BONESETTING.

BY

HOWARD MARSH, M.A., M.C., F.R.C.S.,

MASTER OF DOWNING COLLEGE; PROFESSOR OF SURGERY, UNIVERSITY OF CAMBRIDGE.

RECENT events have once again drawn prominent attention to the subject of bonesetting. Mr. Barker, who practises mechano-therapy in Park Lane, states that the very affections which yield most readily to manipulative measures are not known to surgeons, and that, although he has offered to demonstrate his methods to any committee that may be appointed, yet his offer has not been accepted. In the *Strand Magazine* for October, 1910 ("The Hinterland of Surgery," p. 339), Mr. Stead has an article on Mr. Barker's offer and the manner in which it has been dealt with by the medical profession. It is to be regretted that Mr. Stead should have resorted to archaic forms of vulgarity which are now by common consent relegated to the hinterland of journalism. But that is entirely his affair. The relation of bonesetting to surgery is a question in which the public are much interested, and the profession may fairly be asked how they meet the statement that there are whole groups of cases of which surgeons know nothing, but about which they refuse to receive instruction. What are the public to think when Mr. Stead tells them that Mr. Barker has treated 30,000 cases, and has cured about 90 per cent. of them; and when Mr. Barker says that the breaking down of adhesions and the reduction of dislocations are only the beginning of the bonesetter's art—the A B C of advanced mechano-therapy? The onlooker may well ask whether there really is some mystery which surgeons have not been able to fathom, whether they have been so jealous of bonesetters that they have ignored and tried to stamp them out, or whether the whole matter is beneath their notice. It is the purpose of the present article to make some answer to these inquiries.

Mr. Barker has offered to demonstrate his practice to any qualified man or to any committee. What would be the result if this proposal were accepted? As to the movements which are used in bonesetting (or mechano-therapy), what is there in them so occult or difficult to acquire that only bonesetters are familiar with them? The elbow, the ankle, and the finger-joints are simple hinges. They provide movements in the two directions of extension and flexion, just as a door, by virtue of its hinge, can be opened or shut. That is all. The wrist allows of flexion and extension, abduction and adduction, and of supination and pronation. The shoulder admits of movements in every direction in a manner which excites the admiration of every student of anatomy. But when these movements are artificially produced by manipulation they break up into simple forms. The manipulator can move the elbow from or towards the side, or forwards and backwards, or he can rotate the arm in its socket. The hip can be flexed, or extended, or rotated, and the limb can be adducted or abducted. The knee can be flexed or extended, and the tibia can be rotated on the lower end of the femur. The medio-tarsal is a ball-and-socket joint, whose movements, though much more restricted, are similar to those at the hip. These are all the movements which either the bonesetter or the surgeon has at his disposal, and they may all be termed fairly plain sailing. Mr. Hutton, who was probably as good a bonesetter as ever lived—I much doubt whether his superior is now to be found—knew the best way in which the several joints could be moved. He seized them with all the art of a wrestler, or as a master of jujitsu, so that he could, in each case, evade muscular resistance. His simple rule, however, was to ascertain in what direction resistance was encountered, and to move the limb so that it was overcome. Is there, beyond this, much to be said about the manipulations of the bonesetter? Nor, since Mr. Hutton has shown that manipulative treatment is of more general application than was formerly supposed, is it necessary that this well-established fact should be demonstrated anew by Mr. Barker. If surgeons are still remiss in the use of manipulative treatment, they are most certainly to blame. But they cannot be charged with

ignorance which it is in Mr. Barker's power to remove. After very carefully considering the matter, I see no prospect of advantage which could accrue from any demonstration he might give of the way in which he moves the different joints.

But, further, Mr. Barker says that the very affections which yield most readily to manipulative measures are not known to the general surgeon, although he has over and over again offered to make them known. As to this, it will be noticed that Mr. Barker's attitude is entirely different from that of Mr. Hutton.

Mr. Hutton treated anatomy with contempt; he neither knew nor wanted to know anything about it. Anatomy was for them who required it. It was useful to surgeons, for it taught them all about the big bones. As a bonesetter, who had only to do with the little bones, and who could tell at sight that a joint or a little bone was out, or that a muscle had slipped, he had no patience with it. And what concern could Mr. Hutton have with pathology—a knowledge of the various diseases to which the joints are liable? All this was quite outside his province. He dealt merely with bones that were out—sometimes, in obstinate cases, to the number of five—or with a deltoid which had slipped round to the front, and left other things to other people. This attitude was assumed without any kind of affectation or arrogance, and was entirely logical. Mr. Barker's position is, as I have said, entirely different. A large number of men, not only in England but on the Continent and in America, spend their lives in an earnest study of pathology. They are frequently dissecting joints, examining their component structures under the microscope, and subjecting clinical cases to x-ray inspection. Such men publish the results of their investigations, discuss them in societies, record them in their transactions, and read papers about them in international congresses. Thus every one knows what is going on. Moreover, there is competition in pathology as in everything else, and every one is anxious to find some unexplored corner in which by patient research he may bring new facts to light. When the history of our time comes to be written it can hardly be denied, even by those who are most imperfectly informed, that the advances which have been made in ascertaining the real nature of disease and the distinguishing features of each variety have not been behind what has been done in other departments of original work. In such a period of active research and discovery Mr. Barker assumes a position which must arrest the attention of the most casual observer. It does not appear that he has ever been a student in the science schools, ever dissected, or ever worked in any pathological laboratory. Yet he claims to be familiar with affections which are so numerous that he has met with 30,000 instances, and so simple that he cures about 90 per cent. of them, but of which not only the surgeons of Harley Street but the pathologists in every laboratory and the teachers of surgery in every hospital in England, Europe, and America are entirely ignorant. All this seems to impinge so nearly on the incredible that before appointing a committee it would seem reasonable to ask Mr. Barker to place his discoveries in print and to give a list of the affections which surgeons are not acquainted with. This is the usual procedure on the part of those who have new things to tell, and is one which Dr. Wharton Hood adopted with great advantage to the profession in reference to what he had learnt from Mr. Hutton. The term "mare's nest" has been mentioned in some quarters, but, as I think, without full justification; but such a conception would at once be dispelled if Mr. Barker could see his way to publish the book which he foreshadows in his letter in the *Times*. The obvious difficulty attaching to the appointment of a committee is that surgery and bonesetting, in their methods alike of investigation and of practice, differ so fundamentally that there is no common ground on which a discussion could be conducted. It was always found that discussions between allopaths and homoeopaths came to nothing. What religious question was ever settled on the platform of Exeter Hall? Do Tariff Reformers find they can convert Free Traders, or vice versa, by demonstrations and discussions? And the reason for all such failures is not that opponents are always either blind, prejudiced, mean, or dishonest, but that they are looking at the other side of the shield.

