tains the same relative position to the centre of the knee-joint as it does when the legs are straight. This is the nearest approach to the easy erect attitude which such a deformed infant can assume. Here, however, the mechanical conditions differ from those which exist in the easy erect posture in the normal individual, since there does not exist any tendency to the formation of a gradually diminishing anterior femoro-tibial angle, but, on the contrary, the rickety bones obey, in a varying degree, the tendency to yield in an oblique plane, whose direction is inwards and forwards, producing the condition called rickety knock-knee, which is very distinct in its causation and pathology from simple knock-knee.

Fig. 22 represents the left leg of a case of rickety knock-knee,

Fig. 22.

looked at from its outer aspect. It shows remarkably well the considerable curvature of the long bones in an antero-posterior plane.

Owing to the length of this paper, I have omitted to prove that a very large proportion of the cases of lateral curvature of the spinal column are also the result of the habitual assumption of attitudes of rest, either simple or complicated by an attitude of activity. I trust, however, that I have sketched sufficiently clearly matters of vital importance in the study of the causation and pathology, and consequently of the treatment, of conditions which have up to the present been regarded as very complex, for the reason that these several deformities have been considered separately by different observers, and have not been regarded as the simple mechanical results of pressure influenced in the rickety subject by the altered and impaired nutrition of the osseous system.

ANAL FISSURE.—Dr. Gregney (*Gaillard's Medical Journal*) recommends a simple, painless, but effectual method of treatment of anal fissure. It consists in first securing a thorough evacuation of the bowels every morning, and then introducing between the lips of the fissure a few shreds of lint saturated with a solution of chloral (1 to 50). This lint is left *in situ*. These dressings are repeated daily; the fissure is said to disappear about the tenth day of treatment.

THE CÆSAREAN SECTION: WITH NOTES OF A SUCCESSFUL CASE.¹

By MURDOCH CAMERON, M.D., F.F.P.S.G.,

Assistant to the Professor of Midwifery, Glasgow University; Obstetric Physician to the Glasgow Maternity Hospital; Dispensary Physician for Diseases of Women, Western Infirmary.

C. C. aged 27, primipara, was admitted into the Glasgow Maternity Hospital on April 10th, 1888, at the time of the forenoon visit. She was a little woman, somewhat delicate, and with all the appearance of a patient deformed by rickets in a very marked degree. She stated that she was in labour, at the full term of pregnancy, and had lately enjoyed good health, and that she felt foetal movements.

The following measurements were taken:—Height, 49 inches; anterior superior spines, 8½ inches; iliac crests, 8½ inches; external conjugate, 5½ inches; internal conjugate, 1½ inch.

On examination the promontory of the sacrum was easily reached with the finger, and the conjugate diameter only permitted the insertion of two fingers. In such cases of deformity there is usually a little more space to either side than in the conjugate, and here it was upon the right side, but not sufficient to be of any practical value. The legs were very much deformed from rickets, and she had not been able to walk till several years of age. On examination of the chest nothing abnormal was detected in the heart or lungs.

A consultation was called, and Drs. S. Sloan, Reid, Oliphant, and Black attended. After individual examination they all came to the conclusion that the conjugate of the brim was not more than one inch and a half. Dr. S. Sloan advised section as being the only practicable procedure; Dr. Reid discussed the question of craniotomy, but recommended section; Drs. Black and Oliphant concurred in these opinions.

The patient and her father having consented to any operation that might be thought advisable, she was put under chloroform at 4.30 P.M., ether being afterwards used. She bore the anæsthetic well and without sickness. The pubes having been shaved and the abdomen washed, an incision was made in the middle line from the umbilicus nearly to the pubes. The parietes were thin, and the few vessels cut were easily controlled. The incision into the uterus extended from below the fundus on the anterior aspect straight down for about five inches. The membranes were hooked up and an opening made, after which the living child was immediately extracted by the presenting head. He weighed 6 lbs. 12 oz. The placenta was detached and removed in a few minutes, the membranes being complete. There was free hæmorrhage from the sinuses. A finger passed from the vagina through the os uteri met another finger passed through the uterine incision, showing that there was a free channel for the lochia.

Seven silk antiseptic stitches were passed through the outer two-thirds of the uterine wall, and friction was applied to the fundus to ensure thorough contraction. The stitches on being tightened immediately checked the bleeding. Fifteen minims of Tanner's solution of ergotine were injected into the thigh. The abdominal cavity having been carefully sponged out, and the external wound closed with nine antiseptic silk stitches, three long strips of adhesive plaster were applied at intervals, and the parts dressed with boracic cotton and sublimated "Gamgee," over which the binder was applied.

