previous case, with the exception that the side-piece was narrower and much stronger. He did not rise for three days after it had been fitted, owing to his clothes not being at hand.

November 4th. The patient was up to-day for two hours. He was still weak, and required to be supported by the nurse.

November 8th. The patient was now up daily about two hours, and was improving in health. He could now walk himself, but was yet very weak. The anterior wound was healthy and healing. The posterior wound was also looking well, but required to be strapped, owing to a tendency to retraction in its lower lip. His appetite was good, and his condition generally fast improving.

November 13th. The patient was up daily, and could walk without support. The anterior wound was nearly healed; the posterior one was healthy, but not much diminished in size.

REMARKS.—This boy was in fair condition when admitted; and although he has never had a bad symptom, his progress has been slower than that of the subject of the preceding report. For this it is scarcely possible to assign any good reason. The report bears that the head of the femur was dislocated into the notch; to this some may object, but all agree in allowing the existence of considerable displacement, however they may explain it.

CASE III.—George McCorkindale, aged 4, was admitted on November 20th, 1870, and was operated on on May 18th, after long trial of rest and extension. His progress at first was similar to that of others; but after some months he became so weak and emaciated, partly from discharge, but more especially from tuberculosis (pulmonary), so that no hope of recovery remained; and he died on October 25th. The prolonged confinement must have had much to do with this result.

During the treatment of these cases, it became painfully evident that my young patients were suffering very much from their confinement to bed. No doubt the discharge from the exposure of such a large surface had something to do with the exhaustion; yet so satisfied was I that the confinement to bed had the most to do with it, that I was anxiously planning with my assistant how to steady the limb by bandages, so as to enable the patient to move about, when my attention was attracted to a description of a splint invented and applied to such cases by Dr. Sayre of New York, and calculated to enable the patients to leave their beds, and walk about soon after being operated on. Application was made to the managers of the Infirmary, who kindly gave orders that the splint should be procured; and this I have now the pleasure of showing you. We have not yet used the splint; but, under my direction, my present assistant, Dr. Caskie, taking Sayre's splint, or rather a sketch of it, as his pattern, succeeded in making a tolerable imitation of it, composed of gutta percha; and with such appliances, two of our patients are now walking about the wards on crutches, and promise to be cases of success. It is my intention to apply Sayre's splint to the younger of our two patients. It is worthy of remark that the patient, the eldest of the three, who was in the most exhausted condition on admission, is the one who has progressed most steadily, and also most rapidly towards recovery. In future cases the splint will be used almost immediately after the operation, so as to limit as much as possible the period of inaction and confinement.

In surgical works we find that excision is recommended in cases of gun-shot wound of the hip-joint, or, to quote a recent writer (Holmes), "in advanced strumous disease, accompanied by abscess, where the patient seems in danger of dying of hectic, and the ulceration of the bone is judged to be incurable"; and the same writer, after speaking of the "exhausting and long-continued suppuration, rendering the prospects of surgical operation unfavourable", proceeds thus: "On the other hand, spontaneous recovery is so common that it is impossible in any case which gets well after operation to affirm with certainty that the natural cure was impossible." Now, I suspect that a serious fallacy underlies this reasoning. It is my impression that a great number of such cases die in the first years of the disease, for it often lasts many years; and if they survive this period, they not unfrequently fall victims to serious visceral disease, and die of enlarged liver or disease of the kidneys, assuming that their lungs continue sound. It is well known that many succumb to tubercle in the lungs. The same writer, after speaking of adult age as a serious contraindication to excision of the hip, though he mentions several cases of recovery after the age of twenty, continues to remark: "The purport of these indications and contraindications appears to be that excision ought never to be attempted except in childhood or youth, and never unless, with disease still progressing, the joint surfaces are hopelessly displaced (a very rare occurrence), or the surgeon, on a careful review of all the symptoms, has strong reasons for concluding that natural recovery is impossible." At the same time, he adds, as a saving clause: "When the operation is once decided upon, it should not be delayed till the patient's health has given way, but should be performed at once."

