THE
Jacksonian Prize Essay
 FOR 1865.

ON DISEASED CONDITIONS OF THE
 KNEE-JOINT

WHICH REQUIRE AMPUTATION OF THE LIMB, AND THOSE CONDITIONS WHICH ARE FAVOURABLE FOR EXCISION OF THE JOINT; WITH AN EXPLANATION OF THE RELATIVE ADVANTAGES OF BOTH OPERATIONS, AS FAR AS CAN BE ASCERTAINED BY CASES PROPERLY AUTHENTICATED.

BY

WILLIAM PAUL SWAIN, M.R.C.S.,
 SURGEON TO THE ROYAL ALBERT HOSPITAL, DEVONPORT, ETC.

SECTION II.—MORBID CONDITIONS OF THE
 KNEE-JOINT. (*Continued.*)

*Diseased Conditions of the Bones forming the
 Knee-Joint.*

Acute Inflammation may attack the articular extremities of the femur or tibia, and may either involve their entire substance, or be confined to a small locality. It may arise in previously healthy tissue, or supervene on old and long standing disease. If acute inflammation attack the entire spongy portion of either of the bones, the symptoms are most urgent, and the results most disastrous. The disease commences with severe rigors, rapid pulse, hot dry skin and furred tongue, intense pain in the parts, with great swelling and hardness. Soon the swelling begins to soften, and suppuration takes place. Delirium sets in at an early period, and coma rapidly supervenes. The periosteum is found separated from the bone by a large deposit of pus; and the bone itself is soft, and infiltrated with pus. The muscular attachments are separated. The symptoms are so rapid, that it is difficult to determine at what exact period the joint becomes affected. That it is very soon involved and destroyed, there can be no doubt. Stromeyer states that he has frequently seen it arise in a joint affected with chronic inflammation, in which some accident had given rise to this frightful disease.

"The capsule of the joint is destroyed, the soft parts in the neighbourhood gangrenous; the ligaments, muscles, and cartilages have all detached from the bone; and the large cavity thus left is filled with brown putrid pus." (*Handbuch der Chirurgie*, 1en Band, s. 477.)

Dr. Klose gives seven cases occurring in young persons, where the lower epiphysis of the femur was separated during the course of this disease. Happily, so urgent a form of disease is of rare occurrence; but that, when it does happen, it requires the prompt and decided interference of the surgeon, there can be but one opinion. Acute inflammation may be limited to a portion of the cancellous structure. It may arise from direct violence, exposure to cold, etc. If it take place in the centre of the bone, it may result only in a circumscribed ne-

crosis, which becomes surrounded by a vascular membrane, and remains harmless for a very long period. In case this local lesion takes place near the joint, a process of *elimination* may be set up, terminating eventually in the discharge of the necrosed portion of the bone into the joint, with all the usual accompaniments of suppuration and fistulous openings.

Chronic Inflammation. Under this heading it appears to me convenient to class all hyperæmic conditions of the spongy textures of the bones entering into the joints which produce thickening of the bone or effusion of serum, and eventually may lead to suppuration and granular degeneration. Like the analogous disease in the synovial membrane, this chronic inflammation may assume different phases when under the influence of various constitutional disturbances. Thus syphilis, although it rarely attacks the joint-ends, and rheumatism, may each give to chronic inflammation its own peculiar tinge; whilst the strumous habit of body produces a condition of the parts so frequently met with, as almost to tempt one to place it apart from chronic inflammations, and assign to it a specific origin and place. Thus Barwell (*On Diseases of the Joints*) treats only of "Strumous Articular Osteitis", whilst Price (*On the Knee-Joint*) devotes considerable space to the consideration of "Tuberculous Disease" of the joint-ends. Bryant writes:

"I cannot for one moment doubt that the majority of cases which are described by surgeons as strumous or scrofulous disease of a joint, and of the articular extremities of the bones, depend upon a chronic inflammation in the bone." (*Diseases and Injuries of the Joints*, p. 72.)

I find that Price quotes this passage, but does not seem to me in any way to controvert it. In fact, Barwell, in his chapter on "Strumous Articular Osteitis", really admits that the disease to which he has given this name is simply a modification of chronic inflammation of the bone. Having pointed out that hyperæmia may arise in the joint-ends of young children, without inflammation being either present or following, owing to the nutritive activity of ossifying cartilage, he goes on to say:

"It is, however, certain that, in a given number of cases, the congestion predisposes to inflammation, and the merely passive is followed by an active condition. Thus inflammation may be set up in an epiphysal end which was previously in an abnormal state; and such, in the great number of cases, is the mode in which the disease now under consideration (strumous articular osteitis) commences." (Barwell, *Diseases of the Joints*, p. 224.)

