STATED MEETING, HELD MARCH 7, 1910

The President, Dr. Robert G. LeConte, in the Chair.

FRACTURE OF THE PATELLA TREATED BY SUBCUTANEOUS PURSE-STRING SUTURE.

Dr. John B. Roberts presented a man to demonstrate the result of the treatment of a fracture of the patella by a subcutaneous purse-string suture (Fig. 1).

He said that two or three times in discussions in regard to the suturing of the patella he had mentioned this method, but never found any one to believe in it but himself, so he had brought this man to prove how satisfactory it is both to the patient and to the operator. It can be done without general anæsthesia, although it is better to give ether, because then the muscles are fully relaxed, and one can press the fragments more closely together with the fingers. By rubbing them together when they are in apposition the edges of the capsule may be displaced from between the fragments. After getting them together, put the wire or string around the bone and then have a skiagraph taken. The apposition is apt to be a little imperfect, but the union becomes so good that for all practical purposes it is as good as the result obtained by the open operation.

This is not Barker's operation, for he passed the ligature around the bone in the sagittal plane, going through the joint and back under the skin over the top of the patella and tied. The method described is a purse-string suture in the coronal plane, going around the bone by passing through the ligamentum patellæ, catching the tendinomuscular tissues on both sides, and traversing the muscle just above the bone. It thus, when tied, draws the fragments together. It is satisfactory for a man who does not like to give his patient too great a risk, and who is not afraid of aseptic subcutaneous work or of the string breaking.

It is wise to make four punctures through the skin and deep fasciæ at the points of exit of the needle, so that the ligature when tied may sink into the muscular structures and closely grasp

the adjusted patellar fragments. The leg should be kept extended for three or four weeks. Then the ligature is removed by cutting the knot with fine pointed scissors and withdrawn. Later careful passive motion is made. Dr. Roberts found the method satisfactory for a number of years past. It is described in Jacobson's operative surgery as used by the speaker.

Dr. John B. Deaver said that he wished particularly to argue against the Barker operation in fractures of the patella. It is no better than a Malgaigne hook or plaster of Paris. If one aims to have bony union, the fragments of the capsule must be gotten rid of, and that is possible only by open operation which allows inspection and exact manipulation.

Fig. 1.

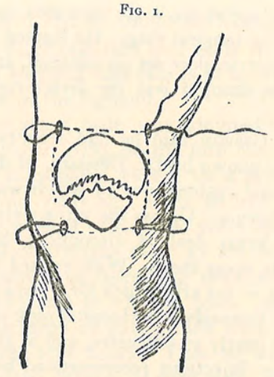

Diagram of purse-string method of treating transverse fracture of the patella.

Dr. Henry R. Wharton said that the operation done by Dr. Roberts is to his mind practically a modification of Barker's operation, which enjoyed a certain amount of popularity years ago, but which is seldom done at the present time. His reason for feeling that these operations are not satisfactory is that his experience in opening the knee-joint in operating on fractures of the patella has shown him that in many cases the lower fragment is so drawn out of place that the articular surface is often turned upwards so that it comes in contact with the fractured surface of the upper fragment, and he also does not believe very

close approximation can be got in the presence of a large blood-clot, which is another objection to this method of operation. Excepting in such a special case as the one presented, it is better to do the open operation for bringing the fragments into close approximation.

EXTENSIVE ANGIOMA OF THE UPPER EXTREMITY; VARICOSE VEINS SIMULATING A FEMORAL HERNIA.

Cases of the affections named were presented by DR. DUNCAN L. DESPARD.

DR. WILLIAM J. TAYLOR said that some years ago he reported an instance of a woman who had worn a truss for a number of years for what she had been told was a femoral hernia. She had no varicose veins anywhere. He operated on her and found varicose veins at the femoral ring. He ligated them and she did very well until a gastric ulcer set up mischief, and she finally died of a clot which he thought was the direct result of the gastric ulcer.

DR. JOHN H. GIBBON said he had seen two other cases, in addition to the one shown by Dr. Despard, of dilated veins in the femoral and inguinal regions, one of which was sent to the hospital as a case of hernia. Unless the veins were growing or were giving rise to a great deal of discomfort, he would not feel inclined to operate upon them. With regard to the case of the extensive angioma of the arm which Dr. Despard had shown, this patient was in the Pennsylvania Hospital nine years ago when the condition was not nearly so extensive, and at that time Dr. Harte tried the hot-water injections recommended by Wyeth. One of the interesting features in this case is the marked atrophy of the bones of the arm.

DR. HENRY R. WHARTON recalled a case at the Children's Hospital some years ago. The patient, an infant about one year of age, had an extensive angioma involving the shoulder and extending out into the pectoral muscles, which he attacked with the galvanocautery. A very fine Paquelin point was made and applied, heated, at a number of points; the case was under treatment for several months and finally got well. Of course, if this had been allowed to go without treatment, it would probably have developed into a condition much like that of Dr. Despard's patient.