Everything about the patient was immediately changed; hot pans were placed round her, and nurses appointed to take charge of the case. The time occupied was about fifty minutes. At night after the operation the patient felt well, and slept at intervals. She got iced milk and soda in teaspoonful doses amounting to an ounce every hour.

April 11th. The report stated that she had slept a little during the night after a half-grain morphine suppository had been given. She did not sleep during the day but felt well. The quantity of milk was increased to an ounce and a-half every hour. She complained only of thirst and hunger, and wanted food. She voided urine, but the catheter was passed every six or eight hours.

April 12th. She had slept nearly all night. On examination the abdomen was found distended with flatus. Complained of the milk and soda making her sick. Got a small mixture of pepper-

¹ Read in the Section of Obstetrics at the Annual Meeting of the British Medical Association, held in Glasgow, August, 1888. The mother and child were presented to the meeting.

mint and morphine for flatulence. Had a little arrowroot, which she said also made her sick. Vomited a little in the afternoon and again in the evening. Slight pain, probably due to flatulence. Lochia normal.

April 13th. Dressings and plaster changed. No stains on cotton dressing. Slight vomiting till the afternoon with expulsion of flatus. A little champagne checked the sickness. Temperature slightly increased, being 99.2° F. The breasts which were gorged were exhausted. The lochia was normal in quantity and character.

April 14th and 15th. Patient very well.

April 16th. Slept for six hours and a half, during the night. Had an enema of glycerine, soap and water, which operated three times. The temperature rose towards the afternoon to 100° F., and the pulse to 102, probably due to the disturbance in the movement of the bowels, and also to the fact that the breasts had again to be exhausted. At 10 p.m. the temperature was 98.2° F., and the pulse was 102. Allowed a little toasted bread in the morning and evening with tea. Lochia normal.

April 17th. Pulse 114, full, firm, and regular; respirations, 34. Slept five hours and twenty minutes during the night. On examination to-day the abdominal wound was found to have healed by first intention. The abdominal walls had quite fallen. There was no complaint of pain, but she had coughed a little with slight expectoration. In the evening there was slight headache with flushings of heat. Temperature 100.2° F.; pulse 124. Lochia normal.

April 18th. Slept seven hours and ten minutes during the night. In the afternoon she was again slightly troubled with cough and headache. Pulse 120; respiratory murmur over front of chest slight, rough. Temperature at 6 p.m. 100.6° F. Lochia normal.

April 19th. Had slept over six hours; pulse 102, respirations 32, easy and tranquil. The stitches were removed from the abdominal incision and plaster, cotton and "Gamgee" applied afresh. Allowed to lie on her side, and felt much better; cough less and no expectoration. Lochia normal.

April 20th. Slept six hours and a half; felt well; no complaint; no cough since she was allowed to lie on her side.

April 21st. Slept six hours and forty minutes; was removed into a side room. Had an enema: passed urine herself.

April 22nd. Slept seven hours and ten minutes; felt quite comfortable. Lochia normal.

April 23rd. Slept six hours and ten minutes. Temperature 99.2° F.; pulse 100. Dressings and plaster changed. No complaint.

May 4th. Allowed to rise for a short time. Temperature 98° F.

May 9th. All discharge ceased.

May 16th. Dismissed. Child weighed eight pounds twelve ounces, having gained two pounds.

The patient reported that she menstruated on leaving the hospital, and said it lasted three days.

The interest and importance connected with Cæsarean section lies not only in the responsibility of undertaking this operation

when one is called upon to decide whether he is justified in destroying the child in the hope of saving the mother, or if he may not, without exposing the mother to any increased risk, prefer to perform section, but also, if section is determined upon, whether it shall simply consist of the Cæsarean operation, or whether the uterus should not be removed at the same time; and, last of all, whether the Cæsarean operation might not be accompanied or followed by the removal of the ovaries.

Now, I am quite convinced that each of these modes has its partisans, and numerous statistics are given to support their opinions; but in this, as in many other things, I hold that statistics are untrustworthy, as they by no means give any idea of the mortality from those major operations. They are mostly gathered from medical journals, and you do not require to be told how few men rush into print with a list of unsuccessful cases. It is otherwise with successful cases, and so you have methods recommended which when tried do not produce, even in experienced hands, any better result than the simpler method of section when performed with care and skill.

It is not to be wondered at that in some countries the operation was discountenanced when we learn that a gag was placed in the mother's mouth so that the child might breathe, and that valuable time was lost after the uterus was opened in order to baptise the infant, not to speak of the fact that sutures were never applied, either in the uterine or abdominal wound. Again, the percentage from modern methods which have all the advantages of modern surgery is opposed to that of the Cæsarean section of an early date.

