theory, as I have no intention of formulating one. I might suggest, indeed, that there is between this event and those which are known in physiology as the "paradoxical contraction" and "secondary tetanus from a nerve" (Landois and Stirling, third edition, p. 562) a certain analogy. We hear a great deal of functional diseases of the nervous system, but nothing, so far as I know, of functional disorder of a nerve fibre. We know that a nerve fibre can conduct impressions in either direction; we assume that as a fact it does so in one only. It is thought that the guiding influence resides in the end organ, and may be said to be its function. Dr. Waller, in the very admirable paper recently submitted to the Neurological Society, has shown that the motorial end plate may manifest fatigue, while the remaining elements in the neuro-muscular chain keep their energy unimpaired. If the motorial end plate, when fatigued, can temporarily block the path of volitional impulses, it may do this permanently under other circumstances. In view of such a possibility, it is well to keep an open mind, and not to assume too hastily that in the case of the nerve fibre there is no condition intermediate between absolute integrity on the one hand, and, on the other, total destruction, either actual or impending,—a destruction in which the terminal muscle fibre will certainly be involved. The peculiar reaction which I have described seems to prove that in a given nerve, or part of it, the cause which limits the effect of an induction shock to the muscle at its peripheral extremity may be suspended. Observation will show that under these circumstances the muscle may retain its function for many months while its electrical reactions are perverted and voluntary power is lost, and this condition may, and does often, occur side by side with degenerations due to organic disease. It is most apt to take place in neurotic subjects. I have seen it in crutch paralysis and in paresis of the upper extremity from pressure of a splint. In a case of spinal hæmorrhage sent to me by Dr. Broadbent, where paralysis of the sphincters and of certain muscles of the leg persisted, and probably still persists, the reaction was obtainable during two years, and disappeared gradually as the muscles manifesting it regained something of bulk and strength. It may be met with most often in infantile paralysis, and there, as elsewhere, it is *pro tanto* a favourable indication for treatment. It seems to me to represent a large part of the recoverable element in that disease, and so long as it persists there is ground for abundant hope that the judicious use of galvanism and other measures will be productive of benefit, though not of course of cure.

Welbeck-street, W.

THE CURE OF "INTERNAL DERANGEMENT" OF THE KNEE-JOINT BY MANUAL OPERATION.

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A CENTURY has passed since that eminent surgeon, William Hey, of Leeds, drew attention to an "Internal Derangement of the Knee-joint," for which he devised a remedy by manual operation. Another Leeds surgeon, Samuel Smith, following upon the same lines of observation, also found many similar cases, and succeeded in obtaining the same curative results by the same remedial method. After William Hey, besides Samuel Smith, we find Samuel Hey, grandson of William Hey, Sir Astley Cooper, Syme, Sir Benjamin Brodie, and others publishing similar cases treated successfully by Hey's method. In the present age of brilliant and successful operative surgery these facts are sometimes forgotten, and it has even been suggested that a cutting operation which involves the opening of the joint is the only means of relieving the disabilities which accompany this troublesome and often severely painful affection. That opening of the joint may be justifiable in some exceptional cases may certainly be conceded, but it has been abundantly proved that a large majority of the patients who suffer from these "derangements" can be absolutely and permanently cured by manual operations alone.

Into the question of the exact nature of the abnormal conditions which pertain it is not, I think, necessary here to

enter. Several abnormal conditions have been shown to exist in cases which have been subjected to the knife, either during life or after death; suffice it here to state that displacement of one or other of the semilunar fibro-cartilages, generally the internal one, seems commonly to have been the chief or only derangement in the cases which have answered the description first given to the accident by Hey. Eight years ago I published a series of cases which had come under my care for derangement of the knee-joint, in all of which Hey's plan of manipulation had perfectly succeeded. From time to time since then similar cases have come before me, the histories of which go to confirm the statements of the older writers and my former experiences. The question arises as to whether this manual reduction is permanent in its effects, or whether a tendency to relapse does not render the more severe operative procedure justifiable and desirable. Hey refers to one case of relapse in four cases recorded, the accident recurring two years after reduction, but it was very easily put right. Samuel Smith states that he had been surgeon to the Leeds Infirmary for thirty-two years, and he thought he had rarely passed a year without seeing a case, and he was sure that he had seen as many as four or five cases in a year. He refers to Hey's mode of "cure," but he also describes some relapses. One young lady stated that she had suffered from this derangement at least six times in four or five years, and on each occasion (excepting the first) Mr. Samuel Smith had been at hand to give her relief.