DR. A. P. C. ASHHURST, referring to the case of angioma, said that nearly four years ago he showed before the Academy a 12-year-old girl with an angioma quite as extensive in area but not nearly so large as this boy's, and the Fellows thought then that the prognosis was rather gloomy; but he had hunted her up recently and found that she is much better. The swelling is not so great when the arm hangs down, and she has developed very well, although the upper extremity is two inches shorter than the other one. Therefore, in the light of the improvement in his own case, he should give a more favorable prognosis in Dr. Despard's case and should be inclined to leave it absolutely alone. The boy says he can use this hand as well as the normal one, and experiences no handicap at his work.

VOLVULUS OF THE SIGMOID.

DR. EDWARD B. HODGE said that aside from the comparative rarity of sigmoid volvulus, this case is of interest from its history and from the size of the sigmoid.

J. K., aged 60 years, male, was admitted to the Presbyterian Hospital in November, 1909, on the fifth day of the attack. He had always been constipated, except for a few months six years ago, and again four years ago, when he had three to four very loose stools a day without pain. Two years ago he began to have attacks of partial obstruction three to four times a year. For two days there would be increasing tympanitis, no passage of flatus, slight colicky pain in left iliac fossa, radiating toward the umbilicus, and discharge of watery fluid from the rectum several times in the twenty-four hours. Then he would take a purge, and obtain relief after passage of very large, soft stool and much flatus; appetite good always.

Present attack was identical for two days, except that anorexia was present. There was no result from the usual purge on the third day. The distention became worse, with pain present but not increasing. On the fourth day he consulted his physician, who could find nothing pathological in the abdomen, and ordered a dose of castor oil. This was without effect, and the distention steadily increased. On the fifth day his doctor gave him a two-quart enema, which was retained. Two hours later this was repeated, with the same result. Later another injection was returned as fast as given. Vomiting, which had been absent, now began, and he was brought to the hospital at 8 P.M.

His general condition was fair. Temperature 99.8°, pulse 120, respiration 24. There were extreme symmetrical distention, tense abdominal walls, through which nothing could be felt; no rigidity; slight general tenderness and dulness in the flanks, particularly the left. Peristalsis was absent. Rectal examination showed nothing but a much dilated rectum.

Left inguinal colostomy incision was made under ether. Slightly distended small intestine and descending colon presented. The obstruction was felt at the pelvic brim, and an enormously dilated sigmoid was lifted out. This was so large and the mesentery so long that the one loop of bowel had caused most of the distention. It extended to the liver and ensiform cartilage. The bowel was twisted from right to left through 360°. The twist was released, and bowel wall and mesentery found in good condition. There were no signs of adhesions or inflammation. With the loop hanging well over the edge of the table, a large quantity of gas and fluid was evacuated by incision. This was closed in the usual manner and the sigmoid returned to its proper place. The abdominal wall was closed by layer sutures without drainage. The patient's general condition was not thought good enough to warrant any procedures to prevent recurrence of the attack.

The patient made a smooth recovery and has been in excellent condition ever since.

Volvulus is generally credited with 3 to 4 per cent. of intestinal obstructions. Recent observations tend to give a higher percentage. While the present is the only instance of volvulus recorded at the Presbyterian Hospital in the last ten years among 61 intestinal obstructions, 57 operations at the Pennsylvania Hospital in the last five years give 7 of volvulus, 3 being of the sigmoid. This case is a fairly typical example of the recurring or subacute type. Careful attention to the history will often show symptoms extending over a term of years. This patient had six or eight attacks of partial twisting in two years. One of Bloodgood's [1] cases had thirty-two attacks in sixteen years.

The important factors in etiology seem to be: (1) constipation; (2) long mesentery; (3) approximation of the foot-points of the loop; (4) adhesions; (5) age, 40 to 60; (6) male sex, 80 per cent. It is generally held that the drag of a sigmoid overloaded with gas and fæces elongates the mesentery of its pelvic

[1] ANNALS OF SURGERY, 1909, xlix, 161.

portion, and so favors twisting. If, in addition, the foot-points of the loop are close together, volvulus is still more liable. The size and weight of these distended loops are hard to believe until seen. In his case he believed that most of the first two enemata passed into the sigmoid and were retained there, the weight then serving to increase the twist and make tighter the obstruction.

Why the proportion of male to female should be 4 to 1 is hard to understand, if constipation plays much of a rôle. Perhaps an elongated mesentery on the pelvic sigmoid is more frequent in the male, though the speaker could find no studies throwing any light on this or any other anatomic difference in the sexes.

High enemata in the knee-chest position will often relieve partial sigmoid volvulus. This failing, laparotomy, with untwisting of the volvulus and evacuation of the bowel by a rectal tube or incision, is demanded. To prevent recurrence, said to be usual, the sigmoid may be sutured to the lateral pelvis wall, or the mesentery folded on itself parallel to the bowel. Resection of the loop will be required for gangrene.

ULTIMATE RESULT OF EXCISION OF THE ELBOW-JOINT.

DR. H. R. WHARTON presented a woman, aged 50 years, whose left elbow-joint he excised fifteen years ago, for disability resulting from a fracture of the condyles and posterior dislocation of the bones of the forearm at the elbow of some months' standing. The patient did well after the operation and in a few months had good functional result. The functional result after fifteen years is good.