It seems plain that a discussion between two parties thus situated must be futile. But let each side present its case so that there may be something tangible to work upon. This is the course I propose to take in stating what I believe are the facts about bonesetting. They have not all been, by any means, to the credit of surgery in the past, but I hope that past faults on our part are being corrected.

I wish to guard myself against appearing to say that mechano-therapy is the same as bonesetting as practised by Mr. Hutton. Indeed, Mr. Hutton's method of breaking down adhesions and setting fractures and reducing dislocations was, we learn from Mr. Barker, only the A B C of mechano-therapy. I must own, however, that I am at the disadvantage of knowing nothing of Mr. Barker's procedures except what I have been able to gather from the *Times* report of a recent trial in which Mr. Barker was the defendant. In this case it will be remembered that Mr. Barker was consulted by a patient who had far advanced tuberculous disease of the knee attended with suppuration and the formation of a sinus. Mr. Barker was uncertain whether the disease was tuberculous or malignant (sarcoma). No surgeon experienced in such cases would blame Mr. Barker for not being able to feel confident which disease was present. I have myself, after errors into which I have fallen, written two papers on this subject. But certainly, whether the case was one of tuberculous disease or of sarcoma, it was not one in which bonesetting (or mechano-therapy) was suitable, but which demanded immediate recourse to methods of a different kind. It is therefore difficult to understand why Mr. Barker retained the case in his hands, and twice examined the patient under an anaesthetic, instead of at once advising that a surgeon should be consulted. How far his examination extended, in what it consisted, or with what object it was made, was not clearly ascertained at the trial. Let it be noted, however, that I am not referring to this case in order to pass any criticism on the course taken by Mr. Barker. I notice it merely to say that had the proposed committee been present they would not have found anything to learn from Mr. Barker's proceedings. They could, in fact, only have protested and withdrawn.

Mr. Stead says that the profession has disdained to enter the field of manipulative surgery.¹ No doubt he believes that this is a justifiable statement. It is easy to show that it is not. After Case 1, given below, had occurred, in which Mr. Hutton had completely succeeded while several surgeons had completely failed, and, having had experiences of a similar kind, Sir James Paget felt it his duty, and found it a matter of interest, to study the subject, and he gave his conclusions in a lecture at St. Bartholomew's Hospital, at which I was present, forty-four years ago—in 1867. The lecture was published in the *BRITISH MEDICAL JOURNAL* in 1867, and also in the first (1875) and second (1877) editions of his *Clinical Lectures and Essays*, which it was my good fortune to edit. As was the case with everything that Sir James Paget wrote, the lecture was read by every surgeon of the day, and accepted as a new departure.

In 1871 Dr. Wharton Hood, who had attended Mr. Hutton's practice, published his lectures on Bone-setting in the *Lancet*, and shortly afterwards his well-known volume on the subject. This was one of the most widely-read works of the time. Dr. Wharton Hood soon obtained a large practice, and was thus, for several years, an exponent, when opportunity offered, of what he found useful in Mr. Hutton's methods. I had myself, as surgeon to St. Bartholomew's Hospital, and in other ways, opportunities of studying the question and of giving lectures upon it. And I published a paper with case-illustrations on "Manipulation or the Use of Forcible Movement as a Means of Surgical Treatment," in the *St. Bartholomew's Reports* for 1878; and one on "Some Cases of Bonesetting, with Remarks," which was discussed at the Clinical Society, and published in the *Transactions* for 1880. The substance of these communications was embodied in *Diseases of the Joints and Spine* in 1895. In every hospital manipulation is frequently employed, and the subject is brought under the notice of students in the wards and at lectures. In the last twenty years the treatment of fractures and dislocations has been, it is not too much to say, revolutionized. The old plan of keeping limbs, in

cases of fracture, rigidly fixed in splints for six weeks has been discarded. Splints are now sparingly used, and passive movements and massage are employed early, and steadily continued all through. In these circumstances superfluous reparative material is prevented from accumulating and undergoing development into provisional callus or adhesions. And the soft parts are maintained in a natural condition, so that when the fracture is united the neighbouring joints are freely movable and the muscles are able to resume their functional activity in a normal way. The old method of treating cases of dislocation—for instance of the shoulder by keeping the arm bandaged to the side for three weeks or a month—has been given up. The limb after reduction is kept in a sling, and massage and passive movements are used from the first, so that coagulable lymph is not allowed to collect and organize into adhesions, and the muscles are kept in good tone. The result is that the patient can move the limb freely in every direction, though he must be cautioned not to raise the arm widely from the side for fear that the dislocation may return. It is also common experience that the pain, which formerly persisted for several weeks, and which was due to the stretching of adhesions which had been allowed to form, is now very rarely met with.

In what follows I propose to examine the whole question from a surgical point of view. For this purpose the facts, as far as I know them, will be presented, and such inferences as the facts appear to warrant will be drawn.

