It is unnecessary to lengthen further this part of the subject by giving an account of the preparations of innominate aneurisms in British and Foreign museums; for, as the phenomena they produced during life are not recorded, their value is purely pathological. I must, therefore, refer those who take an interest in these inquiries to the catalogues of the museums, whose arrangements are so perfect as to remove all difficulties in the search; with this exception, the above will be, I trust, considered as forming a pretty complete history of this affection. I shall next proceed to consider the differential diagnosis of these aneurisms.

(*To be continued.*)

ART. VIII.—*On the Treatment of Fractures in the Vicinity of the Ankle Joint; with Observations on the Practice of Tenotomy, as facilitating Reduction of the broken Bones.* By RICHARD G. H. BUTCHER, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons of Ireland, Surgeon to Mercer's Hospital, &c. &c.

THE writer of the able article, "Particular Fractures," in the *Cyclopædia of Practical Surgery*, edited by Costello, at page 390 thus expresses himself: "A frequent and serious set of accidents consists of different fractures of the two malleoli, or of the inner malleolus and of the fibula, close above the ankle joint. The tibia being sometimes luxated, and the mischief being complicated with laceration of the integuments, presents us with very formidable conditions, the whole train of whose consequences demands all the powers of surgery."

Being fully impressed with the truthfulness of this statement, I am induced to place on record the following cases, treated by a simple and most efficient method, preserving to the sufferer in every instance the integrity of the limb and its normal functions. From the great opportunities afforded in the hospital to which I am attached of observing every variety of

fracture (some hundreds being admitted yearly), I have selected the complicated class which forms the heading of this paper; I am also desirous of doing so because they have occurred within so short a period, and were subjected daily to the observation of a large class of students. I propose first to record the cases and their treatment, and then to make such observations as I think the subject demands, in reference to the operation of tenotomy for facilitating the reduction of the broken bones.

CASE I.—In the Dublin Medical Press for April, 1851, I have given in detail the outline of a remarkable case of fracture of the internal and external malleolus, with dislocation of the tibia forwards, or, according to Dupuytren, of the foot backwards, occurring in a large, muscular man, and treated on a particular plan, with the most favourable results; the normal functions of the joint being entirely preserved, the patient capable of walking long distances and prosecuting his ordinary business without the slightest interruption or impediment. In the case alluded to, the appearance of the limb, as it lay on the pillow, was very characteristic of the injury the patient sustained. The most striking features were, the fore-shortening of the foot, the lengthened heel, and the consequently increased arch of the tendo Achillis; at the same time the foot was abducted, or, in other words, its internal edge lay considerably lower than the external; there was a most marked depression about two inches above the tip of the external malleolus, and a remarkable prominence an inch above the lower margin of the internal malleolus. So sharp was this upper fragment that it threatened every moment to protrude through the strained and tightened integuments. Effusion had not as yet set in, owing to the collapse consequent upon a debauch and the reception of so severe an injury. Nothing then obscured the great deformity and the bold outlines which characterized the accident, as fracture of the fibula and of the internal malleolus, and dislocation of the tibia forwards.

On elevating the limb from the bed, the leg being bent on the thigh, the following solutions accounted for the deformity. The fibula was shattered two inches and a half from its lower edge, the pieces being very numerous and moveable; the internal malleolus was broken at its base, and as a sequence to the lateral support of the joint being lost, and, probably in some measure to the force being continued, the tibia readily glided over the convex surface of the astragalus, while the foot, and the lower fragments, the internal and external malleoli, drooped backwards; not only was the tibia considerably advanced, but its inner margin was abnormally in front of the outer edge, or, more briefly, it was slightly rotated outwards. The articulating extremity of the tibia greatly overhung the navicular bone, yet, strictly speaking, its anterior edge did not rest upon it, for the foot was pointed downwards by the action of the powerful extensor muscles acting on the heel. Thus the perfect dislocation of the tibia off the astragalus, as clearly indicated by manipulation, will account for the great fore-shortening of the foot, which fully amounted to an inch and a half. While an assistant flexed the leg upon the thigh, I was able without much difficulty, by traction on the foot, to lift it forward, together with the broken malleoli, into position, and then, by slightly inverting the foot, the lower fragment of the internal malleolus was brought up in apposition with its base, and the integuments, from being tense almost to bursting, were at once relaxed over the lower edge of the superior fragment; on removing the support for an instant, the extensor muscles, thrown into spasms, at once reproduced the deformity that stamped the accident. By a repetition of the above manœuvre co-aptation of the broken fragments was effected, and the limb placed in a fracture-box, the thigh slightly bent and the leg resting on the heel. The box was so constructed that it retained it in this position, for, while the thigh was supported on a gently inclined plane, the leg rested on a horizontal surface; the box was well padded, particularly beneath the heel;