In chronic inflammation, there is increased vascularity, not of the bone itself, but of the membrane lining the cancelli. On making a section of a bone thus affected, the entire surface presents an uniform dark purple hue, or, it may be, a mottled appearance. The plates of the cancelli become thickened; and an effusion of serum of a pinkish colour takes place into their cavities. As the disease progresses, this serous effusion is followed by diffuse suppuration; and at this stage the cut surface of the bone presents a dirty yellow aspect. The lining membrane of the cancelli now begins to granulate; the osseous walls become carious, and eventually are altogether absorbed, their place being occupied by a granular

mass, surrounded by the external shell of bone. During this period, the periosteum becomes thicker than usual, and, in the early stage of the disease, deposits new bone around the joint-end. Soon, however, pus is formed between it and the bone; it separates from the bone, sometimes dragging away with it flakes of osseous tissue, and leaving the surface rough and of a worm-eaten appearance. These cavities are filled with pus; the outer shell of bone is softened and broken down, and communications established with the interior. The articular cartilages, in the earlier periods of this disease, are intact; but, as it approaches the articular lamella, they become affected with fatty degeneration, are detached from the bone, and thrown into the joint-cavity. The synovial membrane soon participates; and if, as sometimes happens, a necrosed portion of bone be shed into the joint, violent suppuration and total disorganisation rapidly follow. The commencement of the disease is more insidious: there is a slight limping, hardly noticed; little or no swelling at first, and, if any, situated on one side of the bone only; very slight tenderness. Soon the enlargement of the joint by effusion takes place, and painful startings of the limb occur at night. Spasmodic contraction of the flexor muscles takes place; and the hamstring tendons draw the tibia upwards against the femur, causing acute agony, until, at a more advanced period, dislocation of the tibia backwards is the result.* Profuse suppuration is set up in the periarticular tissues; sinuses run in all directions; and pain, purulent discharge, hectic, and night-sweats reduce the patient to the last extremity.

In strumous children, this inflammatory condition of the knee-joint is very common, commencing frequently after scarlet-fever or measles.† Amongst the lower classes, who have neither the discernment to detect the early inroads of disease, nor the means successfully to combat it when it is discovered, we unfortunately constantly meet with knee-joints entirely destroyed; and the surgeon is frequently obliged to have recourse to some operative procedure, in order to save his little patient's life. It is to this particular class of disease that Price has alluded in his section on "Tuberculous Disease of the Articular Ends of the Tibia and Femur". He writes:

"Morbid deposits of true tuberculous material in the cancellous structure of the expanded ends of bone is, so far as my own experience goes, an affection of common occurrence."

Price's extended study of knee-joint disease, and the intelligence he brought to bear upon the subject, demand extreme deference to any opinions he may have enunciated; but I cannot help feeling that in this matter he was mistaken. I have never seen a case of pure tuberculous deposit in a joint-end; and I believe that the "gelatinous material" which Price describes as "*in every respect analogous to*

pulmonary tubercle," is nothing more than the granulations filling the cancelli which I have before described. The hyperæmic condition dependent upon ossification of cartilage becomes exaggerated occasionally, in strumous subjects, into an inflammation; and the weakened constitution is unable to arrest the mischief once set a-going. It is not needful here to describe the various symptoms attending the progress of this long and wearisome disease. We have to do only with the symptoms and treatment of its last and most fatal condition, and to this we shall recur in the proper place. In a case the particulars of which are given below, a cast of the joint being also sent in, I had lately occasion to amputate a knee-joint presenting all the features of so-called strumous osteitis. I regret that this preparation, together with another (the excised ends of a femur and tibia), has been lost; but it presented an admirable example of general inflammation of the articular end of the femur, with entire destruction of the joint-apparatus. I looked in vain for any deposit of tuberculous matter; but the microscopic appearance of the bone indicated profuse granular deposit, with absorption of the osseous walls of the canaliculi. In adults, the more usual course is to find this disease circumscribed to a spot in the centre of the bone, surrounded by condensed tissue. If the inflammation be more severe, necrosis of the bone takes the place of caries; and the necrosed portion is, as before remarked, sometimes extruded into the joint.