Between 1865 and 1870 I was Sir James Paget's private assistant. In this position I not only saw much of his practice but knew all the prominent surgeons of that day, and heard much of what was going on; and I became aware that all was not well between them and bonesetters, of whom Mr. Hutton was *facile princeps*. I knew a good deal about Mr. Hutton. He was a kind-hearted and perfectly honest man, who fully believed in the craft of bonesetting as a thing entirely distinct from surgery. When he saw that a joint was stiff or painful on movement, he had no doubt that either it, or one of the small bones, was out, or that a muscle had slipped, and he at once felt sure he could put the joint or the small bone in, or put the muscle back into its place, by methods—one for each particular joint—with which he was perfectly familiar, and which he often used with complete success. It is thus apparent that he neither knew nor cared to know what the real condition was with which he was dealing, so that both he and his patient were playing a game of chance. He often said, "I can cure you; what more do you want?" And when any one who had been lame for six months heard the "bone go in with a snap," and found he was cured in half a minute, he, of course, at once accepted Mr. Hutton's account, and was more than satisfied with the result. Of course the surgeon who had been treating the case was much chagrined, but there could be no doubt who was the victor and who had suffered a humiliating defeat. Some would suppose that, as he did not know what was the matter, Mr. Hutton must sometimes have done mischief. He did; but he was very shrewd, and had a good deal of mother wit, and was wise without the schools, and there were many joints about which he had his shrewd suspicions, and which he left severely alone. On the other hand, some of his mistakes were very downright. A child of 9 was lame, and had a discharging sinus at the hip. Mr. Hutton being consulted, repeating his ever-ready formula, said that the hip was out, and added that if a doctor would cure the abscess he would put the hip in. But it was a case in which the joint had already been removed by excision for tuberculous disease. In another case a lady with an enlarged bursa over the tuber ischii was told that the bone of that part of her body was out, and was submitted to the operation for putting it in. With these and similar instances before me I wished to investigate the matter a step further, and I sent three cases to Mr. Hutton. None of the three had anything the matter. The first was informed on showing his elbow that his ulna was out, and, having paid half a guinea for the consultation, was told to come back in a couple of days with two guineas, when the bone would be put in. A second was told that his ankle bone was out, and, having paid his fee of half a guinea, was instructed to come back to have the bone put in. The third received exactly the

same opinion on his case and the same directions for an operation.

The language of bonesetters is often picturesque and impressive. Pain and stiffness of the spine are said to be due to the fact that some of the buttons of the back (the spinous processes of the dorsal vertebrae) are out. In joint cases which are not easily cured several little bones are said to be out. If the shoulder is stiff and painful the symptoms are said to depend on the slipping of the deltoid muscle round to the front. The complaints from which bonesetters find their patients suffering are often sufficiently alarming. A young man suffering from slight lateral curvature of the spine, the result of inequality in the length of his legs, was told that his pelvis had opened and both his hips were out. This was not Mr. Hutton.

These matters are not intended to convey any feeling of disrespect to bonesetters; they are mentioned because they are essential parts of the problem under discussion.

Case 1, a case which is a very epitome of bonesetting, and which every practitioner should carefully reflect upon and constantly bear in mind, is published by Dr. Wharton Hood.³ It is that of a gentleman aged about 25, who himself wrote an account, of which the following is an extract:

While running in a garden he felt and heard something crack in the calf of his leg, and he rolled over like a shot rabbit. A doctor, who told him he had snapped a muscle, strapped the leg and advised him to rest for a few days. In two days he could hobble, but he knocked his toe against a tack in the floor and hurt himself worse than ever. From this time (December 2nd) to early in May he was attended by Mr. A. and Mr. B. in consultation, who agreed that the stocking of the calf was split, and "treated him accordingly." The slightest exertion caused pain and weakness. In May Mr. C. agreed as to the injury, but thought him constitutionally out of order and gave him iron. His leg was put in an iron machine to bear his weight, and he was sent to Wilbad. As he did not improve, his leg was put into a gum plaster, and he went yachting for a month, so as to obtain perfect repose. He got no better, and the surgeon on board said, "An old woman may cure you, but no doctor will." Months passed. He used either crutches or two sticks. The leg was no better, and had shrunk to about half its proper size. In the following April Mr. F. put him on a high-heeled boot during the day, and during the night his foot was kept in a pointed position. Not improving, he went to Mr. Hutton, who said, "What do you wear that machine for? Do you want to lame yourself?" "I was proceeding," continues Mr. X., "to tell him the opinions of the various surgeons on my case when he said, 'Don't bother me about anatomy. I know nothing about it; but I tell you your ankle is out and that I can put it in again.'" At a later interview Mr. Hutton, during a most careful examination of the ankle, put his thumb on a place which hurt the patient a good deal, and produced a sensation as of a sharp prick of a pin. He proceeded to operate, and after a time there was a distinct report, and from that moment the pain was gone, the leg got better, and the patient completely recovered. About a week later the patient hurt his leg again by over exertion and was as lame as ever. But Mr. Hutton repeated his treatment and there was no further relapse.

At the time of its occurrence this case was the talk of the town. The patient was a member of one of the most distinguished English families. Every one in the higher ranks of society heard of his prolonged illness, and had come to think that he was crippled for life, and every one felt great sympathy for him. Then came the startling news that Mr. Hutton had found that his ankle was out—which all the doctors had overlooked—and had forthwith put it in and cured him. How very surprising! What could it all mean? The position of the distinguished surgeons who had treated the case was not enviable. One of the consultants derived some comfort from expressing his wonder that the others could have cut so poor a figure. Sir James Paget took a different view of the matter: he set himself, as I have already mentioned, to study the cases which bonesetters cure, and a few months later gave his lecture on the subject which was published in the BRITISH MEDICAL JOURNAL. It is now easy to speak with certainty as to the conditions on which the symptoms in this case depended and the cure which Mr. Hutton so easily produced. The original injury consisted in a rather extensive rupture of the deep fascia of the calf. The leg was strapped and kept at rest for a few days. During this time the foot would be somewhat pointed on the leg, in the position of greatest ease. Coagulable lymph was poured out for the repair of this subcutaneous injury, and in the course of a week would be—as in the repair of any aseptic wound—far advanced in its development into new fibrous tissue. In other words the edges of the scar would be connected by adhesions.

