly, but it does not place it at rest or increase the opportunity for development of its muscular fibres.

Dr. John H. Gibbon said he had assisted Dr. Keen in the case of gastroplication reported, and, though they expected to find obstruction at the pylorus, careful search revealed none. In cases of atonic dilatation the stomach increases in size because it is unable to empty itself; gastroplication relieves the condition by securing drainage. Such a large percentage of cases, however, are due to irritation, if not actual ulceration and obstruction, at the pylorus, that gastro-enterostomy is the operation of choice in most cases. For performing this operation, Dr. Gibbon has in three cases used the Doyen clamps with very satisfactory results. With these appliances, posterior gastro-enterostomy can be performed very rapidly; in his first case the entire operation occupied but thirty-five minutes.

Dr. Keen, in closing, said that absolutely no obstruction was present in the case reported, the dilatation apparently being due to weakness of the muscular coat of the stomach. He did not under-

stand the objection of Dr. Le Conte to gastroplication; that operation reduces the size of the stomach, shortening both walls of the organ. In some reported instances only one row of sutures has been applied at the junction of the greater and the lesser curvatures. He believes that the employment of three rows, the upper (and last) one at the lesser curvature, is better technique. The whole question regarding the value of the operation in the case reported is one of fact; the result, so far as relief of the patient is concerned, could not be better. This is the only instance in which Dr. Keen has employed gastroplication. In reply to a question by Dr. Roberts, Dr. Keen said that he did not know what change occurred in the mucous membrane of the part of the stomach that was turned up. Replying to Dr. Taylor's question as to whether he would at the present time perform gastroplication or gastro-enterostomy for dilatation of the stomach, Dr. Keen stated that he would employ the former method in case of dilatation not due to pyloric obstruction (Keen: Cartwright Lectures on the Surgery of the Stomach, *Philadelphia Medical Journal,* 1898, Vol. i). His attitude towards gastroplication is largely due to the success of the operation in the case reported, as the entire number of cases on record is not large. In the Cartwright Lectures in 1898 he had collected fifteen cases with one death. In cases of dilatation of the stomach due to obstruction he would not use gastroplication, but would employ either Finney's method of gastro-duodenostomy or posterior gastro-enterostomy.

A NEW METAL ANASTOMOSIS BUTTON BY JABOULAY, OF LYONS.

Dr. W. W. Keen exhibited specimens of Jaboulay's modification of the Murphy button. Dr. Keen believes that in two respects it is an improvement on the original: 1. The weight is considerably diminished; 2. Of equal or even greater importance is the fact that the caliber is decidedly increased. In buttons of the same external dimensions the Murphy pattern has a caliber of one centimetre, the Jaboulay of one and one-half centimetres. This, of course, greatly increases the carrying capacity of the appliance.

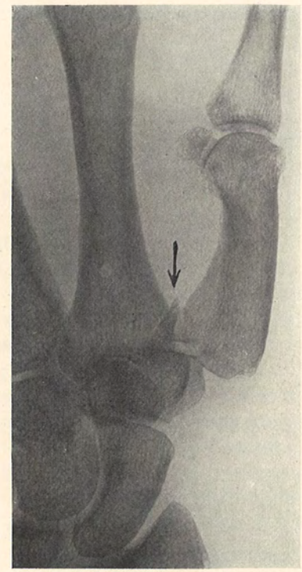


Fig. 1.—Fracture of metacarpal and subluxation. From boxing. Right.

SUBLUXATION AND FRACTURE AFFECTING CARPOMETACARPAL JOINT.

DR. GEORGE ERETY SHOEMAKER said that, five weeks after injury, a young man applied on account of a painful condition of the right thumb, due to an injury which had been produced in boxing with gloves by catching the point of the thumb. The carpometacarpal joint was partly dislocated, and on being reduced by pressure immediately assumed its faulty condition. There was a mild arthritis present with swelling and redness. Treatment had been neglected, and the joint had become exquisitely painful as a result. There was obscure joint crepitus on manipulation, but no bone crepitus. Use of the part in writing had become very painful and was followed by prolonged aching. The presence of fracture could only be proven by the X-ray, which demonstrated chipping off of a sharp longitudinal fragment five-sixteenths of an inch long from the inner edge of the condyle of the metacarpal bone. (Fig. 1.) The fragment was evidently within the capsule, and probably could have been adjusted by manipulation, or held in place by a dressing, if it had been seen soon after the injury. Treatment was directed to relief of the arthritis present and slow recovery ensued, though, owing to the interval before beginning treatment, splinting and strapping did not hold the fragment. For several months the joint was likely to become painful if used much. An X-ray photograph was taken eight months later, which showed the fragment still separated. Absorption no doubt would be the ultimate result. The condition of subluxation of this joint is one which is familiar to boxers. When, as in this case, chipping of the side of the bone has occurred, the joint is likely to be permanently weakened, as far as liability to repetition of luxation or subluxation is concerned.

In this case the same joint had been twice before injured slightly, but complete recovery from symptoms had taken place. The element of fracture was evidently a new one, as the angles of the fragment were very sharp. Though obscure bony crepitus might have been obtained soon after the injury, this is an instance in which the true condition would be impossible of demonstration without the X-ray.

FRACTURE OF THE LOWER END OF THE RADIUS.

Thin plate split from posterior surface into radiocarpal joint.

Dr. Shoemaker presented an X-ray photograph, saying that it represented the left carpus of a woman aged forty-two. The injury resulted from a fall upon the hand. (Fig. 2.) There was severe pain at the wrist-joint, but no deformity and no crepitus. According to the photograph, a rectangular thin plate of bone in size approximately a half-inch by one inch has been chipped or split from the posterior surface of the lower end of the radius, and displaced by sliding about two lines towards the ulna, and the same distance upward. The fracture extends into the joint.

There was no transverse fracture, no silver-fork deformity; and firmly grasping the lower end of the radius while an attempt was made to move the upper fragment gave no crepitus and no preternatural mobility.

This fracture appears to differ from the rare Barton's fracture in that the smaller fragment consists of a thin layer of bone only, having the same width as the head of the radius. The thin character of the fragment is demonstrated not only by its translucent appearance in the photograph here shown, but by a second photograph taken three months later (Fig. 3), which showed no trace of the fragment where it had slid over towards the ulna. Absorption had apparently taken place. Recovery was accomplished with good motion, though pain was persistently present during the earlier weeks, probably due to the joint injury.

Dr. George G. Ross said that systematic X-ray examination of all injuries involving the joints is made at the German Hospital. Upward of 2500 are now on record, 1500 of which have been reported. Dr. Ross believes that the older ideas regarding the nature of sprains should be revised, as in the great majority of instances spicules of bone are torn off, converting the injury into a sprain-fracture. For this reason sprains should be treated as fractures. This method is employed at the German Hospital, and results in recovery without excessive callus formation and persistent pain, which are sequels of many cases treated only as ordinary sprains. A second point emphasized by Dr. Ross was that among the 1500 cases previously reported there were fifty-two of primary fracture of the carpal bones and a number of the tarsal bones. In his recent work, Scudder states that the scaphoid and semilunar bones have each two centres of ossification. Dr. Ross

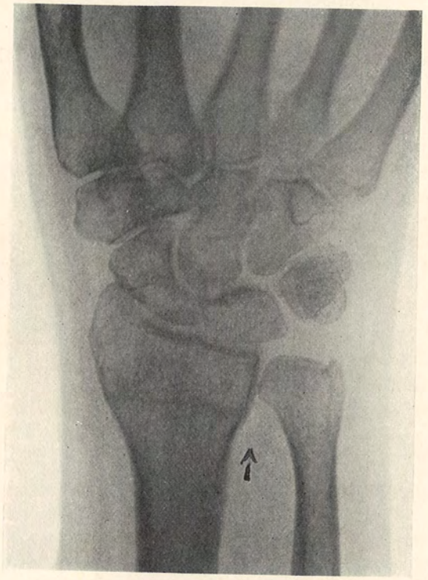


Fig. 2.—Fracture of left radius.

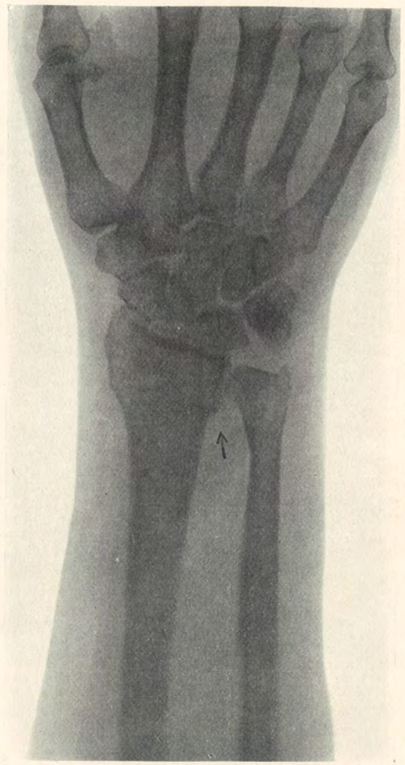


FIG. 3.—Three months after injury.

does not agree with this statement, as special efforts have been made to determine that point; skiagraphs from both sides have been made in all cases of injury, and also in healthy children, and double points of ossification have not been found. Dr. Ross, in conclusion, urged the importance of systematically X-raying all cases of sprain.

DR. W. W. KEEN said there was a great deal of truth in the remarks of Dr. Ross, though he had not observed that fractures accompanied sprains so frequently as was stated. He mentioned a case of sprain-fracture of the inner malleolus of the tibia that could not have been diagnosticated by palpation (*Philadelphia Medical Times,* April, 1871); the fracture was discovered after the leg had been amputated because of other wounds. Dr. Keen believed that Mr. Callender first used the term "sprain-fratcure."

DISLOCATION OF SEMILUNAR CARTILAGE.

DR. W. W. KEEN made a verbal report of this case. The patient was a young man of twenty, who, while playing basket-ball two and one-half weeks previously, had wrenched his left knee; since that time he could not straighten his leg beyond an angle of 135 degrees. Examination revealed marked tenderness over the internal interarticular fibrocartilage, and the joint was hot and painful. There was no effusion into the joint and no irregularity of the bones. The patient was anæsthetized with chloride of ethyl and attempts made to straighten the leg. Twice this was unsuccessful, but each time adhesions gave way. On the third attempt, reposition of the cartilage and the femur was felt, and the "snap" was distinctly heard. The leg could then be flexed and extended in a perfectly normal manner. This case is interesting because of the readiness with which the dislocation was reduced two and one-half weeks after injury. In this respect it was a rather unusual experience. [A week later the patient was seen and the knee was entirely well.]

GASTRO-ENTEROSTOMY FOR CARCINOMA INVOLVING THE STOMACH, OBSTRUCTING THE PYLORUS.

DR. ALFRED C. WOOD exhibited a specimen showing the result of a gastro-enterostomy sixty-eight days after the operation.

The patient was a man, aged forty-nine years, widower, white, blacksmith, born in Ireland. (University Hospital, No. 2377.)

His father, mother, one sister, and four brothers are living and well.

The patient's medical history was as follows: He had had measles, chicken-pox, and typhoid fever. For the past ten years he had suffered from dyspepsia and flatulence, which were frequently so bad that he could not sleep at night. About eight months ago his dyspepsia was distinctly worse and marked tympanites developed. He vomited his food frequently. About this time blood was frequently observed in the matter vomited and also in the stools. The abdominal distress became a severe pain, which was always aggravated by taking food. The symptoms gradually became more pronounced until about two weeks ago, when he began to vomit everything he ate. He has slept but little at night and is much reduced in weight. About twelve weeks ago he had hæmorrhages from both the stomach and bowel which lasted over a period of two weeks; during this time there were three profuse hæmorrhages. He had been six weeks and four days in another hospital in this city, having entered about the middle of May.

The man was exhausted to the last degree from the repeated hæmorrhages and his inability to retain any food. He was so feeble when he entered the University Hospital that walking required a distinct effort.

Examination of the heart, lungs, and kidneys did not show any gross lesions. The abdomen was scaphoid except in the epigastrium and upper part of the umbilical region, where there was a large mass that could be seen even from a distance. The long axis of the mass was transverse, the breadth being three or four inches and the length nearly twice as much. It was moderately tender on pressure.

August 8, posterior gastro-enterostomy after the method of von Hacker was performed, a medium size Murphy button being employed to economize time. A few Lembert sutures were added to make the union more secure. An entero-anastomosis was not performed. The wound was closed by through-and-through sutures.

