profuse diarrhoea. At the end of three days she was seized with severe stabbing pain in the same situation, almost causing her to faint. Similar paroxysms occurred subsequently, while in the intervals between these paroxysms the burning pain continued. All these symptoms were aggravated during the months of pregnancy, which terminated prematurely at the eighth month in the birth of a stillborn child. This was in December, 1885. Immediately after this occurrence she experienced a new pain in the right side of the abdomen of a gnawing character. She referred this to a point about midway between the anterior superior iliac spine and the umbilicus of the right side. These symptoms were present when she was admitted to hospital. During her stay in hospital previous to operation she had frequent attacks of the paroxysmal pain, beginning at the back over the right renal region, and shooting through to the front under the right costal arch, "as though a needle were being driven through from behind." This pain radiated across the abdomen, and more lately passed down to the hip, sometimes posteriorly, sometimes in front and down to the inside of the thigh. When an attack came on she used to coil herself up in bed and writhe with the pain. It was always accompanied by nausea and by vomiting if she had taken food shortly before. Since her last confinement menstruation had taken place fortnightly, lasting for eight days, and during these periods the pain in the abdomen was aggravated. On examination it was found that tenderness on pressure was marked in the back over the two last ribs and below them, but nowhere else in the neighbourhood. Anteriorly, where she complained of the abdominal pain, a swelling with its long axis vertical could be felt, tender to the touch and scarcely movable. It was difficult to determine what this tumour was; it felt in shape like a kidney, but it felt longer and occupied a distinctly lower position than that of the normal organ. The increased pain during the menstrual periods gave rise to the idea that it might be a diseased ovary.

The urine, which was frequently examined during her stay in hospital, nearly always presented the same characters. It was acid, of normal specific gravity, and contained no albumen, pus, or blood; but after standing a short time a well-marked deposit of oxalate of lime was invariably seen. Under the microscope numberless crystals were found, mostly octahedra, but sometimes ovoids and dumb-bells. Occasionally a deposit of amorphous lithates was thrown down. In addition to these might be seen vaginal epithelium and a few cells resembling pus corpuscles.

Dr. Wallace Beatty, who took a very great interest in the case, and who rendered me much valuable assistance, considered that it was a case in which operative measures should be adopted; and this view was also held by my other colleagues. Accordingly I performed the operation of nephrolithotomy on April 5th, 1887. I used the lumbar incision, about five inches in length. When the muscular layers had been divided, I found the lumbar aponeurosis was adherent to the peri-renal fat, and that it required some trouble and patience to clear the anterior surface of the kidney. The posterior surface was readily freed. The first thing which attracted special notice was a depression about the centre of the convex border of the kidney, which presented the appearance of a stellate cicatrix, but beyond a slight thickening of the renal substance beneath it, nothing could be felt to account for this. The kidney occupied a distinctly lower position than usual, and was decidedly longer than the normal, and I have no doubt but that this was the swelling which was felt through the abdominal wall previous to operation. There was absolutely nothing to be felt of an abnormal kind in the renal pelvis. As I could easily draw each part of the kidney in turns up to the lumbar incision, I carefully passed each portion through my fingers, but I could detect no hardness or inequality to guide me as to the position of a calculus. Exploratory punctures made seriatim in every direction likewise failed to give any clue. Under these circumstances I determined to make the exploration complete by incising into the kidney substance, as otherwise the only alternatives left to us would have been either to leave her unrelieved, or to excise, as Mr. Morris has done, an otherwise healthy organ. I began by making an incision about an inch and a half long, with the cicatricial depression as the central point, along the convex margin. The hæmorrhage at first was very brisk, and took some time and pressure to arrest. This incision reached down to the pelvis. With my finger passed into it, I felt about in all directions, but without success. I then got a probe-pointed and grooved director, and passing it into the wound in the kidney, explored in several directions. Suddenly it slipped upwards

into what was evidently a small abscess cavity, and some pus came along the groove of the director. A small calculus, about the size of a pea, was distinctly felt lying in the cavity. I now passed a knife along the groove, and by means of an extension of the wound upwards for about an inch, I laid the abscess cavity freely open. The amount of pus contained in it was about half a drachm. The wound now bled freely, and as pressure seemed to have little effect, I irrigated it with weak corrosive sublimate solution, which in a few minutes controlled it to a great extent. Unfortunately, the fluid washed out the stone, and before I could examine the returned fluid it had been thrown out. However, we succeeded in finding two or three very fine spiculæ. As the oozing from the kidney substance was still free, I thought it best to plug the renal wound lightly with a piece of antiseptic gauze wrung out in weak carbolic solution, the end of the gauze being brought out at the angle of the skin wound beside the drainage tube. The parts were sutured in successive layers, and the wound dressed with gauze and a turf mould pad. For two days after the operation the patient suffered from incessant vomiting, which nothing seemed to check. She was nourished entirely by nutrient enemata. She had had no return of the spasmodic pain—that is, the renal colic, but the prostration from the vomiting caused me some uneasiness. On the morning of the third day, having tried every medicinal expedient I could devise, it occurred to me that the vomiting might be reflex from the kidney, and might be due to the plug which I had put in to stop the bleeding, much in the same way as nausea is so generally an accompaniment of renal colic. I accordingly at once removed the plug by gentle traction, with the happy result that vomiting only occurred once subsequently. From this time she made rapid progress. The wound remained aseptic throughout, and healed by first intention. The urine continued to flow along the track of the drainage-tube for four weeks, and a fortnight later the patient returned to her home in Holyhead. She completely got rid of the pain in the back and abdomen, and had no return of it when last I heard of her. I believe she is now in perfect health. When she left hospital she had regained flesh and colour, and looked a different woman.

