Relaxation of the renal arterioles is more likely to cause albuminuria than their excessive contraction; and the late Dr. Warburton Begbie published some cases in which he believed that the urine became albuminous in consequence of vaso-motor paralysis, resulting in an increased afflux of blood to the Malpighian capillaries.

This view, too, is confirmed by the results of experiments. Vulpian (vol. i, p. 534) describes the effect of dividing the left splanchnic nerve of a dog just above the kidney. The renal arterioles being paralysed, the kidney at once becomes congested, red, and swollen, the quantity of urine excreted by that kidney is increased, and it becomes highly albuminous. The galvanisation of the distal end of the divided nerve stimulates the renal arterioles to contract, and the red and congested kidney gradually becomes pale.

Contraction of the systemic arterioles in general, with relaxation of the renal arterioles, might cause capillary renal congestion and albuminuria; but this is not the condition which exists in cases of chronic albuminuria with high arterial tension. On the contrary, there is evidence that the renal arterioles in these cases are more firmly contracted and more decidedly hypertrophied than those of any other organ or tissue.

An impediment to the circulation causing albuminuria must act in front of the Malpighian capillaries, so as to cause a backward engorgement and a transudation of serum through their walls into the uriniferous tubes. Thus, Dr. George Robinson (*Med.-Chir. Trans.*, vol. xxvi, p. 51) proved many years ago that a ligature on the renal vein of a living rabbit renders the urine albuminous, and even bloody. This experiment has been repeated by Frerichs and others with the same result. Bowman's demonstration of the structure of the Malpighian bodies and their connection with the uriniferous tubes rendered these results quite intelligible. In like manner, distension of the convoluted tubes by morbid exudation within them may, by compressing the intertubular capillaries, cause engorgement of the Malpighian capillaries and escape of serum through their walls.

[To be concluded.]

CLINICAL LECTURES

ON

ANTISEPTICISM IN SECTIONS AND RESECTIONS.

By RICHARD BARWELL, F.R.C.S.,
Surgeon to Charing Cross Hospital.

LECTURE II.

GENTLEMEN,—In the last lecture we saw that division of the femur above the knee, combined sometimes with section of the tibia and fibula just below that joint, forms a valuable substitute for resection of the ankylosed portion itself. The advantages of the one operation over the other are the greater readiness with which the parts heal, the more complete preservation of muscular power, and probably, in young subjects, non-interference with epiphysal growths. In my experience (and I have performed osteotomy in more instances than those now reported), the reunion of bone is very rapid. In Case I, I believe that rare form, immediate union, took place, and that the girl might have gone about in ten days. Generally, the lower end of the femur is firmly knit within six weeks, the tibia within a month. The antiseptic method obviates—I had almost said precludes—suppuration, hence the operation is as safe as any human action can possibly be; it is also nearly painless: none of my patients have suffered pain or loss of health.

The modelling process which took place in C. G. (Case 1*) is very remarkable; no abnormal bend whatever of the femur is apparent, nor is that the only instance. Of John B. (Case II), I said in my last lecture that the appearance of angular incurvation at the femur and tibia was diminishing. Since those words were written, the modification has gone on even more rapidly. It would seem that, as in rachitis the inside of the morbid curve is filled up and strengthened by new bone, so in the retreating angle of these artificial fractures new osseous deposit takes place, while the salient angle is absorbed; thus the divided and bent bone becomes, without losing its direction, very much straightened, and that projection of the knee—a marked peculiarity of fig. 5

(see this JOURNAL, April 28th, p. 507)—gradually diminishes, and may very probably almost disappear.

The experience of Case II is valuable in this wise. Owing to the unsound, though not diseased, condition of the femur and soft parts close to the knee, I felt constrained to divide that bone higher up than in Case I. Now, to place the lower leg in a certain line, the lower end of the femoral fragment, whatever its length, must be flexed at a given inevitable angle with the upper one: therefore, it is evidently desirable to make the lower fragment as short as possible, since its projection will be in direct ratio with its length. The synovial membrane need not, of course, be taken into account; but the epiphysal line, at the age when it still exists, should not be interfered with, since most of the femoral growth depends on this structure.

We will now pass on to another subject—namely, to excisions of the knee, and to the effect which antisepticism exercises on the duration and prospect of cure—an effect which cannot, I think, be too highly prized.