The progress of the case after operation was all that could have been desired. Peptonized milk was allowed on the second day on account of the exhausted condition of the patient. On the eighth day solid food was given, and a few days later the full ward diet was permitted, the appetite being very good. There was but a

single attack of vomiting from the time of operation until the end; this was on September 24, forty-seven days after the operation, and was probably due, as the patient suggested, to over-indulgence in food.

The button was passed without difficulty on the twenty-seventh day. There was some increase of strength and vigor at first, but the improvement was not progressive. About October 10 the abdominal pains from which the man had been quite free returned. On the 12th he was quite weak, and vomited a little blood. On the 14th there was a moderate hæmorrhage from the stomach, and a very large amount of blood was passed by the bowel; the patient being severely shocked in consequence. The hæmorrhages recurred on the 15th, from which the patient died.

An autopsy was performed and the stomach and attached bowel secured. Owing to the large tumor mass and the universal adhesions, the specimen could not be removed satisfactorily, but was considerably mutilated. The stomach was distended with clotted blood. The carcinoma had eroded the wall of the stomach and had caused the fatal hæmorrhage. Numerous metastatic deposits were seen on making sections of the liver.

The specimen is of especial interest on account of the size of the opening between the stomach and intestine, which is quite twice the diameter of the button employed. The union is in every way all that could be wished for.

The question is frequently raised as to whether it is worth while to perform an operation on patients suffering from a malady that must end fatally in a short time. In the present instance the result fully justified the course taken. The patient was asked some days after the operation if he felt satisfied up to that time. He replied that the relief from hunger and the absence of pain and vomiting experienced during any one day fully compensated him for all the risk and inconvenience he had incurred.

STATED MEETING, MAY 2, 1904.

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

MULTIPLE NEUROMATA OF THE ARM.

DR. JAMES K. YOUNG exhibited a man of sixty-four years who has always enjoyed good health. Thirty years ago a subcutaneous nodule appeared in the bend of the left elbow over the line of a nerve-trunk. A second one appeared later in the axilla, and then others on the inner and outer aspects of the arm. There are now nine large and several small tumors, the last of which appeared one year ago. (Fig. 1.) They are exceedingly painful, but Dr. Young is inclined to regard them as pseudoneuromata that can be shelled out by operation. The case is a rare one because the new growths are confined to the one extremity and to the distribution of a single nerve.

DR. FRANCIS T. STEWART has operated upon a similar case within the past month. Seventeen tumors were removed from the flexor surface of the arm and forearm. One pathologist pronounced them to be fibromata, and a second reported them as leiomyomata. Clinically they presented the characteristics of fibromata. Some of them were connected with nerves, but the majority were not so related.

DR. WILLIAM J. TAYLOR mentioned the case of a woman upon whom he had operated five times in thirteen years, removing in all thirty-two neuromata from the internal plantar and posterior tibial nerves. In size the tumors varied from that of a small pea to a large filbert. The condition of the foot was so peculiar and pain from pressure so severe that the patient had been known to fall from a chair when a finger-nail was drawn over the tumors; at such times large drops of sweat would exude from the skin of the foot. No relief followed repeated removal of the tumors, and finally eight inches of the internal plantar and posterior tibial nerves were removed. Since that the patient has been perfectly well. A careful examination of the tumors by Dr. Spiller showed

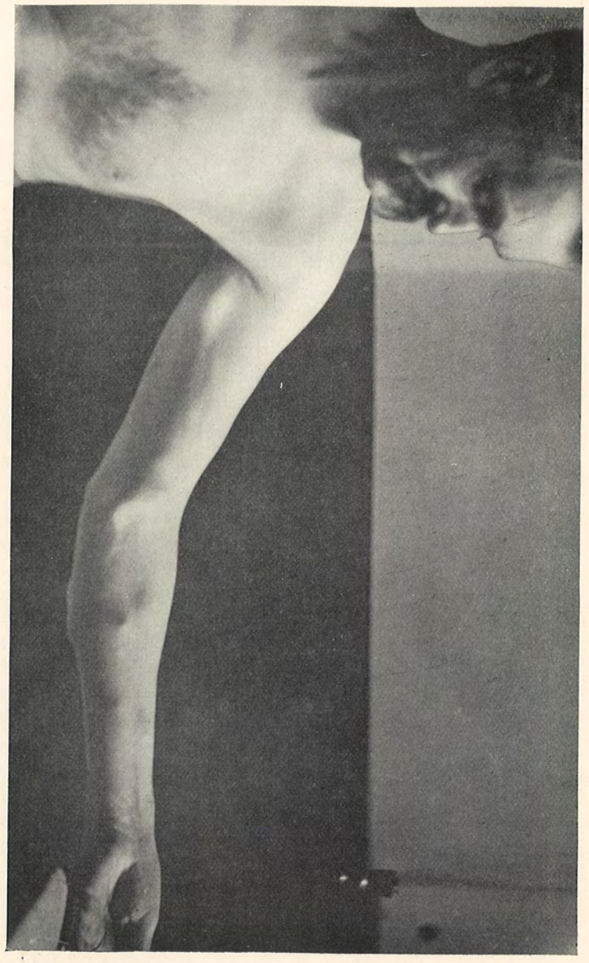


FIG. 1.—Multiple neuromata of arm.

them to be neuromata. The symptoms in Dr. Young's patient are so different, that Dr. Taylor is inclined to regard the growths as fibromata rather than neuromata.

FRACTURE OF THE LOWER EXTREMITY OF THE RADIUS, WITH ANTERIOR DISPLACEMENT OF THE LOWER FRAGMENT.

Dr. Francis T. Stewart showed two skiagrams of fracture of the lower end of the radius in which the lower fragment was displaced to the palmar side. The patient was a man of fifty years, who had received a blow from a heavy weapon upon the back of the wrist. He thought the injury was only a contusion, and treated it for several days with local application before appearing at the hospital. The injury was treated on a Bond splint.

Dr. John B. Roberts mentioned two recent cases in which the fracture was the same as that described by Dr. Stewart. The first was that of a lady who was thrown from a horse and struck on the back of her hand in such a manner as to drive forward the lower fragment of the fractured radius. Six years ago he saw a similar condition in a man, but does not recall the manner in which the injury was received. The fracture in neither instance had been recognized by the attending physician. Dr. Roberts believes that this fracture is usually not recognized, although it seems there should be no difficulty in the diagnosis. He illustrated by diagrams an easily recognized point in diagnosis which simply depends upon the character of the deformity. As compared with a true Colles's fracture, the deformity is more like that of a gardener's spade than that of a silver fork. This fracture should not be called a Colles's fracture, as that name implies a posterior displacement of the lower fragment of the radius. It has been called a Smith's fracture and a reversed Colles's fracture. He showed a number of casts, photographs, and skiagraphs, as well as two specimens from the Mütter Museum, illustrating this injury.

MOYNIHAN'S CLAMP AND SPLIT-EYED NEEDLES FOR USE IN GASTRO-ENTEROSTOMY.

DR. WILLIAM J. TAYLOR, for Dr. W. W. Keen, showed these instruments. Dr. Taylor in this connection stated that some time since, when desiring to use similar needles, he took split-eyed or calyx-eyed needles, took out the temper, bent them to the desired shape, and retempered them. He found them very satisfactory, in a certain sense answering his purpose better than those of Moynihan.

RUPTURE OF GALL-BLADDER, WITH PROFOUND TOXÆMIA.

DR. JOHN H. JOPSON reported a case of cholelithiasis with rupture of the gall-bladder and extensive peritonitis in a woman of fifty-one years, and the development, after operation, of a peculiar form of toxæmia, with delirium. There was a history of acute cholecystitis seven years before, and of attacks of gall-stone colic somewhat over a year ago, with persisting impairment of health and strength, pain, and indigestion. Preceding rupture, there was an attack of very severe colic lasting over two days, and followed by symptoms of general peritonitis and collapse, with fever and leucocytosis. Operation, seventy-two hours after the onset of colic, revealed a large quantity of bile in the abdominal cavity, and extensive peritonitis, many fresh adhesions, and pockets of bile and mucus as far down as the pelvis. The exact site of perforation in the collapsed gall-bladder was not located. There was an oval stone the size of a date-seed in the first portion of the cystic duct. After drainage of the gall-bladder and peritoneal cavity there was prompt improvement in the local and constitutional condition, and a gradual fall in the leucocyte count, with rapid disappearance of the slight jaundice present before operation. There was no obstruction of the common duct. Immediately after operation the urine contained a moderate amount of albumen, and many casts and some bile were secreted in good amount, and the abnormal constituents gradually disappeared. The pulse remained rapid for ten days. Nine days after operation, the patient became delirious. Her mental condition and general appearance closely resembled those sometimes observed in alcoholic subjects after accident or operation, although there was

no alcoholic history. The face was flushed, the tongue coated, the mind wandering, with hallucinations and delusions. She was very restless at all times, but especially at night, when she was restive and abusive, and required constant watching and restraint to keep her from removing her dressings and from getting out of bed. There was no tremor. The temperature remained at or near the normal line, except for a slight evening rise for a few days, due to slight infection of the pelvic sinus and a stitch abscess. There was free drainage of bile from the gall-bladder. The mental symptoms lasted for a week, at the end of which time they passed off rather quickly. The drainage was removed from the gall-bladder after two weeks. Its removal was followed by a rise of temperature, irregular fever, and occasional chills; it was reintroduced ten days later, and retained for a week, when it was permanently removed, the convalescence being thereafter uninterrupted.

RUPTURE OF THE GALL-BLADDER, WITH GALL-STONES, AND AN ABSCESS PRODUCING PROFOUND TOXÆMIA.

DR. WILLIAM J. TAYLOR reported the case of a married woman aged sixty-four, who had always been well and strong, and who gave no history of fevers, digestive disturbances, nor previous abdominal pain. One sister died at about the same age of what was said to be gall-stones, although there had been no operation to determine this, nor post-mortem examination made. Four weeks before her admission to the hospital, the patient was suddenly seized with pain in the region of the liver and gall-bladder, which was extremely severe in type, and continued with but slight intermissions. She had never been jaundiced, nor especially constipated, and beyond abdominal pain, tenderness, and some fever, there had been no marked symptoms. Her temperature when first seen was 102° F.; there was some rigidity of the right rectus muscle and no abdominal distention, although the belly was full. There was great tenderness, and an indistinct mass over the region of the liver and gall-bladder; the tenderness extending down into the iliac fossa. Her pulse was 80, her tongue fairly clean, and there had been no vomiting. The next day, as her local conditions had not improved materially under fractional doses of calomel, although her temperature had fallen to the normal, he operated. The liver was much enlarged

and covered with lymph. Quite a large quantity of thin, but glairy, yellowish-green pus to the amount of five or six ounces welled out as soon as the peritoneum was opened. There was an immense number of adhesions, and at the edge of the liver over the region of the gall-bladder an abscess was found. There were so many adhesions, that it was difficult to determine the exact relations of the parts. In what had the appearance of an abscess cavity at the depth of two inches a large gall-stone could be felt. This, after considerable dissection through the adhesions, was taken out, and four or five smaller stones were also removed. The gall-bladder was now seen to be ruptured and completely disorganized. All that remained of the gall-bladder was dissected away, and the wound packed with iodoform gauze; a wick of gauze was also passed down into the pelvis for drainage. She had little or no shock following the operation; her temperature once reached 102° F., then fell to the normal line, and remained so for one week, when it again arose to 100° F. for a few days, and again became normal. Almost immediately from the time of operation she showed evidences of a profound systemic toxæmia, such as he had never seen before. Up to the time of operation there were no evidences of anything but a local disturbance, the tongue was heavily coated, almost black, the mouth dry and parched, and this was so pronounced that she could swallow only with difficulty. She was dull, somnolent, and apathetic, but could be roused to answer questions. Her face was very much flushed, but there was no marked jaundice, although the skin was yellowish. She gave the appearance of one who had been on a protracted alcoholic spree, but she was absolutely temperate in all of her habits, and had never been a drinking woman. There were no abdominal symptoms of moment; she complained of little or no pain, and the whole course of her illness was rather against this condition being produced by an ordinary septic intoxication. The fact that the gall-bladder wall was destroyed might have been a producing factor in this profound toxic state. Certainly the toxæmia was one of a very unusual character, and the symptoms not those usually found in septic infection.

The operation was performed on February 24, 1904, and the wound was entirely closed by April 4, when she left the hospital apparently in perfect health.

(1) RUPTURE OF THE GALL-BLADDER IN ACUTE CHOLECYSTITIS. (2) RUPTURE OF A BILE-DUCT FOLLOWING CHOLECYSTOTOMY WITHOUT DRAINAGE.