In other works on surgery, you will find an echo of such opinions—the one too often a quotation from the other—all arising from the pre-conception that such an operation should form the last resort in hip-joint cases, and should not be performed until all other chances of repair, or even arrest of the disease, have been exhausted, which too often practically means until the patient is in such a condition as scarcely to afford the barest chance of a good result.

Very recently, however, the publication of a number of cases of success has attracted the notice of the profession, and led to a revulsion of opinion as to the proper period for having recourse to excision. It may be that these accounts are somewhat over-coloured; but although it may turn out that they are slightly strained, yet it seems certain that much more can be accomplished than we are in the habit of believing. The use of such an appliance as the splint I have shown you, when we become familiar with its benefits, will smooth the way to an earlier adoption of operative measures. At all events, it is my intention to persevere in making further trials of such a mode of treatment, especially in cases where displacement and the formation of abscess or sinuses have occurred; and in pursuing this course, I am surely justified by the amount and character of the successes which have attended the operations already performed.

At present, I will not take it upon me to dogmatise upon the question as to the period or periods in the progress of such cases to which the operation should be confined. Hard and fast rules are generally to be deprecated, and are, like too many laws, made to be broken. In the state of transition in which we are now moving, it is surely prudent to leave this and other points to be settled by an enlarged experience.

NOTES OF CLINICAL LECTURE ON TORSION, AND ON THE DRESSING OF WOUNDS.

By GEORGE W. CALLENDER, F.R.S.,

Surgeon to St. Bartholomew's Hospital.

THUS far, gentlemen, there have been seven amputations under treatment in my wards during the current year. All the patients recovered. Three amputations were of the thigh, three of the leg, and one was of the fore-arm; and the ages of the patients varied from nine to forty years. I need scarcely say that these results speak well for the general salubrity of the wards; but they have this especial interest, that in each of the amputations the arteries were closed by torsion. In all other operations which I have performed during this year, including some of considerable magnitude for the removal of tumours, I have also made use of torsion with an unfailingly good result; but it will suffice at present if I limit my reference to the amputations of limbs, as the general result of operations involving the torsion of such arteries as the femoral or the tibial indicates most clearly the safety of the procedure.

There is, of course, no absolute novelty in the use of torsion, for quite recently Mr. Cooper Forster has placed before the Clinical Society evidence in its favour; but it is strange that this method of arresting bleeding from a divided vessel should have received so little attention since its first introduction by Amussat. After some trial had been made of it, it quickly fell into disuse, chiefly because Dupuytren reported that it was not safe in the case of large arteries; and now, although attention has been recalled to the operation, its employment is a rare exception.

And yet it admirably fulfils the purpose for which it is practised. Thus the very idea of torsion comes from observation of the way in which Nature herself closes a torn artery. The practice of it insures the laceration of two coats of the vessel and the formation of a coagulum, whilst (in this respect unlike the ligature) no foreign body is left attached to the artery, to be separated from it eventually by ulceration through the outer tunic. The twist of the artery, the tearing of the inner and middle coats, and the formation of a clot—these three—provide for the permanent occlusion of the vessel. There is no record, where the operation has been properly practised, of any sloughing of the twisted end, or of any abscess along the track of the vessel; and, whilst the presence of a foreign body in the wound is avoided, the patient escapes the anxiety which the prospect of the removal of ligatures entails. And to add one other, and this a strong argument, in favour of torsion, it is free from all risk of that secondary bleeding which is sometimes associated with the separation of a ligature.

When employed some forty years ago, various methods were used. By some the end of the vessel was twisted off; by others it was advised to hold the vessel transversely a short distance from its cut extremity with one pair of forceps, whilst the free end was twisted with a second pair. I recommend you to try neither of these two. By twisting off

the end you lose that fraction of security which results from leaving the unbroken twist of the external coat beyond the line of the rent in the inner; whilst by fixing the vessel transversely with forceps you needlessly bruise its tissues—that is, if the vessel be held firmly enough to enable you to twist against the resistance. A third method, originally known as “torsion libre”, is that which you have often seen employed; it consists in seizing the end of the vessel with any blunt artery-forceps—those which close with a spring being most convenient in practice; then, with the artery as the centre, the handle-end of the forceps is made to describe as wide a circle as possible, slowly twisting the vessel in its rounds. For a small artery the circle described may be small and the twisting rapid; but for an artery of large size the success of the operation is insured by the slow rotation of which I speak. The artery alone—free, that is to say, from surrounding structures—must be held by the forceps; and then, as the twisting progresses, you should look for a diminution in the resistance offered by the vessel.

