prevalent in the summer and autumn of 1852 in many other parts of the country, and not more fatal than in Bedford and its neighbourhood,—the *only* means of ascertaining that fact will be through the journals; for the tables of mortality will render us no assistance.

Bedford, January 7th, 1854.

CASE OF THREATENED AMPUTATION, THE RESULT OF A SIMPLE FRACTURE OF THE LEG BECOMING COMPOUND.

By J. CHURCHILL, Esq., Surgeon.

CASE. J. M., a healthy labourer, aged 62, a stalwart Cumbrian, six feet in height, proportionably stout, of temperate habits, and of a temperament indicating but little nervous sensibility, was, on Nov. 12th, 1851, about 8 o'clock P.M., driving a horse and cart. The animal shied suddenly, and jerked him from the front of the cart, where he was sitting, to the horse's heels; and the wheel passed over the left leg, or the foot probably became entangled in the spokes, and a fracture of both bones was the result. As the accident occurred near his home, he was speedily conveyed thither; and I was sent for. In the interim, the poor man's employer obtained a neighbouring practitioner, who had got the patient undressed and removed to bed, and had dressed some superficial scratches about the limb with adhesive plaster, when I arrived.

The limb was now carefully examined, and there proved to be a simple oblique fracture of both tibia and fibula, rather below the middle of the leg, with slight fracture of the internal malleolus; and the ankle-joint was evidently much strained. On the knee being fixed, and moderate extension made, the fracture was easily reduced, and the spine of the tibia traced without any inequality; the short lapse of time not having allowed tumefaction to take place. But when the equable pressure and extension effected by the hands were permanently substituted by an outside and inside splint, retraction, possibly to the extent of a quarter of an inch, unavoidably ensued, owing to muscular action and the obliquity of the fracture. The other attendant agreeing with me that the position could not be improved, the ordinary measures were adopted, and the patient was left for the night; and, by the request of his employer, I consented to see him again the ensuing morning.

Nov. 13. A restless night had been passed. The swelling above the injury was inappreciable, but below and around the ankle-joint considerable ecchymosis had taken place. The lower tapes were therefore slackened, and the use of leeches and lotions left to the discretion of the attendant in whose hands the further treatment of the case remained. I confidently expressed to the master of the patient, that "in all human probability he would be well in from seven to nine weeks; the unavoidable shortening of the limb being nothing more than the thickened sole of a shoe would effectually remedy". Directly after the visit just referred to, I accompanied the other medical attendant a short distance to his residence; he observed *en route* that he was unwilling for the limb to be any shorter; and that he would obviate it by making greater extension with the long splint. To this I demurred, impressing upon him that any greater force than that employed would be productive of mischief; and adding that it would be an error to confine the muscles of the thigh, and to some extent stiffen the knee-joint, when not implicated in the injury. At the same time I observed that, if he wished for more "surgical display", I would readily procure a McIntyre's splint from the District Infirmary, where I had previously been house surgeon. But I strenuously urged that, for the present, *the patient should be let alone*; and believing I had over-ruled the preconceived idea of employing a long splint, and on the assurance he would make no alteration in the treatment without apprising me, I and my neighbour parted.

The same evening, having to call at a carpenter's adjoin-

ing, again the same party and myself accidentally met, and he gravely observed he was ordering a long splint. Wishing to avoid any repetition of the morning's conversation indicative of difference of opinion, I left the house immediately without one word of comment.

Nov. 14th. This morning I was apprised that a journeyman carpenter, the long wooden splint, and the practitioner, all arrived at the poor man's cottage a little before 10 o'clock the previous night, and twenty-six hours after the accident; that all the appliances used had been removed; and that, with the aid of its manufacturer, the long splint had been applied in a manner which effectually destroyed a second night's rest, and with an injurious tendency of which the result proved ample evidence. However, the practitioner assured the patient that the altered treatment was made solely for the benefit of the latter and his own credit (doubtless so intended), and he left the room, assuring the sufferer that, if anything, "the broken limb was then made the longer of the two".

The interval that now ensues until the 6th of the ensuing month can only be transcribed from the sufferer's own account; and deficient as that may be in professional technicality, yet no doubt can be entertained of the truthfulness of the statement. So acute were the man's sufferings during the night of the 14th, that he soon compelled his wife to clip the bandages in several places; this, however, was censured by his attendant, who daily visited him and administered some medicines.