Dr. Robert G. Le Conte said that in briefly reporting these two cases, which of themselves are not of any great surgical interest, he did so as an antithesis to the two cases reported by Drs. Jopson and Taylor, in which a certain group of toxic symptoms were present, attributed to the presence of bile in the peritoneal cavity. In the cases he was about to report these toxic symptoms did not appear.

Case I.—L. L., aged thirty-one years, laborer, born in Italy, was admitted to the Pennsylvania Hospital, December 21, 1903, with the diagnosis of acute suppurative appendicitis. Patient had been ill for three days with pain in the right side of the abdomen, rigidity of the right rectus, considerable tenderness, chills, fever, and vomiting. On admission his cheeks were flushed, tongue clean, no jaundice, chest negative, liver dulness increased, extending from the fourth interspace to two inches below the costal margin. Abdomen slightly distended; great tenderness of the upper right quadrant; marked rigidity of the right rectus. No tumor could be outlined in the region of the gall-bladder owing to the tenderness and rigidity. The appendiceal region was negative to examination. *Urine,* slight trace of albumen, hyalin and granular casts, no bile pigment, leucocytes 12,500. Widal reaction slightly suggestive. Temperature varied from 101° to 103° F. Diagnosis, acute suppurative cholecystitis. Operation refused.

Treatment consisted of an ice-cap to the abdomen, milk diet, with the exhibition of small doses of calomel and phosphate of soda. In a week the temperature had dropped to normal, the pain disappeared, but slight tenderness and rigidity persisted. By the end of the second week tenderness and rigidity had also disappeared and the patient seemed to have entirely recovered. He refused to remain longer in the hospital, and was discharged January 7, 1904.

Readmitted January 16, 1904. Abdominal symptoms practically the same as on previous admission, temperature ranging from 102° to 103.5° F.; urine negative; leucocyte count, 10,400.

January 18. Ether was administered and incision made in the right rectus muscle over the gall-bladder. The gall-bladder was found firmly embedded in a mass of adhesions and covered

by the colon. On separating these adhesions a pericystic abscess was found in the region of the neck of the gall-bladder, perforation of that organ having taken place just above the cystic duct. The abscess outside of the gall-bladder contained perhaps one ounce of pus, while the gall-bladder itself was distended with a purulent secretion. After swabbing out this pus, the adhesions about the cystic and common ducts were found so dense that it was thought inadvisable to attempt an exposure of these ducts or to attempt an excision of the gall-bladder. An opening was made in the fundus of the gall-bladder and a rubber tube passed to its lowest point. Another rubber tube was passed to the bottom of the abscess cavity outside of the gall-bladder, and some iodoform gauze wicks were also introduced. Two silkworm-gut sutures partially closed the abdominal wound. Recovery was uneventful. The temperature soon fell to normal; pain disappeared; pus was discharged freely for a week without a trace of bile. At the end of six days the gauze wicks were removed, and at the end of two and one-half weeks the rubber drainage tubes also. At the end of two weeks the purulent discharge had ceased and bile was flowing freely through the drainage tubes. He was discharged with a very small sinus discharging bile on February 19, the rest of the wound having entirely healed.

In reporting the second case, he called attention to the fact that the operation was undertaken five years ago, at a time when the advantages of drainage of the gall-bladder were not perfectly understood, and that the operation performed in this case—the so-called ideal operation—cannot be justified in the light of our knowledge of to-day. He was led to do it at that time on account of having had two cases previously that made uneventful recoveries, in which the pathological lesions were similar to this one.

CASE II.—I. G., aged forty-five years, a Russian, was admitted to the medical wards of the Pennsylvania Hospital in August, 1899. He gave a history of cholelithiasis extending over a period of more than six years, with from two to three sharp attacks of colic each year. On admission jaundice was visible in the conjunctivæ and in the skin over the chest and abdomen. Liver dulness was not increased; palpable tumor in the region of the gall-bladder, with tenderness and rigidity of the upper right rectus muscle, but no fever.

Operation, August 18, 1899. Incision through right rectus; universal adhesions about the gall-bladder and ducts; gall-bladder much distended, filled with gravel varying in size from sand to buckshot. Cystic and common ducts also distended with same material. This material was removed, and the gall-bladder and ducts flushed with salt solution; gall-bladder was then closed with catgut sutures and the abdomen closed without drainage. The jaundice disappeared, and the recovery was uneventful. Discharged September 11, 1899.

Readmitted September 18, 1899, one week from the previous discharge, with abdominal pain and tenderness in the epigastric and right hypochondriac regions; much jaundice; vomiting; increasing distention of the abdomen and rigidity of the right side. September 21, as Dr. Le Conte was absent from the city, an incision was made alongside of the old scar by Dr. T. S. K. Morton. On opening the abdomen bile immediately escaped. Many adhesions were present. The gall-bladder was exposed, but no rupture could be found, and the scar at the fundus from previous operation was sound. Owing to the adhesions, the cystic and common ducts were not well exposed, but with such exploration as was made no rupture could be demonstrated. The abdominal cavity was washed out and packed with iodoform gauze. The recovery was uneventful. The amount of bile discharged from the wound grew less and less, and in three weeks had entirely ceased. He was discharged October 18 with a small granulating area in the region of the wound.

In view of the fact that jaundice was marked and that the exposed portions of the gall-bladder, especially the seat of the previous incision, were found sound, he judged that some portion of the common duct had ruptured, owing perhaps to some kinking due to the many and firm adhesions surrounding it.

Dr. Le Conte further remarked that so many cases had been reported where bile was present in the peritoneal cavity without producing profound toxic symptoms, that one must eliminate many other factors before concluding that such toxæmia is caused by the peritoneal absorption of bile. As in appendicitis, such symptoms can readily be produced from the presence of septic material in the bile, or, as in uræmia, from the lack of eliminating powers of the kidney. Again, if no bile is entering the intestine, the possibility of auto-intoxication from intestinal contents would

have to be eliminated. To his mind such profound toxæmia is more likely to have been produced by absorption of purulent products by the peritoneum, which products were perhaps not eliminated by the kidneys. Under such circumstances the presence of bile in the peritoneal cavity would be simply a coincidence and not a causation of the symptoms.

ACUTE CHOLECYSTITIS WITH GALL-STONES IN A GIRL OF SEVENTEEN.

Dr. E. Hollingsworth Siter reported the history of a girl, aged seventeen years, who was admitted to St. Agnes's Hospital, February 10, 1904, with the following history: On February 5 (five days ago) patient was seized with pain, of a severe character, about the umbilicus, followed by vomiting. The pain rapidly spread over the entire abdomen, and in thirty-six hours localized itself over the appendiceal region. Vomiting was not fæcal, but contained bile. There had been no constipation and no jaundice.

Examination of the patient shows her lying on her left side with the right leg flexed. Palpation showed slight rigidity more marked on right side, abdomen was slightly distended and somewhat tympanitic.

An incision was made over the gall-bladder and extending down towards the appendix. The gall-bladder was found greatly distended, and upon being opened a large amount of fluid and several stones were found. The stones were slightly smaller than a split pea. The appendix was examined and found gangrenous. It was removed.

The patient made an uninterrupted recovery, but continued to discharge small stones until the eighth day after the operation.

Dr. Francis T. Stewart, speaking with reference to toxæmia following operations for cholecystitis, referred to a case under his care. The patient when admitted was suffering from symptoms that indicated violent cholecystitis. The condition came on acutely at 11 A.M., and operation was performed at 8 the same evening. Pus was found in the gall-bladder, and in the cystic duct was an impacted stone. The temperature was 102° F. before operation. Afterwards the tongue became coated, the face was flushed, and delirium developed. Later there was hæmorrhage from the bowel, the spleen became enlarged, the Widal reaction was positive, and

rose spots appeared, the patient passing through a typical attack of typhoid fever. Cultures from the gall-bladder showed the presence of streptococci. Dr. Stewart also mentioned a case in which he assisted Dr. Morton. The symptoms were those of an acute abdominal catastrophe, and the abdomen was found to be filled with bile. The bile was allowed to drain from the abdominal cavity, and it was not known if rupture of the gall-bladder had occurred. The patient went on to recovery without developing any evidence of toxæmia.

Dr. W. Joseph Hearn stated his belief that bile in the peritoneal cavity produces no more toxic effects than does any other foreign body. He cited the case of a man who was shot through the gall-bladder, with consequent escape of bile into the peritoneum; no toxæmia referable to the presence of bile developed. Cases of toxæmia similar to those reported are due to streptococcus or staphylococcus infection in addition to the bile.

Dr. John H. Gibbon cited cases of Dr. Willard and others in which bile from a ruptured normal gall-bladder had remained in the peritoneal cavity for long periods of time, in Dr. Willard's case for many months, without producing untoward effects. He agrees with Dr. Le Conte that micro-organisms produce the trouble in the beginning, and also the subsequent toxæmia. Intoxication results from the release of pent-up material in the gall-bladder.

Dr. John H. Jopson stated that he did not mean to imply that the symptoms in his case were due to absorption of bile, as he is not sure that they were. They came on a week after the bile was drained. As to septic infection, however, granulations had formed and walled off the wound, and the leucocyte count was falling, conditions in which one would not expect to find infection. He thinks that the symptoms were not due to an ordinary infection. Usually, bile is very well borne by the peritoneum.

Dr. William J. Taylor stated that he had reported his case simply as one of profound toxæmia which came on some time after operation and lasted a week or ten days. He has never seen any other intoxication resembling it.

Dr. Gwilym G. Davis detailed briefly the case of a man of seventy years who had gangrene of the gall-bladder which contained a calculus. An abscess outside of the gall-bladder was also present. The abscess was evacuated, the bladder removed, and

drainage instituted. The patient did well for a week or two, then developed delirium, and later insanity. Death finally ensued. There was no evidence of peritonitis or sepsis.

Dr. Robert G. Le Conte said that the urine report in the case presented by Dr. Jopson was interesting and very suggestive. Previous to the time of the appearance of the toxic symptoms in the patient the analysis of the urine showed albumen, casts, and granular débris to be present. Coincident with the appearance of toxæmia, the urine cleared up and was apparently normal, suggesting, perhaps, that, owing to the failure of the kidneys to eliminate the toxic material in the blood, the constitutional symptoms of toxæmia had presented themselves. In other words, that as long as the kidneys were excreting the toxic products in the circulation no constitutional symptoms were present, but the moment they ceased this elimination the symptoms of toxæmia appeared.

SUPPOSED CARCINOMATOUS OBSTRUCTION OF THE PYLORUS NINE MONTHS AFTER POSTERIOR GASTRO-ENTEROSTOMY.

Dr. John H. Gibbon presented a woman, thirty-eight years of age, saying that his reason for reporting this case was that it illustrated the difficulty of making an accurate differential diagnosis between gastric cancer and ulceration of the stomach where there is a large amount of infiltration about the ulcer, and also the advisability of performing gastro-enterostomy even where the operation may seem useless because of the extent of the supposed malignant disease.

The patient was seen with Dr. Gamble and gave a typical history of gastric ulcer extending over eight years. Her family and previous history were of no particular interest. For eight years the patient had suffered from attacks of vomiting and gastric pain. She had also suffered pain soon after eating. The attacks grew worse, and six years ago she was confined to bed by one of them for three months. During this attack she had two hæmorrhages from the bowel, followed later by the passage of clots. She states that she passed no blood after this time. A year later she had another attack, which kept her in bed for a month. In both of these attacks there was severe pain in the right side and in the back. Two years ago she had an acute attack of vomiting and was very ill. The material vomited was very dark and said to contain blood. This is the only attack of hæmatemesis which the patient has had. During this attack she was confined to a hospital in Philadelphia for six weeks, the diagnosis of gastric ulcer being made. In January, 1903, the patient was able to return to her work as a housemaid, at which she continued uninterruptedly until four days before Dr. Gibbon saw her, July 29, 1903. Three weeks before he saw her she began to have trouble with her digestion, and occasionally vomited a moderate amount, which greatly relieved her discomfort. During these three weeks she had more or less pain located above and to the right of the umbilicus, a feeling of distention of the upper abdomen, and constipation. When first seen by Dr. Gibbon she had a great deal of gastric pain and tenderness. The stomach was distended and contained a large amount of liquid food, which the patient had been able to take without any recent vomiting. The lower border of the organ extended some inches below the umbilicus. After examination of the abdomen the patient vomited an enormous amount of dark liquid, after which the stomach could not be outlined, and the patient felt more comfortable. At this time it was noted that there was a sense of resistance above and to the right of the umbilicus.