Dr. Wharton added that the principal point in obtaining a good result in excision of the elbow-joint is to remove the ends of the bones freely, and to begin passive motion not later than the third week. In excising the elbow-joint he also endeavored to retain the attachment of the triceps muscle to the ulna so that the patient will have more than gravity extension of the forearm. He divides the tendon of the triceps and divides the attachment of the triceps to the olecranon and periosteum from the bone to a point below the bone section, and finally after the excision of the bones is completed unites the severed tendon by sutures. This procedure seems to give the patient better power of extension of the forearm.

Dr. G. G. Davis, in commenting on excisions at the elbow, called attention to one point in the structure of the part. In fracture of the patella, the amount of separation is practically dependent upon the extent of the tear in the tissues on each side of the patella. The olecranon in the upper extremity is the homologue of the patella, and the olecranon, like the patella, has a fascia extending to the sides, which in a fracture of the olecranon will tend to hold it in place provided it is not too widely torn. The internal condyle lies close to the olecranon and between them runs the ulnar nerve and the fascia. There is a distinct fascia going from the side of the olecranon continuous with the tendon of the triceps and the internal condyle, but the distance is so short and this fascia so loose that it does not bear an important part in resections. When it comes to the outer surface of the joint from the external condyle to the side of the olecranon is a considerable distance, and if one traces down the tendon of the triceps he finds it inserts not only into the olecranon but passes as a broad sheet between the external condyle and the olecranon to be inserted into the upper one-fourth or one-third of the posterior surface of the radius, hence it is that when this is not divided in resections of the elbow-joint one frequently gets good results. It is obvious that one must expect a certain amount of weakening in the power, because an inch to an inch and a half of bone has been removed.

Dr. John H. Jopson said that he had recently practised a method of preserving the attachment of the triceps in excision of the elbow, which he saw described some time since. It consists in sawing through the olecranon transversely, about one and a half inches below its tip, and turning the detached portion upward, with the tendon still attached. An excellent exposure of the joint is thus obtained. In traumatic cases where the olecranon is uninjured there is no necessity for removing any portion of it. In tuberculous cases the under surface if diseased can be removed by sawing off a slice. After concluding the operation of excision, the olecranon is dropped back and wired to the ulna.

PNEUMOCOCCIC PERITONITIS.

Dr. Henry R. Wharton presented a girl, aged 8 years, who was admitted to the Presbyterian Hospital May 22, 1907, with the history that one week before her admission she suffered from

abdominal pain, fever, and cough. She was seen by her physician, Dr. Ellinger, the day before her admission, who found her with a high temperature, pneumonia of the right lung, and a tender and distended abdomen.

When examined after admission her temperature was 103°, pulse 140, respiration 40. There was pneumonia of the right lung. The abdomen was moderately distended, rigid, and tender on pressure.

Under ether anæsthesia an incision was made over the region of the appendix, and when the peritoneum was opened a quantity of thick, yellow, odorless pus escaped. This purulent fluid seemed freely distributed through the abdomen and the pelvis. The appendix was normal in appearance; it was removed. Gauze and rubber drainage was introduced into the abdomen and into the pelvis, and the wound was partially closed by sutures.

An examination of the pus found at the time of opening the abdomen showed a pure culture of pneumococcus.

The day following the operation pneumonia of the left lung developed. The patient was critically ill for some weeks, and there was free discharge from the abdominal incision. The patient finally recovered and was discharged from the hospital in August. At the present time she is in good health.

Dr. Wharton remarked that pneumococcic peritonitis may exist as a primary or secondary affection. In the former case it is due to the primary idiopathic infection of the peritoneum by the pneumococcus; and in the latter arises from the infection of the peritoneum by the same organism in the course of pneumonia, pleurisy, or meningitis. A study of 74 cases of this affection by Savestre and Aubertin showed that the disease was primary, that is, the chief or only focus of pneumococcic infection, in 47 cases. In 140 cases of peritonitis examined bacteriologically, Netter found this form of infection only in two cases. Rollerston considers it a comparatively rare disease, although a number of cases have been reported by individual observers. Jansen has collected 106 cases of pneumococcic peritonitis.

Primary pneumococcic peritonitis is considered by Comly to be more frequent in children than in adults. Rollerston considers the disease primary in about one-half of the cases observed. All observers agree as to the greater frequency of the disease in childhood. Under 15 years of age the disease is much more

commonly observed in girls than boys; according to Armand and Bowen, who collected 91 cases, the proportion was 3 to 1; while after this age its occurrence was equal in the two sexes.

When secondary, the disease may follow pneumonia, pleurisy, pneumococci gastro-enteritis, or appendicitis. The comparative rarity of the development of pneumococcic peritonitis in pneumonia is well shown by Rollerston's statistics: in 4454 cases of pneumonia, peritonitis was found only in 11 of the fatal cases, 0.025 per cent. The same authority points out the following channels through which the bacteria reach the peritoneum: (1) the blood stream; (2) stomach, intestines, and appendix; (3) pleura, through the diaphragm; (4) the Fallopian tubes.

While the disease may be primary or secondary, it is probable that hæmatogenic infection plays a most important part in its development.

