Argyll Robertson's operation on the right eye. After six days, the sutures were removed, but the lead was forgotten in the conjunctival sac for nine days longer.

CASE VI.—On August 6th, 1885, Dr. Story did a similar operation on the same patient's left eye; the sutures were removed after four days. Portions of both eyelids were noted as being in "fairly good position" some time after the operations; but, owing to the great thickening of the conjunctiva, a perfect result was not to be expected.

CASES VII and VIII.—Robert G., aged 50 (No. 319), was admitted August 19th, 1885. Argyll Robertson's operation was done on each side by Dr. Story. The result was "not satisfactory," though there was some improvement. The lead, after the operation, was very liable to slip out of its place, and so it got hardly a fair chance.

CASE IX.—On October 3rd, 1885, the operation was repeated on the left eye. It was followed by considerable swelling of the lid and pain, so that the suture had to be removed after three days. It was then found that the lid had sloughed through its whole thickness from the pressure of the india-rubber tubing. When the raw surfaces became healthy, their edges were pared, and brought together with sutures—thus making a modified Adams's operation of it, with quite excellent result, the lid being in position, and very slight deformity resulting from the scar.

CASE X.—Patrick M. (No. 32), ectropion of the left lower eyelid. On October 10th, 1885, Dr. O'Devaine did Argyll Robertson's operation, adopting Dr. Patton's modification of the holes in the lead. The sutures were removed after four days, and the result was noted as "most satisfactory." This patient was again seen on July 26th, 1886, that is, nine months after the operation, and the lid was still in perfect position.

CASE XI.—J. M., aged 40 (No. 116). Ectropion of both lower eyelids. On June 12th, 1886, Dr. Story did Argyll Robertson's operation (Patton's modification) on one eyelid. The sutures were removed after seven days. The result noted was only a very partial success. In this case the point of exit for the lower sutures was not as low down on the cheek as usual.

CASE XII.—J. H., aged 22 (No. 42). Ectropion from chronic marginal blepharitis. The canaliculi were first slit, being wholly everted. This did not relieve him, so on June 9th, 1886, I did Argyll Robertson's operation (Patton's modification) on his left eye. The apparatus was removed after three days, with an entirely negative result.

CASE XIII.—On June 19th, 1886, I did the same operation on his right eye. The sutures were left in for ten days, and frequently tightened by inserting rolls of cotton-wool under them. The result, after an interval of six weeks, was "considerable improvement."

CASE XIV.—On July 7th I did the same operation on the left eye again. The sutures were left in for ten days, and frequently tightened in the same manner. The result noted was "perfect."

Notes.—1. Where the whole length of the lid-border is everted, it may be advisable to use the double-suture arrangement (Case I).

2. Where only a small portion of the lid-border is everted, a smaller piece of lead, with Patton's holes, remains in perfect position, and effects a cure with less annoyance to the patient (Cases XII, XIV).

3. Where only slight swelling of the lid follows, and rapidly subsides, subsequent tightening of the sutures is necessary (Cases XII, XIII, XIV).

4. The final result is not obtained for some weeks after the apparatus is removed. The swelling of the conjunctiva at first diminishes the result, and subsequently cicatrization of the conjunctiva increases the permanent inversion.

5. A repetition of the operation in some cases effects a cure.

6. In one case a small abscess formed in the line of the inferior sutures.

7. In one case the lid sloughed through its whole thickness.

Abstract of the *Fourteen Operations recorded in the Paper*.—In four, the result was "perfect;" in five, "considerable improvement" was noted; in three, "slight improvement" was recorded; in one, the result was "negative."

SUNDERLAND is to have a new hospital for infectious diseases, the building of which will cost £14,796. The site has cost £5,000.

THE Manchester county magistrates have made an order putting in force the "Dogs Act" for three months in the districts of Stretford, Urmston, Flixton, and Barton-on-Irwell.

A CENTENARIAN.—The hundredth birthday of Mrs. Ann English was celebrated at Sheffield by about sixty old women, whose ages ranged from 65 to nearly 100.