The patient was admitted to the Pennsylvania Hospital on July 29, 1903, and for eight days was fed entirely by the rectum. The second day after admission she vomited, the vomitus containing a quantity of undigested food and berry seeds, eaten some time before. The stomach was washed out at this time, and vomiting did not recur for some time. On August 1, after a test meal, there was found free hydrochloric acid, total acidity 65, combined acids 36, no lactic acid. The hæmoglobin at this time was 71 per cent. For the next three or four days the patient vomited a number of times, and the vomited material was found to contain blood. No blood was present in the stools, however. On August 7 Dr. Gibbon determined to do a gastro-enterostomy, and expected to find a benign obstruction of the pylorus. When the abdomen was opened, there was a mass involving the pylorus about the size of a lemon, which was hard and appeared to be a cancer. The glands of the lesser omentum were very numerous and large. The patient was not in the best condition, and it was thought unwise at this time to do a partial gastrectomy. A gastro-enterostomy after the method of Moynihan with the Doyen forceps was done, and it was hoped that if the patient recovered from this operation that a partial gastrectomy might later be performed. The patient made

a good recovery from the operation, and on the second day was able to take and retain liquid food. On the fifth day after operation, preceded by a night of considerable pain, there was some distention of the abdomen, which was relieved by an enema; the result of the enema was a large, dark-colored bowel movement. The patient continued to complain of considerable pain at night in the right side of the abdomen. On the tenth day after operation she vomited a small amount of brownish fluid containing small blood-clots. Twenty days after operation there developed a phlebitis of the left leg. This, however, subsided after a day or two, and the patient's condition was much better. On the 11th of September the patient was out of bed and doing well. She was discharged from the hospital on the 21st of September, 1903, a very unfavorable prognosis being given to her relatives. On the 14th of October she had gained both weight and color, felt perfectly well, was eating everything that she cared for, and her only complaint was the swelling of her leg. This was relieved, however, by an elastic bandage. On the 10th of February, 1904, the patient was seen again and presented no gastric symptoms whatever. She had continued to gain in weight, but complained of some pain in the epigastric region and back, which, however, was uninfluenced by the taking of food. This disappeared, and the patient resumed her work as a chambermaid. The pain in the back, however, was sufficient to make her discontinue the work after three weeks. During all this time she continued to take ordinary food without the slightest discomfort. At the present time the patient states that she is entirely free from pain, has no gastric symptoms, and has gained much in weight. Palpation of the abdomen does not reveal any mass whatever in the pyloric region, and the patient's appearance is that of a healthy person.

In view of the condition of this patient nine months after operation, it is thought that she undoubtedly did not have a cancer at the time of operation, but a pyloric ulcer with extensive infiltration about it. It is thought that the case shows the advisability of exploratory operation even where a supposed cancer of the stomach has advanced to the point where it can be palpated through the abdominal wall, and also that in such instances, where there may be the slightest doubt as to the diagnosis, a gastro-enterostomy is advisable.

Dr. Gibbon also referred to another case of perforated gastric ulcer which he reported before the Academy last fall, and reported

in "American Medicine," in which the condition of the stomach about the ulcer so closely resembled a malignancy that, had not perforation been present, a diagnosis of gastric cancer would have undoubtedly been made. This patient was operated upon October 1, 1903, and is now in perfect health.

Mr. Collinson, of Leeds, England, noted particularly the statements of Dr. Gibbon that the glands in the lesser omentum were involved; enlargement of these glands is quite constantly seen in cases of ulcer of the stomach, and if, in addition, there is extensive induration, one is apt to be led to the diagnosis of malignant disease. The case reported by Dr. Gibbon emphasizes what has been said by Robson, Moynihan, and others, and no doubt explains the remarkable way in which supposed cancer of the pylorus is cured by gastro-enterostomy, the explanation being simply that such cases are in reality those of severe gastric ulcer. The after-history of occasional vomiting by Dr. Gibbon's patient is also interesting. In many cases one sees after operation these attacks, which later entirely disappear. Mr. Collinson is not sure of the explanation of this phenomenon, as it occurs even when the anastomosis is made at the lowest part of the curvature of the stomach, a point which is much insisted upon by experienced surgeons. Vomiting more frequently occurs in cases where the anastomosis is not made at the most dependent point, but the fact that it does sometimes occur in ideal cases is proof that the site is not alone responsible for this annoying sequel.

Dr. Richard H. Harte reported briefly a case similar to that of Dr. Gibbon's. The patient was a man about forty-five years of age, who had a large indurated mass in the pyloric region simulating malignancy, and his age lent weight to this supposition. On exploration the mass was found to be caused by the induration following a chronic ulcer. A gastro-enterostomy was performed, and the patient since that time has steadily improved and gained in weight, and all gastric symptoms have disappeared. Had not this case been operated upon, the case might have been put aside as one of malignancy, and the patient would gradually have worn himself out as the result of the chronic irritation about the pylorus, due to an old ulcer. Dr. Harte feels convinced that many of these cases of presumable malignancy can be greatly benefited by operation, and would advise in all doubtful cases that an exploratory operation be performed; if conditions are such as to indicate a posterior gastro-enterostomy, it should be performed.

STATED MEETING, OCTOBER 3, 1904.

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

LARGE MULTILOCULAR OVARIAN CYST; OPERATION; THROMBOSIS OF THE RIGHT PULMONARY ARTERY; DEATH.

DR. ROBERT G. LE CONTE reported the case of a woman, aged sixty-four years, who was admitted to the wards of the Pennsylvania Hospital, December 21, 1902, under the care of Dr. Scott, with an abdomen enormously distended, dome-shaped, and very tense. From the umbilicus upward the superficial veins prominent, but no œdema of the skin. From umbilicus downward no veins visible; skin quite œdematous, pitting on pressure. The entire abdomen from the ensiform cartilage down was dull over the anterior aspect, but above the iliac crests and in the flanks there was a high-pitched tympanitic note. Distinct succussion wave. Both legs very œdematous, the left a little more so than the right, with great dilatation of the smaller veins and capillaries, giving the legs a rosy appearance. Urine, amber, cloudy, brownish precipitate, acid; specific gravity 1010; marked amount of albumen; no sugar; quantities of pus and epithelial cells, hyaline casts, and a few small granular casts. Blood hæmoglobin, 88 per cent.; white blood-corpuscles, 16,200.

A trocar and cannula were introduced two inches below the umbilicus in the median line; no fluid was withdrawn, but after the cannula was removed a small amount of gelatinous material exuded from the wound. The trocar was again introduced at another position in the median line with the same result. The next day a three and one-half-inch trocar was introduced to the hilt, and again failed to draw any fluid, although a gelatinous material exuded on its removal.

December 27 the abdomen was opened in the median line. An ovarian cyst immediately presented, which filled the entire abdominal cavity, and was adherent to the parietal peritoneum,

liver, spleen, intestine, etc. It showed three trocar openings from which gelatinous material was exuding. Quite a large quantity of this material was found free in the peritoneal cavity, the cyst not being adherent in the region of the trocar openings. The cyst was opened, and as much of this yellowish, gelatinous material scooped out as possible; the adhesions to the surrounding organs broken up, the pedicle ligated, and the cyst removed. Several quarts of the gelatinous material were then removed from the peritoneal cavity, but, as all the organs within the abdomen were thickly coated with it, its stickiness made it impossible to remove it all, and quite a large amount was allowed to remain. The incision was closed without drainage. The total weight of the material removed, together with the cyst wall, was estimated at about sixty pounds. The patient's condition during operation was at times very poor, but she seemed better at the close of the operation than at the beginning. Reaction was good, and for several hours her condition was quite good; pulse slow and of good volume; respirations normal. At 11 P.M., without any prodromal symptoms, she suddenly became very restless, gasping for air, with failure of the pulse, and death ensued in a few moments.

The pathological report of the specimen showed it to be a multilocular ovarian cyst, with locules ranging from the size of a hickory-nut to the enormous one which was opened at operation. The contents of the tumor were for the most part a clear, yellowish, sticky, jelly-like substance, with occasional streaks of pure white, and again in small areas portions which were blood-stained.

A post-mortem examination was made fourteen hours after death, in which the findings were briefly as follows: Thrombosis of the right pulmonary vessels; general arterial sclerosis; general old adhesive peritonitis; broncho-pneumonia; chronic endocarditis; cirrhosis of the liver; chronic perihepatitis; diffuse nephritis; perisplenitis, etc.

On section all the lobes of the right lung have a dry, pinkish-gray surface. The vessels are filled with a firm, mostly red laminated clot, which is adherent to the vessel walls in places, but which can be detached and removed as a tree. The descending aorta is the seat of several thickened patches of sclerosis, from one to three centimetres in size. That vessel and the iliac arteries are free from clots. The heart contained fluid blood and no clots.

ACUTE APPENDICITIS; OPERATION; SEPTIC THROMBOSIS OF A BRANCH OF THE RIGHT PULMONARY ARTERY, FOLLOWED BY ABSCESS OR GANGRENE OF THE LUNG; DEATH.

DR. LE CONTE also reported the following case: A man, aged fifty-four years, was admitted to the Pennsylvania Hospital, September 15, 1903, who had been ill for five days with abdominal pain, vomiting, fever, constipation, the pain localizing itself in the right iliac region during the last forty-eight hours. No previous attack of this nature. On admission his temperature was $102^{2}/_{5}^{\circ}$ F.; pulse, 120; respirations, 32. Abdomen prominent, rigid, and tender only in right iliac region, where an illy defined sausage-shaped mass could be made out on palpation.

The abdomen was opened through the right rectus muscle, exposing an appendix very large, much thickened, inflamed, red, and standing erect. Meso-appendix very thick and board-like. No perforation was visible in the appendix, but on one side there was a greenish spot. It contained pus and a fæcal concretion the size of a chestnut. Intestines in the immediate neighborhood were in places of a gray-green color, like beginning gangrene. The appendix was removed, the surrounding abdominal cavity walled off from the green portions of the intestine, drainage inserted, and the abdominal wound partially closed. Bacterial cultures from the peritoneum showed bacillus lactis aërogenes. Reaction following the operation was good, and the convalescence seemed to be well established, when on September 25, ten days after the operation, he wakened from sleep in a condition of profound collapse. The weakness was extreme; pulse very feeble; breathing difficult and shallow; temperature one degree subnormal; sweating profuse. No pain. Later in the morning there was severe pain beneath the right scapula. No impairment of resonance; no friction sound or râles to be heard.

September 26. There was suppression of the breath sounds over the base of the right lung posteriorly. No impairment of resonance; no friction murmur. Temperature had risen to 103° F.; some cough; no expectoration.

September 27. Resonance impaired over right base, where the breath sounds were very feeble. Cough continues with some bright, blood-red expectoration. Leucocyte count, 16,000; pain shooting through lower part of right chest.

September 28. Physical signs over right base similar to those of a central pneumonia. Expectoration more free and still bright red. Pneumococcus and tubercle bacillus not found in sputum. Patient continued in this condition for about a week, and then a slow improvement set in, although the temperature never quite reached normal.

By the 19th of October a small, localized effusion was diagnosed over the right pleura. The sputum at this time was very copious, had lost its bloody characteristics, but was occasionally rusty. It was filled with pneumococci; breath a little offensive. Patient moderately septic with hectic temperature.

October 27. During a hard coughing spell a large quantity of foul-smelling, tenacious, yellowish material was brought up. An exploring needle was inserted into the chest and about a drachm of dark brown, thin fluid was evacuated, with a fæcal odor. This fluid was loaded with streptococci and staphylococci, and with bacilli which were variously described as long and thin, short and stout, and square-ended.

October 28. Under local anæsthesia, induced by Schleich's fluid, an attempt was made to open the chest. The pleura was opened and no fluid encountered. The lung within felt hard and solid. This procedure was so painful and depressing to the patient that the operation was not persisted in. His condition at the time was profoundly septic, and it was not deemed advisable to give an anæsthetic. Owing to difficulty of respiration, he was constantly in a semirecumbent position, could not lie down.

November 1. He was again tapped and purulent fluid of a very foul odor withdrawn. He positively refused any further operative procedures, and it was not until November 5 that he consented. At this time, while in a semisitting position anæsthol was administered. After he became unconscious, it was found impossible to operate with the patient in this position, and it became necessary to turn him on his left side. Just as the skin was incised there was a violent expulsive cough, and from the mouth and nostrils a quantity of fœtid, greenish pus gushed out. In a second, respiration ceased and stimulation and artificial respiration failed to revive the patient. Evidently the lungs were flooded with pus by the rupture of the abscess, and he was drowned in his own secretions.

