

easily; and Kirk succeeded as well, in an example of the opposite character, all the bones being carried inwards.¹

Mr. Sandwith has given us an account of a case which occurred in his own person, from the fall of his horse upon his foot. "I was instantly sensible," says Mr. Sandwith, "of the nature of the injury, and as soon as I was upon my feet, the metatarsus was found to be drawn upwards, and obliquely outwards upon the tarsus, by the action of the flexor muscles. On the removal of the boot, which was cut away, these were the appearances: The foot considerably shortened, the toes turned a little outwards, and a hard swelling, bigger than an egg, upon the tarsus, with tumefaction of the integuments. The pain, which was great at first, was kept under by a warm fomentation.

"The reduction was easily effected by my friends Messrs. Williams and Brereton, and leeches and bread-and-water poultices prevented inflammation. For several nights the foot was violently shaken by spasmodic action of the muscles, but the parts preserved their relative situation; and although it was nearly a year before all lameness ceased, yet at the end of six weeks I was enabled to lay aside my crutches. For the ability to use the foot in so short a time, I was indebted to a contrivance which rendered the foot and ankle inflexible.

"Instead of an elastic sole to the shoe part of the apparatus, one of wood was procured, around the heel of which was nailed a piece of firm, unbending leather; this reached as high as the calf of the leg; three small straps with buckles held the leg *in situ*, and a broader one across the instep secured the foot. The comfort I experienced from this simple apparatus is my reason for describing it so particularly; it has since been found useful in various injuries of the foot and ankle."²

In one extraordinary case, however, Dupuytren was not so successful. Paul Endes, æt. 24, fell, while drunk, into a ditch six feet deep, and alighted on the soles of his feet. The accident was followed by great swelling, and he did not suspect the nature of the injury, nor present himself at the hospital until three weeks after. Dupuytren then ascertained that he had dislocated the metatarsal bones of both feet. Several fruitless attempts were made to accomplish the reduction, but to no purpose, and in about two weeks he left the hospital.³

CHAPTER XXV.

DISLOCATIONS OF THE PHALANGES OF THE TOES.

DISLOCATIONS of the toes are less common than those of the fingers, yet a considerable number of cases have been recorded by different surgeons. They are occasioned by blows received directly upon the ends

¹ Malgaigne, *op. cit.*, p. 1081.

² Sandwith, *Amer. Journ. Med. Sci.*, Nov. 1828, p. 216; from *London Med. Gaz.* vol. i.

³ Dupuytren, *op. cit.*, p. 329.

of the toes; by the weight of the body brought to bear suddenly upon their plantar surfaces, as when a horseman springs in his stirrups, or by a fall, in consequence of which the rider hangs in his stirrup; by leaping, etc.

They may be partial or complete; and in the latter case, a slight overlapping is generally observed. In a great majority of cases the direction of the displacement is backwards, or with only a slight lateral deviation. Occasionally several bones are displaced at the same time, but usually only one suffers displacement. It is more common here to find compound and complicated dislocations than in the case of the fingers.

The position of the toes is not always the same in the same form of dislocations. Thus, in the dislocation backwards, the toe is sometimes reversed upon the foot to nearly a right angle, and at other times it is found lying in the same axis as the metatarsal bone, or the phalanx, from which it is dislocated. Some years since I reduced a backward dislocation of the first phalanx of the second toe in the person of Lewis Britton, æt. 60, who had fallen from a fourth-story window, striking upon his feet, and breaking both thighs. I did not discover the dislocation of the toe until sixteen hours after the accident. It was then lying parallel with the axis of the metatarsal bone, upon which it was slightly overlapped. The reduction was effected easily by pulling upon the last phalanx with my fingers, while at the same moment I pushed the head of the bone toward the socket. No swelling followed; nor has it troubled him at all since his recovery.

Dr. John H. Packard, of Philadelphia, informs me that in a dislocation backwards of the first phalanx of the great toe, occurring in a very muscular man, the phalanges were found lying parallel with the metatarsal bone; and it was reduced easily by extension, while the patient was under the influence of ether.

Treatment.—With regard to the treatment, surgeons have experienced the same difficulty, in certain cases of dislocation of the great toe, as we have seen experienced in similar dislocations of the thumb. Occasionally, indeed, the reduction has been found to be impossible. The same doubts have existed also in relation to the causes of this difficulty, and in reference to the means by which it was to be overcome. I shall therefore refer the reader to the chapter on Dislocations of the First Phalanges of the Thumb and Fingers, for a more full consideration of this matter.

In case the smaller toes are dislocated, the reduction is generally effected with ease, by simple extension, or by extension combined with pressure; sometimes, also, the bone will be more easily put in place by reversing the phalanx more completely, as I have advised in certain cases of dislocations of the fingers.

If the skin is penetrated, it will often be found necessary either to amputate or to practise resection upon the exposed phalanx.

Sir Astley Cooper relates a case of dislocation of "all the smaller toes," from the metatarsus, which had not been reduced, and the subject of which was, in consequence, so much maimed that he was unable to labor. It had been occasioned by a fall, from a considerable height, upon the extremities of the toes. A projection existed at the roots of all the smaller toes, the extremity of each metatarsal bone being placed

under the first phalanx of its corresponding toe. The swelling which immediately followed the receipt of the injury had concealed its nature, and now, several months having elapsed, reduction could not be effected. The only relief which could be afforded him, therefore, was in wearing a piece of hollow cork at the bottom of the inner part of the shoe, to prevent the pressure of the metatarsal bones upon the nerves and blood-vessels.¹

CHAPTER XXVI.

