hepatitis with displacement upwards of the diaphragm; and fourth, circumscribed empyema with perforation of the diaphragm and displacement of the heart and liver. The diagnosis which was finally made of empyema entering the abdomen and penetrating the diaphragm was rather presumptive than positive, and rested largely upon the history of the previous pleuritis.

Dr. Williams mentions a case in which an empyema pointed in the right hypochondrium, and was mistaken for abscess of the liver.

Dr. Townshend describes a case of abscess of the liver pouring its contents into the areolar tissue of the right side, in front of the ribs, by penetrating the diaphragm, yielding fluctuation, and quotes a similar case from Morand. Andral, in his *Clinique Médicale*, Observation 20, gives the following case: A phthisical man, about three weeks after admittance into the hospital, was attacked during an evening exacerbation of hectic with acute pain in the line of the left costal cartilages, accompanied with quick and shallow respiration, which was entirely costal; and pain next extended into the hypochondrium and groin. He sank rapidly, and died about a month from the date of admittance.

Large tubercular cavities were found in both lungs; the base of the left lung adhered to the diaphragm, and surrounded and strictly limited by this adhesion was a vast collection of pus, which passed through an opening in the diaphragm, of an inch and a half in diameter, with blunt and smooth edges, into the abdomen; it seemed to have pushed the peritoneum before it, and lodged between the spleen and the walls of the abdomen, where it was surrounded by adhesions, and contained in a large cavity with villous walls.

In this case, which has been so often quoted by writers on empyema, there was evidence during life of a purulent collection in the abdomen, and no diagnosis made of penetration of the diaphragm.

There is, moreover, no statement as to the evidence afforded by auscultation of the left side, which probably would have been of no special value, owing to the existence in the corresponding lung of extensive tubercular excavation.

Krause gives two cases of perforation of the diaphragm by empyemata; in one the matter pointed at Poupart's ligament, and was opened as a psoas abscess; in the other, the matter burst into the transverse colon by two apertures, through which faeces passed upwards into the right pleural cavity, which had been the seat of the disease. In a case reported by Mohr, there was perforation of the diaphragm near the vertebral column, and the pus descended behind the peritoneum along the psoas muscle, with abscesses and fistulous channels in the thigh, extending down to the knee.

Dr. J. Guiot reports¹⁴ a case of a woman in whom, at about the time of the disappearance of an empyema after operation, there appeared a large purulent collection opening at the umbilicus. There does not seem to have been very distinct evidence of direct communication between the two, nor does it seem to have been carefully sought for. The patient recovered.

M. Velpeau reported¹⁵ a case of empyema which emptied itself in the lumbar region. A later exploration of the purulent cavity in the loin revealed its communication with a denuded and necrosed rib, the result of the extension of the inflammation of the costal pleura.

TWENTY-SEVEN CASES OF DEFORMITIES OF THE EXTREMITIES TREATED BY MEANS OF THE SCREW CLAMP.¹

By NICHOLAS GRATTAN, F.R.C.S.ED.,

Senior Surgeon County and City of Cork Hospital for Women and Children.

I HAVE the honour to exhibit to you to-night a girl, M. S., now aged 13, whose femurs I fractured in July and September, 1888, by means of a special screw clamp. Before the operation she was so badly knock-kneed that she could with difficulty walk 200 yards; now she can walk eight miles at a stretch. I am also able to show you the girl, C. S., operated on a year ago, and the boy, H. W., on whom I operated about ten months ago. You will see that these children are perfectly cured of their deformities. These cases are typical ones, and a like result has

followed in all my cases which have been treated by means of this clamp. I have already exhibited this instrument to you, and described the details of the operation which have been published in the JOURNAL, February 9th, 1889.

Since then I have operated on eight bow legs, one case of angular deformity of the radius and ulna, and ten of knock-knee. These, added to one case of knock-knee operated on by Dr. Ashley Cummins, and my seven published cases, make a total of twenty-seven. All these have been cured almost without pain, and absolutely without any constitutional disturbance whatever. The greater number of these cases are in this city, and can be seen at any time.