CASE. Margaret Bolt, aged 6, admitted under the care of the author, August 4th, 1864, with strumous disease of the knee-joint. One year and a half previously, the left knee-joint began to enlarge. In four or five months afterwards, an abscess formed and burst, leaving sinuses. Since then, wounds in various parts of the body had kept up a continuous drain.

On admission, she was seen to be a pale, badly nourished, strumous child, in a very cachectic state. There were two open wounds over the left elbow-joint. The bones of the third finger of the left hand were necrosed and destroyed. There was a wound on the back of the left hand, and four wounds on the right leg. The left leg was permanently bent upon the thigh at right angles; the knee-joint was greatly enlarged; and above and below were sinuses leading down to bare bone. On the left leg were several wounds.

Oct. 8th. Since admission, the child had improved in health. The third finger of the left hand had been amputated, and most of the wounds had healed. The left knee remained in the same condition. At a consultation of surgeons, it was determined to amputate the left thigh. Accordingly, to-day, the child being under the influence of chloroform, the author amputated the left thigh in the lower third by antero-posterior flaps. Several vessels were ligatured. Five silver wire sutures were inserted. The stump was dressed with wet lint only.

Oct. 16th. Since the operation, the patient had been very quiet. A morphia draught was given. She slept at snatches during the night. Her expression was natural; skin cool; pulse 160, feeble; tongue moist, slightly furred, with enlarged papillæ. Last evening, she was sick after the chloroform, and had no appetite. She took some bread and butter and tea for breakfast this morning. There was no oozing from the stump. The dressing was not removed to-day.

October 17th. She slept very fairly. Face flushed;

* A cast, showing partial dislocation of the tibia and enlargement of the end of the femur, accompanied the essay.

† Two coloured drawings illustrating this disease accompanied the essay. The first was from a specimen in the Westminster Hospital of the left knee-joint. A vertical section having been made through the outer condyle, patella, and tibia, showed the cancellous structure filled with cheesy matter and a large cavity produced by the breaking down of cancellous structure in the condyle. The second was from a preparation in the same museum, showing serofulous disease of the right knee. A vertical section of the inner condyle showed the cancellous structure to be filled with cheesy matter.

skin hot; pulse 130, very feeble; tongue furred, with enlarged papillæ, red at the edges. The patient slept at intervals, and started up screaming. The bowels had not been open since the operation. There was a discharge of offensive sero-sanguineous matter from the wound. The thigh and left labium were much swollen, red, and very painful. She was ordered to have sponges, wrung out of hot water, applied to the thigh; and water-dressing, soaked in Condy's solution, to the stump. She took three ounces of wine, milk, and strong beef-tea as much as she could make use of; and was ordered—

R. Ammonia sesquicarb. gr. i; æther. chlor. ℥v;
tinct. cinchona comp. ʒss. M. Fiat haustus
4tis horis sumendus.

Oct. 18th. She slept at intervals during the night. Expression anxious; face pallid; skin hot; pulse irregular, so quick and feeble as to render it hard to count accurately; bowels not acting; tongue furred. She took her wine and beef-tea. The edges of the wound were distended; there was free and very offensive sero-sanguineous discharge. The thigh was much swollen, but less so than the previous day; the redness had subsided. She was ordered to have a senna draught immediately.

Oct. 20th. She slept well, without a morphia draught. Skin cool; pulse 130, very feeble; bowels acting. There was less swelling of the thigh.

Oct. 21st. The silver wire sutures, owing to tension of the flaps, were cutting through; accordingly, they were removed to-day. The flaps separated in consequence, and a large quantity of offensive purulent discharge made its escape.

Oct. 23rd. The expression was more natural. She slept well. Skin cool; pulse 140; tongue moist, slightly furred; bowels acting. The outer third of the flap was opened abroad, and suppurating freely. The inner third of the extent of the wound was uniting. The wound was looking more healthy. The suppuration was healthier. She took her wine, milk, and beef-tea; and, in addition, had two eggs a day.

Oct. 26th. She slept much. Skin very perspiring; face rather pallid; pulse 120, stronger; tongue moist, clean. The stump was granulating very healthily; the discharge was less, and more healthy. She took her food and wine.