splints, with lateral foot-supports, were slid up between the cushions and the sides of the box; each had a round hole bored in its lower extremity, which received the arms of the sole-piece; in addition to the lining pads of the splints for guarding against undue pressure, there were three used with the object of acting on the broken fragments and displaced parts: the first placed beneath the heel so as to press the foot and lower fragments well forwards; the second, somewhat in the form of a wedge, was placed along the inner side of the leg, the base of it resting about two inches above the fracture through the tibia; this tended to press the tibia outwards, while the third pad also triangular, was placed between the outer side of the foot, and the corresponding splint, the base at the toes; this inverted the foot, and most effectually acted in bringing up the internal malleolus to the upper fragment. The splints and pads being adjusted in this way, the anterior surface of the limb was raised exactly to a height with the sides of the fracture-box, so that, when the first roller was applied from below the knee around the fracture-box and leg, as far as the centre of its lower third, an equable pressure was maintained all along the anterior surface of the tibia, and by this means acted most efficiently in steadying the upper fragments, at the same time pressing them backwards; several layers of soft wadding were interposed to prevent any fretting of the integuments over the sharp spine of the tibia. The foot, as before mentioned, was kept well pressed forward by the increased number of pads under the heel, and fixed, *slightly* inverted, by a few turns of a roller, embracing the anterior part of the dorsum of the foot, side-splints, and foot-board. By this arrangement the limb lay in admirable position, all deformity entirely removed, with the parts corresponding to the site of fracture and ankle-joint freely exposed for local applications.

On the limb being done up in this way, the patient expressed himself as being relieved from all pain; a cold lotion was ordered to be kept to the part, and a full opiate was pre-

scribed. On the following morning great swelling and effusion were present, the collapse having passed away, and re-action set in. I was at once careful to ascertain that no undue pressure was exerted by the mechanical means employed, but nothing could be more satisfactory than their adjustment. His bowels were freed by medicine: relays of leeches were directed to be applied, six at once, and the part to be afterwards enveloped in a warm stupe, so as to solicit a constant drain of blood; four more in three hours; and warm stupes to be continued all night. Though the local abstraction of blood was here imperatively demanded, taking into consideration the intemperate habits of the man, I did not think it prudent to stop altogether his usual stimulants, particularly after the infliction of so severe an injury. On the fourth day the nervous system began to give evidence of participating acutely in the local affection; he had scarcely any sleep, and that obtained was not perfect or refreshing, as he was awoke at short intervals by a tendency to spasms in the voluntary muscles of the upper as well as the lower extremities; pulse very irritable and rapid; respirations unequal; tongue tremulous, and covered with a whitish pasty coating. The limb lay in admirable position, sufficient restraint being employed to prevent deformity and guard against displacement, so as at the same time not to obstruct the free circulation in the overloaded vessels. He was now put under the influence of opium, and kept so. On the sixth day from the receipt of the injury he was better in every respect; he slept all night; his pulse quiet; no spasmodic startings; tremulous motion of the tongue subsided; and the limb free from pain, and in good position. On the twenty-second day after the accident I applied Dupuytren's splint and wedge-shaped pad along the back of the leg. This acted exactly on the same principle as the treatment adopted from the very first, after the receipt of the accident. The base of the pad resting on the splint behind forced the foot forwards, whilst the little pad, placed in front of the lower end of the tibia, and retained by a

bandage, propelled backwards the articulating surface of the tibia. With the splint thus applied, after Dupuytren's directions, the limb was placed in the fracture-box, with side-splints as before, by which the foot was slightly inverted. On the 18th of April the union was quite firm; I therefore removed Dupuytren's apparatus; there was not the least fore-shortening of the foot, or displacement of any kind. I then put on a roller, side-splints, and foot-boards, as offering sufficient restraint; and on the 20th of the month he quitted the hospital, with the motions of the joint nearly perfect, and not the least trace of deformity.

