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.

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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