After consideration of these cases of relapse I thought that the displaced cartilage probably became changed in form from pressure in its unnatural position, and that, although reduced, it would have a tendency to work its way out again unless retained in its normal place sufficiently long for it to regain its natural shape. Acting upon this theory, I insisted upon the importance not only of reducing the displacement in the first instance, but of repeating the manipulation daily for a few days, and then once every two or three days for a fortnight or more, according to circumstances, with a view to keeping up the good position until the parts had quite recovered their normal condition. This plan has proved remarkably successful, and I have practically met with no relapses after adopting this treatment in cases where I have once succeeded in effecting a reduction. I am now able to give the subsequent history of the cases which I recorded eight years ago, as well as to refer to other instances of permanent cure.

CASE 1.—Mrs. C. M.—The displacement first occurred at the age of fifty-eight, in the year 1880. There were many relapses during the first six months, each of which was reduced at the time, but treatment was not followed up as above described. The displacement recurred a great many times during the first few weeks, but the tendency gradually lessened, so that during the second six months it only occurred once. From that time up to the present (August, 1890), nine years, no relapse has taken place.

CASE 2.—Miss W—, aged seventeen, seen in August, 1881 (three years after the first accident). The displacement had never been thoroughly reduced until this time. I followed up the passive movements for nearly three weeks, for the first fortnight daily. The result was excellent, and two years afterwards the patient wrote to me from Boston, U.S.A., informing me that she was perfectly well and could dance and use the leg without the least difficulty. The knee had remained sound since the treatment by complete reduction, whereas during the three previous years she had been continuously lame.

CASE 3.—Mr. H—, aged thirty, came to me in 1881. He had been crippled by his bad knee continuously for four years, and occasionally for the preceding six years. He had not been able to place the leg in a straight position for the five years before I saw him. It took half an hour to reduce the displacement, but when accomplished the patient felt perfectly sound. I repeated my manipulations at intervals of a few days for about three weeks, and when I saw him about a year ago he had remained quite well the whole time, a period of eight years.

I have treated many cases since then, all with good results. I will describe the most severe case.

Miss H—, aged forty, consulted me on Nov. 11th, 1882. She first injured her knee by a fall in the Alps in 1867. She had to be carried down the glacier to Chamouni. She suffered extreme pain, but this was suddenly relieved during her transit by a second fall, caused by her carriers slipping and upsetting her. This seems to show the nature of the

injury, as it is not very likely that any other condition than a subluxation could be so suddenly relieved by a second accident. The second accident probably partly reduced the displacement which had occurred at the time of the first fall. The patient was unable to move for several months. Rest as complete as possible, and the application of a great variety of local remedies, were employed with very little effect, and it was not until the following April, nine months after the injury, that the patient began to walk about again. The subsequent history was that of repeated injury from trivial causes, and a continual state of weakness of the joint, with discomfort or pain during movement. The same kind of treatment (rest and local applications) was always prescribed, and in the course of weeks or months after each accident the patient would gradually recover sufficiently to be able to get about again, but always with difficulty and in danger of falling from slight causes. In 1878, eleven years after the first accident, the joint seems to have been very violently moved (flexed and extended); she felt some alteration take place in the joint, and it felt for a time comparatively well. Soon after, from a slight accident, the cartilage again slipped out of its place, and surgical advice was again sought. The treatment consisted, as before, in emollient local applications, and rest of the joint as complete as possible. This treatment was continued for several months, but the knee did not improve.

When I first saw this lady in November, 1882, she hobbled into the room with much difficulty; she was wearing a stiff leather knee-cap which was laced up the side, and which prevented almost all movement of the joint. The knee was slightly flexed, and could not be moved without pain. I could feel the internal semilunar cartilage of the left knee projecting beyond the upper border of the tibia. Upon pressing on this part with the thumb of one hand, while I flexed and extended the leg with the other hand, the cartilage slipped back into its place and the patient then walked round the room perfectly naturally, and stated that the knee felt quite well, and that she felt relief which she had only once experienced since the occurrence of her first accident, more than fifteen years before. I strapped a pad over the place where the cartilage had protruded, and prescribed a stimulating liniment. In a few days, as I had expected, there was a slight relapse; this was soon relieved by a repetition of the passive movements, and pressure upon the protrusion. For a few weeks this tendency to relapse continued, but was counteracted by perseverance with the treatment. The joint was gradually worked into a natural condition. I further had an apparatus made which allowed flexion and extension of the leg, but prevented lateral motion and twisting; it also enabled me to apply pressure over the place at which the cartilage was inclined to protrude. Walking exercise was recommended. This patient remained absolutely well for the next eight years, until July, 1889, when she had a severe fall and twist of the same knee, again *slightly* displacing the cartilage. A few manipulations of the joint again restored it to its normal condition, and she has remained well since.