This case, when admitted to the hospital, was looked upon as one of the most grave character; in the first place from the violence and injury inflicted on the part; and secondly, in having occurred in a broken-down constitution, and an habitual spirit-drinker: such a combination justified a guarded prognosis at least. In the management of it, I urged the advantages accruing from at once placing the limb in that position which it is to hold all through the treatment, and retaining it so. This axiom was well carried out in the case alluded to, and the advantages resulting from early co-aptation very apparent; the broken fragments no longer irritated the soft parts, and pain, a very constant inciter to spasm, was greatly averted; the mechanical means adopted in this instance answered every purpose, and I consider the apparatus far the best for the displacement under consideration. It is, as I have mentioned, of great value that the thigh should be slightly flexed on the pelvis; this relaxes to a sufficient degree the great extensor muscles of the leg; more particularly so if immediate reduction of the parts be had recourse to; again, in this box, the leg rests on a horizontal surface, receiving an equable support on all sides, padded so as to force the heel forwards; and by a few turns of a bandage, the upper fragments are restrained and pressed backwards; the two forces, thus acting in contrary directions, tend to confine the articulating surfaces in their natu-

ral relationship to each other; the side-splints superadded, with the triangular pad, not only steady the foot, but tend to invert it, so as to bring up the inner malleolus to the point from which it may be broken off. In this case the constitution very early exhibited indications of sympathizing acutely with the local affection. The wanderings of the patient's mind, the tremulous tongue, the slight startings in the limb, and, above all, the frequent, short spasms arising in most of the voluntary muscles, formed such a combination as to awaken great anxiety as to the result. This train of symptoms was met by the full exhibition of opium, in other words, placing the patient under its influence, and a due supply of his accustomed stimulant. While I admit the great power that the opium exerted over this train of alarming symptoms, I cannot but feel sensible that the admirable position which the limb maintained from the very first, tended materially to ward off their perfect development, and to consummate the happy result.

The foregoing case offers, I conceive, a good illustration of what may be effected by early co-aptation, and position, in the treatment of one of the most troublesome forms of fracture which the surgeon can be called upon to manage.

CASE II.—*Fracture of the Tibia an inch above the Ankle-Joint, with that of the Fibula half-an-inch higher up.*

Patrick Grace, aged twenty-two years, a powerfully made, muscular man, was admitted into Mercer's Hospital, under my care, October 8, 1851. He had been wrestling, and received two very severe kicks on the left leg from his antagonist, who wore strongly nailed shoes. On admission, the deformity of the limb was very great, and characteristically striking of the lesion that had taken place. The foot drooped backwards, the heel was lengthened, and drawn up by the extensor muscles, which were in rigid contraction; at the same time there was an angle salient in front, formed above the articulation. This combination, then, rendered the displacement remarkable. On

making extension at the foot, the leg being flexed on the thigh and held so by an assistant, the powerful action of the gastrocnemius was overcome, and a facility afforded of examining the nature of the fracture. By the force employed the foot could be brought up to its normal situation, which had the effect of entirely removing the deformity in front; and then by the slightest motion crepitus was elicited very audibly, and the tibia found to be fractured transversely an inch above the ankle-joint, and the fibula half-an-inch higher up. The integument over the part was much discoloured from contusion. I at once placed the limb in a fracture-box, such as already described, the thigh semi-flexed, and the leg resting on a horizontal plane, while the foot, together with the lower fragments, was kept well pressed forward by pads beneath the heel. Side-splints were then slid up within the box, to which the sole-piece was connected, thus maintaining the foot at a right angle with the leg; two bandages were then applied, as in the former case, and the region above the joint, the site of fracture, left uncovered for local applications; a full, warm opiate was administered, and all tendency to spasm of the calf in a short time subsided.

11th. He has had no pain or starting since the limb was put up; ordered cold to be applied to the injured part, and a full opiate to be given twice in the day.

14th. Up to this date the limb did not require to be disturbed; nothing could be more accurate than the co-aptation; scarcely any swelling about the part. On this day I applied Dupuytren's splint and cushion to the back of the leg, which effected equally well the apposition of the broken fragments; done up in this way the limb was placed in the fracture-box, with side-splints and foot-board as before.

16th. No displacement of the fracture; cold to be continued, and the opiates night and morning.

