the Archimedean drill, and penetrated into the cancellated structure of the bone. A small ivory peg, half an inch long, which exactly fitted the orifice made, was then introduced into it, and driven in with the hammer. Another incision was then made on a level with the former, over the inner aspect of the same upper fragment, and two others over the lower fragment, and pegs introduced in the same manner as had been done for the first. The fibula was left untouched. The lower fragment was so soft that a needle could be pushed into it, so that the pegs introduced into that part required no force.

September 12th (two months after the operation).—The first peg came away to-day; it is considerably eroded, but whether the bony matter has been absorbed, or whether it has been softened and come away in the pus, is uncertain. The second peg was found loosened, but not quite fit to be taken out. Four days after this, Mr. Bowman removed the second peg and a small piece of sequestrum; the other two pegs remain in the bone, and the wounds are healed over. From the softness of the lower fragment in which the pegs are retained, it is to be supposed that the ivory may have been completely incorporated in the bone without having perhaps undergone any change.

November 24th (four months after the introduction of the pegs).—The union of the bones is very incomplete. Mr. Bowman advised the patient to go into the country with a single gutta percha splint and bandage fixing the ununited parts, the knee being flexed at right angles on the thigh; the boy was also desired to wear a wooden leg, so as to give the ankle perfect rest. The further information which has been received tends to show that up to the time at which we write, union had not taken place.

This is altogether an exceptional case—in fact, we are not aware that an attempt was ever made to excite union between fragments which had been lying asunder for thirteen years. It is, however, both satisfactory and instructive to follow the above-described and praiseworthy attempts at saving the boy's foot.

We understand that Mr. Square, of Plymouth, has also tried Dieffenbach's plan, in a case of ununited fracture of the femur; the results were, however, likewise unsuccessful. Pegs were placed in the extremity of the upper as well as of the lower fragment, but at the end of three weeks, no attempt at union could be perceived. The thigh was subsequently amputated.

Mr. Fergusson has very lately resorted to the use of the ivory pegs in a case of ununited fracture of the ulna; we beg to adduce a few particulars:—

Ununited Fracture of the Ulna.—Dieffenbach's Operation for promoting Union.

(Under the care of Mr. FERGUSSON.)

A. B—, aged thirty years, employed on iron works in Yorkshire, was admitted July 3rd, 1852, into London ward, under the care of Mr. Fergusson. The patient is a robust man, who has always enjoyed good health; he has dark hair and complexion, and is rather of a melancholic turn of mind.

Whilst occupied in the works, thirteen months before admission, his fore-arm was caught by the machinery belt, and twisted several times round, and he sustained a severe comminuted fracture of both the radius and ulna. The man was at that time admitted into the Newcastle hospital, where it appears that union took place in the radius, but the ulna remained ununited. After a considerable stay at the hospital, where, according to the patient, the propriety of using the seton was several times discussed, he repaired to London, and placed himself under the care of Mr. Fergusson.

On examination, it was found that the patient was incapacitated from using his left arm to the usual extent, though a certain degree of strength was left in it. Some difficulty arose as to ascertaining the exact situation of the fragments of the ulna, and even whether haply both bones were not in an ununited state. It was, however, plain, from the time which had elapsed since the infliction of the original injury, that none but very active measures would give a fair prospect of success.

The patient was therefore brought into the operating-theatre on the 10th of July, 1852, and narcotized with chloroform. Mr. Fergusson commenced by making a longitudinal incision behind the ulnar artery, about midway between the elbow and wrist. When by a careful dissection the bones were fully exposed, it was still somewhat difficult to distinguish the seat of the ununited fracture; but by causing the upper and lower portion of the ulna to move upon one another, it was found that the extremities of the fragments were situated in the wound just made, and surrounded by a fibrous capsule.

Mr. Fergusson now passed his knife through this capsule, and proceeded to implant, with the hammer, between the ends of the fragments, a peg made of bone, about two inches long, and tapering to a fine point, having first made a hole for its reception with a common gimlet. Another hole was now made, about half an inch from the end of the upper fragment, with the same gimlet, and a second peg (ivory), of an almost cylindrical shape, introduced. A third peg (ivory) was placed in the same manner into the extremity of the lower fragment. The heads of the two latter pegs were cut off with the bone forceps, and the wound closed with two sutures.

Mr. Fergusson remarked, after the patient was removed, that there had been some difficulty as to finding the actual locality of the false joint; but that, with the impression that the ulna was mainly concerned, he had made the incision which had exactly exposed the injured parts. Some surgeons might have thought the passing of the knife through the adventitious capsule sufficient for the purpose of exciting inflammation; and others might have been tempted to use a seton; but he (Mr. Fergusson) had preferred introducing a foreign substance into the bone in the vicinity of the fracture. He had employed the simple gimlet, which answered well; Mr. Bowman had, in a similar case, used a more complicated instrument, the Archimedean drill.

Mr. Fergusson added, that the practice he had just followed was well known to have originated, a few years ago, with Dieffenbach; he was, however, bound to state, that this method had been partially carried out several years ago, by Mr. Watson, of Edinburgh. This surgeon was about to pass a seton, in a case of ununited fracture, when he found it impossible to introduce the skein between the fragments, for this is sometimes extremely difficult to accomplish. Under these circumstances, Mr. Watson thrust a silver probe between the ends of the broken bones, left it, and obtained union. It might now be asked, continued Mr. Fergusson, whether the incision or the silver probe led to the eventual consolidation. He was, at all events, far from wishing to diminish Dieffenbach's merit in suggesting the operation. In fact, it is the duty of the surgeon, in cases which present difficulty, to devise all kinds of plans, which should, however, be based upon sound reasoning. As for himself, he was uncertain, before the operation, regarding the actual mode of procedure he would follow.

Perhaps it might have sufficed to remove the ends of the fragments with the saw, with such a one, for instance, as had been invented by Mr. May, of Reading. This saw was a very ingenious but somewhat complicated contrivance, and he (Mr. Fergusson) would prefer the simple straight saw, which had the merit of acting well, and of being very cheap as compared with the circular instrument. The patient just operated upon had very good chance of obtaining union, and he (Mr. Fergusson) had very fair hopes of the case.

The man has since progressed extremely well, and the wound took on a very healthy action. About a fortnight after the operation one of the pegs became loose, and Mr. Fergusson extracted it; and one week afterwards it was found, on the bones being tried, that consolidation was already to a great degree established. It is very probable that in a short time satisfactory union will have taken place.

This case is certainly very encouraging, and well calculated to bring the *pegs* into favour. They are perhaps more useful in ununited fracture of the fore-arm or tibia than with the femur or humerus. But it should always be remembered that the most approved operative proceedings will with some patients remain unsuccessful; and the following case, which has been kindly put at our disposal by Dr. Geoghegan, surgeon to the City of Dublin Hospital, offers so instructive an illustration of this fact, that we scarcely need apologize for making our readers cross the Irish channel for a few moments, and peruse a case derived from the nosocomial practice of our Dublin brethren.

CITY OF DUBLIN HOSPITAL.

Compound Fracture of both Bones of the Fore-arm; Non-union; Pressure; Ivory Pegs; Scraping of the Ends of the Fragments; Absence of Consolidation.

(Under the care of Dr. GEOGHEGAN.)

THE patient was a young man, who had enjoyed excellent health up to the time when he met with a compound fracture of both bones of the fore-arm, which accident happened four years before he placed himself under the care of Dr. Geoghegan. The fracture was situated at the lower third of the fore-arm; it was very oblique, and had never united.