At first, supposing the femoral to be the subject of the operation, on relaxing your hold of the forceps they will be turned quickly round by the untwisting of the artery, but after four or five turns of the handle you will notice that this tendency to untwist is much lessened; and I may here add that it is well not to carry the twisting to the point of entirely overcoming the recoil of the vessel. You will then direct your assistant to sponge the end of the artery, so that, on loosening the forceps, you may be able to recognise the smallest escape of blood. If there be none, torsion is completed; if there be slight oozing, it will be necessary to reapply the forceps and to give the vessel a further twist. According to the condition of the arterial coats the amount of torsion necessarily varies, and in atheromatous vessels the coats often give way very quickly; but in the case of an old man with atheromatous arteries, on whom amputation at the fore-arm was performed, Mr. Morrant Baker informs me that he had no difficulty in securing the vessels by carefully applied torsion.

When you look at a femoral artery which has been twisted, you will be surprised to see how small is the portion of the vessel included in the knot-like twist—not above one quarter of an inch of its length has been disturbed. There is no considerable separation from the sheath or from surrounding structures; and from the number of wounds which heal by the first intention after torsion, there is every reason to believe that the life of the twisted extremity is not spoiled. Sometimes the appearance of the twist is modified by a little swelling, as if from blood which had escaped between the tunics of the artery; but I never saw this assume any but the smallest proportions, and its occurrence is of no consequence.

I have already told you that after torsion there is no risk from secondary bleeding. If the artery have not been properly secured, it is, however, possible (although I am not aware of any instance of its having happened since the revival of torsion) that it may untwist before the formation of a clot and adhesion between the divided coats have permanently secured it. Such untwisting must occur within the first few hours after an operation. Having myself no experience or fear of such a recurrent, as distinguished from secondary bleeding, I mention the possibility of its happening only to impress upon you the need of care in looking to the proper securing of the vessels at the time of the operation.

Speaking generally, I should say that wounds have healed far oftener by the first intention since I have used torsion than when other modes of arresting hæmorrhage have been employed. All the amputations were healed in this way, or with a suppuration so small as to be referable to some corner only of the wound. So, too, with wounds from lesser operations, of which I have in mind a large and deep wound which resulted from the removal of a cancerous tumour from the wall of the abdomen, and several wounds from the removal of cancerous mammary glands.

The advantage of torsion was recently shown in an operation for the repair of a torn perinæum, when two considerable vessels were twisted, after bleeding of so troublesome a character as would otherwise have necessitated the use of ligatures, which I should have been reluctant to employ because they must have been left to traverse and perhaps irritate a wound which it was most important should be united by the first intention.

There are, on the other hand, some circumstances under which it is almost impossible to use torsion. In the case of an excision of the knee-joint, some of you may have noticed that I could not twist the arteries which bled from the fibrous tissue on either side of the articulation. The vessels were held so closely in this tissue that either they could not be seized by the forceps, or, if seized, could not be turned round amidst their dense surroundings, so they had to be tied.

When I refer to the better healing of wounds since torsion has been practised, I touch upon a subject which has at present great interest for

us. In addition to the attention which Professor Tyndall has attracted to the subject by his observations upon the atmospheric surroundings of wounds, Dr. Burdon Sanderson, in a very instructive paper, has brought to our notice the presence in water, such as our wounds are constantly cleansed with, of bacteria or microzymes, as being a probable cause of putrefactive changes; and certainly it is well that we should be reminded of such possible dangers. It is remarkable how rapidly as a rule wounds are repaired in our wards. When we read or hear of the care taken over the wound, for example, of a compound fracture, we recall the fact that the loss of a patient from compound fracture, after the shock of the accident has been recovered from, is, in our experience, an exceptional occurrence. Thus during the last two years, of fourteen cases of compound fracture which have been treated in Kenton, Harley, and Lawrence wards, by Sir James Paget or by myself, thirteen have recovered—the one fatal case having been managed by the antiseptic method; and I attribute this result, which is an illustration of the general well-doing of wounds in our wards, to the care which has always been taken of their first dressing, and to the avoidance of all but absolutely necessary disturbance of them.