Recent adhesions are very sensitive (*supra*). For instance, suppose a finger is cut transversely on its palmar aspect and is put up for four or five days in a flexed position; suppose, further, that it is then suddenly extended. Every one knows that severe pain would be produced. It was to avoid the pain he felt when he tried to get his heel down in walking that Mr. X. kept his foot pointed, for then the adhesions were not stretched and no pain occurred. Then, when he was hobbling about and when the muscles were off guard, he knocked his toe against a tack in the floor and (sharply wrenching his ankle) hurt himself worse than ever. Here, again, in the usual course of the repair of a subcutaneous laceration, new fibrous tissue was developed—and there were now two groups of "adhesions" formed—one in the calf and the other at the ankle. And the effect of both was exactly the same. For, when the patient tried to bear any weight on the limb, both, being stretched, gave him sudden and sharp pain and warned him off trying to get his heel down. It was all along, and month after month, these trumpety adhesions which prevented his recovery. Till they were ruptured he would never recover. Neither yachting, Wilbad, nor an iron machine could cure him. Then he consulted Mr. Hutton. Mr. Hutton did not concern himself with either anatomy or pathology. He saw that the foot was pointed and fixed in that position. This to him meant that the ankle was out. And when, on carefully examining the foot, he put his thumb, as Mr. X. says, "on to a place which hurt him a good deal and produced a sensation of a sharp prick of a pin," he considered that he had found the exact spot where the mischief lay. To put the ankle in, Mr. Hutton carried the foot in the direction in which he encountered resistance. In doing this he ruptured the adhesions. When he had done this, he found that the foot could be placed in a natural position, so that the heel would come down; and also that the joint was freely movable. But he had done more than this. He had killed two birds with one stone. By bringing the foot from a pointed position into a position in which it formed a right (or an acute) angle with the leg he ruptured the adhesions formed where the deep fascia of the calf was torn on the occasion of the original accident, and of which he knew nothing, for his attention had been entirely confined to the ankle. Some might be mean enough to say that Mr. Hutton cured his case more by luck than by wit. I much prefer to say that it is not only mean but foolish to belittle Mr. Hutton's achievement. He obtained a very notable success, and the patient had every reason to be grateful to him.

There is a further point of interest in this case, and a further lesson to be derived from it. Mr. X. says:

I omitted to mention that . . . about a week after my first operation I hurt my leg again by over exertion, and was as lame as ever. But Mr. Hutton repeated his treatment, and I have never had another relapse. His statement to me was that the ankle joint being misplaced the muscles were also misplaced and would not heal.

This was, from Mr. Hutton's point of view, a perfectly reasonable conclusion, and one which would entirely commend itself to the patient. It detracts nothing from Mr. Hutton's credit to say that the lameness depended on some reformation of some of the adhesions which he had separated on the first operation. The further lesson I have to mention is this: One of the common events when adhesions are broken down is that some of them may re-form and lead to a return of the patient's lameness and pain—so that, in Mr. X.'s phrase, he may be as lame as ever. When this is the case the surgeon must repeat the movement, just as Mr. Hutton did. I have often found this necessary. A very instructive illustration is found in Case 1.

Dr. Wharton Hood³ thinks that the return of lameness and pain in Mr. X.'s case were due to some change in the relation or apposition of the articular surfaces. Very possibly this was so. This question is discussed at p. 1238.

Turning now to the cases in which manipulative treatment is appropriate it appears certain that, however widely they differ from each other, they have one feature in common. They are all cases in which no active morbid process is at work; and in which no serious structural change has occurred. It seems needless to occupy space by stating that when the synovial membrane has been

wholly or in part destroyed by tuberculous or septic inflammation, or in the course of Charcot's disease, no movements by bonesetters or any one else can restore it to a normal condition so that it can resume its normal function. If the articular cartilage has undergone fibrillation and absorption, or if the ends of the bones have become lipped and distorted, how can such structural changes be made good by manipulative movements—unless we are still in the age of miracles? Conversely, when a bonesetter, by moving a joint, there and then both removes pain and restores free movement, it seems obvious that no marked structural changes can have been present.

The cases cured by bonesetting form such a miscellaneous collection that they scarcely admit of any systematic classification: they can only be enumerated. But this will suffice to keep them all in view in the daily round of practice.

ADHESIONS.

1. The cases in which bonesetters secure their most striking successes, and on which their reputation chiefly and rightly depends, are those of which the following is typical: A young adult in the prime of life and in perfect physical training, as a football, cricket, or tennis player, violently strains or wrenches one of his joints. If it is the knee, he may have displaced a semilunar cartilage, but this accident will be considered later on. In the great majority of cases the injury consists of the laceration of some of the soft parts, either within or outside the joint—the synovial membrane or the capsule; or part of a ligament: or some such structure as the ilio-tibial band of the fascia lata is torn—as to some of its fibres it is—away from the periosteum and bone into which it is inserted. There is severe pain, followed by some swelling, due to extravasated blood and lymph, and the limb is either put in a splint or placed by the patient in as easy a position as he can find, and by which the injured structures are relaxed by flexion. In either case the limb is practically fixed for three or four days while the pain and swelling are subsiding. What is the result? It is that the effused lymph is organized exactly as it would be in the repair of an aseptic surgical wound. In slight cases, in which only a few fibres are torn, new tissue is formed in small quantity, and rapid union takes place (the old primary union), and recovery is quickly complete. When the tearing has been somewhat wider there is more extravasation of blood, and a large amount of reparative material accumulates in the irregular interspaces of the wound, and, undergoing development, forms adhesions which mat the structures together. When this occurs the union does not take place in the orderly manner that is present after tenotomy, say, of the tendo Achillis or the biceps (femoris), which are joined in their normal long axis, so that they still have what the mechanics term a true lead. But the torn structures are joined up irregularly so that the pull upon them is askew. Recent adhesions are so sensitive that when they are stretched by movement of the joint they cause pain, which is often for the moment so sharp that the patient, instead of trying to straighten his knee or other joint, flexes it till the adhesions are relaxed, and studiously maintains the limb in this position.