COMPOUND DISLOCATIONS OF THE LONG BONES.

Frequency of Compound as compared with Simple Dislocations.—Compound dislocations, as compared with simple, are of rare occurrence. Of ninety-four dislocations reported by Norris as having been received into the Pennsylvania Hospital for the ten years ending in 1840, only two were compound;² and of one hundred and sixty-six dislocations in my record of personal observation made in 1855, only eight were compound.³

Relative Frequency in the Different Joints.—In my own recorded cases just referred to four were dislocations of the tibia inwards at the ankle-joint, one was a partial (pathological) dislocation forwards at the same joint, one a dislocation of the astragalus, one a dislocation of the head of the humerus into the axilla, and one a forward dislocation of the radius and ulna at the wrist-joint. I have also met with several examples of compound dislocations of the elbow and fingers. Both of the cases reported by Norris were dislocations of the thumb.

Sir Astley Cooper, speaking upon this point, says that the elbow, wrist, ankle, and finger-joints are most subject to these accidents; and that he has seen but two in the shoulder-joint, and one in the knee-joint. He had never seen a compound dislocation at the hip-joint, and he believed that it was "scarcely ever" so dislocated. Malgaigne says that a compound dislocation at the hip-joint has probably never occurred. Mr. Bransby Cooper has, however, reported in detail a very interesting case of this accident, communicated to him by Dr. Walker, of Charlestown, Mass., in which reduction was accomplished by *manipulation* alone, by Dr. Ingalls on the second day. The patient died at the end of about three weeks.⁴ I have already, when considering dislocations of the femur downwards and backwards, referred to the case reported by Dr. W. Taylor, in which reduction having been effected recovery took place.

Among the cases of compound dislocation recorded by Sir Astley and

¹ Sir Astley Cooper, *op. cit.*, p. 385.

² Norris, *Amer. Journ. Med. Sci.*, April, 1841, p. 335.

³ For most of these cases, see Transactions of the New York State Med. Soc. for 1855, article entitled "Report on Dislocations, with especial reference to their Results," by F. H. Hamilton.

⁴ A. Cooper, on Dislocations, etc., by B. Cooper, p. 59.

Bransby Cooper, most of which were communicated to these gentlemen by other surgeons, forty-five were dislocations of the ankle, ten of the astragalus, four of the ulna at the wrist-joint, four of the thumb, two of the knee, one of the shoulder, one of the elbow, one of the radius and ulna at the wrist, one of the scaphoid bone, and one of the metatarsal bone of the great toe. Other writers have occasionally described compound dislocations of the clavicle, but I know of no record of a compound dislocation of the lower jaw.

Prognosis, as determined by the Mode of Treatment adopted by most of the Ancient and many of the Modern Surgeons.—By most of the early writers these accidents, whenever they occurred in the larger joints, were regarded as nearly beyond the reach of art. Says Hippocrates: "In cases of complete dislocation at the ankle-joint, complicated with an external wound, whether the displacement be inwards or outwards, you are not to reduce the parts, but let any other physician reduce them if he choose. For this you should know for certain, that the patient will die if the parts are allowed to remain reduced, and that he will not survive more than a few days, for few of them pass the seventh day, being cut off by convulsions, and sometimes the leg and foot are seized with gangrene." Hippocrates adds: "But if not reduced, nor any attempt at first made to reduce them, most of such cases recover."¹

The same remarks are applied by Hippocrates to compound dislocations of the head of the tibia, of the lower end of the femur, of the wrist, elbow, and shoulder-joints; death occurring in all cases, as he believed, more or less speedily whenever the bones are reduced and retained in place a sufficient length of time, and "were it not that the physician would be exposed to censure," he would not reduce even the bones of the fingers, since it must be expected, he thinks, that their articular extremities will exfoliate even when the reduction is most successful.

I shall presently show, however, that even Hippocrates advised and probably practised resection in certain cases of these accidents.

Both Celsus and Galen adopt almost without qualification the line of practice laid down by Hippocrates, and affirm equally the danger and almost certain death consequent upon the reduction of compound dislocations in large joints.² Celsus recommends resection in some cases.

Paulus Ægineta, however, and after him Albucasis, Haly Abbas, and Rhazes, do not regard the rules established by Hippocrates, in relation to the non-reduction of the bones, as so imperative, nor the results of the opposite practice as so uniformly fatal.

"Hippocrates remarks," says Paulus Ægineta, "in the case of dislocations with a wound, the utmost discretion is required. For these, if reduced, occasion the most imminent danger, and sometimes death, the surrounding nerves and muscles being inflamed by the extension, so that strong pains, spasms, and acute fevers are produced, more particularly in the case of the elbows, knees, and joints above, for the nearer they are to the vital parts the greater is the danger they induce. Wherefore,

¹ Works of Hippocrates, Syd. ed., London, vol. ii. p. 634.

² Paulus Ægineta, Syd. ed., vol. ii. p. 510.