Doubtless we ought to be careful in forming a diagnosis of cases of injury to the knee-joint before proceeding to use these passive movements. When, however, the nature of the injury is that of dislocation of one of the semilunar cartilages, the result of the treatment devised by Mr. Hey of Leeds is remarkably effective and highly satisfactory. It is probable that somewhat similar symptoms may be produced by subluxation of the leg itself, as suggested by Mr. Knott, but such a condition ought not to be very difficult to distinguish. The symptoms of a loose cartilage in the joint may also be mistaken for those of displaced semilunar cartilage. The pain, however, in the case of a loose cartilage is more vacillating, as the cartilage is likely to shift its place.

As to the nature of the accident, Hamilton describes five varieties of this condition, which he imagines might occur. Bonnet of Lyons experimented upon a dead body. By flexing the leg and giving it a sudden twist he produced a displacement of the inner cartilage. It was produced by "the passage of the inner condyle of the femur behind the semilunar cartilage, which was accordingly pushed forward on the internal glenoid cavity of the tibia, but without any laceration of the internal lateral or capsular ligament of the joint. On the outer side the condyle had undergone no considerable displacement; it was carried a little forward from its normal position, but still lay in the glenoid cavity formed by the external semilunar cartilage. On extension

of the limb with a little effort this peculiar luxation was at once reduced. The experiment was frequently repeated with a similar result." I quote from a paper read by Mr. J. F. Knott, of Dublin, before the University Biological Association in May, 1882. Mr. Knott considers that the injury consists in a partial dislocation of the tibia, and with it the fibro-cartilages upon the femur; he writes with authority, for he has studied his own case, he being a frequent sufferer from what he considers to be the so-called Hey's internal derangement of the knee-joint. He is probably correct as far as his own case is concerned, and perhaps with regard to some other cases, but those that I have seen I believe to be displacement forwards of the internal semilunar cartilage alone.

From the foregoing I would urge that by careful manipulation, persistently repeated at short intervals for a few weeks, these cases may be permanently cured, and that a cutting operation involving opening of the knee-joint is not necessary except in some rare and exceptional cases, and that the latter operation can always be resorted to when the comparatively simple and absolutely safe procedure devised by Hey has failed in producing the desired result.

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FIBROID PNEUMONIA.

BY A. G. AULD, M.D.

UNDER the term "fibroid pneumonia" it is here intended to describe, define, and endeavour to establish an affection of the lungs which has only within recent years begun to be recognised. Unsettled and conflicting are the opinions which have emanated from its investigators as to its origin, its affinities, and its essential nature. Formerly, it was no doubt comprehended under the pulmonary cirrhosis of Corrigan, the grey induration of Andral, the fibroid phthisis of Clark, the genuine desquamative pneumonia of Buhl, and the chronic pneumonia of Grisolle. It is now known under the designations chronic lobar pneumonia (Charcot) and parenchymatous pneumonia or primary interstitial pneumonia (Heitler, Wagner, and others). By some it is regarded as a sequel of acute pneumonia, while others—and those the more recent exponents—altogether deny such a sequence, affirming the disease to be a *bonâ-fide* affection, independent from its commencement, and having at no time any connexion with a genuine pneumonia.

To my investigation of "chronic lobar pneumonia," published in THE LANCET, April 12th, 1890, I have now to add the results of a fresh research, and trust that hereby a clearer light will be shed over this very important subject.

At the outset it may be stated that what are known as chronic broncho-pneumonia, chronic pleurogenous pneumonia, pneumokoniosis, as well as phthisis pulmonalis, have nothing whatever to do with this affection.

First, it will be necessary to make specific allusion to certain of the deductions made in my former paper. It was therein held that a chronic lobar pneumonia (a) might succeed to the acute affection, and (b) that its chief anatomical characteristic was the early organisation of the intra-alveolar exudation. The former proposition was supported by the clinical histories of the cases adduced and by the anatomical disclosures. Histological intra-alveolar changes similar to those described have been observed, and held to ensue after undoubted acute pneumonia, by Rokitansky, Barth, Charcot, Marchand, and Marchiafava. "The red inflammatory product," says Rokitansky,¹ "becomes grey and compact and indurated. The air cells contract over the granulations, coalesce with them round their circumference, and become obliterated, their tissue being changed into a fibro-cellular structure, in which, from the similarity of their organisation, the granulations are most probably also merged." Nothing could be more explicit than this. Charcot² regarded the development of a chronic pneumonia from an acute to proceed in one or other of two methods. After the subsidence of the acute symptoms, the physical signs persisted, and induration ran a chronic course, or else there were recurrences of acute attacks over the same area,

¹ Path. Anat.

² De la Pneumonie Chronique, Paris, 1860.