Post-mortem examination was refused.

Dr. Le Conte said that his reasons for believing this case to be one of septic embolus of a branch of the right pulmonary artery were the following:

Suddenness of onset with collapse; difficult respiration; feeble pulse; an absolute lack of physical signs at first, these developing in the following order, pain, impaired breath sounds, fever, bright bloody expectoration, impaired resonance; at first no râles and no friction murmurs. With the meso-appendix enormously thickened and inflamed at the time of operation, it is not hard to believe that a septic clot detached itself from one of these vessels and was swept into the lower branch of the right pulmonary artery.

Dr. George Erety Shoemaker regarded the class of cases reported by Dr. Le Conte of interest as explaining some postoperative deaths. Cases similar to the one which occurred soon after operation might be due to sudden heart failure. One peculiarity about cases of sudden death is that nearly all of them occur from a week to ten days after operation and in patients that are doing well; hence they come as a surprise. Such patients move about more than do those profoundly ill. Emboli are thus formed out of otherwise innocent local vein clots. They should teach the surgeon that it is unwise, even in simple cases of major operation, to allow the patient out of bed as early as the tenth day. Some surgeons even boast of their patients leaving the hospital on the tenth or even the fourth day; this adds to the risk. These remarks do not, of course, refer to Dr. Le Conte's cases. Dr. Shoemaker's experience with embolism is limited to one case which occurred after severe hæmorrhage due to ruptured extra-uterine pregnancy. The patient was a large woman, who had a fatty heart and had previously suffered from perinephritic abscess. Ectopic rupture occurred during the sixth week of gestation. After operation the pulse and temperature were normal at the ninth day, and the patient was supposed to be in splendid condition. She died instantly, no doubt as the result of a clot in the pulmonary vessels, though no post-mortem was held. Most of the cases in which embolism occurs are simple in character, and for that reason the surgeon is apt to allow the patient early liberty. A similar variety of sudden death occurs after undue exertion during pneumonia.

Dr. Henry R. Wharton mentioned a case in which he performed Schede's operation for varicose veins of the leg. The patient recovered from the anæsthetic, but in five hours developed shortness of breath and soon died. There was in this case some question as to whether there was pulmonary or cardiac embolism, as no post-mortem examination was made.

Dr. Le Conte added that cases of pulmonary embolus might be divided into two groups, the septic and the non-septic; and these again into large emboli and small ones. In some cases where the embolus is aseptic and small, one of the smaller branches of the pulmonary artery may alone be occluded, and the patient may present symptoms not dissimilar to syncope. There will be a rapid, feeble pulse, shallow respiration, sweating, and usually pain in the lung. Such cases almost invariably recover, the attending surgeon perhaps having entirely overlooked the fact that embolus has taken place. In other instances the non-septic thrombus may be so large that the entire pulmonary artery is occluded, and death is almost instantaneous.

In the septic group, if the primary thrombus is small and only a portion of the artery is occluded, the patient recovers from the immediate shock, to develop later a septic pneumonia or gangrene of the lung. In such cases, then, the patient does not die as a result of the occlusion of the vessel, but rather on account of the septic material which has been deposited in the lung.

COMPLETE INTESTINAL OBSTRUCTION FROM A BAND AND VOLVULUS OF THE ILEUM.

Dr. Robert G. Le Conte reported the case of a man, aged forty years, who was admitted to the Pennsylvania Hospital, July 18, 1904, with a history of four attacks of appendicitis since June, 1903, culminating in an attack in April, 1904, when a large abscess in the region of the appendix was opened, but without the removal of the appendix.

On July 14, 1904, he was again seized with nausea, vomiting, and great abdominal pain. There was great prostration. His bowels moved slightly the next day and again on the morning of admission, July 18. Vomiting was more or less constant and was of a greenish hue, but not until the evening of the 17th was there any offensive odor from the vomitus. On admission the patient was pale and haggard looking, very thin, vomiting of a projectile type, every half or three-quarters of an hour, material that was

thin and stercoraceous. The abdomen was distended, rigid, universally tender, but most markedly so between the scar of the former operation and the umbilicus. Pulse weak and small; temperature normal. Diagnosis, obstruction from a band of adhesion.

The patient was immediately etherized and a four-inch incision made in the median line between the umbilicus and the pubes. The small intestine was found very much distended with numerous adhesions, the bowel being firmly adherent to the cicatrix of the previous operation. After breaking up some of the adhesions, a firm band was found compressing about three feet of the lower ileum, and this portion of the gut had taken one twist to the right. While breaking through this band and further separating the adherent gut from the abdominal wall, the friable bowel was torn. Through this perforation the liquid contents of the bowel were evacuated; the rent was then sewn up and the abdomen flushed with warm sterile salt solution and closed without drainage. The patient's condition was so precarious that no attempt was made to find the head of the colon or to explore the appendiceal region. As the abdomen was being closed, an assistant passed a stomach-tube and washed out the stomach, removing in the neighborhood of a quart of stercoraceous material. Reaction following the operation was slow, but there was no further vomiting and the sensation of nausea gradually disappeared; the pulse improved in volume and strength. Five days after operation the patient again complained of severe pain in the old appendiceal scar. The temperature, which had been normal, rose to 101° F. Inspection of the abdomen showed that there was bulging over the lower portion of the old scar, with exquisite tenderness and redness of the skin. An incision was made into this and several ounces of grumous, grayish, foul-smelling material was evacuated. A rubber tube was inserted for drainage. This material was reported by the pathologist to be more or less structureless and without leucocytes, resembling in its characteristics fæcal material. The temperature immediately fell to normal, the pain disappeared, and there was no further discharge from the cicatrix. The convalescence from this time was uneventful, the median incision healing by primary union, and the cavity in the old scar by granulation. The patient was walking about by August 25, and was discharged from the hospital on the 29th of August in good condition with both cicatrices sound.

Dr. John B. Roberts had operated upon a similar case. The patient had had his appendix removed, and a short time later obstruction necessitated a second operation. One year later, when again suffering from obstruction, he came under the care of Dr. Roberts. Operation revealed a dense matting together of all the structures in the right iliac fossa. The intestine was kinked, a loop having passed beneath a constricting band and produced an intestinal hernia. The loop was drawn out of its bed and the patient recovered.

Dr. De Forest Willard had met with several cases of obstruction following operation for appendicitis, the obstruction developing from ten days to three weeks after operation, during healing of the wound. On three occasions Dr. Willard had opened the abdomen and found cicatricial bands. In one there were two bands, one inch apart, the division of which gave the desired relief. In the second, two feet of the intestines were shut off, requiring resection; the patient recovered. In the third case, adhesions were more extensive, and in freeing them the bowel was ruptured; this patient died on the second day. In a case of inflamed ovarian cyst followed by appendicitis and obstruction after operation the intestines were found so adherent that it was impossible to separate them. Death ensued. Considering the frequency of general peritonitis, it is a wonder that obstruction does not more often follow appendicitis operations.

Dr. Le Conte said, in closing, that when a constricting band alone is present the condition is a comparatively simple one to deal with. The lumen of the intestine is cut off, but the circulation in the constricted portion is not materially interfered with. When, however, volvulus occurs, the blood supply to the intestine is cut off in the mesentery, and thrombosis of the veins will take place if the condition exists for any length of time. Thrombosis of the mesenteric veins necessitates intestinal resection, and death will follow in the majority of cases, as the patient's condition is usually so bad that a prolonged operative procedure cannot be safely undertaken. Of six or seven cases of volvulus personally seen by the reporter, the case reported this evening was the only one saved. It is difficult to understand how volvulus occurs when the intestine is free, but the mechanism is more simple when a portion of the gut is adherent, for we can readily understand how violent peristaltic movement, when suddenly checked by an ad-

hesion, might throw a loop of intestine around this adhesion. The recorder's opinion was that in the case reported this evening the band had probably lasted for several days, gradually constricting the intestinal lumen, but that the volvulus had perhaps been present only a few hours, as there was no evidence of the formation of clot in the mesentery veins.

OSTEOMA OF THE ORBIT.

Dr. William J. Taylor presented a bony growth removed from the left orbit of a boy of sixteen. The operation was done at St. Agnes's Hospital on December 21, 1903. The boy had been under observation and treatment at the Eye Department under Dr. Shoot and Dr. Perkins, who have a very elaborate history of his ocular conditions. A careful X-ray study was made also of his head, as he desires to make a more detailed report of this case in the future. The left eyeball was pushed forward, downward, and outward by a mass growing in the orbit. The boy's mental condition was gradually becoming cloudy, he was irritable, his whole disposition had changed, and he was totally unlike his former self. There were, however, no definite symptoms which could localize any growth in the brain, nor had there been any palsies other than the difficulty with the ocular muscles, which seemed to be directly due to local pressure.

An incision was made along the upper border of the eyebrow, exposing a hard bony mass, which seemed to fill the whole of the orbit. The edge of the orbital ridge was thinned out and blended in with the outline of this irregular mass of bone, which was so hard and dense, that a chisel or gouge could make no impression upon it whatever. It was, therefore, necessary to cut away the whole of the orbital ridge, and in so doing the frontal sinus was opened, from which a large quantity of glairy material exuded. It was now found that from pressure the whole of the upper wall of the orbit had been obliterated, and the bony mass extended through the nasal cavity and into the right frontal sinus. After a good deal of difficulty, and the cutting away of a large portion of the overlying bone, it was possible to remove the mass, which is of irregular shape, and measures two and three-fourths inches by two inches. It was very dense and entirely unattached, for it remained simply in place, held by overlapping bone. Its removal

left an enormous cavity and the exposure of a large area of the dura; as the pressure had entirely destroyed the borders of the orbit, there was no evidence of disease of the bone, simply erosion from pressure.

He stood the shock of the operation very well, but the wound became infected from the nasal cavities, which were exposed, and death occurred in a week from septic meningitis.

Dr. De Forest Willard mentioned the case of a woman operated upon some years ago for osteosarcoma of the nose and orbit. He removed the lachrymal, nasal, ethmoid, and vomer, and even then stopped short of the full extent of the growth. The patient died eight days later of septic meningitis. The tumor probably sprung from the ethmoid. The eye was not displaced.

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-

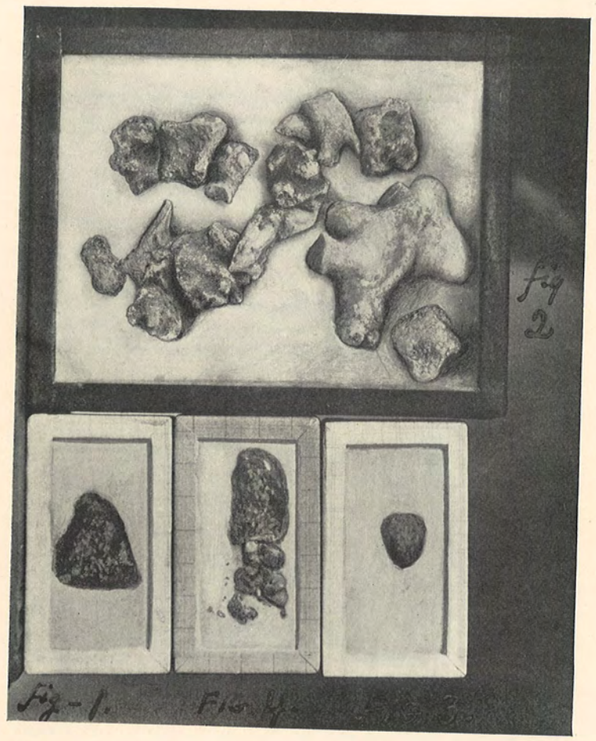
der. Since that time he had vomited a great deal, had some difficulty in urinating, and passed bloody urine. The urine stopped suddenly, but sounding failed to find any stone in the bladder. There was a skiagraph taken by Dr. C. H. Leonard, and, while the indications were not at all marked, he still 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.

STATED MEETING, DECEMBER 5, 1904.

The President, Henry R. Wharton, M.D., in the Chair.

CONGENITAL DEFICIENCIES OF BONES OF FOOT AND HAND.