UNIVERSITY COLLEGE.—The Fellowes Clinical Gold Medal has been awarded to Mr. C. W. Jecks, and the Fellowes Clinical Silver Medal to Messrs. H. P. Dean, G. R. Murray, and W. B. Ransom.

STIFFNESS OF THE GREAT TOE JOINT IN MALE ADOLESCENTS.

By HOWARD MARSH, F.R.C.S.,

Senior Assistant-Surgeon to St. Bartholomew's Hospital; Senior Surgeon to the Hospital for Sick Children.

THIS condition, respecting which Dr. Reginald Lucy asks for information in the JOURNAL of April 2nd, is one of considerable interest, and may, I think, be very usefully discussed, for though it is by no means rare, though its pathology is obscure, and though its successful treatment is often difficult, I am not aware that any full account has ever been written of it. As I chance to have the following notes of cases by me, they may, perhaps, serve as a contribution to the subject. All the cases I have met with, now upwards of twenty in number, have been so much alike in their clinical features, that it is unnecessary to multiply instances; two examples will be enough.

CASE I.—A lad, aged 16, who came to St. Bartholomew's Hospital, said that, two years before, he had first observed that towards the end of the day his right great toe had become stiff and painful. These symptoms had slowly increased, and he was now always in suffering. He pointed to the metatarso-phalangeal joint as the seat of the trouble. This joint was slightly enlarged in consequence of expansion of the articular end of the metatarsal bone, and, to a somewhat less marked degree, of the base of the phalanx. There was no thickening of the synovial membrane. The toe itself was quite straight, but it was set on to the metatarsal bone in such a way, that from the metatarsal joint to its end it took a rather downward direction. This was the constant position of the toe, the patient being unable either to raise or depress it, even with the strongest effort he could use. On trying to extend it in the ordinary manner in taking a step forward, he felt severe pain, and, to avoid this, he habitually walked "whole-footed." He was unable even to commence the act of standing on tiptoe. The joint, when I examined it, was quite cool, but he said that at night it often felt hot, and was found to be so when the fingers were placed on it. This was always the case if he had been walking on it for any distance. On testing its movements, I found the metatarso-phalangeal joint almost rigid against extension, though it admitted of some degree of flexion. The patient said he had never had rheumatism, nor was there any history of it or of gout in his family.

CASE II.—A gentleman, aged 23, stated that his right great toe had first troubled him eight years before (that is when he was 15). The condition of the toe was similar to that described in the last case. The articular ends of the metatarsal bone and the first phalanx were distinctly enlarged, and their margins were heaped up and nodular; the joint was so stiff that, while it could not be moved at all by the patient, I could carry it through only a few degrees of flexion; and extension was more limited than flexion. The toe itself was quite straight, but, as in the previous case, its distal end was slightly pointed downwards. The joint was now normally cool, but the patient said that after walking it became hot, as well as painful and swollen. He had wished to enter the army, but as his gait was awkward, and "whole-footed" on this side, and as he could not walk more than half a mile without pain and increasing lameness, he had been compelled to relinquish the idea. In the eight years during which the affection had lasted, many forms of treatment had been employed. He had rested the toe for some months, walking as little as possible, and always on his heel, so that the toe did not reach the ground; the joint had been freely painted with iodine, and at another period freely and repeatedly blistered. It had also on two occasions been forcibly moved when he was under the influence of gas. Nothing, however, had done any material good. Just before I saw him he had been advised to submit to excision of the joint, or amputation of the toe, a course he was himself inclined to take, for he was unable, in the present condition of the toe, to follow any occupation with anything like comfort. I found that both his parents suffered from osteo-arthritis, that he himself had had two attacks of acute rheumatism, that his knuckles were markedly enlarged, and that he often had fugitive pains in his knees, shoulders, and other joints.