This case is interesting in many ways, and I think it is one also of considerable importance. When Mr. Henry Morris excised an otherwise healthy kidney, and found in it a small calculus hidden away in one of the calices—which on a previous occasion he had been unable to detect, either by digital exploration or by needle puncture through a lumbar incision—he suggested that it might be better practice to open up the kidney and explore the calices rather than to sacrifice a healthy organ. This advice has been unfavourably criticised in some quarters, but I venture to say that this case goes to prove the wisdom of the suggestion. Had I not cut into the kidney, I must have resorted to the more dangerous expedient of nephrectomy, or have been satisfied to leave my patient *in statu quo*; and I believe that the exploratory incision is by far the safest alternative. The result in this case makes me regret that I did not resort to it in the second case.

Another point which this case emphasises is that, to arrest the hæmorrhage from the kidney, should it prove difficult of control, it would be better to compress the edges of the wound together by plugs applied external to the kidney, rather than by leaving any foreign body in the substance of the kidney itself. Taking these cases together, it will be seen that the only symptoms common to all three are the pain and the localised tenderness. In forming a diagnosis, the condition of the urine may act as a guide, but the absence of blood or pus from it is not to be depended on as indicative of the absence of a stone.

ILLUSTRATIONS OF THE ORTHOPÆDIC APPARATUS, REFERRED TO AT A DEMONSTRATION OF MODERN ORTHOPÆDIC METHODS.¹

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THE points chiefly urged in regard to the use of instruments were as follows:

1. Determination by the surgeon himself as to the kind of instrument to be used, if any.

¹ Read in the Section of Surgery at the Annual Meeting of the British Medical Association held in Dublin, August, 1887.

2. Simplification of the mechanisms (combining lightness with efficiency) and

3. Construction admitting of easy alteration by the surgeon. Success in treatment often depends upon the skilful application of these principles.

Knock-knees in children may generally be cured by instruments. In slight or moderately severe cases the following splint, or a modification of it, may be efficient. In this case the leg could be at once drawn into a straight, or nearly straight, position.

Plate at top of straight metal splint coming well up }
thigh, for firm bearing.

Stiff band behind thigh to counteract the tendency of }
the splint to come forward; soft strap in front.

Knee-cap and straps to pull knee outwards

Lower end of splint forming a peg at right angles, work- }
ing in a round socket in the boot.

Fig. 1.

The splint can be bent by the surgeon with wrenches.

In many cases where both legs are affected it is necessary to connect the tops of the splints by a band across the buttocks, to keep the thighs sufficiently forwards, and the feet from turning in too much.

In more severe cases a rack joint must be placed opposite the knees.

Fig. 2.

Firm band passing behind knee, up to which the knee can be drawn when this part has a tendency to come forward, and also when there is hyperextension.

It is also necessary to keep the legs always extended.

Many modifications have to be made as a severe case progresses towards recovery.

Fig. 3.

Bowed legs can generally be straightened by splints in children.

The patient can walk about, but it is essential that the splints take a bearing from the ankle, coming down to the ground and from the inner condyle of the femur.

Band of attachment at knee

Band to act upon the curve

Round peg working freely in a socket

Fig. 4.

When the curve is forwards, splints are not of much use, as we lose the points of firm resistance at each end.

If any splint is used it may be made as shown here.

Gutta percha shield to protect anterior sharp edge of tibia....

Forked end taking a bearing upon each side of the heel.....

Fig. 5.

Here osteotomy is often the only means of correcting the deformity.

Fig. 6.

Fig. 7.

Fig. 7 is a case of talipes equinus. The patient, in continually attempting to place the sole of the foot flat on the ground, has caused the knee to give way, producing hyper-extension, shown in Fig. 6.

Treatment consisted in division of the tendo Achillis, and rectification of the position of the foot. Then the wearing of the apparatus shown in Fig. 8.

Thigh band at upper end of single lateral bar

Front stop joint at knee preventing hyper-extension, but }
permitting free flexion.