Oct. 31st. Her expression was natural; skin cool; bowels acting. The wound was closing in; the granulations were healthy; and the discharge was greatly decreased. Two ligatures had come away. Pulse 120. She was in better health. The wound was dressed with two crown-pieces of strapping.

Nov. 9th. The wound had healed, except in the track of the ligature of the femoral artery, which still remains open. The remaining ligatures had escaped. She was much improved in health, and took a drachm of syrup of superphosphate of iron three times a day.

Nov. 19th. The ligature had not yet escaped. There was some considerable swelling and hardness, with great tenderness of the glands in the groin—possibly from irritation of the ligature.

Nov. 20th. The last ligature had made its escape.

Nov. 26th. An abscess had formed and burst in the thigh, at the upper margin of the wound. There was free discharge from the openings. The glands in and below the groin were enlarged and painful. A poultice was applied to the wound and over the hardness in the groin. She was taking bark and ammonia again.

Nov. 30th. The abscess had healed up, and the sinus was healed.

This patient has since died.

Tumours involving the Articular Extremities.

These may be either innocent or malignant. If the former, the joint is interfered with simply mechanically; if the latter, the disease of course extends to the tissues of the entire joint, and destroys it. The innocent tumours consist of exostoses, or of cartilaginous growths. These tumours frequently set up repeated attacks of synovitis in the joint, leaving the synovial membrane thickened and dilated; so that, if the removal of the exostosis be attempted, the joint is very likely to be laid open, and serious mischief ensue. The most usual form of malignant disease is the medullary, which is stated never to begin as a primary disease on the synovial membrane, nor upon the cartilaginous structures. When the entire joint else has been destroyed by this disease, the cartilage has been found intact. (Virchow, *Cell. Pathol.*, Lect. xix.) Cysts sometimes occupy the articular ends of the bones. Mr. Stanley amputated a thigh on account of the existence of a cyst in the condyles of the femur, involving also the tibia.

Diseases arising in Tissues around the Knee-Joint.

We have seen how frequently all the periarticular tissues become involved when disease commences within the joint. It does, however, sometimes happen, that the mischief commences externally to the joint, which becomes secondarily affected. Sometimes, particularly in rheumatic or syphilitic cases, thick layers of fibrous material are deposited in and around the ligaments of the joint, forming a very firm ankylosis. The muscular tissue sometimes undergoes degeneration after the limb has been long confined in a splint for fracture of the thigh, and effusion of blood and serum may take place into the joint, and affect the cartilages and synovial membrane. (Holmes's *System of Surgery*, vol. iii, p. 763.) The areolar tissue may become inflamed, and acute abscesses form in close proximity to the joint. In delicate children, this sometimes takes place, and is very apt to involve the joint, bursting into the synovial cavity, and setting up acute suppuration. Erysipelatous inflammation, too, may involve the joint in the surrounding destruction of tissue.

The various Bursæ around the joint may become diseased. The one under the tendon of the quadriceps sometimes involves the joint in mischief. Henry Smith, in a note to Price's essay (*On the Knee-Joint*, p. 40), quotes a case which occurred at King's College Hospital, where a seton having been passed through this bursa, violent inflammation ensued, and destruction of the joint took place. The bursa beneath the inner head of the gastrocnemius sometimes communicates with the synovial membrane of the joint, and inflammation arising in this bursa may be communicated to the joint-cavity.

Wounds and Injuries of the Knee-Joint.

The knee-joint, from its exposed position, is peculiarly liable to wounds and various injuries. If a wound opening the joint be inflicted, its gravity will, of course, depend very much on the character of the incision and the instrument with which it is made. If it be a small puncture-wound, especially if it be made in an oblique direction and with a sharp instrument, appropriate treatment will generally avoid much damage. If, however, the wound