The cases in the group of which the two just related may be taken as representative present a close resemblance to each other. All have occurred in male patients between the ages of 12 and 25; in all the affection has been seated in the metatarso-phalangeal joint of the great toe. Twice I have met with it attacking both great toes in the same patient. The condition in all the cases presented the characters of a slowly advancing, sub-acute inflammation, attended with almost complete stiffness of the toe. The joint is usually free from any marked

degree of heat, indeed in some cases it has been cold, and the skin over it congested and blue. In many instances it becomes hot and tender after prolonged exercise, and there may even be slight inflammatory redness of the surface. Sometimes distinct grating has been felt between the articular surfaces. In many instances the articular margins are irregular, and expanded by "lipping" or by low-crowned nodular formations of new bone, such as are found in osteo-arthritis in older persons. Any attempt to move the joint freely causes pain.

In many instances the affection may be recognised at a glance by the appearance of the patient's boot. This, having been worn over a stiff toe whose joint is enlarged, is seen to be straight in the sole, bulged over the large joint, and from that point to its end smooth and unmarked by the wrinkling and creasing which would be produced by the natural movements of the toe within it.

The origin of the affection is obscure. A few of the patients have ascribed it to injury. In one instance it commenced after the toe had been accidentally driven against the edge of a stair as the boy was running upstairs without his boots; in another, after the toe had been contused by the fall of a heavy piece of wood upon it. In some the patients have been wearing boots that were too short; but, though this has been suggested as a cause, I am not convinced that it is so, for the toe of the opposite foot, though under the same disadvantage, very rarely suffers; nor have I either noticed any deflection of the toe such as usually occurs when the anterior part of the foot is cramped, or met with the affection in boys under 12. In some instances there has been a strong family history of rheumatism, or of osteo-arthritis; but in many this has been completely absent. I have followed some of the cases up for six or seven years. In some the affection has, as in Case II, persisted and led to marked and permanent anatomical changes closely corresponding with those of the common forms of osteo-arthritis. In many, after persisting, though with periods of subsidence alternating with exacerbations, for two or three years, it has slowly disappeared, leaving the toe only somewhat stiff and the joint a little enlarged.

The idea may appear fanciful—too fanciful, perhaps, to be discreetly put into print—but I have often thought that the condition is in some way connected with the development of puberty. The cases are so strikingly alike, so strictly, in my experience, limited to patients between the ages of 12 and 20, and so frequently unaccompanied by any other joint-affection, that they seem to constitute a specialised group depending on some common cause, and vague as the suggestion may be, this cause seems in some way associated with the change to which I have alluded. It is well known that morbid conditions of the joints are sometimes connected with functional activity of the generative organs. Dr. Ord has recorded instances in which female patients have, with each menstrual period, suffered attacks of osteo-arthritis, which have subsided when menstruation ceased; and at the present time I have a girl, aged 15, under my care with hip-disease, in whom the affection has, under prolonged rest, become very slight; but with each menstrual period she has a return of pain and lameness, simulating an ordinary relapse; and when menstruation is over the exacerbation of the joint-symptoms disappears. In cases in which there is a history of osteo-arthritis in the family, or in which an injury of the toe has occurred, these influences may probably be associated with the disturbance of the generative organs in producing the joint-affection. However, I know so little of the subject that I will not venture on any attempt to trace it further.

The treatment of these cases, like that of many forms of osteo-arthritis, is often, it must be allowed, unsatisfactory. Of course, the patient should be provided with well-fitting boots of soft leather, made with low heels, and of good length and width in front. He should have only moderate exercise. If, as is sometimes the case, there is a tendency to flat-foot, means should be taken to remedy this condition. Hot douching of the toe, night and morning, with salt-water, and the use of two or three small blisters, will sometimes be useful. In several cases, I have manipulated the toe under gas—in some with marked relief, while in others, though movement was produced at the time, no permanent good was done. In some instances in which the joint was hot and tender, I have applied a leather splint to maintain complete rest. In one case I kept the toe fixed in plaster-of-Paris for three months. Complete rest, however, has appeared to be of very slight benefit, and I do not think it should be long maintained. When other symptoms, or a family history of osteo-arthritis, are present, appropriate remedies for this condition should be employed. In one case I thought iodide of potassium was beneficial. Excision of the joint may be justifiable in some of the worst cases; but I have never resorted to it, nor have I seen a case in which it has been performed; neither have I any experience of amputation of the toe.