An extended use of the instrument has been followed by more experience. At first I found it extremely difficult to cut across the bones of very young children, owing to their bending. This difficulty has been overcome by approximating the arms of the clamp. You will see that the clamp has proved successful with a girl, aged 14 years and 11 months, and I doubt if even this is the extreme limit of age at which it may be used. In the first instance I failed with the little girl, N. M., because the clamp cracked at the hinge. I immediately had a stronger clamp made, and, instead of having the arms rubber-covered, had the steel highly polished. I have had also a small racket screwed on the under surface of the clamp, each notch of which corresponds to opening the arms half an inch. By this means I have done away with the necessity of screwing together the arms, and have expedited the operation. I see no difference between the effects of the rubber-covered arms and the polished steel. I have had no skin wound since I have used this latter; and from my experience of the polished wedge, where the pressure is double that of the arms, there is no necessity for any padding whatever.

I now complete all my knock-knee operations by means of the clamp alone, do not jerk the leg inwards, thus preventing any chance of injury to the external lateral ligament of the knee; but after the limb has been broken I take it in my hands, and feel that all the fibres of the bone have been torn across, and set the ends together in their new position. In my last set of cases I used a curved long splint; a Liston splint is fitted to the limb, and is cut across where I expect to fracture the femur. The cut ends are joined by means of a curved piece of flat iron; the splint then somewhat resemble the curved stave of a barrel, and my knock-knee cases are cured with a slight out-bow corresponding to this curve. The bow-legs have also been broken across by means of this steel wedge. No padding whatever has been used, and no skin injury has resulted.

I now give the details of the cases.

C. S., aged 12½ years, admitted into the Children's Hospital, March 22nd, 1889. Knock-knee right extremity. March 23rd, 1889. Fractured her right femur with the screw clamp, 2½ inches above the knee-joint. Used steel wedge. Arms of the clamp opened 4½ inches. March 24th. Temperature normal, free from pain. April 3rd. Applied a plaster-of-paris splint, giving the limb a slight out-curve. This was removed on May 30th. On June 20th she was walking about the ward without assistance. Result of operation: deformity is entirely cured. I examined her limb on December 31st, 1889. She has completely recovered, and no difference can be detected between her two extremities.

H. W., aged 3½ years; double knock-knee. May 22nd, 1889. Made three attempts to fracture his right femur, but failed, owing to the elasticity of the bone; the arms of the clamp were separated from 3½ to 4 inches. May 25th. Fractured his left femur in the first attempt: arms of the clamp separated 3½ inches; applied a curved long splint. June 22nd. Bone united. June 30th. Fractured his right femur 2 inches above the joint in the second attempt; arms of clamp separated 3½ inches. July 4th. Bruises have quite disappeared. August 1st. Bones firmly united, and on August 30th the little fellow was walking about; he has been cured with a slight out-bow; result is extremely satisfactory.

J. C., aged 13 years 14 days; knock-knee, right extremity. June 18th, 1889. Succeeded in fracturing her right femur on the fifth attempt; arms of clamp open to 4½ inches; there was but one very slight abrasion; applied a curved long splint. June 19th. No pain or uneasiness. June 27th. Opened the bandages; skin abrasion is quite healed; limb is in good position. August 1st. Bone firmly united; deformity completely cured.

J. C., aged 1 year 8 months; double bow-legs. July 19th. Under chloroform fractured his left tibia and fibula; straightened the limb; used the steel wedge, the arms of the

¹⁴ *L'Union Médicale*, vol. xxii, p. 546, 876.

¹⁵ *Journal de Médecine et de Chirurgie*, vol. vii, p. 407, 1840.