CASE I.—Chas. B., aged 8, admitted into the Charing Cross Hospital under my care in August 1876, with disease of the knee-joint, evidently arising from osteitis in the femoral epiphysis. Under a treatment which I will not now detail, he made a marked improvement; but in October he became so suddenly worse that the relapse could only be ascribed to some imprudence (the boy is very full of freaks), which he could not be brought to confess. The symptoms became so aggravated, that very soon excision evidently offered the best chance of preserving the limb.

November 10th. I performed the operation, under all antiseptic precautions, in my usual way, making a free straight cut across the front of the joint almost from one hamstring tendon to the other. A good deal of pus escaped. When the bones were sawn through, a large spot of softened bone-tissue had to be cleared with the gouge, both from the inner condyle and from the inner tuberosity of the tibia. A branch of the external articular artery was tied, and three smaller vessels were subjected to torsion. A drainage-tube was placed at the back of the bones, and the limb placed in a splint of thin zinc and plaster of Paris, to be described immediately.

This splint and general arrangements required no change from the time of application until the 30th January, when the wound was healed, except the openings of two little sinuses, and the limb, therefore, was entirely placed in a plaster of Paris bandage, with the necessary windows. There was not during the whole of this time any swelling of soft parts—so frequent an accompaniment of this operation; neither was there any purulent discharge nor rise of temperature. The wound, save where the drainage-tube was kept for some time, and one other spot, healed by the first intention. It was dressed for the first month every other day, then for three weeks every third day, then every fourth day.

The splint—which after several trials I have come to regard as the most efficacious—is a modification of P. H. Watson's. It is constructed of two pieces of thin zinc, cut on paper patterns, carefully fitted to the back of the thigh and leg. The upper one, longer on its outer than on its inner side, extends from about two inches above the place of

Fi 1.

wound to the great trochanter on the one and to near the fold of the nates on the other side; it must only be broad enough to go one-third round the thigh. The lower splint, commencing about one inch and a half below the wound, supports the calf, then forms a long and narrow part, which terminates in a foot-piece. In application, this

* I must apologise for a mistake in dates, which crept in, I hardly know how, from much copying. Catherine G. was admitted in November, and operated on December 2nd.

narrow portion is bent round, but at a considerable distance from, the heel, so as to guarantee that part against pressure. These two portions are united by a bracket of iron at each edge, which, being bent back, permits easy access to the popliteal space. I prefer dressing the limb on the table; and, while anaesthesia continues, the zinc splint, properly padded, is held at the back of the limb, the ordinary iron rod for suspension in front, while the thigh and leg separately, including the metals, are enveloping in firm quick-setting plaster of Paris—leaving, of course, a free space above and below the wound. When the plaster sets, the whole is as firm and immovable as a piece of rock.

CASE II.—Jane E., aged 10, was admitted under my care Dec. 12th, with the right knee ankylosed at an acute angle. The child had suffered considerably from joint-disease. Her left elbow was ankylosed; her left ankle was scarred with cicatrices, and gave at first an erroneous impression that partial excision had been performed. She was likewise deaf, probably from strumous otitis. The ankylosis at the knee was a true one, at less than a right angle; the femur was one inch and a quarter, the tibia just over one inch, shorter than on the healthy side; the circumference of the bones appeared diminished, except in the neighbourhood of the knee, where it was decidedly increased. A number of old cicatrices lay over and near the joint. One of these recently opened afresh: it led to an opening in the bone, and rough soft osseous tissue could be felt with the probe. Under these circumstances, I decided that removal of a wedge of bone offered the best chance of success.

December 16th. I divided the skin from side to side across the union of the bones, and turned a flap up and down; then with the saw took out a wedge-shaped piece, so that the saw-cuts should meet some distance from the back. This was done, partly to guarantee against risk the popliteal artery, which, by the contractions succeeding inflammations, is often dragged quite into the angle of the ossified bones; partly in the hope that I might, with even this small loss of substance, get the sawn surfaces together. From the junction of these two cuts I made another straight backwards till quite close to the posterior surface: the small remaining layer of bone was broken through by a slight forward movement of the leg. It was, however, impossible to bring the surfaces into apposition; therefore a slice was taken from both femur and tibia, when the bones were found accurately to fit. The limb was dressed on the table with splint and plaster of Paris, as above described. The parts removed, which are here depicted (fig. 2), form a mass of considerable size. The section from before backward of the femur measures one inch and seven-eighths; of the tibia, one inch and a half; the rotund surface, constituting the projection of the knee, three inches and three-quarters.