There are some details which have to be considered in the making of wounds if we are to secure their healing by primary union. The incision, for example, should be clean, leaving, so far as is practicable, a smooth even surface. Thus in making a circular division of the muscles of the thigh in an amputation, one sweep of the knife suffices to divide all structures down to the periosteum. The surface of the wound should be handled tenderly—no rough sponging or washing of it should be permitted. All bleeding must be carefully staunching. In the case of a plastic operation for the cure of a torn perinæum, you will almost certainly fail unless you make a point of thus absolutely stopping all hæmorrhage and of removing all clots, before you bring together the surfaces of the wound: and what is so well known of this operation holds good for all others. The time, too, which is occupied in the securing of vessels is not lost, for it permits that glazing over of the wound which indicates the moment most favourable for closing it, and which is the first step towards repair.

In the case of an amputation, the edges of the wound are brought together with silver sutures, inserted close to one another, so as accurately to oppose the cut margins; the stump is then covered with lint, once folded, and previously dipped in carbolic oil of the strength of about 1 in 30. Pads of lint or of cotton-wool are then applied above and below, so as to envelope the wound, and the whole dressing is secured with a few turns of a bandage. When the patient is placed in bed the stump is supported on pillows in the position which gives him greatest ease, and, if necessary, is steadied by means of a broad bandage passed over it and secured to the bed.

You will notice that I follow a pretty uniform plan in the first dressing of wounds, of which the principles are, first, the leaving of the surfaces to Nature, after carefully arresting bleeding and after placing them in apposition; secondly, thorough covering up of the wound with lint or with cotton-wool. As to carbolic oil, or simple olive oil, which I sometimes employ, it is used as a soft and supple application to the flesh. The late Mr. Stanley was in the habit of using in this way, as a local application (I believe at the suggestion of Mr. Gatty), the balsam of Peru; and whilst Mr. Edlin was house-surgeon in 1862, Sir James Paget began, and afterwards continued, the use of carbolic oil as a cleanly dressing for amputation and other wounds. Intermediately Dr. Stenhouse had recommended to us the use of powdered charcoal; and this was employed between layers of cotton-wool, with the view of keeping wounds sweet and free from putrefactive changes. Whether the balsam or the carbolic oil or the powdered charcoal was in repute, its use was combined with the covering of the wound with lint or with cotton-wool; and it cannot but interest you to observe how well this old-established practice fits in with the recommendation, by Professor Tyndall, of cotton-wool as a means for protecting wounds from the impurities of the air.

Following the progress of the case in the wards, you will observe, the next day, that no change has been made in the dressing, unless, in consequence of the patient's complaint of tightness of the bandage, the house-surgeon has cut through some of its folds. It is always necessary to pay careful attention to such a complaint, as the so doing averts the restlessness which neglect of it is sure to engender. And so, too, on the second or third day no change is required. On the fourth the bandage is cut through on either side, and the entire dressing, which has been kept soft with repeated applications of oil, is slipped off without trouble and without disturbing the stump; and we expect to find that the wound has healed, as it had healed in each of the seven cases of amputation of limbs.

There are cases in which, from a variety of causes, primary union cannot be attained: for instance, after such an operation as one which I

performed quite recently for the removal of a recurrent colloid tumour from the inner side of the thigh. A large tract of skin was taken away, and the internal saphenous system of veins was destroyed. The very large wound which resulted was dressed in the manner I have described, and subsequently water-dressing, and occasionally poultices, were had recourse to. The process of repair was hindered in this case by the oedema which resulted from the hurt to the venous system; and it was some weeks before the external saphenous and the deep veins compensated for the loss of the internal saphenous vessels.