be lacerated, contused, and extensive, the inflammatory condition set up within the joint-cavity is of a most severe character. The inflammation is attended with a great deal of constitutional disturbance and excruciating pain. The entire joint becomes enormously swollen, hot, and painful. Profuse suppuration soon sets in; the cartilages disappear; the joint-ends of the bones are involved; and all the periarticular tissues sympathise with the derangement, dislocation of the tibia outwards and backwards sometimes taking place. Free incision into the joint, as pointed out by Gay (*Med. Times and Gazette*, vol. xxiv, p. 546), perfect rest, and the continuous application of ice, as advocated by Hilton (*Lectures on Rest and Pain*, Lec. xviii), may do much to save the limb; but at best the joint must remain a damaged one; and it is too frequently the case, that the removal of the joint or of the limb becomes a necessity. It will depend much on the constitution and habits of the patient, whether the extreme measure will be required; and, although the joint may be disorganised as a result of a wound, the surgeon should wait to the utmost before he operates, inasmuch as there is such a great chance of ankylosis occurring, if the general condition have previously been good. Two cases of disorganisation of this joint, as the result of wounds, have been lately under the care of Mr. Henry Smith at King's College Hospital, illustrating this. In the one, the patient was a healthy young man; and, although the joint was so disorganised that amputation was urgently pressed upon him, he would not consent, and ultimately bony ankylosis took place. In the other, a drunken middle-aged woman had her joint disorganised from a wound. Her habits, and the circumstance of her having suffered from delirium tremens, induced Mr. Henry Smith to amputate. In this case, even although every vestige of cartilage was gone, Mr. Henry Smith thought ankylosis would have occurred, had the woman's condition and habits allowed him to wait longer.

The various Dislocations and Fractures involving the knee-joint set up more or less serious disturbance. The most serious accident of this kind that can happen, although it is rarely met with, is compound dislocation. It is universally agreed that amputation is in this case the only chance of saving the patient. The lower end of the femur may sustain a fracture running into the joint; and it is possible that this injury may give rise to inflammation and suppuration, with entire destruction of the joint, of such a character as to necessitate its removal. Price draws particular attention to an accident which seems to have escaped the attention of most surgeons; viz., separation of the lower epiphysis of the femur from direct violence. Mr. Canton twice excised the joint for this accident, once successfully, and once with subsequent amputation. These cases will be again referred to.

Dislocation of the Tibia is frequently one of the results of long standing disease, where the ligaments are relaxed or destroyed, and the joint is extensively disorganised. As a general rule, the tibia is dislocated outwards and backwards, although Price quotes an extraordinary case in which it was dislocated forwards at right angles to the femur.* The

biceps and popliteus muscles are the two muscles more immediately concerned, although, of course, all the hamstring tendons assist. We have before noticed how the pain produced by the pressure of the exposed bone-surfaces together is relieved when dislocation takes place. The resulting distortion to the limb, even although all other disease be arrested, is one which calls for, in many cases, surgical assistance of a nature that will be afterwards discussed.

Ankylosis of the Joint is a very frequent, and in many cases a very satisfactory, result of disease. It may be true or false. It is true, if there be osseous union between the opposed ends of the bone. The character of the bone thrown out varies with the constitutional conditions of the patient. Thus, in weak strumous habits of body, the bony material is scanty, and firm union does not take place. False ankylosis is that which connects the bones together simply by soft membranous tissue. Unfortunately, the position in which the bones become ankylosed is frequently such as to render the limb useless to its owner. Sometimes ankylosis partaking of the true and false character is found; and Price states his opinion that the fibrous tissue between the bones acts as a sort of matrix, in which bone is deposited. This point is well illustrated by a preparation in the Westminster Hospital, from a case of Mr. Heath's, which is narrated below; a coloured drawing from this specimen, accompanying the essay, being one of the unpublished illustrations of the late Mr. Price's essay, kindly given by his representatives for the purpose. The fact that in many cases, after excision, osseous union is delayed for a considerable period, and then takes the place of fibrous ankylosis, seems to bear out this opinion.

Mr. Heath's case was that of a boy aged 11½, who had had scarlet fever, with swelling of the knee, six years before he came under that gentleman's care in 1858. Three years after this, an abscess formed on the outer side of the left knee-joint, which was opened, and the boy was confined to bed for three months. A year before he came under Mr. Heath's care, another abscess burst on the inner side of the knee, and he was in a hospital for eight months. On admission under Mr. Heath, the knee was firmly fixed at a right angle, and was slightly swollen. There was an open sore on each side of the knee-joint, and one over the centre of it, which discharged freely. (Fig. 1.) The boy suffered pain at night,

Fig. 1.

but was otherwise in good health. Mr. Heath excised the knee in a block on June 29th, 1858; and the boy made a good recovery. The portion of bone removed included the articular surfaces of the femur

* A coloured drawing accompanied the essay, made from a preparation in the Westminster Hospital Museum, showing a dislocation of the tibia backwards in a knee-joint affection, with ulceration of the ligaments and cartilages, the femur riding over the tibia three inches.

and tibia, and the patella, which was firmly fixed to the external condyle. (Fig. 2.) The bones showed

Fig. 2.

erosion of the articular cartilages where the bones were not already ankylosed, and also some remnants of thickened synovial membrane. (Fig. 3.) On ma-

Fig. 3.

ceration for a short time, it appeared that the ankylosis between the patella and the outer condyle, and also on the inner side between the femur and tibia, was only fibrous; but, on the outer side, bone had been developed, as was seen on section. A second slice of the femur, which was removed in order to allow the bones to come readily together, was found to have included the whole of the epiphysis. (*Lancet*, July 7th, 1860.)