Pneumococcic infection of other serous membranes may occur in addition to that of the peritoneum, especially in young children. The onset of the disease is sudden. The symptoms are abdominal pain, fever, and vomiting; these symptoms are so similar to those of acute appendicitis that the conditions are likely to be confounded. The acute symptoms may subside or become chronic, and the condition may resemble typhoid fever or tubercular peritonitis. Nutall describes two types of the affection: the acute, fulminating, diffused form, which is often fatal; and a form in which the onset is acute, but the progress is slow, which leads to the formation of a localized abscess. The lower abdomen is usually involved, and in a large majority of the cases this purulent collection becomes encysted, and the abscess occurs in the region of the umbilicus and tends to point. According to Armand and Bowen recovery followed in 86 per cent. of encysted cases and only in 14 per cent. of cases presenting the diffused form of the disease.

In view of the good results obtained in peritonitis by incision and drainage, it would seem wise to subject cases of pneumococcic peritonitis as early as possible to the same treatment. In the diffused cases, in addition to incision and drainage, the Murphy method should be employed. In the encysted cases, incision and drainage only would be required. Nutall recommends in the diffused form of this disease, if the diagnosis is made sufficiently early, the use of antipneumococcic serum and a trial of the vaccine method of treatment.

VALUE OF TENOTOMY IN SOME CASES OF FRACTURE OF TIBIA AND FIBULA.

Dr. Henry R. Wharton said that in February, 1910, he was asked to see a lady in a town about 40 miles from Philadelphia, who had sustained a fracture of the tibia and fibula near the ankle-joint, in which it was found difficult to correct the deformity. The injury had occurred ten days before he saw her.

When he examined the patient, he found the limb much swollen, the foot flexed and drawn backward, simulating the deformity of a posterior dislocation of the ankle, and a marked projection of the lower end of the tibia above the ankle-joint.

The limb had been treated in a fracture-box, and there was a gangrenous spot the size of a dollar over the point of the heel. The deformity had been reduced on several occasions, but each time it had recurred.

She was sent to the Presbyterian Hospital the following day, and a skiagraph taken, which showed a fracture of the internal malleolus, a fracture of the lower end of the fibula, and a posterior displacement of the astragulus, which carried backward with it the foot and the fragments of the tibia and fibula.

After being etherized, it was found that by extension and manipulation only a partial correction of the deformity could be obtained. He therefore divided the tendo-Achillis subcutaneously, and was then able to reduce the fragments and correct the deformity completely. The limb was held in the corrected position and a plaster-of-Paris bandage applied, with provision for trapping over the gangrenous spot in the heel.

The patient did well after this, and was discharged from the hospital in eight weeks, with firm union and the bones in good position; she walked well and had normal motion at the ankle-joint.

Dr. Wharton said many cases of fracture of the tibia and fibula occur in the location of the one just reported, in which the deformity is not very marked; but occasionally the deformity described above is met with. It is possible that in such cases there has been extensive laceration of the anterior tibial-tarsal ligament and lateral ligaments, in addition to the injury of the bones.

He had had in his own practice four or five cases of fracture

of the tibia and fibula near the ankle-joint, where it was impossible to correct the deformity by ordinary methods, in which he had resorted to tenotomy of the tendo-Achillis to assist in the correction of the deformity. In all of these cases the result was eminently satisfactory, both as to the correction of the deformity and the subsequent use of the limb.

Dr. G. G. Davis remarked that when the leg bones are broken, usually the upper fragment projects forward and the lower fragment is carried backward. The preponderance of muscles is posteriorly and renders this displacement marked and persistent. If one eliminates the muscles of the calf we have the muscles practically balanced. The muscles of the leg are practically of four sets, an anterior extensor set, comprising the anterior tibial, the extensor hallucis, and the extensor communis, and a posterior set, the posterior tibial and flexors of the toes and of the big toe; three abductors; the peronei muscles are on the outside and anteriorly and hardly take much part in flexion and extension, but the muscles of the calf, the gastrocnemius, soleus, and plantaris, have nothing to oppose them, therefore after dividing the tendo-Achillis there remain three muscles on the front and three on the back. The first thing to do in treating these displacements is to get rid of the action of these calf muscles, and by placing the leg in the Potts position (flexed on its outside) it is often easy to bring the foot into place. The use of adhesive plaster extension is likewise successful in some cases, but in a certain proportion of cases both these methods will fail, and then one is confronted with two propositions, one being to open up the fracture and bring the bones in apposition, wiring or fastening the fragments in place, and the other is the division of the tendo-Achillis. Of course, the division of the tendo-Achillis is the less dangerous of the two and it is very efficient. He had employed it for many years, but the question has always remained in his mind as to whether or not the division is accompanied by a permanent weakening of the functions of that limb. If one operates by open section and deliberately replaces the bones, fastening them with wire, the leg is practically normal again. If one divides the tendo-Achillis, when the patient gets well his bones unite and he has a good looking limb, but to what extent do these calf muscles regain their original strength?

Dr. Robert G. LeConte agreed with Dr. Wharton that in

the type of fracture which he showed, division of the tendo-Achillis is the expedient form of treatment. He had done it three or four times with good after results. There is always some atrophy of the calf muscles following, as there is after a traumatic rupture. In two cases he had seen of rupture of the tendo-Achillis from muscular violence, the limb in each instance has recovered perfectly from a stand-point of usefulness, although never coming back quite to the original measurements; so much so, that the patients are unaware now on which side the rupture occurred.