On Thursday, the 20th November, the limb was unbandaged, and a wound appeared about the centre of the leg, through which a portion of the fractured bone appeared to be protruding; the fact was, a simple fracture had become a compound one. However, the long splint was persevered with; and matters became worse. More than one consultation was held with two other junior practitioners between this date and the 5th of December, a period when this simple case promised to my mind to have been progressing towards a creditable cure. The result of the consultations referred to was an opinion that a spiculum was ulcerating its way from the seat of fracture; and under this impression, forcible but futile attempts were made to remove it, thus enlarging the existing ulceration. However, the parties consulted appeared to amend the appliances; and about the 2nd of December employed a McIntyre's splint, but without effecting anything like an apposite proximity of the extremities of the fracture, which was now unattainable.

Dec. 3rd. Matters appearing thus unsatisfactory, the sufferer was told by his attendant that the only alternative left him was amputation of the limb. A clear day was given him to consider of it and consult his friends, and on the 5th the operation was advised to be performed. To this alternative, however, the poor fellow refused to submit; and I had repeated solicitations to take the entire management of the case. This, as may be supposed, was declined by me; unless the patient became parochial, and I attended him in my duty as surgeon to the district. The principal incentive for my adopting this course was the certainty I wished to insure of an adequate diet from the resources of the union, being certain that if recovery was permitted, it must be protracted, and a full diet essential to effect it.

On December 6th, the case accordingly became mine; and, in justice to myself, I obtained the unbiassed opinion of Dr. Fidler, of Whitehaven, whose long previous experience in the surgical cases occurring in the collieries of the Earl of Lonsdale, gave me reason to value it, and to whose aid I have much pleasure in acknowledging myself indebted.

The patient at this date had slight irritative fever, a pulse of 98, and furred tongue; he was taking a tablespoonful of brandy diluted every four hours. For several nights before, he had had but short intervals of sleep, and awoke with considerable pain and twitching below the knee throughout the injured limb. He was ordered to take half a grain of the hydrochlorate of morphia at night. The limb was lying upon an extended McIntyre's splint; below

the knee was considerable swelling, and there were superficial sores on the outside and inside of the limb. The centre of the anterior surface of the leg presented an unhealthy irregular looking ulcer, fully two inches in extent vertically and transversely, through which the upper portion of the fractured extremity of the shaft of the tibia was protruding, lying rather external to and raised above the lower portion of the fracture, at an angle of at least 20°; the raised position having been (as asserted by the patient) increased by the ineffectual attempts made to remove it as a supposed spicula. From the callus which had been poured out beneath the lower surface, depression *in situ* was impossible. The same cause, added to the tumid state of the limb, rendered extension equally out of the question; but, as there was no appearance of gangrene, and as the main arteries were intact, amputation, without a further attempt at preservation, appeared equally inadmissible. The course, then, that suggested itself was to remove the protruding portion of the tibia, and to effect, if possible, the union of the fresh surfaces. Until this could be effected, all apparatus was removed; the limb being merely supported on a softly padded outside splint. The morphia was ordered to be repeated, and two grains of disulphate of quinine, in a tablespoonful of wine, to be given twice in the forenoon daily.

Dec. 7th. The patient appeared more cheerful. He had had, during the night, three hours' uninterrupted sleep. The pulse averaged 95. In addition to the other medicines, a dose of castor oil was ordered early the ensuing morning.

Dec. 8th. It must be observed, that Dr. Fidler resided at twelve miles distance, and was prevented from assisting me until to-day. At two o'clock, P.M., I removed, with a finger-saw and the bone-pliers, the protruding portion of the tibia, having first cleared its upper surface with a scalpel; the soft parts being protected on each side with a thin spatula. The patient declined to inhale chloroform, and bore the proceeding well. The portion removed comprised the smooth surface forming a part of the attachment of the tibialis anticus muscle, and extended obliquely to the medullary canal, being upwards of two inches in length, and nearly an ounce in weight. The shortened extremity was now brought into as close contact as possible with the lower portion; and the limb was enclosed in a softly padded pair of splints, supported on pillows covered with oil silk, and steadied by weights laterally placed. The wound was dressed with tepid water dressing only, and a second dose of morphia was ordered to be given at midnight.