Now, I am quite convinced that, so far as the operation is concerned, the simple Cæsarean section gives the best chance both to the mother and child. Further, it is quite unfair to compare the results, when we learn under what different conditions the operation is performed. For instance, Barnes, Playfair, and Leishman limit the cases to a conjugate diameter of an inch and a half. As a result, many of the cases operated upon were in a dying condition, either from exhaustion or abortive attempts to extract the child before section had been resorted to. In Germany, on the other hand, the operation is freely resorted to in cases where British obstetricians would never dream of performing it. For instance, in an analysis of cases published by Zweifel in the *Archiv f. Gyn.*, 1887, I find the following:

1. Particulars not given.
2. Conjugate diameter 3 inches, previous confinement by turning.
3. " " (?) 2½ " had living children.
4. " " 3 " " " child by forceps.
5. " " 3 " " " in 7th month.
6. " " 3½ " " still-born child.
7. " " 3 " " living child by forceps.

In the same journal there are two cases by Dr. Lébédéff with conjugate diameters of 3½ inches. Gusserow also publishes a case in the *Centralblatt f. Gyn.*, 1887, No. 20, where he operated in a conjugate of 3 inches.

Now, there can be no question as to the effect such conditions and an early operation have upon the result; but, I ask, would we be justified in exposing the mother to the dreadful risks of such an operation with a conjugate diameter of three to three and

in its detachment, better results would follow. Frequently I have seen serious results follow the unskilful removal of an adherent placenta in normal confinements, and this is due to the system of removing the placenta with the finger-nails rather than

Fig. 1.—Anterior view, showing deformity from rickets, as also line of incision.

an eighth inches? You will agree with me when I emphatically say No.

Again, if greater care were given to the removal of the placenta

Fig. 2.—Posterior view, showing curvature of spine.

scooping it off with the edge of the hand. You will understand the difference if I refer you to the ease with which you open a closed envelope with a pencil or pen, as compared to the clumsy attempts to open it with your fingers.

Another evil consists in the plugging the cervix with a so-called drainage-tube, which simply acts like a foreign body. Every practitioner is aware how even a small clot in the cervical canal, if not expelled by the uterine contractions, excites hæmorrhage, and distension of the uterus results. In like manner drainage-tubes are apt to produce distension of the uterus, with gaping of the uterine wound.

There is much difference of opinion as regards the closing of the uterine wound, and according as a successful case is published with or without sutures do we find writers wavering in their opinions for or against. I am quite aware that Dr. Edmunds's cases have done well without sutures, but at the same time I desire to state that I began my operation intending, if possible, to do without sutures, but took the precaution to have them ready in case of need; and I am of opinion that in this case the sutures were not only beneficial, but necessary. Therefore I feel convinced that whilst there may be cases which, when left to themselves, do well, there must be a large number of cases where the sutures are necessary; and Dr. Edmunds's second case, where some alarming gushes of blood continued to take place for three or four hours, was one where sutures were called for, notwithstanding that the patient did survive the danger arising from the uterine wound having been left open. Dr. Edmunds has a curious notion that, if sutures were put into the uterus, it would writhe and writhe until it got itself free. If the sutures are made of pure silk and thoroughly antiseptic, I see no reason why the precaution of closing the wound should not be taken in all cases. Dr. Martin, in the *Berliner Klinische Wochenschrift*, 1876, No. 26, condemns catgut sutures, but recommends silken ones, although I think he wrongly advises that they should be passed through the whole thickness of the uterine walls. Zweifel applied sutures in seven cases, with only one unsuccessful result. Dr. Lébedeff also applied sutures in two cases with good results. Hofmeier published two successful cases in the *Zeitschrift f. Geb. u. Gyn.*, xiv; in both of these he applied sutures. Dr. Galabin, who has published two cases, is of opinion that sutures of some sort are useful as long as they hold fast. Carbolised gut, in the experience of several, cannot be relied on.

I will not further take up your time with any remarks upon this operation, unless just to observe that a case has been recorded where the operation was performed for suspected carcinoma, and where the same patient was afterwards delivered by the ordinary course and no trace of malignant disease was found. I do this in order to impress more fully the great necessity of making a positive diagnosis before resorting to an operation which may imperil the life of the patient. As regards assistance I think the fewer hands the better, and in the majority of cases the operator and an assistant is quite sufficient in so far as the operation is concerned. Besides these principals, if I may so term them, a third should have entire charge of the instruments, a fourth of the chloroform, whilst a nurse with assistants should attend to the sponges and antiseptic solutions. As in this case, I think the staff and a few students should have the privilege of witnessing the operation if performed in a hospital.

I here take this opportunity to record my indebtedness to Dr. Reid for his able and skilled assistance, to Dr. Oliphant for his supervision of the instruments, and to Drs. Fox and Connal for their careful administration of the chloroform and also their deep interest in the case throughout whilst the patient was in the hospital.

