double genu valgum, of such severity that she could at no time walk more than 200 yards without assistance; she had previously undergone a variety of treatment, and my colleague, Dr. Ashley Cummins, having decided to perform osteotomy, consulted me with regard to the matter. On expressing to him a wish that I should be allowed to try if it would be possible to fracture her thigh with the screw clamp, he kindly handed her over to me for treatment.

On July 25th, 1888, I operated in the manner described, using a timber wedge covered with felt to fracture her left femur. The bone was broken $2\frac{1}{2}$ inches above the joint. There was no difficulty in the operation. The arms of the clamp were separated $4\frac{1}{2}$ inches; the time of pressure about 25 seconds. There was no skin wound. The limb having been enveloped in Gamgee tissue, a long splint was applied.

July 29th. Examined her thigh to-day. There was only slight ecchymosis at the points of pressure. She had no pain; temperature normal.

September 13th. Her limb was quite straight and firm; she was able to stand with slight assistance to have her photograph taken.

M. S. seven weeks after operation on left femur.

September 14th. Fractured her right femur to-day, using a steel wedge, which was covered with india-rubber. There was no skin wound. Put her up as before in Gamgee tissue and a long splint.

September 23rd. Limb quite straight, doing well; temperature normal.

September 29th. Limb put up in a plaster bandage.

October 26th. Doing well. Limb quite straight.

E. B., admitted September 16th, 1888, a strong little girl, aged 12, from the Bridge of Allan; genu valgum in the left extremity.

September 18th. Applied the clamp, the wedge being of polished steel, 2 inches above the joint, for 30 seconds; failed to fracture the bone. Separated the curved arms, which had been fixed at 4 inches, to 5 inches, and again applied the wedge $2\frac{1}{2}$ inches above the joint, time of pressure 30 seconds; the bone was felt to have slightly given. The clamp having been removed, the end of the wedge was found to have caused a skin wound 1 inch long. Applied the clamp for the third time, taking care to draw the injured skin aside; time of pressure, 25 seconds, when a slight jerk of the leg inwards completed the fracture. The wound was dusted with iodoform, and dressed with a large pad of iodoform wool. The entire extremity was enveloped in Gamgee tissue, and a long splint applied. 9 P.M. There had been much oozing from the wound; during the day the antiseptic pad had to be changed three times.

September 19th. Free from pain. Temperature, 99° F.; no discharge.

September 23rd. Dressed the wound to-day; it was looking well. Temperature normal. There was no pain or swelling.

October 27th. Wound healed, bone united, limb quite straight.

January 1st, 1889. Child walking about quite well.

An anæsthetic was administered in each case.

To my colleague, Dr. Ashley Cummins, I am indebted for his valuable assistance, and for affording me an opportunity of operating on two of his patients.

The screw clamp and appliances can be obtained from Messrs. Arnold and Sons, West Smithfield.

RICKETS IN RELATION TO FLAT-FOOT.

A REPLY TO PROFESSOR OGSTON'S PAPER IN THE JOURNAL OF NOVEMBER 24TH, 1888.

By T. S. ELLIS, M.R.C.S.,

Consulting Surgeon (late Surgeon and Ophthalmic Surgeon) to the Infirmary at Gloucester.

PROFESSOR OGSTON says of flat-foot: "I am satisfied it is seldom due to anything but rickets," and this startling opinion is given as being "contrary to those who believe it to be caused by defective action of tendons." But, we are told, "the normal shape of the bones is admittedly produced" by the action of muscles, and they who, like myself, have earnestly worked to apply this very principle to the cure of deformity have now our choice of beliefs. We may believe that our published experiences are unnoticed altogether, or that we are classed among those whose "alleged cures of flat-foot are not cures at all."

The principle that muscular action influences the shape of the bones being thus clearly stated, I am surprised to find no recognition made of muscular action in the treatment of rickets. In this disease there is great disposition to deformity; but this is due to a softness of bone which would make it specially amenable to any re-formative influence. Nor, as agents in the treatment of rickets, do I find recognition of any means for specially promoting the nutrition and development of muscles and of bones. Yet we know that such agents as dry friction and intermittent compression will promote and maintain the development even where exercise is entirely debarred.