21st. I re-applied Dupuytren's splint, fracture-box, &c.;

the parts are in excellent position, and very little thickening about the fracture.

30th. I re-adjusted splints, &c., as before.

November 6th. Union progressing rapidly, so much so that on November 20th I removed the splints altogether; the union was quite firm, and I applied a roller to the limb.

26th. There is scarcely any thickening around the site of the fracture, not the slightest displacement or deformity whatever; and flexion and extension at the ankle-joint are permitted to nearly their normal extent.

30th. Dismissed, with all the motions of the joint healthy.

CASE III.—*Fracture of the Tibia and Fibula two inches above the Ankle.*

Michael Enright, aged 40, a large, muscular man, was admitted into Mercer's Hospital, under my care, October 9th, 1851. He was thrown from an outside jaunting-car, which was travelling very rapidly; he was tipsy at the time, and could not give any account of the accident. He was brought to hospital in six hours afterwards, and on examination, the right leg was found to be broken, the tibia having yielded two inches above its articulating surface, and the fibula a little higher up, about a quarter of an inch; the heel was drawn back and forcibly upwards, by the rigid contraction of the extensors, and the line of the tibia in front altered to a curve. Even at this early period, six hours after the receipt of injury, rapid effusion, chiefly of serum, had set in, producing great swelling and tension. By gentle and continued traction on the foot, the leg being flexed and steadied by an assistant, I wearied out the rigid spasm of the muscles effecting the displacement, and having restored the broken fragments to their natural position, they were retained in contact by the mechanical contrivances used in the preceding cases; cold was applied to the affected part, and a full opiate administered.

10th. The patient has not suffered from spasm or pain since the limb was put up on yesterday; effusion still very great; to continue the cold, and a full opiate twice a day.

12th. Œdema so much augmented, I considered it advisable to apply a wetted roller, moderately tight, from the toes to the knee, and on lifting the limb from the fracture-box there was a good illustration of the rapidity with which the distortion might be produced by the spasmodic action of the extensors, when not fairly and thoroughly controlled by efficient mechanical means. The parts were, however, again restored to a suitable posture, and retained by Dupuytren's splint, applied to the back of the limb; placed in the fracture-box, &c., and steadied as before. By this arrangement no deformity whatever was apparent, and the patient experienced the greatest comfort.

19th. I replaced the wetted roller at intervals of three and four days since last report, and with the best results, both as to the diminution of the swelling and the relief of the patient's feelings, "the bursting distention" which he grievously complained of being replaced by a soothing sensation, from the diminished temperature, and equable support afforded to the limb.

22nd. The leg had obtained its natural dimensions; all effused fluid being nearly absorbed, I now placed Dupuytren's splint along the calf of the leg, with its folded cushion and small pad, and by these means perpetuated the force, as brought to bear on the broken fragments from the very first; with these surgical appliances the limb was steadied in the fracture-box, as in the former cases.

November 1st. The limb is in perfect position, free from all swelling, and so immoveably kept, by the means adopted, that the patient solicited permission to be removed to his own home, a proposition to which I acceded, being certain that no displacement could occur.

November 6th. There is very little swelling about the fracture; soft union far advanced; I put up the limb as before.

December 8th. Since last report up to the present, the same line of treatment has been followed, and the case has gone on rapidly to cure; there is firm union, and the patient is able to walk about with the assistance of a stick; the motions of the ankle-joint are perfect, and there is not the least appearance of deformity.

CASE IV.—*Transverse Fracture of the Tibia an inch above the Ankle-Joint, with a Vertical Splitting of the lower Fragment into the Joint, and Comminuted Fracture of the Fibula extending higher up.*

Edward Dowds, aged twenty-eight years, a large, athletic man, by trade a gas-fitter, was admitted into hospital, under my care, October 14th, 1851. The history of the case is as follows:—He was working on the edge of a gasometer, at the height of five-and-twenty feet from the ground, when a part upon which he stood gave way; he felt it yielding, and to try and save himself, he leaped off, and came down upon his feet on a flagged pathway, from the shock of which he instantly fell to the ground, and was quite cognisant of the leg being broken; he both heard the crack and felt the most acute pain. Almost at the same instant he was assisted up, and brought immediately to hospital. The deformity of the leg was very great, the fibula being broken in pieces, from about an inch above the extremity of the malleolus for at least two inches; one piece in particular, a large one, was forced away from between the upper and lower fragments of the bone, and thrust under the skin on the anterior aspect of the leg and a little above the joint, thus leaving a great depression corresponding to the gap in the continuity of the lower part of the shaft of the bone. The tibia was broken transversely about an inch above the base of the internal malleolus, and this lower frag-