Fig. 2.

the most rapid, I believe, on record—are attainable only, it appears to me, by a combination of motionless splintage and of antisepticism.*

I might add to these cases; but the two I have given of osteotomy and the two of excision are sufficient examples of different modes of procedure with the knee-joint. It is not to be imagined that any one can undertake these operations with impunity to his patients, if they be regarded simply as an exercise of mere mechanical skill with knife and saw. The better these weapons are used, the better so far for the patient; but the more important work is previous arrangement, with scrupulous care and attention in every minute point as to maintenance of position, etc. Before undertaking any such case, every circumstance must be so arranged that no fault or oversight may necessitate pulling about the limb and altering the dressings. If these matters be all

cared for, with sufficient knowledge of what *will* happen, leaving a margin for what *may* happen, the cases will, if not all, yet very nearly all, do well. Even before I used antiseptics, my death-rate per cent. in excisions of the knee was 14.3; since using antiseptics, I have not lost a case. I confess I do not understand the mortality, viz., 28 per cent., given by Mr. Holmes, unless most of the

Fig. 3.

excisions were undertaken in an atmosphere and external conditions which rendered all operations extremely hazardous. Under favourable external circumstances, I consider excision of the knee a grave but not a dangerous operation. With antiseptics, seeing that neither pyrexia nor suppuration takes place, it is for the patient a rather slight affair.

Mr. Treves of Margate has of late published in this JOURNAL an account of another mode of operating. His method is very ingenious, and a great improvement on that proposed by Hüeter; still it appears hardly applicable to cases in which partial ankylosis has occurred; also, if the gouge have to be used, considerable difficulty must be encountered, and some insecurity as to having removed all the diseased spot must, it appears to me, remain. Moreover, I must confess not to

have found in my cases the defects which Mr. Treves describes. One of my patients used to climb about the chains of the pier at Brighton, and, falling down one day, broke, not the union of the bones, but the middle third of the tibia. Another ran races about the hills at Weymouth. Neither do I think that in shape or length this limb leaves much to be desired (fig. 3), as it certainly does not in power.

A few words must now be spoken of antisepticism in general. I confess that till rather more than a year ago I was prejudiced against this method by the somewhat laborious descriptions of minute precautions to be taken against invisible foes—septic germs; but I thought it only right to give the matter a fair trial, and am bound to say, taking into account the whole range of management after any large operation, that, although each individual dressing is more irksome and takes longer time, yet the whole range of dressings is less troublesome than in the open method. But trouble, little or much, is, in comparison to result, of no importance; and I believe the success of operations performed and managed antiseptically is scarcely attainable in any other way. Let me give the result of about fourteen months' work, premising that for about two months the hospital was closed altogether, and that for several months we were working with a greatly reduced number of beds; therefore, the total of my major operations by no means represents even the usual work of a year, but such as it is I give it.

Amputation of femur	..	..	..	..	..	..	..	..	1
" leg	..	..	..	..	..	..	..	..	1
" foot (Pirogoff's)	..	..	..	..	..	..	..	..	1
" penis	..	..	..	..	..	..	..	..	1
Excision of hip	..	..	..	..	..	..	..	..	9
" necrosed head of dislocated femur	..	..	..	..	..	..	..	..	1*
" knee	..	..	..	..	..	..	..	..	5
" ankle	..	..	..	..	..	..	..	..	2
" loose bodies from knee	..	..	..	..	..	..	..	..	4
Resection of large necroses from ilium	..	..	..	..	..	..	..	..	2
" " from great trochanter	..	..	..	..	..	..	..	..	1†
" " from middle of femur	..	..	..	..	..	..	..	..	1
" " from popliteal surface of femur	..	..	..	..	..	..	..	..	1
" " from vicinity of sacro-iliac joint	..	..	..	..	..	..	..	..	2
" lower three-fifths of tibia	..	..	..	..	..	..	..	..	1
" necrosed ends of compound fracture of tibia	..	..	..	..	..	..	..	..	1‡
Osteotomies	..	..	..	..	..	..	..	..	5

* Adult male.