The case of M. H., now aged 10, child of a commercial traveller, will show how much may be done in this way. The name and address of the patient in any case I cite are available for inquiry. When little more than a year old she had marked rickets, with great deformity, "as if [to adopt the expressive words of her mother, lately used] a wheelbarrow could go between the legs." I have no reason to suppose that anyone had ever attempted to treat such a case without instruments. I took advantage of an earnest mother's anxious desire to avoid "irons," as worn by a neighbour's child, to see what muscular action could do. The treatment adopted was this: She was danced up and down, while held by the hands, and the legs were brushed and rubbed, the muscles being kneaded—no one talked of massage at that time. All this was done with a persistency beyond all praise. Until three years old no foot-clothing was worn, and, so far as it could be prevented, she was not allowed to stand or walk. After this walking was limited, and other exercise regulated. At seven she was quite well, and her legs are now boasted to be "the best in the family." It may not often be possible to carry out the same plan, but, on the other hand, I now know how to bring such cases on more rapidly by more varied means. If surgeons ignore such treatment, the day will come when gymnastic instructors will show them the error. M. H. had no flat-foot, and, in my observation, it is by no means common in rickets. It often goes with knock-knee, but that deformity is not commonly due to disease.

In "Preventive Surgery, as Illustrated by Knock-knee and Flat-foot,"¹ I have endeavoured to explain how this occurs. Bow-knee and tibia out-curved are more usual in rickets. Here, the tibia being inclined inwards, the foot tends to rest on the outer surface only of the sole. To bring down the inner part, and to give a bearing, action of the peroneus longus is necessary. This muscle, which everts the foot when the foot is free to move, braces up the arch as it depresses the inner margin when the foot is fixed on the ground. It thus assists the flexor longus, the principal bowstring, in supporting the arch. Hence the walk of a bow-legged person is much more springy than that of one knock-kneed. Here the leg is flung round in a mowing-like action, and, the foot flopped on the ground like a fin, there is little if any spring.

¹ JOURNAL, June 30th, 1888.

If it be true that flat-foot is "seldom due to anything else than rickets," it follows that (subject to exceptions seldom occurring) the vast number of young persons who acquire this deformity have become, or previously were, the subject of rachitic disease. These range from trained nurses to machine-tenders; and it is most desirable that we should know how to demonstrate that the disease is certainly present. "Beading of the ribs" will surely not be always found. Professor Ogston has, it seems, some means of telling, in the case of children, that the rachitic tendency is "certainly absent." Will he tell us how to determine how it is *certainly present*?

I will cite four cases of flat-foot in which I saw no suspicion of rickets, and which are not total, nor even "nearly total failures," and which show that gymnastic exercises are not only available for the "wealthy and leisured classes." Miss H., a mother's help in a farm house, had, two years ago, double flat-foot badly. It was just such a case as I should expect to see osteotomised. The family attendant, she told me, could promise no relief unless she could go to bed for three months. She never left her work for a day. She got well, and only left her situation to get married. The only treatment she had was tiptoe and other exercises and dry friction. Proper ordinary boots and stockings were necessary; I attach almost as much importance to the latter as to the former. These and four consultations with me were all the expenses she incurred.

My first case, now of seventeen years' date, has been published; it was that of a farrier's apprentice, an extremely bad case, who became a farrier in the 2nd Life Guards, and who playfully reproaches me with having led him into frivolity, for he had become celebrated in the regiment as a dancer, and was too fond of it.² My last case is that of a young farmer, Mr. C., who, determined to keep going, had worked during summer and autumn on the hay and corn ricks, standing without boots. This gave some relief to pain, still manifest to those around. His feet, when I saw them, on October 13th, were quite flat. Put on the same course as Miss H., he had immediate relief, so he told me on walking briskly into my room a fortnight after; and subsequent report—I have not seen him—is still most favourable. I have no doubt of his perfect recovery. But Professor Ogston speaks of "the many writers who have deceived themselves regarding their cures for flat-foot." He tells of cases where the deformity remains "as glaring as ever to the eye." Is it necessary to point out that the actual deformity may be removed, but a visible deformity remain? Master S. E., aged 14, illustrates this. He is a school boy, and was partially debarred from games by bad double flat-foot. When I first saw them, three months ago, one of his troubles was irritation on the skin above the middle joint of the great toe. He could not press it flat on the ground; it would flex, and so the angle formed was irritated by the boot. The abductor, adductor, and flexor brevis pollicis had all been crushed and paralysed, and so the long flexor pollicis acted as it does when pulled in an amputated foot. Now they are restored, and the great toe lies flat, but their fleshy masses fill up the hollow of the sole. The deformity is as "glaring as ever to the eye." But the boy is functionally cured for all that; he has arch enough to protect his sole muscles, which is the object of its existence. He will continue to improve, but, even if he remained as he is—he can do anything that school boys do—I say it is better far to do so than to have undergone Professor Ogston's operation, even if it gave "such beautiful arches" as to suggest photography. "Three months in the plaster before ankylosis is complete and the patient can walk" might well be the "worst feature in the cure;" but it is not. Cutting off cartilage and producing ankylosis, call it by what name you will, is a severe mutilation. For flat-foot I say—and, *pace* Professor Ogston, my experience justifies me in saying it—such mutilation is not necessary and is not justifiable. The charitable public may supply the hospital accommodation, and surgical skill may ensure the healing of wounds, but even these are mitigated blessings if they tend to divert attention from physiological processes. It is by restoration of function that flat-foot should be, and may be, cured in a manner satisfactory and permanent, safe and inexpensive.