ment was split vertically from the articulation to the transverse fracture, the outer bit remaining attached to the external malleolus. The foot and lower fragments were drooping backwards, the toes pointed downwards, and the heel forcibly drawn upwards by the extensor muscles in rigid contraction; the transverse width of the joint was increased three-quarters of an inch. Such a combination exhibited the greatest amount of deformity I have ever witnessed, as the result of complicated fracture in the neighbourhood of the ankle-joint. All the solutions of continuity referred to, and the exact condition of the parts could be most accurately investigated, from the fact of scarcely any effusion or tension having set in when submitted to my examination. I at once set about restoring the parts to as accurate a position as was attainable. An assistant having raised the limb, and steadily supported it, I embraced the heel and dorsum of the foot between both my hands, and having made forcible and continued extension for at least a quarter of an hour, wearied out the contracted action of the extensor muscles, and was then able to bring up the foot and lower fragments on a line with the upper, and do away in a great measure with the deformity. On taking hold of the internal and external malleoli, one in either hand, they could be moved freely in contrary directions, and the vertical splitting causing the increased width of the joint, demonstrated through its entire extent. Having effected so much, the limb was placed in the fracture-box, with the heel well padded and raised; side-splints, cushions, and bandages being applied, as in the former cases; no power or motions whatever could get back into position the detached piece of the fibula above the joint. After the adjustment of the fracture the patient was relieved from all pain and uneasiness. From the mode in which the splints, bandages, &c., were put on, it follows that the injured part was left exposed for the application of local measures; linen steeped in cold lotion was ordered to the part, and a large opiate given.

21st. He has had no startings of the limb since it was put up on yesterday; but it is now hard and tense from effusion; exalted in temperature and painful: relays of leeches, six at a time, were ordered, so as to keep up a continuous drain, which was encouraged by warm stupes.

22nd. Limb a great deal more swollen, tense, shining, and painful, and, as the result, bullæ have formed over the site of the fracture in the fibula; leeches were ordered as on yesterday; warm stupes to be continued; and a full opiate to be administered twice in the day.

23rd. Swelling less, but still great tension; leeches again to be applied, and the opium continued.

26th. The discoloration of the limb is very remarkable; turgid, and all over of a yellow hue, resulting from the contusion; the bullæ are tense, firm, and do not recede on pressure; there is no constitutional disturbance.

28th. Re-adjusted the splints, pads, &c., with much comfort to the patient; cold to the affected part was ordered.

November 6th. Swelling and pain all gone; the bones are lying in excellent position, with the exception of the detached piece projecting above the joint; but this is not producing either ulceration or sloughing of the skin, as might have been anticipated; I placed the limb in the fracture-box, supported as before with splints, cushions, and foot-board.

December 10th. Firm union of the broken bones, and the amount of callus thrown out is very small, so that even the flexion and extension of the joint is not interfered with.

23rd. The parts are perfectly solid, and though some little tendency to eversion from the gap in the fibula being filled by a structure not entirely consolidated, yet the issue of the case has been most satisfactory; the motions of the joints are preserved in their fullest integrity, and it only remains for the perfect completion of the cure, that the patient should continue a little longer in hospital.

CASE V.—*Fracture of the Tibia and Fibula, an inch and a half above the Ankle-Joint.*

This case was admitted into hospital under the care of my colleague, Mr. Tagert, senior surgeon to the hospital.

Catherine Maclean, a large, full woman, aged 40, was received into the house, November 8th, 1851. She was going down stairs when she slipped and fell to the bottom of the flight, and her right foot was twisted violently under her; it was evident to her friends that the leg was broken, and she was instantly removed to hospital. On examination the tibia and fibula were discovered to be broken, an inch and a half above the ankle-joint. The deformity in this case was somewhat similar to that in the case No. III. The action of the gastrocnemius was marked, and the heel drawn backwards and upwards, an angle being formed salient forwards. By extension and counter-extension the opposing resistance was overcome, and co-aptation of the broken fragments ensued; the limb was then placed in a padded fracture-box, the heel being well supported and pressed forwards; cushions, side-splints, foot-board, and bandages were then put on, as in the former cases, and with a similar object.