¹ Read before the Cork Medical and Surgical Society.

clamp open to 2 inches; put up the broken limb as usual. July 29th. Firm union in the bones; limb perfectly straight. August 8th. Fractured and straightened his right leg in the lower third in the same manner as the left. October 8th. Discharged; deformity quite cured.

B. N. (a patient of Dr. Ashley Cummins), aged 2 years; right knock-knee. August 21st. Under chloroform Dr. Cummins fractured her right femur 2 inches above the knee-joint; the arms of the clamp were open to 3 inches; put up the limb in the usual manner in a curved long splint. October 1st. Discharged; deformity cured.

E. B., aged 1½ year; angular deformity of left radius and ulna, of which no satisfactory history could be given. September 9th, 1889. Fractured radius and ulna quite close to the wrist-joint, using the steel wedge; arms of clamp open to 2 inches; straightened the limb and put it up in side splints. October 10th. Bones united; limb quite straight; discharged cured.

C. B., aged 1½ year; double bow-legs. November 21st, 1889. Fractured his right leg in the middle third; having straightened the limb, put it up in side splints. November 24th. On opening the splints, could find no mark whatever of the pressure; there has been no pain. December 8th. Right leg quite firm; assisted by Surgeon-Major Walker, fractured his left leg in the middle third to-day. December 31st. No pain; doing well. January 7th, 1890. Left leg quite firm; his limbs are quite straight.

N. M., aged 9 years; double knock-knee. November 29th, 1889. Made six attempts to fracture her left femur, but failed; owing to a flaw in the hinge of the clamp it sprang and opened; there was one slight skin wound one-eighth of an inch in diameter, and very considerable bruising of the muscles; during the day there was some serous oozing from the wound; the limb was enveloped in cotton-wool and a splint applied. November 30th. Passed a good night, no pain or fever, very little oozing from the wound; the limb is but slightly swollen. December 1st. No discharge, wound quite closed, no pain or swelling, and no injury to the knee-joint. December 8th. Put her under ether, and with a new and stronger clamp, the arms of polished steel being separated 4½ inches, made one attempt to fracture her right femur and failed; the second attempt, with the arms opened to 5 inches, succeeded, and the bone broke with a loud snap; no skin wound, and but little bruising; enveloped the limb in Gamgee tissue and applied a curved long splint. December 13th. There has been no constitutional disturbance and no pain; on opening the bandage, the fracture is doing well. January 25th, 1890. Femur has united in good position. January 28th. Having administered an anæsthetic, the clamp, with the arms opened to 5 inches, was applied to her left femur; the bone fractured with a loud report 3 inches above the knee-joint; there is no skin wound; time of pressure 25 to 30 seconds. March 7th. Left femur united, with a slight out-curve; she has had little pain and no constitutional disturbance; the result of the two operations has proved very satisfactory.

K. A., aged 14 years and 9 months; double knock-knee; deformity very great. December 28th, 1889. Under ether applied the clamp to her left femur, the wedge 3½ inches above the knee-joint, the arms of the clamp opened to 6 inches. In 30 seconds the bone slowly yielded, breaking with a loud snap. Put up the limb as usual in a curved long splint. December 29th. Temperature normal; free from pain. February 5th, 1890. Bone has united without any trouble. February 22nd. Under ether to-day applied the clamp to her right femur. In the first attempt, with the arms of the clamp opened 6 inches, the bone only slightly yielded. The clamp, with the arms opened to 7 inches, was again applied. There was very considerable resistance, but the bone slowly separated. There is no skin wound. Applied a curved long splint to the limb. February 28th. There is but one bruise, the size of a shilling; girl doing well.

E. J., aged 6 years; double knock-knee and anterior curvature of both legs. January 16th, 1890. Under chloroform, fractured her left femur in first attempt, arms of the clamp open to 4½ inches. Put her thigh up in a curved long splint in the usual manner. The clamp, with arms open to 4 inches, was applied to her right leg, the bones were broken in the lower third, the limb straightened and an iron back splint applied. January 16th, 10.30 p.m. On account of pain opened and examined her leg; at the points of pressure, where the clamp was applied, there is nothing to be seen but a slight redness. Reapplied the splint. February 21st. The broken limbs have united without

trouble. February 22nd. Under ether treated the right femur in the same manner as the left; also rectified the deformity of her left leg. February 28th. Child doing well; no pain since operation.