CASE II.—A boy, aged 10, fell and wrenched his hip. For a fortnight he was in bed at home, lying, for ease, with his knees drawn up. His mother then found that, though the pain had ceased, the boy kept his thigh flexed upon his trunk. Afterwards he was sent to St. Bartholomew's Hospital, with the suspicion that he had developed hip disease. Mr. D'Arcy Power, then house-surgeon, found that though it was freely movable in every other direction, and though the head of the femur rotated freely in the acetabulum, the limb could not be extended beyond a right angle without severe pain. When ether was given, and I proceeded to extend the thigh, the resistance suddenly gave way with an audible tear, which I also distinctly felt, and the limb fell by its own weight into a line with the trunk. A few days later all the movements of the limb were absolutely free and painless. Here, in the accident, some laceration of the capsule or other structure in front of the joint had occurred, and, as the boy lay with the limb flexed, adhesions, preventing extension, had quickly formed. These were readily separated by manipulation, and complete recovery ensued.

CASE III.—A man, aged 45, slipped and sprained his ankle, and was laid up for three weeks. He then began walking with sticks, but was very lame. Some improvement gradually took place, but the ankle remained, month after month, shapeless from chronic swelling, the skin was tense and shining, and the joint was so weak that he could bear no weight upon it. Nine

months after the injury he came to the hospital, walking with a stick and leaning on his wife's arm for support. The joint was stiff, shapeless, and "weak"; but it was perfectly free from heat; indeed, it was colder to the touch than the opposite limb. The foot was in a position of slight talipes equinus. When he had inhaled gas I carried the foot through its full normal range of movement. At first I met with elastic resistance, but this yielded to very moderate force, and I felt numerous adhesions giving way, and minute deep-seated snaps and cracks were heard. No pain followed, and the patient the same afternoon walked freely about the ward. A week later he reported himself as being quite well.

CASE IV.—A man, aged 28, whose ankle was stiff eight months after a severe sprain, came to the hospital in 1880. The joint was manipulated, and within an hour he could walk with scarcely a limp. Next morning he walked from Hackney to Smithfield; he reported himself cured, and had already applied for work under his former master. Six months after this he returned to the hospital with his ankle again out of order. He said that since the manipulation he had been at work, and had felt no inconvenience till within the last three weeks, when the joint had become stiff and weak, and so painful under his weight that he was very lame. On examination, neither heat, swelling, nor any appreciable defect of movement could be detected. He was therefore told that manipulation would do him no good, and that he had overworked the joint, and had better have it strapped and give it a week's rest. He looked disappointed, and said that his joint felt just as it did when he was laid up before, and that he believed that if it was moved again he could be all right. This was an appeal to which, as manipulation could do no harm, it seemed unfair not to yield. He took gas, and the ankle was flexed and extended. When flexion was being performed, some adhesions, which, however, were slight, and offered scarcely any appreciable resistance, were felt to give way. He left the hospital an hour afterwards, and the next morning wrote: "I have had enough travelling on my foot to convince me that it is wonderfully better, by my being able to walk without pain or limping" (he had underlined these words), "which might seem strange, but it is a fact." The adhesions which disabled the joint were so slight that I failed on careful examination to detect any limitation of movement.

CASE V.—A girl, aged 12, came to the out-patient room with reported hip disease, following a fall nine months previously. She walked on her toe, kept the joint habitually a little flexed, abducted, and rotated outwards, and complained of pain when weight was thrown on the limb. On examination I was surprised to find that the movements of the joint were perfectly free in every direction, except that adduction was very slightly restricted, and produced a little uneasiness. Enarthrodial movement was perfect. There was no muscular wasting, a feature incompatible with hip disease of nine months' duration. Not knowing on what the symptoms depended—whether on slight adhesions after the fall, a displaced muscle, or "hysteria"—I had the child put under chloroform, and I moved the limb in all directions. Nothing was felt to give way. Next day every trace of restriction of motion had vanished, and the girl went out of the hospital. The symptoms never returned. I believe the case was one of slight adhesions that had formed after the fall.

Other cases that bonesetters cure are those in which adhesions have resulted from gouty or rheumatic inflammation in the fibrous structures around joints. Such adhesions, even when they are limited in extent, may, when they are stretched, give rise to pain so sudden and severe that the patient and his friends believe that they must depend on some very serious condition.

CASE VI.—A man, aged 46, came with what he had been told was rheumatic disease, of four months' duration, of his shoulder-joint, the skin over which was of a rich mahogany colour from prolonged painting with iodine. He could not move his elbow for 2 inches in any direction, and every attempt gave him severe pain. He could not lie on that side, and pain at night was so severe that he could obtain but little sleep. The surrounding muscles were considerably wasted. I found that when the limb rested quietly in my hand, the head of the humerus rotated with perfect smoothness through a slight range, in the glenoid cavity, and that the elbow could be moved forwards and backwards for some 3 or 4 inches. Having thus learnt that the joint itself was healthy (free movement, though limited in its range, conclusively established this), I proposed to manipulate the limb. The mere suggestion of such a step, however, so alarmed the patient that he declined the treatment; but, getting no better, he returned a fortnight later. I then, when he was under gas, first rotated the humerus in the glenoid cavity to its full normal extent, and then carried the limb through its other movements, that is, forwards, backwards, and upwards, performing the upward motion by a series of carefully graduated short jerks. Numerous adhesions readily gave way. The patient suffered a good deal of pain for ten or twelve hours, but within a week he was able to put his coat on. Three weeks later, as some stiffness remained, he inhaled gas, and I again moved the arm in the directions in which I found resistance. In a month from this time, massage having been regularly used in the interval, he reported that he had lost all pain, and that only a slight restriction of movement remained.

CASE VII.—A lady, between 40 and 50, had been suffering, as she was told, from rheumatic disease of her left shoulder joint

for six months. When first seen her arm was fixed to her side; the slightest movement gave her intense pain, and she often suffered with such severe spasm in the muscles of the arm that she was obliged to cling to any firm object near her, in order to avoid falling down. Pain rendered her nights almost sleepless. She could use the limb only from the elbow. Finding by the indications just mentioned that *the joint was sound*, I manipulated the arm under gas. Many adhesions were felt to give way. Pain was severe for some hours, but an anodyne relieved this. Next day she said the former pain and spasm had entirely left her, though the joint felt sore. Within a week she could get her dress on, and sleep on that side, and in a fortnight she considered herself cured.