Dr. De Forest Willard presented a girl, eleven years of age, an only child; no hereditary or known cause for deformities. At birth her left foot was noticed to be almost in a straight line with the leg. When she commenced to walk she was uncared for, and locomotion, until she was eleven years of age, was accomplished directly upon the dorsum of the foot, pushing the tarsus and metatarsus farther back until at time of examination she was walking with the foot absolutely reversed, the extremity of the shortened tibia being the anterior point of weight-bearing, and the dorsum of the astragalus and metatarsals being the rear point of support, the toes looking directly backward (Fig. 1). As the leg was six inches shorter than the other, from lack of development, she progressed only by bending the other knee sufficiently to accommodate the short leg. The calcaneum, as will be seen by the skiagraph (Fig. 2), had been gradually pushed up behind the tibia, and was lying horizontally to the axis of the former. Other tarsal bones absent except portion of astragalus; fibula absent. The right foot and leg were normal. The right hand had but three fingers. The left hand was a single mass like a flipper or mitten, without any division, and could not be flexed (Fig. 3). The skiagraph showed, however, that there was a rudimentary carpus and metacarpus; that the phalangeal bones of two fingers were present, with portions of the bones of the middle finger (Fig. 4).

The web was divided and the intermediate portions of bone removed; flaps were turned in and two fingers secured, which already (six weeks later) can be moved laterally sufficiently to permit the picking up of a pin, and will prove very useful.

The problem with the foot was a difficult one. An ampu-

Fig. 1.—Walking on dorsum of foot. Toes distinctly backward.

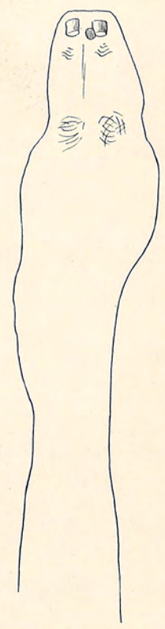


Fig. 3.—Left hand.

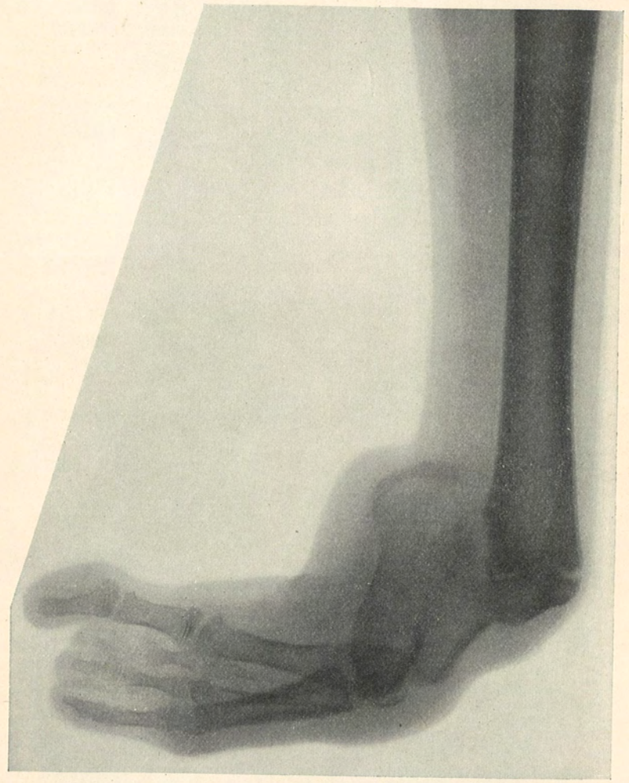


FIG. 2.—Congenital deficiencies of bones of foot.

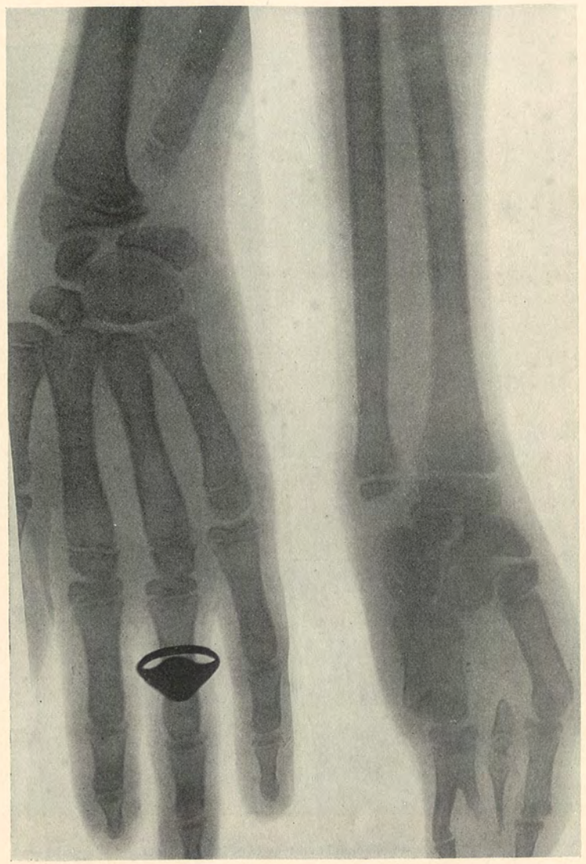


FIG. 4.—Congenital deficiencies of bones of hand.

tation would have been the simplest solution, but would have left the child with a very short leg. It seemed desirable not to disturb the lower tibial epiphysis, but to stimulate growth to adult life, or at least to puberty. To bring the posteriorly displaced os calcis to a normal right-angled position with the leg would have required resection not only of considerable portions of the tarsus, but also of the end of the tibia, and, as the leg would have still been six inches short, the use of an appliance for locomotion would have put a severe strain upon the ankle. It was therefore decided to bring the foot forward sufficiently only to permit the child to walk upon her phalanges in the equinus position, thus stimulating full growth of the leg as long as possible. An extension cork shoe, four inches thick, with lateral steel supports, will permit in time a good walking apparatus, leaving the question of amputation to be determined when adult life is reached.

The straightening process was accomplished by forcing the foot forward with powerful wrenches until the tarsus and metatarsus were brought into a forward obtuse angle with the tibia, and the phalanges were dorsal hyperextended to put them in the best position for weight-bearing. A gypsum dressing readily held the parts *in situ* for four weeks, after which walking was encouraged. As the operation was performed only six weeks since, the foot is, of course, still sensitive, but the prospects for a walking member are good.

DR. G. G. DAVIS said the important point in these cases is to determine the proper time for interference. He is now caring for a child of two years who has congenital deficiency of the fibula which allows the foot to turn outward and assume a valgus position. In these cases of marked deformity one is inclined to resort to immediate amputation. In Dr. Willard's case, however, the child has kept her foot until the age of eleven, and she now seems able to support the limb upon the toes, which is superior to an artificial leg. How early is it advisable to interfere in these cases? One can either amputate or fix the foot into a longitudinal position. These limbs do not grow so fast as normal ones, and it is advisable to use appliances which do not interfere with the epiphyses to support the child while the limb is growing. When the growth is attained, some operation of turning the foot may allow an increase of several inches in

length of the limb, and avoid the necessity of an artificial leg. In his case, Dr. Davis can keep the foot at a right angle to the leg, and with the addition of a cork shoe four inches thick the child can walk, and even play with other children. Meantime the bones are growing.

EXSTROPHY OF THE BLADDER.

Dr. Richard H. Harte presented a boy, aged nine years, who was referred to him by Dr. T. S. K. Morton in April, 1901. He was fairly well nourished, with a family history absolutely negative. On admission to the Pennsylvania Hospital he presented all the characteristic signs of exstrophy of the bladder, with an absence of the anterior abdominal as well as the bladder wall, causing a bulging forward of its posterior surface, the two presenting an exposed area about the size of an orange. At the bottom of this protrusion could readily be seen the ureters as two well-marked papillæ, from which the urine was discharging. The surrounding tissues were red, inflamed, and excoriated from the constant flow of urine. The penis was rudimentary and with a marked epispadias. A small hernia existed on both sides, with undescended testicles. There was apparently no lack in the bony development about the pelvis. After careful consideration of the existing conditions, it was thought that the anterior defect could be closed by a plastic operation. The method which naturally suggested itself was that recommended by Wood. Before anything could be done, however, it was necessary to get rid of all the inflamed and excoriated condition which presented around the part. The child was placed in bed with a large wet boric acid solution compress over the bladder, which was changed frequently in order to allow as little urine as possible to collect, or come in contact with the irritated surface. This condition responded quickly to treatment, and in a few days the part presented practically a normal condition. Two weeks later the patient was etherized and a bellows-shaped flap reflected from the abdomen and brought down and stitched to the bladder margin after freshening the edges of the bladder defect. The result desired was that the handle portion of the bellows-shaped flap should correspond to and form a roof to the defective urethra. Before this flap was made, the area was outlined carefully with

an aniline pencil. The tissues about the umbilicus were so thin that great difficulty was experienced in securing sufficient thickness of flap. This flap was then turned upon itself and brought out and stitched to the denuded edge of the bladder and upper surface of the penis, thus closing in the defect and leaving a fascial covered surface anterior, the cutaneous surface now forming the anterior wall of the bladder and corresponding to what ordinarily should be its mucous surface. To give a complete double cutaneous covering to the bladder, two flaps were dissected from the region of the groin and swung round upon their bases and stitched together in the median line. The upper wound was approximated as nearly as possible with silkworm-gut sutures and allowed to granulate. The sutures used to fasten the flap to the posterior portion of the bladder were buried catgut, and for the superficial stitches silkworm gut and silk were employed. The uppermost wound resulting from the flap formation was closed with harelip pins and sutures of silkworm gut. There was an incision made in the left side to relieve tension on the lateral flap, but with indifferent success, and this wound was allowed to granulate.

The time consumed by this operation was one hour and twenty minutes. There was no shock, and the child reacted well. A small, soft rubber drainage-tube was placed in the newly formed bladder and the whole surface dressed with a large, wet boric acid compress, which was regularly changed every two hours to keep the part perfectly clean and free from any urinary collection. In two weeks all the stitches were removed and the wounds were in good condition. There was a slight defect remaining at the root of the penis through which the urine escaped. The child left the hospital four months after his admission, with the understanding that a subsequent operation was to be undertaken to further perfect this local condition.

In October of the same year he was again operated upon at the Episcopal Hospital in the hopes of securing a more perfect bladder. To do this Dr. Harte dissected out the rudimentary glans from the penis, thus leaving a loose flap of skin hanging down over the scrotum. Through this flap he made a fistulous opening with the Paquelin cautery and allowed it to cicatrize.

In March, 1902, the boy was again admitted to the Penn-

sylvania Hospital, and the edges of the lower flap freshened and approximated to the still defective lower portion of the bladder, and closed with two rows of stitches, the top row being buried catgut and the superficial row being silk. This flap united fairly well, with the exception of a few fistulous gaps along its margin, through which urine escaped from time to time. The patient left the hospital, but again returned in May, 1903.

At this time the edges of some of the small fistulæ were refreshed and closed with silk sutures, which proved quite satisfactory, except for a few little pin-point openings through which a little urine escaped. Finally, these openings were cauterized with a small electric cautery, and he was fairly successful in closing them. While in the hospital at this time the patient contracted the measles, so that any further operative interference was for the time contraindicated. He left the hospital in August, 1903. He returned again in the spring of 1904, when Dr. Harte succeeded in closing the remainder of these openings. He then had him measured for a urinal, which he found could be worn without any difficulty. To make this even more perfect, he is having a small retaining catheter placed in the orifice of the extemporized bladder to convey the urine down into the urinal without the escape of urine when the patient assumed a sitting posture, thus keeping the surrounding parts absolutely dry and free from urinary contact. He now attends school, and to external appearances is perfectly normal.

Dr. Harte, remarking upon this case, said that exstrophy, or extroversion of the bladder, is by far one of the most common congenital defects to be found in this viscus, and its frequency of occurrence makes it a subject of no little surgical importance. This difficulty is met with much more frequently in the male than in the female. It is attributed to many causes, none of which are fully understood, such as the rupture of the allantois during intra-uterine life, possibly as the result of a fall on the part of the mother. A more recent investigator on the subject, Reichel, bears out the theory of the older surgeons, that the majority of the malformations of the urinary bladder and urethra, and especially clefts of these organs, are simple failures of development. These different forms of abdominal clefts and epispadias occur on account of total or partial failure of fusion on the margins of the primitive embryonic structure. It is possible that the pressure of an amniotic fold may interfere with such fusion.

The deformity, which is more common in the male, consists in the absence of the anterior wall of the bladder with a corresponding deficiency of the lower abdominal parietes, and frequently the pubic symphysis. The penis in the male is epispadic and shortened, and the clitoris in the female is split in two portions, corresponding to the nympha, the anterior commissure of the vulva being wanting, and the bladder and urethra thus opening between the labia and directly into, or immediately above, the vagina. The uterus is usually well formed. The scrotum not infrequently contains a hernia on one or both sides. The rectus muscle is usually separated and passes out to its attachment on the pubic bone. In a certain percentage of cases this separation is continued up to almost their costal attachment, in which cases there is no umbilicus.