Joint at ankle at first fixed, then either front stop joint to }
protect tendo Achillis from too much strain, or back }
stop joint to prevent recontraction, or limited movement }
both ways according to disposition of case.

Fig. 8.

Fig. 9.—A case of rupture of the internal lateral ligament of the knee-joint. Instrument applied to outer side of peg, with free movement of knee-joint and limited flexion of foot.

Without this support the patient could only walk with the aid of crutches, and then with difficulty. With it she could walk well with the aid of one stick, and even the stick was not absolutely necessary. She wore this for a few months; six months after, the knee was quite well and strong.

Fig. 9.

Fig. 10.—G. C., aged 8. Scrofulous disease of knee-joint; very bad family history. Duration of disease, three years, commencing after an injury. Knee said to be out by celebrated bonesetter; he used forced movements, and abscess came; knee made much worse. There was constant pain and swelling of joint. Applied instrument.

Trough to support thigh attached to each }
lateral metal rod (one on each side) with- }
out movement of knee.

Knee-cap to keep knee towards support.....

Joint at ankle with front stop, so that weight }
of body in walking was transmitted up- }
wards without use of muscles of leg.

Raised sole to compensate for flexion of knee

Fig. 10.

Result.—Rapid improvement and cessation of pain and heat in joint. A year after was walking about comfortably, but owing to very bad family history was directed to continue to wear instrument, which is no trouble.

Fig. 11.—Modified Thomas's splint for acute hip-joint disease. Attached above by shoulder straps, leaving chest perfectly free.

Fig. 11.

Fig. 12.—Dr. Judson's (New York) ischiatic crutch for hip disease, used by him in all stages of the disease. I have found it very useful after the acute stage has subsided.

Fig. 12.

This apparatus my friend Dr. Virgil P. Gibney (New York) intended to show at the meeting, but, unfortunately, it did not arrive in time.

Fig. 13.—For caries of the spine. Plaster-of-Paris, leather, or gutta percha back splint moulded to the back while the patient is recumbent in a prone position, with the legs at an angle of 45° with the straight line of the body (so that the lumbar part of the spine does not bend in too much).

Fig. 13.

This splint is applied upon the principles of Mr. E. J. Chance's instrument. The latter is the more perfect appliance, because it enables the surgeon to regulate more exactly the bearing of its different parts in accordance with the progress of the case; but for general purposes the splint here depicted is applicable, and by it the spine is held firmer than by any jacket.

Fig. 14 represents a plaster-of-Paris spine support for caries leaving the chest perfectly free, strengthened in back by metal bands.

Fig. 14.

THE ETIOLOGY AND CLASSIFICATION OF THE ANÆMIA OF PUBERTY.¹

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A LARGE number of girls suffer during puberty from a condition of ill-health characterised by a very constant train of symptoms, and to which the names anæmia and chlorosis are applied. Although the disease is so common, its symptoms so plain, and the treatment, as a rule, so successful, the etiology is by no means well established, various theories being put forth by different writers.

Trousseau² considered it a neurosis, the blood changes being secondary. Niemeyer³ appears to consider it as a result of premature sexual activity. He writes: "According to my observation, obstinate chlorosis attacks all young girls without exception in whom the menses have appeared in the twelfth or thirteenth year, before the development of the breasts and pubes." Mitchell Bruce⁴ says the origin of the disease lies in a peculiar condition of the blood and blood-vessels, which is believed to be congenital and perhaps hereditary. Aitken⁵ considers chlorosis as one of the "functional diseases of the female organs of generation in the unimpregnated state." Sir Andrew Clark⁶ considers "fæculent retention and its consequences" as the cause. Sée⁷ looks upon the inability of the organism to meet the demands made upon it by the simultaneous advent of menstruation and of rapid growth of the tissues as the cause.

A great many predisposing and exciting causes have been described by various authors; most of these seem to be not so much causes as merely coincident with the time of life at which the disease begins, but, generally speaking, all things are causes which lessen metabolism and the power of the system to meet the demands made upon it, such, for instance, as want of exercise, improper food, and vitiated air, and the variety of the disease caused will depend greatly upon the force and direction of these causes.

The distribution of the disease bears this out. It is not confined to any class, but is more often met with in large towns than in the country, and is much more common amongst girls who sit at their work than amongst others. When it does occur amongst servants, defective drainage is often an exciting cause. In Dublin the disease is very common; yet in Huddersfield, where the great

¹ Read before the Medical Section of the Royal Academy of Medicine in Ireland, March 9th, 1888.

² *Clinical Medicine*, vol. v, p. 101. 1872.

³ *Textbook of Practical Medicine*, vol. ii, sec. iii, chap. i.

⁴ Quain's *Dictionary of Medicine*, art. Anæmia.

⁵ Quoted by Sir Andrew Clark in a paper read before the Medical Society of London, November 14th, 1887.

⁶ Medical Society of London, November 14th, 1887.

⁷ Quoted by Sir Andrew Clark.