November 9th. No startings, or pain, and the limb lies in excellent position.

13th. Dupuytren's splint was applied along the calf of the leg, with the object already explained.

December 20th. Up to this date nothing can be more satisfactory than the progress of the case. Dupuytren's splint has, at intervals of five and six days, been re-adjusted, and the result has been perfect exemption from displacement, and, by the steadiness of the posture, maintained the perfection of the union by callus. In a few days the patient will be able to leave the hospital, with the motions of the joint but little interfered with.

CASE VI.—*Compound comminuted Fracture of the Tibia, two inches above the Ankle-Joint, and Fracture of the Fibula a little lower down.*

Mary Irwin, aged thirty-eight years, was admitted into Mercer's Hospital on 18th November, 1851. The history of the case is, that she was tipsy and staggering from one side of the footpath to the other when she slipped off of the curb-stone, her foot still remained on its sharp edge, and she fell violently to the ground, crushing, as it were, the leg under her. In a few minutes she was brought to the hospital, the accident having occurred close to its doors. On the patient being stripped and put to bed the deformity was found, on inspection, to be very similar in its outline to that of the foregoing cases, with the very serious complication of the protrusion of the point of the upper fragment of the tibia, which was very sharp, through the integuments, two inches above the ankle; from the wound, about an inch in extent, blood was flowing very freely. In addition to this fracture the internal malleolus was broken in pieces, and the fibula, a little below the wound, on the anterior aspect of the limb. From the fracture of both bones nearly in the same line, the foot and lower fragments were permitted to be dragged backwards and upwards by the rigid spasmodic contraction of the extensor muscles, while the comminuted condition of the internal malleolus, the pieces of which were nearly driven through the skin, allowed the foot to be greatly everted, its inner edge being considerably the lowest part: thus the case was marked by frightful deformity. At the time when this woman was admitted to hospital Mr. Tagert and myself were in the accident ward, and, owing to the very recent occurrence of the injury, the most accurate conclusions as to its nature were arrived at.

The case was placed under Mr. Tagert's care, and he readily acquiesced in my proposal of treating it on the principles inculcated in the former cases. By steady traction and counter-

extension, the leg slightly flexed on the thigh, the protruding bone was reduced, the spastic action of the gastrocnemius overcome, and the foot and lower fragments raised forwards, and brought in a direct line with the shafts of the bones, and retained so by the mechanical means alluded to in each of the cases already detailed; the fracture-box, the side-splints, the pads and foot-board, the two bandages, each when adjusted rendered the contrivance perfect and most efficient in preventing motion or disturbance of the injured parts; and, in addition, the paramount advantage was obtained of having the site of the fracture uncovered—the wound thus exposed to observation and for local management, avoiding the necessity for that most reprehensible of all practices, the removal of the mechanical support. In this case, after the fracture was reduced and the limb restored to position, the bleeding ceased; but, from the patient being a full, plethoric subject, it was considered advisable to solicit its flow, which was reproduced in a small stream by the application of a warm stupe; after some time the drain ceased altogether, when a small compress of lint was placed over the wound and the warm stupes continued. Ordered an opiate immediately.

19th. She has had no startings in the limb; slept composedly; stupes to be continued.

26th. Limb lying in the same position as when first put up; some swelling has set in during the last four days, but its absorption is taking place rapidly under the application of cold; the wound is granulating healthily.

30th. A considerable amount of fibrine is thrown out about the fractured bones; they are softly connected, and in perfect position; the wound steadily healing.

December 16th. Wound healed, and union progressing rapidly. In this trying case the mechanical contrivance had only to be re-adjusted four times, so perfect was the support afforded to the parts, and so complete the exemption from spasm. She

continued daily to improve up to the 19th, when the patient requested permission to be removed to her own house.