The appearance of a case of exstrophy of the bladder is quite characteristic. The posterior wall of the bladder covered with mucous membrane is pushed forward by the abdominal viscera and forms a prominent but reducible tumor in the situation of the pubes. The mucous surface, which is red, papillated, and vascular, is continuous at its periphery with the abdominal walls, the juncture being a thin cicatricial appearing edge. At the lower part of the projecting vesicular surface will be seen the orifice of the ureters giving exit to the urine by drops or sometimes a small stream. The head of the penis consists of two thick swellings, beneath which the skin hangs down in the form of an apron. The seminal vesicles with the openings of the seminal canal are visible in the posterior wall of the divided urethra. The prostate may be normal, although it is usually rudimentary and may be wholly wanting.

Treatment.—In dealing with this condition, three methods have been devised. First, removal of the bladder and suture of the ureters in the urethral gutter. Second, implantation of the ureters in the intestine, thus converting the rectum into a cloaca which will tolerate the presence of urine for long periods. And, third, an attempt to form a new bladder by the various plastic methods.

The first method of deviating the urinary stream possesses certain advantages in its simplicity, as usually one operation will suffice, whereas by the other methods considerable time will be required to accomplish a satisfactory result. The bladder is freed

and removed without opening the peritoneal cavity. The ureters are loosened for a short distance and stitched to the urethral gutter. The defect in the abdominal wall is closed by lateral flaps, which are separated below and brought to the median line. This leaves the orifices of the ureters well exposed, so that possibly they can be conveyed to a urinal, thus collecting all the urine. A simple urinal could then be worn on account of the more favorable situation of the ureters. By this operation the patient is freed from the severe pain caused by the ulceration of the prolapsed mucous membrane and from the risk of the inflammatory process extending to the kidneys. He is also enabled by this apparatus to follow many of the vocations of life, and thus become a useful member of society.

The second method, that of implantation of the ureters into the rectum, was devised by Simon, who bases his theory on the fact that in many animals a cloaca serves as a common receptacle for urine and fæces; and, further, that sometimes at birth the ureters are found opening into the rectum, and that patients, with a fistula between the bladder and rectum, in time learn to control more or less the escape of urine from the anus. In experiments on animals it has been found that the mucous membrane of the rectum was capable of withstanding the constant irritation of the urine, and that the sphincter of the rectum has succeeded in preventing its escape. In a case operated upon by Dr. Dudley Allen, of Cleveland, he was able to make use of the rectum with most satisfactory results, so that the patient was able to follow the vocation of a clerk without any apparent inconvenience on the part of controlling his urine. But, unfortunately, many of these cases thus operated upon terminate in a nephritis, owing to an ascending pyelitis, the result of microorganisms finding their way up the ureters. When this operation is resorted to, no doubt the risk of ascending ureteritis can be lessened by transplanting into the rectum an elliptical piece of the base of the bladder containing the ureters; if this portion of the bladder is transplanted well up into the sigmoid instead of the rectum, there will possibly be less chance of infection, as this portion of the bowel is usually empty, and consequently would be free from fluid, the escaping urine quickly gravitating to the rectum. It must be remembered, however, that this operation, though very brilliantly conceived, is accompanied with no little risk as simply the result of the rather complicated operative procedure, which must necessarily be within the peritoneal cavity.

The plastic operations, varying more or less in their details, have been employed for the relief of exstrophy of the bladder with most gratifying results in many instances. To Joseph Pancoast, of this city, belongs the honor of having in 1858 performed the first successful plastic operation for exstrophy of the bladder. His method consisted in taking flaps from the groin and inverting them over the protruded organ, attaching them together in the median line, thus forming a broad granulating surface which slowly cicatrized.

Professor John Wood, of England, operated upon a large number of cases, employing the method which is usually known by his name. This was the method employed in the case presented, with a slight modification. It consists in the use of three flaps, one taken from the umbilical region and inverted over the bladder, and the other two taken from each groin and united over the first one, which they cover in. The advantage of the inverted umbilical flap is that it effectually prevents the escape of urine in the upward direction, while the groin flaps cover in the raw surface of the umbilical flap without undue tension, and, having broad bases, are in no danger of sloughing. In the case of a male it may be possible to form a roof for the urethra at a subsequent operation by inverting flaps on the newly formed covering of the bladder and from the sides of the penis. By this operation the patient is placed in a very comfortable condition. Incontinence of urine exists to a certain extent, and necessarily continues, requiring the use of a urinal or some similar contrivance, but the bladder is effectually protected from irritation and excoriation is readily prevented. The principal points which require attention in the after-treatment are to prevent tension on the flap, which encourages the contraction of the granulating surfaces; this can be done by keeping the patient in an almost sitting position, with the knees flexed over a pillow. In an adult, trouble may be experienced by the growth of the pudendal hairs on the inverted flap; and it may be necessary from time to time to practise evulsion with suitable forceps until the inverted surface shall have lost its cutaneous character and becomes assimilated to mucous membrane. This condition, however, is not likely to occur if the patient is operated upon early in life.

To relieve the vesical catarrh and the deposit of phosphates in and about the outlet of the extemporized bladder, injections of dilute acetic or muriatic acid will be found the most satisfactory way of dealing with this sometimes annoying condition.

Dr. J. B. Roberts said he had never succeeded in closing an exstrophy of the bladder as well as the one exhibited. The nearest approach to it was one in which he made an opening for the urine in the perineum, keeping it open by rubber tubes while the bladder was closed in from the top. Several little fistulas gave trouble, as in Dr. Harte's case. A year or two after the operation the bladder was found to be completely filled with small stones; operation for their removal terminated fatally from previous involvement of the kidney by an ascending infection. Of late years Dr. Roberts is inclined not to interfere in cases of exstrophy of the bladder unless they are very large; small ones are probably better let alone. In one patient, a young lady, he had intended to transplant the ureters into the rectum, but, greatly to his satisfaction, she did not return for the operation. Dr. Roberts asked the opinion of the Academy as to the advisability of making an abdominal incision, cutting the ureters high up, and transplanting them into the small intestine.

Dr. De Forest Willard said that, when operating upon boys, the surgeon is apt to forget that hair will grow on the turned-in flap after puberty. Upon these hairs the urinary sediment will deposit and form calculi. He has secured better results by not inverting the umbilical flap. He makes it shallower than is usually recommended, and slides it down with the raw surface inward; two large lateral flaps are then made. He had found long lateral incisions of distinct value in relieving tension. Difficulty is always met in satisfactorily closing the lower part of the bladder. He considers very good the result secured by Dr. Harte. In girls and women the hair does not extend so far towards the umbilicus, and a smoother and better flap can be obtained.

Dr. John H. Gibson said the reported cases of transplantation of the ureters, with the trigone of the bladder, into the rectum seemed to indicate the lines along which future operations would be conducted. In the case exhibited, every one would admit that the plastic art had almost reached its limit, and yet the boy is still in an unfortunate condition. Early attempts at

transplantation of the ureters failed, but later improvements gave better results, and the technique has now been still more improved by carrying the ureters into the sigmoid. This increases the danger of interfering with the blood-supply of the lower end of the ureters, but the operation can be safely done. If this operation continues to give as good results, plastic operations for complete exstrophy will cease to be employed.

Dr. Horwitz said that he would be inclined to regard Dr. Roberts's suggestion as a very dangerous expedient. It is well known that if a colored liquid be injected into the bladder it gradually works its way up the course of the ureter, and is ultimately found in the pelvis of the kidney. Should the ureter be cut off close to the pelvis of the kidney and anastomosed to a loop of the small intestine, the danger of the development of a pyonephrosis would be greatly enhanced.

Dr. Harte, in closing, said all surgeons recognized these cases as particularly difficult and trying. The one reported was exceptionally so, and the boy's condition when first seen was really pitiable. In considering cases of exstrophy, it is difficult to decide upon the operative method to employ. Theoretically, that of Simon seems very simple and satisfactory, but its mortality is high, and, if the patient recovers from the operation, he is almost sure to develop nephritis. Dr. Harte would regard the suggestion of Dr. Roberts to cut and implant the ureters high up as a serious and unscientific operation, as the fluid contents of the small intestine would readily pass up the ureter and produce infection. Dissecting out the trigone and transplanting it into the rectum carries along the valves of the ureters, and this tends to prevent ascending infection. If transplanted into the sigmoid, there is further advantage of the urine dropping away from the ureteral orifices; if placed in the rectum, the outlets are nearly constantly bathed in urines and fæces. In the case exhibited, Dr. Harte believes he tried to do too much at the first operation. His intention was eventually to utilize the penis in closing in the lower part of the opening, and the umbilical flap was fashioned for that purpose, but this step was not a success. The interior of the bladder now remains in an irritated condition, and there is a tendency towards collection of phosphates, but the latter are readily removed by weak acid solutions. If a child be operated on early, the hair follicles in the inverted

flap are destroyed, and there is no difficulty from this source; if done later, the hair will grow and give trouble by becoming encrusted with a deposit of phosphates.

POSTERIOR DISLOCATION OF THE ELBOW, WITH FRACTURE OF THE CONDYLES OF THE HUMERUS; REDUCTION BY OPEN OPERATION SIX WEEKS AFTER THE INJURY.

Dr. Henry R. Wharton detailed the history of a man, aged twenty-one years, who was admitted to the surgical ward of the Presbyterian Hospital, July 19, 1904, with the following history:

About a month before his admission to the hospital, he received a fall, injuring his left elbow. He was under treatment, but the nature of the treatment is not known. When admitted to the hospital, his left arm was extended and rigid at the elbow, and there was marked thickening of the tissues about the joint. There was apparent displacement backward of the bones of the forearm. This diagnosis was confirmed by an X-ray examination, which showed also a united fracture of the lower end of the humerus. Under anæsthesia, an attempt was made to reduce the dislocation which was unsuccessful.

On August 1 the patient was anæsthetized; a longitudinal incision was made over the posterior aspect of the elbow about six inches in length, and the dissection was carried down until the bones were exposed. The tendon of the triceps muscle was divided some distance above its attachment to the ulna; the capsule of the joint and lateral ligaments were freely divided, and by manipulation the bones of the forearm were drawn downward, and the articular surfaces brought into their normal relation with the humeral articulation. It was found, however, that the reduction could only be maintained when the forearm was brought into a position at a right angle with the arm, as in the healing of the fracture there had been a slight anterior projection of the lower fragment of the humerus. After reducing the dislocation, a drainage-tube was introduced into the wound, and the capsular structure and the divided tendon of the triceps muscle were approximated with chromicized catgut suture. As the forearm had to be kept at a right angle to the arm, some difficulty was experienced in approximating these structures. The superficial wound was closed, and a plaster-of-Paris bandage was

applied from the tips of the fingers to the axilla. The patient did well after the operation, and at the end of three weeks the wound was sufficiently healed to allow him to begin the attempt to make motions of the elbow-joint.

When he left the hospital, September 29, he had fair motion at the elbow-joint. Examination at the present time shows that the patient has a very slight disability of the arm, and was doing ordinary laboring work.

FRACTURE OF SECOND CERVICAL VERTEBRA, WITH RECOVERY.

Dr. Orville Horwitz exhibited a man who one year previously had sustained a fracture of the second cervical vertebra. The man had been injured by the fall of a heavy weight striking him on the shoulder and knocking him over backward, striking the back of his neck on a "roll of goods." At first he was stunned. On recovering consciousness he was enabled to get into a trolley-car and ride for a distance of about eight miles. He then walked to his home, which was about a quarter of a mile. He sent for his physician, who found him suffering from great pain and stiffness in the back of the neck. No displacement or irregularity of the spine could be detected. There was no anæsthesia or paralysis. The next morning there was complete paralysis, which lasted for about eight days. The patient was confined to the recumbent posture for about six months. It was found that he was more comfortable propped up in an armchair than he was in bed. At the present time the neck is stiff. A well-marked, hard swelling can be easily felt over the spinous process of the second cervical vertebra. He can do light work and lift about twelve pounds. The case belongs to the class spoken of by Mr. Simon as "latent fracture of the spine." A report of a number of similar cases is to be found in the literature of the subject, notably those of Phillips, Cline, Bayard, Smith, May, Eberman, Ashhurst, Parker, and Debenham. The points of interest in the case are that an individual with so serious an injury as fracture of the second cervical vertebra should be able to ride eight miles in a trolley-car; then walk for a quarter of a mile to his home; the appearance of paralysis on the second day, which disappeared in a week, and, finally, a gradual but almost complete recovery.