CALCULOUS CHOLECYSTITIS.

Dr. John H. Girvin reported the following cases:

Case I.—A woman, age 40 years. Healthy until age of 17, when her child was born. Was never well after that. Seven years ago was operated for pyosalpingitis.

Present Illness.—Seven months ago had a severe attack of pain in epigastrium. Recovered in two weeks but soreness in right side continued for several weeks. No jaundice. Three weeks before admission a similar attack associated with severe vomiting, which improved under diet and treatment but did not clear up. This became much worse two days before admission to Presbyterian Hospital on January 12, 1910, at which time she was suffering severe pain. Had inspiratory catch. Upper abdomen very rigid and exquisitely tender. Three days later the pain had disappeared but some tenderness and rigidity remained, which gradually diminished until it was possible to outline a distended and tender gall-bladder.

Operation (January 22, 1910).—Vertical incision through edge of muscle. Gall-bladder exposed only after breaking up many adhesions. Incised and evacuated a clear thin fluid like bile, followed by thick creamy pus. At the beginning of the cystic duct was found a single stone the size of an ordinary marble which was removed with a curette. Uneventful recovery.

Case II.—Woman, aged 37. Two years ago after typhoid had a dull heavy pain in back which became severe and cramp-like and moved along the right costal margin to the region of the gall-bladder, where it became very severe, causing vomiting. Next day all pain gone but very sore and weak. Six or eight months later had a similar attack but more severe and longer. Up to admission patient has had five such attacks—each more

severe and at shorter intervals. Last attack three weeks before admission. Never jaundiced; bowels moving by medicine since last attack and apparently normal.

When admitted there was no marked tenderness over gall-bladder region, and the gall-bladder could not be palpated.

Operation (February 5, 1910).—Vertical incision at edge of rectus. Liver seems freely movable downward, and under the edge of liver, bound up in a dense mass of old adhesions, was found a small thick-walled gall-bladder, to the lower edge of which was a dense adhesion to the bowel which resembled a fistulous tract but contained no opening. This was separated and only the necessary adhesions broken up. The gall-bladder was opened and a culture made of the clear non-purulent fluid. This showed a pure culture of the typhoid bacillus. A stone exactly like that in the previous case was removed from the same locality. Drainage tube inserted and an attempt made to invert edges, but this was very difficult on account of the thick walls of the gall-bladder and its very friable condition. Packing removed and a small gauze drain inserted to the region of the intestinal adhesion. Recovery uneventful but for bronchial irritation for first three or four days—temperature 101°.

Case III.—Woman, aged 59 years. About two years ago struck her side on edge of table and was very sore for some time. After this, began to notice a swelling in region of the gall-bladder which was almost constantly sore. Had symptoms of indigestion but no vomiting and no distinct jaundice, although there is some cachexia. Her general health seemed to fail and she became so weak that she has been in bed for past three months. Came to city about two weeks ago and has since been under the care of Dr. Somerkamp, who made the diagnosis of gall-bladder disease.

Operation (January 5, 1910).—Incision was made along right rectus. Gall-bladder found enlarged and walls thickened; full of all size stones. One apparently in the common duct. It required a large incision in the thick and friable walls to get out the large stone, which measured 1½ inches long. Drained as in other cases. Operation prolonged and patient in poor condition and rather shocked. Color very poor. At end of twenty-four hours, temperature 102°, pulse poor, and not much drainage. January 7, slightly better but some evidence of congestion over

base of right lung—later in day had an attack of heart failure but rallied. Lung condition progressed. Wound doing very well. Bowels moved freely and no distention. Lung and heart condition grew worse and she died at the end of two weeks from the heart and lung condition. She had been septic and with a myocarditis for several months and was in very bad condition at time of operation.

Dr. Girvin remarked as to diagnosis in these cases: In the first case the condition was plain. The local tenderness was unusually marked. From the literature it seems that the order of frequence of the bacterial cause of cholecystitis is as follows: (1) colon bacillus; (2) staphylococcus; (3) streptococcus; (4) typhoid; (5) pneumococcus, and after that a number of other varieties, but he was inclined to think that typhoid should be higher in the list. Cushing found that 10 in 31 cases had had typhoid. Flexner and Chiari found the typhoid bacillus in the bile in almost all cases dead from typhoid. It is interesting to note that the bacillus has been found in the gall-bladder operated upon seventeen or eighteen years after an attack of typhoid fever (Droba and Hunner). The infection of the gall-bladder may come either through the blood or from the intestines by the ducts (although this method has been questioned), but the source, while it may be anywhere in the body, is usually from the intestines.

In the second case the cause was plainly typhoid, and the picture was typical of a chronic cholecystitis. He was at a loss to suggest the cause in the third case and was not sure that there was not a malignant process associated with the chronic gall-stone disease. None of these cases has had jaundice.

As to the technic of operation, he had followed the incision used by Bevan parallel to the muscle. Pack off very carefully and do not break up old adhesions more than possible. He had drained with a fairly large rubber tube wrapped with gauze and rubber tissue and stitched to the inverted edges of the gall-bladder with plain catgut. Drain into a sterile bottle (bile excoriates skin). He had usually tried to attach the peritoneum to the gall-bladder and closed with silkworm gut interrupted sutures, using small gauze drains at either side of the tube. The tube usually comes out very easily by the ninth or tenth day and the wound will close soon if the gall-bladder edges are inverted.