In conclusion, I desire to record that much of the success of this operation was due to the matron, Miss Gordon, and to the nurses for their untiring attention to every detail in the after-treatment of the case.

Now, gentlemen, I thank you for your attention, and would like to hear your opinions, not only on this case, but also upon our duty in all such cases, namely: 1. When is the operation justifiable? 2. Whether Cesarean section or Porro's operation is in your opinion preferable? 3. The treatment of the stump in Porro's method. 4. Whether the Cesarean operation might not be accompanied or followed by the removal of the ovaries? 5. Any other points of importance.

NATIONAL REGISTRATION OF PLUMBERS.—Dr. Ewart, Chairman of the Sanitary Committee, Brighton, has been elected President of the District Council of Sussex for the current year. It has been arranged to open classes for plumbers in the Brighton Technical Institute.

CASE OF SUCCESSFUL CÆSAREAN SECTION (PORRO'S MODIFICATION).¹

By D. BERRY HART, M.D., F.R.C.P.E., F.R.S.E.,

Lecturer on Midwifery and Gynaecology, Surgeons' Hall, Edinburgh.

THE propriety of Cæsarean section in suitable cases is not now questioned, but much requires to be done to settle its indications and to perfect its *technique*. Thanks to the work of Porro and Sanger, we are now in possession of vastly improved methods and results, so that what is now chiefly necessary is the publication of all cases where such operations are performed, as a basis that shall be sufficient, in time, for generalisation. My case is briefly as follows.

Mrs. C., aged 25, had been five times pregnant. On two occasions craniotomy had been performed; once abortion was induced at the fifth month, and once premature labour between the sixth and seventh. The child was stillborn in the last instance and with difficulty. After the fourth pregnancy she was advised by Dr. Angus Macdonald to have Battey's operation performed, and was sent to me, after Dr. Macdonald's death, by Dr. Stewart Stirling for advice in the matter. I thought it better to advise Porro's operation, should pregnancy occur again, as this would give her a living child and ensure future sterility. The patient was specially anxious to undergo the risks labour brought her as seldom as possible. Her pelvis, when measured, had a conjugate diameter of 3 inches, and therefore a true conjugate of about 2½ inches. The transverse at the brim was also narrowed. The pelvis was a rickety one, with the narrow transverse found often when the disease comes on after infancy.

She soon became pregnant, and I therefore agreed to perform Porro's operation a few days before labour began. On March 25th last, I operated in a private nursing home, in the following manner. The ordinary details and preparations as for abdominal section I, of course, omit.

Chloroform having been administered by my assistant, Dr. Stewart, I made a six-inch incision through the abdominal walls, and opened the peritoneal cavity. The uterus was incised *in situ* to the same extent. Dr. Barbour keeping up steady pressure all the time. I speedily came down on the membranes in the lower third of the incision, and completed the incision with a probe-pointed bistoury, guided on the index finger. After rupturing the membranes with Péan's forceps, I passed my hand into the uterine cavity, brought out the child head first, and handed it to Dr. Stirling. While this was being done, Dr. Barbour had turned the uterus out of the abdominal cavity and held it so, grasping the isthmus firmly and pressing the abdominal wall round it. I passed an elastic tourniquet, held ready by Mr. Caird, round the isthmus immediately above Dr. Barbour's grasp, and tightened it. The opening of the uterus, and the procedure up to the application of the tourniquet, occupied only a few seconds, and the blood lost was trifling. The child was vigorous, and continues to thrive. I now passed Lawson Tait's modification of Koeberlé's *serre-nœud* round the uterus above the elastic tube, and tightened it. The uterus and placenta were amputated, the handle of the *serre-nœud* brought over the pubes, and thus the stump was pulled down accurately to the lower angle of the wound. The abdominal incision was closed in the ordinary way with silk sutures, after the peritoneal toilette, care being taken to close it firmly round the stump, which was dusted with persulphate of iron and iodoform. There was no shock, the patient made an uninterrupted recovery, and is now, along with her baby (a girl) in excellent health.

I have to thank the gentlemen already mentioned for their valuable aid, as well as Professor Simpson and Dr. Helm, who were present.

I now wish to make a few remarks based on this case and four others I have seen or assisted at. I performed Porro's modification in my case, as it was the patient's desire to have no further risk. The weak point in Porro's operation is the extraperitoneal treatment of the pedicle. In certain cases, however, notably in malacosteon, dead children with putrefaction, and in pregnancy with fibroids, it is the best operation. It is by no means formidable, if performed as I have described, and gives a good rate of recovery. The improved Cesarean section according to Sanger and Leopold will, however, I am of opinion, be the

¹ Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association, held at Glasgow, in August, 1888.