† This was a large operation: the sinus mouth was two inches and a half above the inside of the knee. A long probe was passed and brought out of small openings made over its point at two intervals on the thigh, in order to reach the seat of suppuration. When this was found, the great trochanter and great part of the cervix femoris had to be excavated with the gouge, leaving little more than the thin cortex. The man did perfectly well.

‡ Case transfused; not performed antiseptically.

* On the 23rd February, I saw this girl running about the Cripples' Home, and the matron begged me to scold her for the rough way in which she used the limb.

Removal of cartilaginous growth from patella	1
Removal of fibro-vascular (erectile) growth from leg ..	1
Removal of fibroma from nasal fossa*	1
Herniotomy	2
Ligature of brachial artery	1
Total	45

The total is, as already stated, small, but the result is interesting. One death only has occurred, and this in a case of excision of the hip in a very bad subject, which I was obliged to perform on account of the severity of the pain arising from the inflamed head of the thigh-bone. I can hardly accept this as one in my death-rate, since the operation was performed to relieve pain, but with no expectation of saving life. Besides mere death-rate, however, I believe that the length of time necessary for recovery is immensely reduced by this method, as witness the two excisions of the knee above detailed. Space forbids me to enter upon that subject now, and my material hardly allows me to do it full justice at present; but I hope shortly to bring forward some accurate data concerning that part of the question.

REMARKS ON THE CASE OF MISS MARTINEAU.*

By T. SPENCER WELLS, F.R.C.S.

By the desire of a brother-in-law of Miss Martineau, Mr. Higginson of Liverpool, who is present this evening, and to whom we are all much indebted for the invention of the very useful syringe which bears his name, I now exhibit to the Society the cyst which was removed from Miss Martineau's body after her death by Mr. King of Ambleside, as described by this gentleman in the communication which has just been read to the Society.

The cyst is not of much interest to the morbid anatomist. It is seen to be a pear-shaped almost single cyst; and the Fallopian tube with its fimbriae, and part of the broad ligament with the remains of the Wolffian tubules, have their ordinary attachments or connections with the outer surface of the cyst. There is nothing whatever to support the hypothesis advanced in the *BRITISH MEDICAL JOURNAL* by Dr. Greenhow of the "passage of the displaced ovarium through the Fallopian tube". The cyst contained only about half a pint of liquid, but about ten pounds of the hard fat-like substance to be seen in the bottle on the table. Though looking like fatty or stearoid substance, it does not melt on being heated, but scorches like horn or hair. It is mainly a mass of epithelial scales, with some cholesterine and fine hair. The cyst, therefore, was dermoid. Here its interest to the pathologist or the morbid anatomist ceases; but the clinical history of the case is very much greater. In Miss Martineau's lifetime, her illness, supposed cure by mesmerism, and renewed illness, were publicly discussed. The supposed failure of orthodox medicine and the complete triumph of mesmerism in her case were published by herself in her *Life in the Sick-Room*, and in her *Letters on Mesmerism*, and have been vaunted by many of the supporters of mesmerism from that time to this. Indeed, much of this has been lately revived by the publication of her very interesting *Autobiography*, a book which is very widely circulated. Taking the facts of the illness as gleaned from this *Autobiography*, comparing them with the medical report of Dr. Greenhow published in 1845, and then glancing at the cyst now before the Society, the whole case becomes so clear that its lesson cannot be mistaken.

It is not quite certain when the ovary first began to enlarge; but we do know that dermoid cysts, as a rule, are of very slow growth, and a history of thirty or forty years would not surprise us. Writing herself in 1839, when thirty-seven years old, and about thirty-six years before her death last year, Miss Martineau says at page 151 of the second volume of her *Autobiography*: "An internal disease was gaining ground for months or years before I was aware of it. A tumour was forming, of a kind which usually originates in mental suffering." Two years later, in 1841, Sir Charles Clarke saw her with Dr. Greenhow, and the result is stated very clearly in the published report of the latter gentleman. There was supposed to be a fibroid enlargement and retroversion of the fundus uteri; and Sir Charles Clarke states very distinctly that this disease of the body of the uterus is much less serious than some forms of disease of the neck of the uterus. He

does not speak of the case at all as hopeless, though Miss Martineau repeatedly in her journals speaks of her illness as incurable.