One of my former colleagues at St. Bartholomew's Hospital had, I found, some gouty adhesions about his shoulder. I was examining the joint with all the gentleness of which I was capable, when on my moving the limb slightly from the side he uttered a piercing cry, and clasping me round the neck nearly dragged me to the ground. No further manipulation was required. It was my turn next. Once upon a time when I was tired and gouty, in playing golf I missed a shot in a bunker. I felt severe pain, and in a week my arm was a fixture at my side. I could not lie on that side nor sleep at night for pain. My old friend, Mr. Alfred Willett, moved the limb while I was under gas, and some adhesions gave way. Pain finally ceased in an hour, and in a week I was perfectly cured. Had I been a member of the Stock Exchange and Mr. Willett a bonesetter, who told me my deltoid had slipped round to the front, and had made a grating sound as he put it back, I should have seen no reason whatever for doubting what he said, and I should have believed he had made a wonderful diagnosis, and performed a wonderful cure.

It may here be mentioned, in passing, that the "snap," which is often both felt and heard when a joint that has long been stiff or at rest is suddenly moved, is a phenomenon to which bonesetters point as a plain demonstration that a bone was out and has been put in. These snaps, however, are not produced by the concussion of two joint surfaces as they come suddenly into contact, but, on the contrary, are due to the sudden separation of two surfaces which have been stuck together by a too viscid and tenacious synovial fluid. Many persons can make all their fingers crack by steadily pulling at them till the joint surfaces suddenly separate.

It may at first sight be a matter for surprise that the cases in which bonesetters effect a cure by breaking down adhesions should be so numerous. But it must be remembered that sprains and contusion of the joints are of very frequent occurrence in all those who, whether for work or pastime, are engaged in active physical exercise. Many thousands of such minor injuries occur every year. And, further, that every wrench or contusion, except those which are very slight, is attended with some tearing of the structures concerned; in other words, that there is a subcutaneous wound. Such a wound, as I have already said, is united—as in the case of a subcutaneous tenotomy—by the development of "adhesions" in the form of new fibrous tissue, and these adhesions are painful if stretched. This may obviously occur in any case unless the measures for preventing it—early passive movement, massage, etc.—are carried out. It, in fact, rests with those who treat these cases in practice to determine how many or how few of them are to be manufactured for bonesetters to cure. The supply has been steadily falling for some years, and it is to be hoped for the credit of surgery that it will soon entirely cease.

The effect of the rupture of adhesions is illustrated by the fact that people are sometimes cured by an accident.

CASE VIII.—A man, whose shoulder was stiff and painful, in climbing to the front seat of an old-fashioned omnibus, slipped and, to save himself, clutched at the handrail. The movement gave his arm a violent wrench. He felt agonizing pain for a few minutes, but he then found he could move the limb, and in a few days was quite well. A schoolboy hurt his elbow by falling on it, and it was much swollen for a few days. Afterwards the forearm could not be extended beyond about 120 degrees. Some months later, in a game of play, another boy seized his hand and pulled him suddenly forwards. Both boys were frightened by feeling something give way; but afterwards the limb could be fully extended and there was free movement at the elbow-joint. Mr. Adrian Hope, who for many years rendered invaluable service to the Hospital for Sick Children as its secretary, wrenched his ankle severely in a fall. He could not use the limb for some weeks, but at length was able to walk with a stick. One night, as he was turning in bed, his foot

being anchored by the heavy bedclothes, he twisted his ankle and heard a snap. He was much alarmed and thought he had seriously injured his foot. Next morning, however, greatly to his surprise and relief, he found he could walk on the limb without discomfort; and he quickly and entirely recovered.

CASE IX.—A patient told me the following instructive case. Many years ago, while he was at Harrogate, a gentleman was taking the waters for the relief of pain and stiffness about his shoulder, which was said to be out. While walking in the meadow in which the springs are situated, and which was then surrounded by a hedge and ditch, he was attacked by a cow. In this emergency he endeavoured to escape by taking a running jump at the hedge and ditch. In doing so, he made a spring, and involuntarily carried his arm upwards and forwards, with the happy result of not only escaping from the infuriated (or playful) cow, but of "putting his shoulder in," for from that time he regained full power of movement. Who can doubt that this was a case of slight adhesions, ruptured by the sudden movement of the limb, or that the bonesetter would have cured the patient just as the cow did, and with as little knowledge of the condition to which the pain and stiffness were really due?

Thus far consideration has been limited to cases in which the original structures of the part concerned have undergone no material organic change, but are matted together by adhesions which are easily broken down. There remain for examination those in which, as the result of acute or long-continued irritation, the synovial membrane is invaded by cicatricial tissue, so that fibrous ankylosis, more or less firm and extensive, has occurred. In which cases in this group should forcible movement be resorted to? This is a very important question, which can only be answered in general terms after various considerations have been taken into account. In practice each individual case must be carefully adjudged on its own account.

First, as to the cause. Fibrous ankylosis is often the result of tuberculous disease. When this is the case my own opinion is that forcible movement is very rarely suitable. So far as I have observed, rest is always essential in the management of tuberculous joints, while any mechanical injury invariably tends to aggravate the disease.