ON TRAUMATIC CATARACT: WITH RESULTS OF SIXTY OPERATIONS.

By J. R. WOLFE, M.D., F.R.C.S.E.,

Surgeon to the Glasgow Ophthalmic Institution, and Lecturer on Ophthalmic Medicine and Surgery in Anderson's University.

SINCE May 1870, I have operated, in the Glasgow Ophthalmic Institution, on sixty cases of traumatic cataract—in the great majority, with good results. The exact nature of the injuries and their complications having been various, and especial care having been bestowed upon the study of their progress, I propose to classify them, and point out the operative procedure which, in my opinion, is applicable to each case. This subject is the more interesting, that hitherto we have little else than the records of isolated cases; and a comprehensive view, based upon a large experience, is still a desideratum.

In the cases to which I shall refer, the injuries were such as to permit an attempt to obtain the restoration of sight from the wreck of torn and damaged eyes; but, in addition to these, a large number of other cases came under observation, where the injury was so great as to preclude the possibility of any such attempt being made, and the eye had to be removed. These last cases, however, afforded ample opportunity of carefully observing the changes produced by injury and inflammation of the deep structures; and thus our operative procedure came to be based both upon pathology and on practical results.

I will not enter here on the question as to whether an injury inflicted upon the lens or its capsule is capable of repair; for abstract speculation and discussion of theories is foreign to my object, inasmuch as the cases dealt with were such that vision was completely lost, the lens having become irrevocably opaque. I will take it as an axiom that, whatever may be the case in the lower animals, in the human subject, at least, an injury to the capsule or the lens, either by a foreign body having lodged within it, or by the capsule being ruptured by concussion without an external wound, sooner or later produces opacity. It may also be assumed that, in dislocation forward into the anterior chamber, the lens cannot fail to act as a foreign body, which it becomes absolutely necessary to remove, not only to save sight, if possible, in the affected eye, but also to avoid the risk of sympathetic irritation and possible destruction of the other eye.

Our cases may be classified into:

A. Recent injuries.

1. Foreign bodies impacted in the lens. 1. Simple impaction; 2. Complicated with hypopion; 3. Complicated with laceration of the iris.

II. Dislocation of lens into anterior chamber. 1. Partial; 2. Entire.

III. Puncture. 1. Simple; 2. Complicated with laceration of iris.

B. Old injuries. 1. Simple; 2. Complicated with anterior adhesion; 3. Complicated with posterior adhesion.

CASE I. *A Fragment of Quartz, three-fourths of a grain in weight, buried in Lens; Extracted; Cure; Good Sight.*—James J., aged 28, a granite-polisher, Dalbeattie, was admitted into the Glasgow Ophthalmic Institution in May 1869. The patient, whilst following his occupation, was struck by a small fragment of quartz, which pierced the cornea of the left eye, and became imbedded in the lens. The lens was opaque and tumefied, pressing the iris slightly forward. The ciliary circle was strongly injected. The iris was slightly discoloured. The lens was extracted along with the quartz by a linear incision, without iridectomy, five days after the accident had occurred. He was dismissed cured, with good sight, six days after the operation. The quartz weighed three-fourths of a grain.

CASE II. *Fragment of Brass lodged in Lens; Iridectomy, followed by Extraction; Cure; Good Sight.*—Samuel O., aged 61, a chandelier-polisher, thirty-one years previously had his right eye destroyed by a ramrod, on which occasion the cornea of the left eye also had sustained some damage, resulting in slight opacity. On presenting himself at the Institution, the cornea of the left eye (the only one he had) was found lacerated, and a fragment of brass imbedded in the lens. Iridectomy was performed; and, four weeks afterwards, the lens and brass

were extracted by a small corneo-conjunctival flap, a hook being used. He was cured, with good sight.