Neither Dr. Greenhow nor Sir Charles Clarke is to be blamed because they mistook an enlarged ovary low down in the pelvis behind the uterus for an enlarged and retroverted uterus. The uterine sound had not then been brought into use; and even now, with all the aid that men accustomed to its daily employment can gain from it, and with the certainty with which in most cases it enables us to complete a diagnosis, doubt must in some exceptional cases be felt whether a pelvic tumour is uterine or ovarian. Taking Mr. King's report of the uterus after death as "small and unaffected", there can now be no reasonable doubt that the tumour was ovarian from the first; that, so long as it was in the pelvis, it led to great suffering; and that its rise from the pelvis into the abdomen, which happened to coincide with mesmeric treatment, was followed by great temporary relief—the supposed cure of the tumour by mesmerism, which was so triumphantly proclaimed.

The growth of the tumour after its rise from the pelvis seems to have been slow, and the next phase of the illness was not until 1855, when symptoms of supposed disease of the heart led to the consultation of Dr. Latham and Dr. Watson. I have here a copy of the note made at the time by Sir Thomas Watson, and I am sure you will all admire the hand of the great master in this life-like sketch, made in a very few minutes when in the full flood of busy practice with his waiting-room crowded. I am very glad to be permitted by Sir Thomas to read to you an exact copy of his notes.

"January 31st, 1855. Miss Harriet Martineau, aged 53. Catamenia ceased three years ago. For a year or more, has been short-breathed on exertion, especially when ascending. Has grown much stouter, and began to do so before the catamenia ceased. Speaks of intermissions and subsequent boundings of the heart, felt by her very disagreeably. Has occasional twinges at the back of her neck, as if the scalp were pulled up. A marked vertical arcus senilis. Has dyspnoea occasionally, even in bed, with flutter and bump of the heart. No morbid lung-sounds, but the respiratory murmur is rather louder in the left lung. The heart is heard extensively over the chest—noisy—the first sound approaching a thrum. No actual *bruit*. Urine made profusely and often during the night. This new to her. It is pale, acid; specific gravity 1011 or 1012; shows no albumen to heat or to nitric acid. A large pear-shaped indolent tumour reaching as high as the lower part of the epigastrium."

Here you see this large pear-shaped tumour very much as Sir T. Watson described it in 1855—a little, but probably not very much, larger; and, as we gather from Dr. Greenhow's recent report, not encroaching very much on the chest until some eighteen months before death. And Sir T. Watson's note is the only definite account I have been able to find of an abdominal tumour during life. Dr. Greenhow and Sir Charles Clarke described the tumour before it rose out of the pelvis; but in 1845 Dr. Greenhow said the abdominal enlargement was principally due to flatulent distension of the intestines. Sir T. Watson says Miss Martineau began to grow stout before the catamenia ceased in 1852. It is, therefore, almost certain that, after rising from the pelvis, the cyst was ten years before it reached the epigastrium and interfered with the action of the heart; and that it remained without very great increase during the subsequent twenty-one years. During most of this time, Miss Martineau's life was that of an invalid; sometimes suffering a great deal; always apprehending the result of the incurable disease of the heart under which she believed she was dying, notwithstanding the assurances of the two most distinguished physicians of the day; and, although she did a great deal of literary work, she was a source of constant anxiety to her relatives and those about her. When we see how much real good work she did under such disadvantages, and acknowledge how great were the doings of an invalid woman in comparison with what most of us who are strong and well are able to do, we must regret the more that the last twenty years of the life of this remarkable woman were not made as happy as they might have been by the removal of the cyst which was removed so easily after her death. There were no adhesions; the pedicle was long and distinct, and the case in all respects one most favourable for ovariectomy—the chances at least ten to one in favour of recovery.

I will only say, in conclusion, that I fully agree with Dr. Greenhow in his opinion that the disease from which this eminent woman suffered serves "in some degree to explain some of the peculiarities of character which were apparent during her remarkable career".

THE Army Medical Department has prepared a report specifying all that would be requisite for an army corps of 50,000 men if ordered to take the field, and we understand that the report is now at the War Office.

* This tumour grew between the mucous membrane and the osseous walls, intruding into the mouth in front of the canine tooth, lateral incisor, and first bicuspid, blocking the nostril and protruding the cheek. It did not involve, nor did I in removing it involve, the mucous membrane; hence the antiseptic method was available.

* Made at the Clinical Society of London, Friday, April 27th, 1877.