What, in the opinion of any one familiar with the surgery of childhood, would be the result—say in a hundred cases of fibrous ankylosis after tuberculous hip disease—of forcible movement for the purpose of restoring motion to the joint? Is it not certain that, although in a very small proportion of the cases no harm might be done, in an overwhelming majority grave results would have to be recorded—return of pain and muscular spasm, the formation of abscess, displacement of the upper end of the femur upon the dorsum ilii, fracture of the femur (which in old hip disease is atrophied and brittle), separation of the epiphysis of the head of the femur if it was still present, or, lastly, rupture of the ilio-psoas muscle? When I was house-surgeon at the Hospital for Sick Children in 1862 the practice of forcibly straightening the limb (under chloroform) in hip disease was in common use, and I myself witnessed instances of every one of the results I have just mentioned. These disasters were of frequent occurrence. They were all eliminated when I had the happy opportunity of introducing weight extension in the long axis of the femur, as taught by Pancoast and other American surgeons. In further evidence of the danger of using mechanical force in these cases I may add that on four occasions I have had, in order to save the lives of the patients, to amputate the limbs of children whose tuberculous knee-joints had been straightened by bonesetters. One case of hip disease, bearing on the result of bone-setting, may be mentioned:

CASE X.—A little girl, aged 7, had been lame for six months as the result of a mild attack of inflammation of the hip-joint. The limb was considerably drawn up, so that the toe did not touch the ground. She walked with a crutch, but had no pain or other symptoms of still-present disease. Her hip was said to be "out," and was "put in" under chloroform by a bonesetter, and she was reported to be cured. The immediate result was satisfactory, for the limb was now very nearly straight, and she could walk without her crutches, though she still limped. The father told me afterwards that at the time he thought it a providential thing that the surgeon he had proposed to consult was away from home, so that his steps had been turned in another direction. In the course, however, of three weeks pain and startings and restless nights came on, and the child could not put her foot to the ground. Three months later, when I saw the case, the limb was considerably flexed, and there was a large abscess in front of the joint.

As to cases of fibrous ankylosis in which forcible straightening should be used, there are:

Those in which acute synovitis has followed a severe wrench:

CASE XI.—A boy, aged 14, racing down a steep grassy slope in Hyde Park, severely wrenched his hip. He was admitted two days later into St. Bartholomew's Hospital, in great pain, with a quick pulse and a temperature of 100°. Weight extension was used. For ten days the pain was severe, especially on movement, but it had ceased in three weeks. It was then found that the joint was quite fixed. Under chloroform, given on three occasions, the limb was carried through all its movements to their free normal range. No material force was required. Numerous adhesions were felt and heard to give way, especially on the first occasion. In the intervals between the manipulations under chloroform, passive movements and massage were used. Within a month full recovery took place.

Or the injury may be in another form.

CASE XII.—An officer, aged 23, during the war in South Africa, was shot transversely through the knee, the bullet passing just above the level of the head of the tibia and behind the middle of the joint. No suppuration followed, and the wounds of entrance and exit healed in a few days. When I saw him in England two months later the joint was quite free from pain and heat, and scarcely at all swollen, but it was firmly fixed at an angle of about 110 degrees. When he was under chloroform the ankylosis between the femur and tibia proved to be so firm that it was evidently either close fibrous or bony in character. But the patella was freely movable on the condyles of the femur. This was very important. As the patella was thus movable, there was no reason why an attempt to break down the ankylosis by flexing the limb should not be made. (If the leg is forcibly flexed when the patella is ankylosed on the condyles of the femur, the grave injury of rupture of the ligamentum patellae is very likely to occur. I have seen two instances). The ankylosis only gave way when very considerable force was used and when the attempt was on the point of being discarded. The impression conveyed was that a strong and extensive fibrous cicatrix was being torn through. The limb was considerably straightened, but not fully, as to do this seemed to incur the risk of injuring the vessels in the popliteal space or of producing dislocation of the head of the tibia backwards. No severe pain and only moderate swelling and heat followed. The forcible movement (now including full extension) was repeated on two occasions at weekly intervals, and after the first straightening massage and passive movements were carried out daily. For six weeks the joint showed an obstinate tendency to become flexed and stiff. The patient was therefore

supplied with a weight and pulley, with which, for half an hour twice daily, he exercised the limb by alternate flexion and extension. Movement slowly, but steadily, returned, and at the end of six months he could both extend and flex the limb with complete freedom.

In yet other instances the ankylosis may have resulted from a septic wound of the joint, from gonorrhoea, or from septic infection after parturition. In every case the amount of force which it is advisable to use must be very carefully considered.

Case XII serves to remind us of a process which is often not remembered, but to which recovery may be very largely due—the absorption of adhesions, or, in other words, of scar tissue. He who looks may see in many a museum specimens of the repair of a fracture with deformity that every vestige of provisional callus has been removed, and that what remains as permanent callus has become not an adventitious support but an integral part of the bone itself. Fig. 1 shows with what admirable exactness the reparative material is placed and with what nicety it is structurally adapted to the part it has to play. Where it mends the hard wall of the bone it

Fig. 1.—Repair of fracture of the femur.

is compact; where it intervenes between and connects the displaced ends of the fracture its mass has not remained a solid block, but has become cancellous in correspondence

with the internal structure of the shaft of the parent bone. What architect or sculptor could surpass such work? Just as provisional callus is removed in the later stages of the repair of fractures, so is provisional scar tissue removed in the repair of the soft parts. A wound of the skin and subjacent structures—for example, after an operation for harelip—is united by a scar which in its early days is vascular and exuberant, but of which in a few weeks, or still more after some months, all the superfluous part disappears and it becomes almost invisible. Perhaps the most obvious instance of the absorption of new tissue which has been produced by some irritant is met with in the case of adhesions following peritonitis, whether tuberculous or septic. Even extensive adhesions gradually yet completely disappear, probably as the result of constant disturbance and traction during peristalsis. A similar result is produced by the disturbance and traction which take place during movement and massage employed in cases of joint injuries followed by the formation of adhesions. It is this tendency to the absorption of adhesions—which is a part of the reparative process—that accounts for the restoration of free movement of a joint which has been the seat of fibrous ankylosis. Not sufficiently allowing for this, surgeons sometimes refrain from forcibly moving a joint on which a bonesetter, to put a bone in, operates with success.

DISPLACEMENT OF MUSCLES (OR TENDONS).