This method of operation seems best adapted to this class of cases.

Each of these cases had impressed him with how easy it is to overlook a stone and how thorough and careful the search in the ducts should be. The complication of a recurrence of the symptoms from an overlooked stone is not uncommon.

Dr. John B. Deaver said that gall-stones play an important rôle in connection with disease of the upper abdomen. But in more than 700 cases of acute intestinal obstruction he had met with but 2 cases of intestinal obstruction due to stone in the small bowel. It is his experience that more cases of obstruction of the cystic duct are caused by single than by multiple stones.

The typhoid bacillus plays an important part in the causation of cholecystitis. In his cases he had found that the colon bacillus had been more common than the typhoid bacillus; then the pyogenic organisms, and then the pneumococcus is the order of infection. The avenue of infection is most commonly through the portal circulation. He had had two interesting cases in this connection, bowel resection following femoral hernia; one in which the gall-bladder perforated, and both operated on for that condition. In these cases it was evident that the infection reached the gall-bladder through the portal circulation.

With regard to the question of recurrence, he had operated in many instances where it was problematical whether there was stone or not, and in practically all he found the recurrence of pain due to adhesions. He recalled one case in which a recurrence occurred in six weeks, jaundice, violent pain; he opened this patient's belly and all she had was adhesions; she is well at the present time. He had seen a number of instances of that character. He was glad that Dr. Girvin did not excise any of his gall-bladders. He excises a portion but rarely the whole organ. He was convinced, however, that men who take out the greatest number of gall-bladders are the men who see the smallest number of cases.

The question of technic as presented by Dr. Girvin is very good, but he could not endorse stitching the gall-bladder to the parietal peritoneum. He drops all his gall-bladders, putting in a purse-string suture, and inverting the edges. In some he placed a cigarette drain down to the gall-bladder.

Regarding drainage, he uses a cigarette drain in connection with the tube that is in the gall-bladder secured by purse-string suture. He elevates the foot of the patient's bed so as to confine the fluid to the field of operation. If there is oozing he passes a glass drainage tube down to the subhepatic fossa.

Dr. John H. Jopson said that he saw all of the cases reported by Dr. Girvin. The most interesting was the case in which there was a history of typhoid fever two years previously. She had a very movable right kidney, and her attacks of pain had been attributed by one medical consultant to twisting of the pedicle. On operation the picture of chronic cholecystitis was typical, there being very firm adhesions to the bowel, one so dense and large that a fistulous communication with the intestine through it was looked for but none was present. In connection with the subject of cholecystitis, he could report a case of acute cholecystitis developing during convalescence from operation for appendiceal abscess, a rare complication, examples of which have been reported by H. R. Wharton and others. The patient was a woman, 55 years of age, with an abscess of appendiceal origin which had been drained and the appendix removed three weeks before. The onset of inflammation in the gall-bladder was acute, with pain, fever, and gastric disturbances, followed by development of a palpable swelling. The gall-bladder was drained a week later, four weeks after the operation for appendicitis, and contained much pus but no stones, and a pure culture of *Bacillus coli* was obtained. The patient recovered.

Dr. John B. Shober agreed with Dr. Girvin that the typhoid bacillus is responsible for a larger percentage of cases of calculous cholecystitis than is generally admitted.

If the nuclei of all the stones removed from any one case are carefully examined, pure cultures will be found in one or more stones and may be absent in all the others. Hence the importance of examining all the stones before a negative report can be made. He was convinced that many cases are overlooked when this rule is not observed. Such cultures are found many years after the occurrence of typhoid fever.

In operating upon these cases, the most important consideration is to secure free drainage not only of the gall-bladder but of the ducts. When this is properly accomplished by means of large calibre tubes, as a rule stones which were not removed or which were overlooked at the time of operation will pass later.

Experience had taught him to avoid cholecystectomy except in rare cases.

CYSTIC DISEASE OF THE BREAST.

BY WILLIAM J. TAYLOR, M.D.,
OF PHILADELPHIA.

DURING the past few years I have had under my care 26 cases of disease of the female breast in which some form of cystic degeneration had occurred, and one case of cystic disease in a male breast. During the same period I have had 28 cases of primary carcinoma of the breast.

I have not included in this list certain other cases of disease of the breast, such as fibroma, adenofibroma, and sarcoma, nor some cases which I have seen in the practice of other surgeons and of whom I have no definite records.

Of these 26 cases of cystic disease, 13, or just 50 per cent., had undergone some form of carcinomatous degeneration at the time of operation. It will therefore be seen that of the whole number there were nearly as many cases of cystic disease as of primary carcinoma in the proportion of 26 to 28, and that of these 26 cases one-half showed unmistakable evidences of carcinomatous degeneration. Several of these had had cystic disease for many years, in one instance for 17 years, and finally at operation cancerous changes were found.