Unlike flat-foot, curvature of the spine is not yet available for the correcting chisel. No one yet treats it as an engineer does a leaning chimney stack, by cutting out a bit on the convex side. And so we have an eminent surgeon expressing his belief that "never yet was a case of scoliosis cured." This is indeed remarkable, for "the tendency of the diseases on which it depends is almost invariably to a cure." Still it seems too much to admit

that a bone once deformed can be re-formed without operation. I should have thought that a surgeon who recognises that the form of bones depends on muscular action would at least admit the possibility of this agent rectifying a spine, whether affected by rickets or not. Whether of spine or of plantar arch, I cannot believe that the muscular action which forms is impotent to modify. It is to a firm belief in the principle which Professor Ogston now propounds, as distinguished from the practice he describes, that I personally owe more than fourteen years of activity and comfort after six of painful lameness.³ Increased experience has more and more convinced me that, from a surgical point of view, this principle is of the highest importance, not only in the surgical treatment of rickets, but in deformities generally.

Since this paper was sent, a quotation, by Sir S. Wells, from John Hunter has appeared in the JOURNAL (December 8th) thus: "for what I call a cure is an alteration of the disposition and the effect of that disposition, and not the destruction of the cancerous parts." For "cancerous" read "deformed," and this I claim for flat-foot cured by restoring function. It cannot be claimed for that which involves the "destruction" of an important joint.

ON A NEW TREATMENT FOR THE CURE OF PERINEAL URINARY FISTULA.

By W. THOMSON, M.A., F.R.C.S.I.

Surgeon to the Richmond Hospital, Dublin; General Secretary, Royal Academy of Medicine in Ireland.

EVERY hospital surgeon has now and then to deal with cases of urinary fistula which exercise all his ingenuity and his patience, and which in the end he has to abandon in despair. They occur in a class of patients who are not very mindful of the inconvenience of the initial stages, and the history we usually get is that the condition has existed for many years, often aggravated by a life of privation or debauchery. If treatment has been begun and carried to a certain point, say the full dilatation of a stricture, the patient is sent out, he fails to continue the use of a bougie, the stricture recontracts, and the old mischief is perpetuated.

Last year I operated upon a case in private, where the fistulae had existed for six years. I laid open the burrowing tracks, scraped or snipped away the walls, laid open the urethra in the perineum, drained for some days, used the catheter steadily for many weeks to draw off all urine, and failed to cure. Soon afterwards a case came under my care in hospital. The patient had been operated on elsewhere for stricture, and an opening had been made in the perineum. This did not heal, and two attempts which were made to close it had a like result. When I saw the man he had a stricture which admitted a No. 7 catheter, and in the perineum an opening about an inch and a quarter in length. The urine was loaded with pus, he was obliged to pass water very frequently day and night, and he suffered at times intense pain. No tube casts could be detected. I determined to make an effort to close the wound in the perineum, and I accordingly freely divided the strictured portion of the urethra, scraped and pared the walls of the wound, and then brought them together with deep sutures. A catheter was tied in, and for some time afterwards the bladder was emptied by this means. At first all went well, and I hoped that the wound had healed, but in a fortnight it broke down again, and the gap was almost as extensive as before. It is unnecessary to mention the treatment which immediately succeeded this period. For a time the bladder was less sensitive, but later cystitis occurred in an intense form. As nothing I tried served to remedy this complication, I determined to give the bladder rest by suprapubic drainage. I believed at this time that the patient had a suppurating kidney, but he had borne previous operations so well, and he was in such a wretched state, that I did not hesitate to undertake this proceeding. Accordingly I performed suprapubic cystotomy. The bladder was so small that it did not rise well. The thickened wall was also disconcerting, and I passed a sound into the bladder and cut down upon its point. The edges of the incised bladder were then stitched to the integument, and a soft rubber catheter was introduced, with a tube passing to a vessel on the floor. My intention in fixing the bladder to the skin was to establish, at least for a considerable

² *Lancet*, February 9th, 1884, and September 25th, 1886.

³ *JOURNAL*, June 30th, 1888.