CASE III. *Fragment of Iron in Lens and Ciliary Processes; Hypopion; Iridectomy and Extraction; Removal of Foreign Body; Cure; Good Sight.*—Edward Q., aged 20, a rivetter, was struck with a piece of iron in the right eye. On presenting himself at the Institution in July 1871, four days after the injury, the lens was found opaque, and presenting an elevated ridge on its surface; and there was pus in the anterior chamber, and infiltrated into the lower part of the cornea. A linear section with Graefe's knife was made in the lower healthy portion of the cornea above the suppurating part, and iridectomy was performed, thus giving exit to the pus in the anterior chamber and the lens. On the sixth day, the anterior chamber was found clear. The patient could count fingers; but the lower part of the cornea still remained opaque, having a yellowish puriform look. At the end of a fortnight, this part had cleared, bringing into view a black point, which was at first sight taken for a shred of the iris, but, on examination, was found to be the point of a piece of iron, imbedded partly in the cornea at its junction with the sclerotic, and partly in the ciliary processes. This was removed, after which the lower part of the cornea became flattened, and the pupil contracted. An artificial pupil was then made, which resulted in good sight.

CASE IV. *Fragment of Steel piercing the Iris, and driven against the Lens; Extracted; Cure; Good Sight.*—Benj. M., aged 21, coker, presented himself with the right eye injured by a rivet, a fragment of steel having been driven against the cornea and iris, which it lacerated, and lodged in the lens. The left eye had been destroyed by a similar accident two years before. Linear extraction with iridectomy was performed. The cicatrix of the tear in the centre (right across the middle) remains opaque, but in other respects the sight is good.

CASE V.—With the last case I may contrast the following, in which the foreign body was a mere speck of iron, and the lenticular opacity did not set in till a fortnight after the accident. Robert W., aged 22, boiler-maker, was struck with a piece of iron, which penetrated the cornea, traversed the iris, and became imbedded in the lens. On presenting himself at the Ophthalmic Institution on October 2nd, two hours after the accident, we could distinctly discern, by illumination, the course which the foreign body had taken; but, as the sight was good, he was kept under observation as an out-patient. The lenticular opacity was steadily progressing until November 4th, 1871, when the cataract was found complete, and he was admitted for an operation. The pupil having been atropinised, I opened freely the capsule with a needle; and, five days later, the lens was extracted by a linear incision without iridectomy. The fragment of iron imbedded in it was a mere speck. On the third day, his sight was found good; and on the sixth he was discharged cured.

CASE VI. *Traumatic Cataract; Partial Dislocation of Lens, without External Wound; Linear Extraction; Cure; Good Sight.*—J. C., aged 9, Falkirk, was struck on his right eye with a towel, which caused him great pain at the time. There was inflammation of the eye persisting for a week or two, which yielded to local treatment. On presenting himself at the Institution in January 1871, about four weeks after the injury had occurred, the lens was found opaque, and pressing considerably at the inner angle upon the iris; and the pupil dragged towards that part. On examination, the capsule of the lens was found ruptured in that spot, the colour of the iris normal, and ciliary circle not much injected. I opened the capsule with a needle through the cornea, and in a fortnight later I extracted the lens by a linear incision. He was dismissed cured, with good sight, eight days after operation.

CASE VII.—A. R., aged 30, engine-keeper, Schotts, was struck with a piece of iron, producing traumatic cataract, with laceration of the cornea. The inner part of the lens was found dislocated, pushing the iris upwards and inwards; the capsule was lacerated, and lenticular fragments were floating in the anterior chamber. I extracted the lens with iridectomy fourteen days after the accident. He counted fingers immediately after the operation, and was dismissed cured, with good sight.

CASE VIII. *Dislocation of Lens (entire) into Anterior Chamber; Extraction; Cure; Good Sight.*—The following case is remarkable from the circumstance that the entire lens remained for a considerable period (as far as I can learn, upwards of two years) in the anterior chamber, where it formed partial adhesions to the cornea, and the whole iris greatly atrophied. The patient was considered as hopelessly blind; and it was only after the eye was injured by a fall, which excited cyclitis, that the Secretary of the Glasgow Mission to the Blind, under whose superintendence he was, sent him to us for relief. Daniel B., aged 59, shoemaker, of Greenock, was admitted into the Glasgow Ophthalmic Institution in March 1871. The patient's right eye was completely atrophied; the left eye was cataractous. A large lens, with a