This patient, a trained nurse, was under my personal observation for six years, but would not listen to the question of operation. At times the breast would show distinct evidence of enlargement, and cysts could be easily palpated, while a short time afterwards all evidence of disease would disappear and the breast feel perfectly normal. This was so unusual that for two years, from 1902 to 1904, I made frequent diagrams for record which show that a tumor could be felt in one portion of the breast at one visit and entirely disappear at the next, while later it would reappear in a totally new position. This patient first noticed the breast swollen or lumpy in 1886, with

various degrees of pain and discomfort for two years, when all signs of trouble ceased, and it was not until 1899, or eleven years afterwards, that she again had trouble with it. Again it became normal and remained so for three years, or until 1902. During 1902 and 1903, as I have just stated, she was under my personal observation, and it was then that the diagrams were made. Finally, in 1904, a distinct mass in the upper outer quadrant became pronounced, fairly dense but elastic, and the patient consented to operation.

Microscopic examination showed a cystic breast, and the wall of the largest cyst was carcinomatous. The report was cystadenofibroma with beginning hard adenocarcinoma.

Very fortunately she has had no recurrence and is well to-day, six years since the breast was removed.

Of the 13 cases in which carcinomatous degeneration had occurred, six had cystic disease of both breasts, and a double operation was performed. In five of these one breast was found to be carcinomatous and the other simple cystic disease, while in one case both breasts were carcinomatous. In two of these cases, an aunt and a niece, both breasts were cystic, one of each being carcinomatous, and there had been ten members of their immediate family afflicted with carcinoma in some of its various forms.

My object in presenting this short paper is to emphasize the fact that in my personal experience of 26 cases of cystic disease of the breast, 13 or just 50 per cent., were carcinomatous at the time of operation. I wish to put on record in the strongest possible language that can be used, my belief that all forms of this disease are dangerous, and that certainly one-half of such breasts will sooner or later undergo degenerative changes which will threaten the life of the patient. I know that many writers speak as though cystic disease was a trivial affection and one which does not demand prompt surgical intervention, but this does not agree with my own experience. When a cystic breast which has remained quiescent for a period takes on renewed activity, it is almost certain to be carcinomatous.

Treatment.—At one time I was quite favorable to Dr. Warren's method of operating, by which the gland is turned up on the chest and a wedge-shaped piece taken out which should include the cysts. Certainly, in a few well-selected cases, where the cysts are few and the period of the disease early, this is sufficient. It permits of a thorough examination of the breast, and does not produce the mutilation which a total amputation of the breast entails. Many young women will consent to this who would absolutely refuse the more radical procedure. With increasing experience, however, and after careful study of the history of my cases, I am more and more disinclined to accept this method as in any way adequate to insure the safety of the woman who is so unfortunate as to possess a cystic breast. I now make it a rule never to perform this without having the permission of the patient to do a more radical and thorough operation if I find the disease more extensive than I had originally believed it to be.

In operating, the whole gland should be removed with a wide area of skin, all glandular and fatty tissue removed from the axilla, and the fascia of the pectoral muscle taken away. The muscle itself I do not as a rule remove unless the tissues of the breast appear macroscopically uncertain.

I am so confident of the value of the X-rays in destroying carcinomatous cells and in at least retarding a recurrence of the disease, that I believe they should always be used as a prophylactic measure. Administration by a competent man twice or three times a week until ten or twelve treatments have been given, this to be repeated in three months, and again in nine months, adds materially to the safety of the patient.

When malignant changes have occurred, I believe the use of the X-rays is imperative, and their use should never be omitted. In two of the cases in my series local recurrences took place several times, the primary operation having been performed by other surgeons, probably being insufficient in extent, and finally Beatson's operation, of ovariotomy, was done. One of these patients lived for 13 years. The other, upon whom I operated in September, 1901, is alive and perfectly well to-day. In this latter case the X-rays have been employed twice a year, while in the former case they were not.

I have purposely not gone into the pathological histories of these cases, but confined myself to the clinical aspect of the disease, because Dr. John Speese, in the paper which he read at the meeting of this Academy in November, 1909, has covered the ground admirably and fully.

Dr. John H. Gibbon said that he would practice complete removal of the breast only under the following circumstances: first, where cystic disease has existed for a long time; second, where there are multiple cysts; and third, where there is recurrence after operation. A single large cyst of short duration demands the Warren operation. It is only after these cysts have existed for a long time that the malignant change takes place. Thirteen out of twenty-six is an enormous percentage, and he would like to know, if possible, how long the cases which were not malignant had existed before operation, and how long the condition had existed in those which were found to be malignant, as this might help to prove the assertion regarding the duration. He had had only one case of malignant cyst, although many of cystic disease in the last few years. This one in which a malignant change took place was a case of multiple cysts of both breasts with complete removal of both breasts and no recurrence after three or four years. McGraw and Abbe recommended the evacuation of these cysts with an aspirating needle and he has done this in three cases without any recurrence. He would not, however, recommend this method of treatment.

Dr. John B. Deaver thought every woman who had a tumor in the breast was a case for immediate operation. At the German Hospital, where from 75 to 100 cases a year are operated upon, he had often been surprised in cases which he considered simple cysts to have the pathologist's report come back stating that malignant change had taken place. Consequently in more recent years they had made it a rule to have every case examined immediately at the time of operation. In a certain percentage of cases the report comes back in five or six minutes of a malignant change, and then he removes the breast.

