

192 cases of simple fracture (50 being of the femur) and 26 cases of compound fracture.

II. That union is not delayed by this splint, as alleged by some. On this point bear 313 cases, 192 of the gypsum apparatus and 121 of the starch, felt, leather, and pasteboard.

III. That the splint may be with safety applied at once in fractures of all bones. In support of this point are 176 cases in which this splint was applied within forty-eight hours from the date of the accident, of which 69 are simple and 23 compound fractures (gypsum apparatus), 23 are simple fractures (felt splint), and 61 simple fractures treated with gypsum splints, of which I could not get complete details as to results, the patients having been discharged from the hospital wearing the splints, etc., but whose records are given beyond the date when we may be sure that no untoward result could arise dependent upon the early application.

IV. To show that great contusion of soft parts, swelling or extravasation of blood do not, of necessity, contraindicate even its immediate application. Here belong 32 cases of simple fracture and 23 of compound fracture thus described.

NOTE.—The author desires to acknowledge the valuable assistance of different members of the present and late House Staff of Bellevue Hospital in preparing this paper. The names of several of them are indelibly associated in hospital memories with the introduction and progress of the gypsum apparatus, and more than one of the visiting surgeons have expressed the belief that the remarkable success attending the use of this apparatus was dependent quite as much upon the skill and intelligence shown in its application as upon the inherent merits of the apparatus itself.

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ART. V.—*On the Impracticability of restoring to its Full Length a Thigh-bone shortened by Fracture, as apparently demonstrated by Experiment.* By H. F. MONTGOMERY, M.D., one of the attending Surgeons to the City Hospital, Rochester, N. Y.

A MUSCULAR man, 28 years of age, came under my care April 1, 1872, who had just fallen from a height of thirty feet. He had fractured the frontal bone at the root of the nose, and had also fractured the left thigh-bone at the junction of the middle and lower thirds. The man survived his injuries four days.

The fractured thigh was treated by adhesive-plaster extension, with two weights over two pulleys, with the foot of the bed raised ten inches higher

than the head. The combined weight was eighteen pounds. Sand-bags were not used, as I consider them useless, if not detrimental. A fractured thigh, extended to its extreme capacity of extension, if unobstructed, moves at the hip-joint more readily than at the place of fracture.

The two pulleys, arranged parallel with each other at the same level, and four inches apart, tend to prevent rotation of the limb.

Short splints of thin board were applied to the thigh (probably unnecessary).

When first seen, the fractured limb was about two inches shortened. The weight of eighteen pounds, continued for four days, produced but slight effect. Had my patient survived, I should have increased my extending force by applying as great a weight as could have been retained by the adhesion of the plaster.

After the death of my patient, I wished to determine whether it were possible, by any practicable power, to extend to its full length the shortened thigh, and to bring its fractured surfaces in contact.

Eleven hours after death, the muscles of the fractured thigh were separated, without cutting across muscular fibre, down to the bone. We found a transverse fracture, with one and one-fourth inches lapping. The muscular development was splendid. The body was fixed by a rope between the legs, fastened above the head to the wall, and another strong rope was placed around the ankle of the fractured limb. Continued and repeated extension was made by four men together (applying a force probably equal to a thousand pounds over a single pulley). The limb could be brought down by this means to half an inch lapping of the ends of the bone, but no further. The lateral pressure of the extended muscles was observed to be great, quite sufficient to prevent displacement, if the limb could be brought down to its full length, either in an oblique or transverse fracture.

We then applied to the extending cord, a weight of one hundred and twenty-six pounds over a pulley, and left it upon the limb from four o'clock P. M. to nine o'clock A. M. (seventeen hours). The bones were then found lapped one-fourth of an inch. From the above we may conclude that a transverse fracture of the thigh-bone, with slightly shortened limb, will produce greater deformity than an oblique fracture with the same shortening.

Some months ago I had an opportunity to see and feel the end of the bone in a transverse fracture of the thigh in a living subject, three months after the injury, where there was a shortened limb, where union had taken place, and where the greatest weight that could be retained upon the limb had been constantly applied for seven or eight weeks. It was a case of compound fracture, where the patient eventually recovered with a slightly shortened limb, and with adhesion of the extensor muscles of the leg to the thigh-bone. In this case we found that the portions of bone which

lapped had been absorbed down to the medullary portion, on the side where they were in contact, and had thus formed two flat surfaces which had united.

I venture the opinion, that in most, and probably in all, cases of fracture of the femur, whether transverse or oblique, *with shortening*, the fractured ends of the bone cannot be placed in exact apposition by any force which can be safely applied to living tissue.

It is admitted by most modern writers on surgery, that shortening of the limb in fracture of the thigh is to be expected, and is generally found after proper treatment. Would it not be more correct to say, it is always found (when produced by a fracture), because a shortened thigh-bone *cannot* be fully extended to its normal length after the broken ends of bone have passed each other?

ART. VI.—*Cases of Stricture of the Rectum treated by Different Methods; one of them by Electrolysis.* By WM. R. WHITEHEAD, M.D., of New York, Physician for Diseases of Women at the Northwestern Dispensary.

THE unsatisfactory results which so often follow the ordinary treatment of stricture of the rectum, is a sufficient reason to call attention to the following cases. They illustrate in a comparative manner the value of certain modes of treating this disease, which is confessedly a very distressing one, and exceedingly difficult to manage. It is proper, however, to preface the relation of these cases by the statement, that I believe that the most effectual way to cure fibrous stricture of the rectum is by a thorough division of the stricture posteriorly, and by dilatation afterward by means of elastic pressure, such as I have described in a preceding number of this Journal (Jan. 1871).

CASE I.—Mrs. F., a very intelligent lady about forty-two years of age, consulted me at the suggestion of Dr. Wm. George Thomas, of Wilmington, N. C. For a number of years she experienced much distress and difficulty in relieving her bowels; but was not aware of the presence of a stricture of the rectum until examined by Dr. Thomas about twelve months previous to the time at which I first saw her. He was of the opinion that the stricture was not cancerous, and this opinion was strengthened by a microscopic inspection by Professor Leidy, of Philadelphia, of some of the dejected matters which were sent to him for examination.

On the 15th of May, 1871, after she was thoroughly etherized by Dr. F. H. Deems, I made a careful examination of the rectum and contiguous parts. There was a tight stricture of the rectum more than an inch in length, and which extended from opposite the lower part of the Douglas cul-de-sac upward, and above it. A considerable mass of indurated tissue