Dr. De Forest Willard recalled two cases in his practice of recovery following fracture of a cervical vertebra. One was a boy who complained of severe pain in his neck, and there was slight discoverable movement of the fragments. The patient was kept for four months in a plaster neck dressing, and all the functions except rotation returned. In several other cases fracture was suspected, or at first considered certain, because of pain and rigidity, but rapid recovery indicated that the symptoms were due to hæmorrhage within the spinal canal. In Dr. Horwitz's case, however, recovery was rapid, and yet a fracture was present. A peculiar case also occurring some years ago was that of a man who, by a fall down an elevator shaft, fractured his odontoid process, yet walked fourteen squares, complaining only of severe pain in his neck. The following morning he felt so well that he wished to go back to work, but this was prevented. In less than twenty-four hours he was paralyzed below the level of the fracture, and in another twenty-four hours was dead. The odontoid was found to be broken entirely through; but displacement of the fragment did not take place until the second day, when resultant pressure on the cord caused death.

Dr. Richard H. Harte said the case reported was an illustration of the fact that severe injuries in the neck may give rise to few or no symptoms. He cited the case of a brakeman who was struck by the step of a caboose, sustaining fractures of the jaw and clavicle. This man walked more than a mile to the hospital, where his fractures were dressed and he was put to bed. He did not complain of his neck, but shortly after turned in bed and died instantly. Autopsy revealed a complete fracture of the odontoid process, and also of the bodies and spinous process of some of the cervical vertebræ. Dr. Harte believes that many fractures of the cervical vertebræ go unrecognized; the man just mentioned might have recovered from the other vertebral fractures if the odontoid had not been broken. The X-ray now determines the presence of fractures that formerly would not have been diagnosed.

Dr. Francis T. Stewart, in support of Dr. Harte's statement regarding unrecognized fractures of the spine, mentioned two cases in which such injury was not actually suspected, but was revealed by the X-ray during a routine examination. The first case was that of a boy who had been run over by a cart and

had both clavicles fractured. His neck was stiff, as would be expected in such an injury, but there were no symptoms referable to the spine or spinal cord. The X-ray showed a fracture of the arch of the sixth cervical vertebra. The boy recovered. The second case was seen some months after the receipt of injury; the neck was stiff, and the X-ray revealed a fracture of the sixth cervical vertebra. No symptoms referable to the spine had occurred, and no callus had formed. The patient could rock his head anteroposteriorly, but could not turn it from side to side.

Dr. John B. Roberts mentioned the case of a man who slipped and fell squarely on his buttocks. This was followed by paralysis of all the extremities. The man gave a history of an injury to his neck some six months before, at which time a fracture had occurred, and a finger introduced into the mouth could detect a mass in the region of the fourth or fifth cervical vertebra. The probable explanation of the paralysis after the fall is that the sudden jar tore some of the adhesions around the former injury and caused hæmorrhage. This supposition is supported by the fact that in twenty-four hours one arm had entirely, and the other nearly, regained its power. Motion of the legs then gradually returned, followed by sensation. At the end of six months he had almost perfect use of all four extremities. Dr. Roberts had considered the pressure due to blood, but he notes that Dr. Horwitz believes such palsies are caused by serum.

Dr. G. G. Davis said that, if in these cases of fracture paralysis is absolute at the time of injury, the prognosis is bad. He has seen two cases of recovery from apparent fracture of the cervical vertebræ some years after the injury. One is a man who received the fracture thirty years ago, the other a boy; both have deformity of the neck. The man has no paralysis, the boy has partial paralysis of one arm.

LUXATIO ERECTA AT THE SHOULDER.

Dr. C. N. Montgomery reported the case of a man, about sixty-four years of age, who came to the Polyclinic Hospital on the 5th of September, 1904, giving the history that two days previously he had missed his footing on a loose step in the dark and fallen, his right arm being raised in an effort to save himself. Shortly afterwards he was seen by a physician, who told him he

had had a stroke of apoplexy, the limb presumably being paralyzed at that time. Since his injury he had been unable, on account of the pain, to bring his arm to within but little less than a right angle of his body. As he lay on the bed the arm was at an even higher level, his head resting on his hand, a position that secured him the most comfort. On account of the pain it could not be brought to any extent below the horizontal. The head of the humerus was plainly palpable in the axilla below the glenoid cavity. There was paresis of the limb and numbness, sensation being preserved. Traction and pressure were employed for some time; but reduction did not take place till he had received a small amount of ether, when the head of the bone readily slipped into the glenoid cavity. A Velpeau bandage was applied for several days, and thereafter he received treatment at the massage clinic.

When seen about ten weeks later there was considerable wasting of the deltoid and of the arm and forearm muscles. The fingers were flexed, and there was almost no power to grip. Extension of the fingers was almost *nil*. Active pronation of the forearm was fair, but supination was much restricted. He could flex the elbow well. At the shoulder-joint movements were possible in all directions, though much limited. Forced abduction would raise the arm to an angle of only 45° with the body. There was numbness over the outer side of the biceps and back of the upper part of the arm; over the outer side of the elbow and back of the forearm and wrist, not over the hand. Pricking with a pin-point over this area produced a numb sensation.

The marked elevation of the arm in this case of subglenoid dislocation, and the difficulty experienced in attempts to lower it, together with the findings of the radiograph, established the diagnosis of luxatio erecta. This rare condition was first described by Middledorpf and Scharm in 1859. Stimson had been able to collect only eleven cases up to 1899, and Vaughan reported a case in April of this year. It is of interest to note the primary diagnosis of apoplexy, and the effects on the brachial plexus following the two days' pressure before reduction was performed.

Dr. G. G. Davis believes that nearly all dislocation of the shoulder are subcoracoid instead of subglenoid. In all cases the head of the humerus comes out anteriorly to the long head of the triceps muscle. The width of the head covers the entire distance between the long head of the triceps below and the coracoid process above, and moves forward more than downward. The head of the bone is felt in the axilla, even if the dislocation is subcoracoid.

STRANGULATED GANGRENOUS PERFORATED FEMORAL HERNIA WITHOUT SYMPTOMS, COMPLICATED BY SUPPURATING ADENITIS.

Dr. George G. Ross reported the case of a young woman, aged seventeen years, who had a good family and previous personal history. For one year prior to the trouble under consideration, she had had occasional attacks of pain in the right iliac fossa, never severe enough to confine her to bed.

Three days before admission, she noticed a swelling in the right groin, which was painful and tender. On the following day the pain had increased, and the mass had become red and very tender. On the day of admisison the pain was severe, radiating to the right side of the abdomen and down the right thigh. She had one attack of vomiting during the three days. The bowels had not been opened for two days.

On admission the temperature was 101.2° F.; pulse, 100; respirations, 28. Physical examination proved that the heart and lungs were normal. The face was flushed and anxious. The tongue was coated. There was a painful, tender, red, fluctuating mass in the right groin, the pain of which extended to the abdomen and thigh. The patient gave no venereal history or evidences of a venereal lesion. There were no abrasions or foci of infection of the extremity.

Calomel and salts were given, and acted promptly and thoroughly, without pain or marked discomfort. The patient had not vomited or complained of nausea during her stay in the hospital.

A diagnosis of suppurative inguinal adenitis was made, and excision of the inflamed glands was decided upon. A three-inch incision, parallel to Poupart's ligament, was made. There was exposed a mass of suppurating glands, several of which ruptured during the dissection. As the dissection approached the saphenous opening, it became apparent that there was something more

than a simple adenitis to be dealt with. Further search revealed the sac of a femoral hernia containing gangrenous gut with a perforation. When this sac was opened, a fæcal odor escaped. A ligature was thrown about the strangulated gut and securely tied. A median abdominal incision was made, and the gut with the ligature was drawn into the abdominal cavity. Unfortunately, the femoral canal was too small to transmit the ligated gut, and the ligature pulled off, permitting the escape of a small amount of fæcal matter into the peritoneal cavity. An examination of the involved gut proved it to be a part of the cæcum,—the portion between the ileocæcal valve and the appendix, which was placed well to the outer side. This fact accounts for the lack of symptoms of strangulation, as the fæcal circulation was not in the least interfered with.

The opening in the cæcum was closed with Lembert sutures; the peritoneal cavity was flushed, and the wound was closed without drainage. The femoral ring was closed with a purse-string suture, and the lower, or original, wound was closed with silkworm-gut sutures. A gauze drain was inserted, the end coming out at the lower end of the wound. The patient made an uninterrupted recovery.

GANGRENE AND PERFORATION OF THE SMALL BOWEL FOLLOWING RADICAL OPERATION FOR DOUBLE INGUINAL HERNIA.

Dr. Ross also reported the following case: A man, aged fifty-seven years, had worked hard all his life, and used alcohol and tobacco in moderation. He had enteric fever and influenza some years ago. His general health, appetite, bowels, etc., were in good condition. He had double direct incomplete inguinal hernia of fifteen years' standing; and while he said that this had caused very little pain, it had annoyed him so much that he had not been able to work for six months. The heart and lungs appeared to be normal, and an examination of the urine on several successive days showed nothing abnormal in either quantity or quality. He had an arcus senilis and some demonstrable sclerosis of the radials.

Radical operation was advised and accepted. Accordingly, both sides were repaired. It proved to be a double direct incomplete hernia, presenting no difficulty to correct. The sacs

having a broad base were sewed instead of ligated. Neither the bowel nor the omentum was handled, as there was no necessity for so doing.

The day following the operation the patient complained of severe abdominal pain. He was very restless and had an anxious expression. The bowels moved and he expelled flatus frequently. On the two succeeding days his condition remained much the same. There were pain and restlessness, with intervals of quiet and sleep, the bowels moving and passing flatus. On the fourth day he had a bowel movement. He still complained of pain and was very restless. The abdomen was distended. On the fifth day his condition was about the same, except that the temperature rose to 103.2° F.; pulse, 36; respirations, 32. At 4.30 P.M. he expelled flatus, although the abdomen was still distended. He died of peritonitis at 5.35 P.M.

A partial post-mortem through the incisions was made, and the conditions found were as follows:

The incisions had both healed by first intention. The parietal peritoneum was not adherent to the bowel, either by inflammatory adhesion or by stitches. When the peritoneal cavity was opened, a greenish-yellow fluid, containing flakes of lymph, exuded; and the ileum was covered with irregular patches of greenish-yellow exudate, one metre from the ileocæcal valve. The ileum was gangrenous for about twenty-five centimetres, in the centre of which was a perforation four millimetres in diameter. The surrounding intestine was reddish-black. There was a considerable amount of exudate in the lower pelvis. The left kidney was normal. The right showed pale, cortical and medullary substance diminished in amount.

Owing to haste, the mesenteric vessels were not examined carefully for a thrombus. Nevertheless, the reporter believed that this was a case of clogging of the mesenteric arterial radicle of the involved bowel with thrombus due to arteriosclerosis.

VESICAL CALCULUS WITH NUCLEUS OF CHEWING-GUM.

Dr. William J. Taylor exhibited the fragments of a calculus he had removed from the bladder of a boy of eighteen years. One year ago the boy had gonorrhœa, and, to prevent the discharge, had inserted into the penis several masses of chewing-gum. These passed into the bladder and induced cys-

titis. The boy had drifted about under the care of quacks and homœopaths during the year, and calculi had formed upon the gum, four distinct masses of which were removed. Removal through a perineal incision was attempted, but the masses were too large, and a suprapubic operation was necessary. The masses were crumbled in their removal.

Dr. G. G. Ross cited the case of a man, the father of five children, who claimed the use of a catheter was necessary. He lost the catheter, and to replace it he moulded a piece of chewing-gum around the end of a stick, which he inserted through the urethra. It became dislodged by the body heat, and was located in the bladder by the cystoscope and removed through a suprapubic incision. The gum had been in the bladder three weeks, and was found encrusted with salts.

Dr. Horwitz called attention to a somewhat similar case that he had reported some four years ago, in which 280 grains of white wax had been removed from the urinary bladder by means of a suprapubic cystotomy. On admission to the hospital, the individual stated that the wax was in the bladder, but gave rise to no symptoms. Examination of the urine was negative. The mass was easily seen by means of the cystoscope. The wax had been inserted into the urethra, previous to intercourse, for the purpose of preventing pregnancy, and slipped into the bladder whilst performing the sexual act.

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