Dr. John Speese said that the very high per cent. of malignancy occurring in Dr. Taylor's cases was rather surprising in view of the fact that other writers have found that only 15 to 20 per cent. of the cases of chronic cystic mastitis become carcinomatous. He should be inclined, therefore, to think that Dr. Taylor's cases were seen at a more advanced stage of the disease or that he has included other varieties of disease in his collection. In reviewing the series of cases recently reported by Dr. Speese before the Academy, particular attention was paid to the possibility of a recurrence or malignant transformation in the cases in which plastic resection of the breast had been performed. In no instance had this complication arisen, so that he felt that the operation was safe in properly selected cases, and was especially desirable from the cosmetic stand-point, as the nipple and skin are preserved.

Dr. G. G. Ross said that he had on four occasions started out to remove a cyst by the so-called Warren operation and ended by taking out subcutaneously the whole gland, leaving just the fat, skin, and nipple. He found this very easy and perfectly practicable, and it left a good cosmetic result.

Dr. William L. Rodman said that he had always held to the opinion that cystic disease of the breast, if not malignant in a large percentage of cases, was at least potentially malignant, and no one could say what is to be the end result in any case of cystic disease of the breast. No one even at the time of operation can tell macroscopically whether the cyst has undergone carcinomatous change. The former teaching, that if the contents are clear the chances are altogether in favor of benignancy, is far from accurate and should not be followed. Halsted has made this very clear; the thin-walled cysts with perfectly clear fluid are oftentimes the most malignant forms of cystic disease. The only safe way to treat such cases is to have an examination made at the time of operation. He had used the frozen section method for seventeen years and in all that time had known but two mistakes to be made, and one of them by a person of little experience with frozen sections, and he always employed and depended upon frozen sections in every doubtful case. He was in accord with Dr. Gibbon's attitude as to the probable malignancy in cases where there are multiple cysts. On this account the operation of Warren is not always to be advised; this is a far more satisfactory operation where the cysts are single, but even where they are multiple and seem to be limited to a circumscribed portion of breast, one can afford to take the chance of the mistake being made by the frozen section and wait until a secondary report can be made. Halsted has, however, made this fact clear, that if one overlooks a malignant cyst at the time of the first operation and waits for a report in two or three weeks, the probabilities are that the whole wound has become inoculated; therefore such cysts oftentimes are the most malignant tumors to be found in the breast. He was very partial to Warren's operation; like all good things, however, it has limitations, and one should practise it only where there is a competent pathologist at hand to make a report.

As to the value of the X-rays following operations, he had changed his view entirely in recent years. Formerly he thought it perhaps best to supplement all operations by their use, but he never did so at the present time unless he thought the case a borderline one and that diseased tissue may have been left. He could see no reason why the X-rays should be used unless diseased tissue has been left, and in a complete operation this should not happen. Personally, he had not seen any abiding result from the use of X-rays in the case of carcinoma excepting in the superficial squamous epitheliomata which occur about the face and other parts of the skin. He had seen most excellent results follow the X-rays in sarcoma, not only of the soft tissue but in bones. In carcinomata the improvement has invariably been only temporary.

While he had recognized for years that the percentage of cases of cystic disease of the breast either primarily malignant or undergoing malignant change was a large one, he had not found it as high as reported by Dr. Taylor. This should make us most cautious in dealing with cysts in the breast.

Dr. George P. Muller emphasized the fact that the diffuse hyperplasia of the breast, commonly called chronic cystic mastitis, is a different disease from the malignant or cancer cysts. The previous speakers seemed to make no distinction between them, and if such distinction is not made he agreed with them that radical operation should be done in all cases of cystic disease of the breast. If one was familiar with the surgical pathology of the breast, and especially had had some years of experience in

the handling of specimens of this disease, checking up gross observations with microscopic examinations made from numerous places, one is able at the time of operation, in an occasional case, to determine whether or not the growth may be confidently considered to be benign. He, therefore, believed that radical operation should be the rule, but that occasionally it was possible to safely perform some such conservative operation as the plastic procedure described by Warren.

STATED MEETING, HELD APRIL 4, 1910

The President, Dr. Robert G. LeConte, in the Chair.

THE SURGICAL ASPECT OF EPULIS AND SARCOMA OF THE JAW.

BY JOHN SPEESE, M.D.,
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There are many conditions of the jaw the pathology of which differs to such an extent that surgical measures must depend necessarily upon the characteristics of the tumors or diseases in question. The relationship which exists between the class of growths termed in a broad sense "epulis" and other more malignant tumors is an important one. In this paper, attention will be directed only to the connective-tissue tumors of the jaw, and those derived from epithelial structures or the conditions due to faulty development of the teeth will not be considered.

The term epulis signifies a tumor springing from the gums, and although the word has been condemned justly because of the confusion its use has entailed, it has become nevertheless so thoroughly a part of the nomenclature of jaw tumors that it cannot be excluded. Probably the greatest difficulty has been experienced in keeping clear the relationship of the highly malignant sarcomata which, springing from the deep tissues of the jaw, pursue a more unfavorable course than the relatively benign sarcomatous epulides. It becomes necessary, therefore, to properly understand such distinctions in order to describe the varieties of epulides and the sarcomata.

Epulis was used originally to describe any tumor which had its origin in the tissues of the alveolar process of the jaws,