DEFORMITIES OF THE GREAT TOE.

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

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

THREE varieties of deformity have during the past month been separately described in the JOURNAL, but all of them, as I believe, having a similar origin, and each of them depending for satisfactory treatment on a correct appreciation of the function as well as a due regard to the anatomy of the part involved.

It cannot be too strongly enforced that the principal function of the flexor muscles, paradox though it seem, is not to flex the great toe, but to press it during progression, be it in walking or in running, against the ground in all its length. Herein is manifest the advantages of having the phalanges in two rather than in three segments, as in the case of the other toes. The point of greatest pressure being at the point between the two phalanges, there is no uprising anywhere; whereas in the case of the smaller ones, the downward pressure being at the joint between the second and third phalanges, the backward traction causes a distinct uprising at the joint between the first and second. This result, however good for gripping the ground, could not give that firm, solid base from which the body may be propelled onwards, which it is the main purpose of the great toe (in man so greatly developed) to supply. This curious arrangement of two phalanges for the first and three for the other digits (common to all mammals) cannot be shown, so far as I am able to discover, to be or to have been of the slightest advantage to any inferior animal, recent or fossil, although it is, as I maintain, essential to the design of the human foot. I would add that in the case of the great toe, the up-lifting effect of the backward traction of the long flexor is also felt at the joint behind the one at its attachment; but this is not an inter-phalangeal, but the great metatarso-phalangeal joint. By this means effective provision is made for relieving that joint from the severe pressure which the weight of the body, coming directly on it when it occupies the position of the lower pier of an up-tilted arch, would otherwise occasion.

Another point of importance is that the flexor muscles are powerful abductors, drawing the great toe away from the middle line of the foot, towards which it tends when at rest, and bringing into a line with the inner margin, or even beyond, so as to form a slight concavity, the different directions being due to the form of the articular surfaces of the metatarso-phalangeal joint. This double effect of the flexors is impeded by eversion of the foot, and it must of course be prevented by fixing the great toe in a diverted position, as is done by the conventional median-pointed boot. In these boots the necessary abduction which the action of the flexor muscles should cause cannot take place, and drawing downwards against the sole of the boot is either impossible or is instinctively avoided on account of pain due to uneven pressure on the articular surfaces which action of the flexors would involve. This pressure cannot, however, be entirely avoided; thus irritation and finally, it may be, destructive disease, is set up in the joints. This the muscles, becoming in turn irritable, aggravate, and deformities ensue, varying in character according as the different forms of boot and modes of walking, or other cause, may influence them.

Once a bending at the inter-phalangeal joint established, the long flexor draws the second phalanx backwards, but the tip of it cannot turn downwards, as in ordinary flexion, that being prevented by the sole of the boot. This may produce flexion of the first, with (relative) extension of the second phalanx, a condition described to the Clinical Society by Mr. Davies-Colley and reported in the JOURNAL of April 2nd. It may be that the toe will remain straight and become stiff, as described by Mr. Lucy in the same number. It may even be that the second is drawn under the first phalanx, the distal end of the latter projecting upwards. In all these cases there will be evidence of much irritation having existed in both of the toe-joints. Far more commonly the great toe allows itself to be diverted with very little resentment as manifested in the joints, and becomes fixed in that position. For rectifying this common condition an apparatus is depicted and described in the JOURNAL of April 30th.

But while admitting the necessity in some cases for resections—which, however, are, at best, mutilations—and the utility of medicaments, local and general, as well as of apparatus, I submit that all those things have a tendency, as the discussion at the Clinical Society showed, to divert attention from the necessity of fully restoring the function of the part, which alone can bring about a satisfactory cure. This result, clearly, cannot be attained in any case without boots giving plenty of room for the great toe to come into straight line, but these being provided, disappointment is felt at the absence of