Dec. 9th. Notwithstanding the second dose of morphia, the restlessness was great throughout the night, and the pulse was upwards of 100. The position of the limb remained unaltered. In the evening, the morphia was again ordered, and a dose of castor oil early in the following morning.

Dec. 10th. Noon. The medicines had acted favourably, and the patient had had three hours' sleep the night before.

9 P.M. He had frequent short naps during the day; but, on awakening, felt much spasmodic pain and jerking throughout the injured limb. The morphia was again ordered, and the quinine continued as before.

Dec. 11th. Through the night, the patient had intervals of refreshing sleep; but, on awaking, the spasm was more general, affecting the whole of the left side, especially the arm. In fact, in the phraseology of the man himself, whenever he awoke, "a great click shot all through him". These symptoms naturally caused some apprehension of tetanus. The same medicines were continued, and water dressings to the wound.

Dec. 12th. He had slept five hours. The symptoms of the preceding day had diminished; the pulse was less frequent; and the wound was healthier in appearance. The same remedies were ordered to be continued.

Dec. 13th. 10 A.M. The morphia was omitted by the

wife's neglect. The pulse had risen to 100, and the patient was altogether in a more irritable state. However, the spasm only affected the left limb, and the wound continued to improve. But that portion of the tibia which had been shortened appeared retracted, and had a sunken appearance below that of the inferior portion. This was accordingly remedied by padding beneath the calf.

Dec. 14th. The case appeared progressing favourably; pain having subsided to merely that in the locality of the fracture, indicating a reparative process. The diet was increased, fish being allowed at breakfast, and a pint of porter in the twenty-four hours.

Dec. 15th. A fracture-box was employed, the sides of which opening, facilitated the dressings, and, when closed, acted as lateral splints; and the limb was additionally steadied by this being slung from a crossbar screwed to the lower bedposts. The poor man, about this time, suffered sensible uneasiness from the slightest jar, or even a heavy footstep across the room. From this date, he continued to improve; medicines were discontinued; and, by the end of the first week of the year 1852, the granulations of the wound required the use of the nitrate of silver.

Jan. 27th, 1852. The fracture-box was laid aside, and a light block tin frame, supporting the foot, and acting as a posterior and a lateral splint, fastening in front by straps, was now employed. The patient sat up for the first time since his accident. Wishing to counteract the stiffness of the knee-joint, resulting from so long and constrained a position, some attempts at flexion were advised, but hardly any was attainable.

By February 15th, the wound had cicatrised, and a first attempt at progression upon crutches was now made. Deep seated pain around the seat of fracture at night was felt until the latter end of this month, evidencing a deposition of callus for more than seventy days subsequent to the shortening of the tibia.

By the 20th of March, the frame and crutches were replaced by a leather band, with a whalebone splint on each side, fitting into the upper part of a laced-up ankle shoe. raised full an inch, with an inner cork sole; the *secondary* union of the fracture having shortened the limb to full that extent; and the room could now be travelled by the patient with a walking-stick.

By the 1st of May, the poor man was enabled to walk a short distance to the church, and the strength of the limb gradually improved.

At the present time, he can do a tolerable share of labour, and is equal to walking seven or eight miles in a day. The result of the case even now is satisfactory, inasmuch as the shortened limb is as preferable to the contemplated substitute (had amputation proved successful), as it might have been more perfect than it is, if the original means adopted had never been interfered with.

The points of interest in the case are, the lengthened period up to which callus was deposited as a reparative process, and the forcible evidence of the great extent to which a limb may be injured, even at the advanced age of sixty-two, without justifying its amputation, which, upon the high authority of Mr. Guthrie, all practitioners should deem "the last resource and opprobrium of surgery, as death is of the practice of physic".* The want of confidence in the ordinary plan pursued at the time of the occurrence of this accident, and the subsequent alteration of the treatment, proved a serious misfortune to the patient; and, in the absence of any code of laws, ethical or otherwise, to regulate the profession, the publication of the case may possibly lead to a just appreciation of the whole proceedings.

Gosforth, Cumberland, January, 1854.

* Lancet, June 12th, 1852; Aphorism 65.