One of my chief reasons for wishing to place these cases on record is the practice lately brought into requisition in London, in the management of the special fractures under consideration. I allude to *tenotomy*, the division of the extensor tendons, to facilitate reduction, as practised by Meynier, Bérard, Laugier, and other French and German surgeons. A lengthened discussion not long since took place before the "Medico-Chirurgical Society of London, on the practice of tenotomy, in some cases of fracture, when Mr. C. De Morgan related some cases in illustration"^a. In the first cited, the tendon was not divided until the day after the accident. "The second case occurred in the author's own practice; the patient was a female aged 66; of drunken habits, and was admitted into the Middlesex Hospital in March, 1849. She had been knocked down by a cab, and both bones of one leg were fractured a little above the ankle." The report goes on to say:—"The author divided the tendo Achillis on the ninth day, with instant relief to the suffering of the patient, and immediate removal of all untoward symptoms." A very important feature in the management of these cases has been omitted altogether: the manipulation adopted for the reduction of the fracture, and the position in which the limb was placed afterwards. In the second case it is stated that "the tendon was divided on the ninth day." I can easily understand that this might be requisite, if the fracture, with its attendant deformity, was left unreduced for that length of time; failure of the therapeutic means employed; and the spasmodic action of the extensor muscles thus prolonged; for if fractured bones be left unreduced for such a lengthened period as this, *permanent* spasm seizes on the mus-

^a I quote from Braithwaite's Retrospect; but a notice of them also appeared in the Number of this Journal for May, 1851, page 372.

cles and becomes established; a fact clearly pointed out and insisted on by Sir A. Cooper. Mr. De Morgan goes on to say: "In the cases related, the chasm between the divided portions at first did *not* exceed a quarter of an inch, that being sufficient to get the bone into position; and in a short time after there was no appreciable space at all." This admission goes still further to proclaim that there is no necessity for division of the tendon to effect reduction, if the case is seen early; for by flexing the thigh as I have recommended, we can relax the extensor muscles more than "the quarter of an inch, that being sufficient to get the bone into position." I am of opinion that in ninety-nine cases out of a hundred, there will be no necessity for division of the tendon to effect reduction, if the limb be treated as I have advised; nay, on the contrary, I think, in some instances, the division of the tendon would be very injurious, as removing the support posteriorly from the ends of the broken bones, and thus permitting displacement in that direction. The mode in which the fracture-box, which I have described, supports the leg in a horizontal line, with the thigh slightly flexed, padded, and cushioned, as illustrated by the foregoing cases, meets every requirement of the surgeon. Dupuytren's splint, in conjunction with these means, as used in some of my cases, is a most admirable adjunct; but taken by itself, it will not answer as well for the management of the form of fracture under consideration; for if the limb be done up as directed by Dupuytren, and placed flexed upon its side, some lateral displacement will take place; or if, with the splint so applied, the leg be allowed to rest upon the heel, it is unsteady and rolls about, and the entire limb is in the extended position, a posture very objectionable, as making tense the tendo Achillis.

From a review of these cases and the observations upon them, the following facts are, I think, deducible:—

First, That by proper position of the limb, and early re-

duction, co-aptation of the broken fragments can be effected, and spasm averted.

Secondly, As the result of the broken bones being kept in accurate position, irritation is subdued, excess of callus prevented, and the motions of the joint left unimpaired; a fact of great practical importance here, for the experiments of M. Cruveilhier prove that various forms of irritation will make the periosteum and ligaments ossify, and it has been ascertained that in some cases of fracture near the joints the ligaments have sometimes been converted into bone, and M. Rayer has observed, from numerous interesting experiments, that a similar change may be exerted not only in the fibrous but also in the cartilaginous structures.

Thirdly, That tenotomy is not called for in the vast majority of cases, being perhaps only admissible when permanent spasm has located in the extensor muscles, owing to neglect of early reduction.

ART. VIII.—*Some Account of an Epidemic of Pericarditis, which appeared in Kilkenny in the Winter of 1848-9.* By JOSEPH LALOR, M. D., Physician to the Fever Hospital, Lunatic Asylum, and Union Workhouse, Kilkenny.

THE period which elapsed from the autumn of 1847 to the setting in of cholera, in the spring of 1849, was remarkable in this locality for the great variety of acute febrile diseases which prevailed, and for the absence of that usual predominance of some specific form of fever which, during its own prevalence, not uncommonly excludes, nearly altogether, other forms of febrile disease. With the autumn of 1847 an improvement had commenced in the material condition of our people. The employment, the wages, and the supply of provisions which this harvest brought with it, had given a wholesome diffusion to the masses of people who had congregated in our workhouse, in our city, and around our relief depôts, as centres either of pri-