I have thus, in a very cursory manner, passed in review the many diseases and injuries which affect the knee-joint. I have purposely, as each was noticed, refrained from considering the various modes of treatment which are employed, often successfully, to arrest it, and to effect a cure with the smallest possible injury to the mechanism of the joint. The diseases have been traced from their commencement, through their various stages, to that complete destruction of the tissues of the joint which not only precludes the possibility of cure, but which places the patient's life in such imminent danger as to call for the entire and immediate removal of the whole diseased mass.

Having thus described the diseased conditions of the knee-joint, it remains for me to endeavour to show under what circumstances it is best to have recourse to amputation of the thigh or excision of the joint for their relief.

[To be continued.]

AMERICAN ARMY MEDICAL SERVICE. An Act of Congress, approved in July last, orders that the Medical Department of the Army shall hereafter consist of one surgeon-general; one assistant surgeon-general; one chief medical purveyor; four assistant medical purveyors; sixty surgeons, with the rank, pay, and emoluments of majors of cavalry; one hundred and fifty assistant-surgeons, with the rank, pay, and emoluments of first lieutenants of cavalry for the first three years' service, and with the rank, pay, and emoluments of captains of cavalry after three years' service. All the original vacancies in the grade of assistant-surgeons shall be filled by selection by examination.

Addresses and Papers

READ AT

THE THIRTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

[Held in CHESTER, AUGUST 7th, 8th, 9th, and 10th, 1866.]

CLINICAL REMARKS ON DIFFERENT MODES OF DEALING WITH THE PEDICLE IN OVARIOTOMY.

By T. SPENCER WELLS, F.R.C.S., Surgeon to Her Majesty's Household, etc.

[Delivered at the General Infirmary, Chester, August 10th, 1866.*]

MR. PRESIDENT AND GENTLEMEN,—I am now about to perform ovariectomy before you in two very different cases. One patient is a young unmarried woman, who has a large non-adherent cyst which has never been tapped, and whom I saw yesterday for the first time in consultation with Mr. Weaver. The other patient is a widow, and only one month less than 60 years of age. She has suffered between four and five years under her disease, has been tapped four times, and is much broken down in general health after suppuration of the cyst which followed the third tapping. When first I saw her, she was naturally anxious to avoid a dangerous operation, and preferred tapping, by which she gained some two years of tolerable comfort. But latterly she has suffered so much, that she eagerly accepted the offer of a bed here kindly placed at my disposal by our President, Dr. Waters. In her case I know we shall find a suppurating and inflamed cyst, from the general symptoms, and from the fact that the fluid at the last tapping contained a great deal of pus. I am also pretty sure that there are extensive adhesions to the abdominal wall on the right side; and on the left side a coil of intestine, giving a distinctly circumscribed resonance on percussion, in all probability will have to be separated from the cyst. If I find more extensive attachments below the brim of the pelvis than I anticipate, I shall content myself with simply laying the cyst open and emptying it; doing little more, indeed, than tap, because an unusually serious proceeding in so old and emaciated a subject would be almost certainly fatal. But I trust that, beyond the adhesions to the abdominal wall and to the intestine, there will be no great difficulty to contend with. In the case of the young woman, I have ventured to assure her, and so has Mr. Weaver, that the operation will be extremely simple—probably little, if at all, more dangerous than a first tapping—because I am very confident that an unattached cyst will be exposed, emptied, and drawn out of the abdomen through a very small opening.

[The patients were successively introduced, having been previously placed under the influence of chloroform in an adjoining ward by Dr. H. Simpson of Manchester. The operations proved to be exactly what the operator had anticipated by the foregoing introductory observations. The cases have been fully detailed in our Hospital Reports. (See page 352.)

* About one hundred and twenty members of the Association were present and witnessed the two operations which led to these remarks.