J. R., aged 2½ years; both legs badly curved in the middle third. March 9th, 1890. Under chloroform, the arms of the clamp being open 2½ inches, fractured his left tibia and fibula. Having straightened the limb, applied side splints as usual. The clamp was then applied to his right leg, and it was treated in the same manner as the left. March 12th. Doing well.

I have to acknowledge the cordial co-operation and assistance I have received from my friend and colleague, Dr. Ashley Cummins, in treating the greater number of these patients.

RHEUMATIC NEURITIS AND NEURO-RETINITIS.

By N. C. MACNAMARA, F.R.C.S.,

Surgeon to the Royal Westminster Ophthalmic Hospital.

In a paper published in the JOURNAL of March 8th I referred to the connection which appears to exist between optic neuritis and malaria, my idea being that whatever the nature of the cause which produces malarial fever, it is capable of fixing itself on the tissues constituting the distribution of the second nerve, and unless effective measures are taken to counteract its poisonous influence it may lead to the destruction of the optic papillæ. I gave the outline of four cases in which both optic papillæ were simultaneously affected, but double optic neuritis is by no means the rule in instances of this description, for I have seen papillitis in several such cases confined to one eye. The course of these cases of malarial monocular neuritis bear a close resemblance to those of rheumatic papillitis; in the one set of patients the inflammation of the peripheral distribution of the nerve commencing in a person who for the time is under the influence of the paludal poison, while in the other he is under the influence of something which causes rheumatism. It is almost unnecessary to observe that optic neuritis, the result of intercranial disease, as a rule appears nearly simultaneously in both eyes. It by no means, however, follows that double optic neuritis is never met with unless in cerebral affections; in fact, as I mentioned in my former paper, in cases of malaria, in neuritis connected with uterine affections, and in syphilitic papillitis, as well as in Bright's disease, both discs are commonly affected. It has been suggested that the effusion and subsequent papillitis of malaria might depend on intercranial effusion, or perhaps from heightened arterial tension, consequent on the ague fit; but, in two out of the four cases referred to, the papillitis did not appear during or immediately after the ague; there were no symptoms of effusion on the brain. Moreover, if the neuritis had depended on temporary alteration in arterial tension, it would probably have cleared up with the removal of the cause which had produced it, in place of remaining for weeks after the ague had disappeared.

The following is a well-marked case of rheumatic papillitis, brought under treatment at an early stage of the disease: J. B., aged 16, the son of a rheumatic mother, the lad having himself suffered from acute rheumatism when he was 9 years old; the attack, however, passed off without leaving any evidence of cardiac disease, and, although subject to muscular rheumatism, the lad had been sent to school, and appears to have enjoyed good health. On March 20th, 1889, he was seized with violent pain in his right eye, and, on the following day, his medical attendant, finding he was blind with this eye, ordered him to be sent home at once. I was called to see the patient on the afternoon of the 21st; there was then only perception of light in the right eye, which was extremely painful. The pain was increased on pressure, or by movement of the globe. There was deep sclerotic infection and great photophobia, but no increased tension. Atropine had been applied, and the pupil was dilated; the optic disc was completely obscured by dense effusion, which had extended into the vitreous and the retina. The veins were much congested. I ordered half an ounce of salicin to be divided into twelve doses, one to be taken every three hours; four grains of hydr. c. cretæ and five of rhubarb, to be administered at bedtime, and a saline purgative in the morning; low diet, and rest in bed. In twenty-four hours the pain in the eye was much relieved, and still more so on the following day, when the dose of salicin was diminished by one half. On March 29th the congestion of the eye had almost