Many instances of displacement of muscles or—to speak more accurately—of their tendons, have been recorded. The clearest, as well as the most familiar, examples are displacement of the tendon of the peroneus longus to the front of the external, and of the tendon of the tibialis posterior to the front of the internal malleolus, and of the long tendon of the biceps inwards or outwards from the bicipital groove of the humerus. This accident to muscles, however, is rare. Many muscles are not liable to its occurrence. This is the case with all such as act in a straight line, and do not pass over any bony prominence—the coraco-brachialis, brachialis anticus, palmaris longus, crureus, soleus, and many others. The muscles open to this liability may be grouped under the following heads:

(a) Those which, at some part of their course, have their tendons suddenly or considerably deflected, or which, as they pass round some bony prominence that serves them for a pulley, lie in a groove, bridged over by a ligamentous expansion. This is well seen in the case of the peroneus longus and the tibialis posterior as they pass behind the malleoli. If, while the foot is either inverted or pointed straight forwards, the peroneus longus contracts, it cannot slip, for its tendon is drawn tightly into the bottom of the groove at the back of the external malleolus; but when the foot is everted (Fig. 2), the tendon

Fig. 2.—Showing the strain on the sheath of the peroneus longus when the foot is strongly everted.

has a tendency to leave its groove, so that its sheath becomes its pulley, and this, if the strain is severe, may give way.

CASE XIII.—One of the sisters of St. Bartholomew's Hospital, on leaving an omnibus, twisted her right foot and fell. It was found that the tendon of the peroneus longus had become displaced, and was lying on the front of the lower end of the fibula. The tendon was easily replaced. Considerable extravasation of blood and swelling followed. The foot was placed nearly at a right angle with the leg, and turned somewhat inwards, so that the tendon lay at the bottom of the groove

behind the malleolus, and a leather splint was applied. The foot was kept in this position for three weeks. The splint was then removed, and passive movements and massage were used for a fortnight. At the end of eight weeks after the injury the patient was allowed to walk. The displacement did not recur.

The case happened some years ago, when in many instances rest, according to present views, was unduly prolonged. Probably the patient might safely have been allowed to walk in a month.

If the foot, instead of being everted, is inverted (Fig. 3), and a strain is thrown upon it, the tibialis posticus will be in danger of displacement, for in this position the tendon escapes from its groove and pulls directly upon its sheath. But I have never seen a case. Some, however, have been recorded.

There is a particular muscle which, from its deflected course, would appear at first sight to be peculiarly liable to displacement. This is the extensor longus digitorum (pedis). When the foot is inverted this muscle takes the direction shown in Fig. 3. Yet, so far as I know, no example of its displacement has ever been recorded. The explanation of its immunity from this accident is clear when the structure of the anterior annular ligament is taken into account. It will be remembered that this ligament is Y-shaped, and that the stem forms a loop through which the tendons of the extensor pass. It is this loop (seen in Fig. 3) which binds down, and serves as a

Fig. 3.—Showing deflection of the extensor longus digitorum when the foot is strongly inverted, and the pulley which prevents its displacement.

pulley for the muscle, and effectually prevents it from "straightening out," no matter how much the foot is inverted or how forcibly the muscle acts. Mr. Waring informs me that the breaking-strain of this loop is about 112 lb.

(b) Those which pass over bony prominences that undergo considerable movement to one side or the other under the line of the tendon. This is well illustrated by the long tendon of the biceps cubiti, under which the humerus, with its internal and external tuberosities, is frequently and strongly rotated inwards or outwards.

CASE XIV.—A boy aged 19, while vigorously washing his face, felt a sudden pain in the side of his neck, and found that he could not move his head. When he came to the hospital three hours afterwards he presented the appearance of a person with a wryneck, and any attempt at movement was very painful. He inhaled gas, and his muscles were kneaded where he had previously indicated that he felt the pain, and his head was placed in position. When he regained consciousness all his symptoms had disappeared. In both these instances it seems highly probable that a tendon of one of the deep muscles approaching its insertion had slipped over the apex of the posterior tubercle of the transverse process of one of the cervical vertebrae.

I mentioned this case to a surgical class which Mr. Earle Newton, F.R.C.S., now practising at Perth, Western Australia, was attending. Mr. Newton recently sent me the following note:

CASE XV.—A few days ago a jockey, while riding a race, turned his head to the left to see how far he was leading. He felt a snap in his neck, attended with sharp pain shooting upwards towards his ear and downwards over his shoulder of that side. His head remained turned towards his left shoulder, and when he tried to turn it to the right, pain was severe. My partner gave him an anaesthetic, and I manipulated his head and exerted slight extension. A slight click was felt and his head came into position. When he became conscious he turned his head round and exclaimed, "By Jove, it's all right now!"

CASE XVI.—A man, aged 23, came to the hospital with his head fixed and turned to the left side. He said the condition had suddenly developed when, a few hours before, he had quickly turned his head. The symptoms exactly corresponded with those of the cases just related. When, however, I advised him to take ether and have his head moved he declined treatment and left the hospital.

CASE XVII.—A young cavalry officer, much given to athletics, when he raised his left arm suddenly to a right angle with the trunk—as, for instance, to protect his face when he was taking a fence while hunting—had severe pain at the insertion of the deltoid, and found that the arm was fixed and powerless. On moving and rubbing the part the symptoms disappeared, but the arm over the lower part of the deltoid was tender on pressure for two or three days. Two years later the right arm was affected in an exactly similar way, and the symptoms recurred so frequently that it became likely he would have to leave the service. It was impossible to say on what this condition depended, but it seemed probable that the deltoid ridge had become irregularly hypertrophied, and that there was some outgrowth or projection over which part of the tendon slipped.

CASE XVIII.—Some thirty years ago A.B., a delicate lad of 17, was sent up from the country with a suspicion of hip disease. He was so lame that he walked with a crutch and a stick, and could bear very little weight upon the limb. The thigh was held in a position of slight flexion, abduction, and external rotation. He complained of deep-seated pain at the back of the joint on any movement, and of tenderness on pressure in this situation. No swelling could be detected. On careful examination it was found that the hip-joint was sound, but it was believed, from the situation of the pain and tenderness, and from the position of the limb, that the case was one of tuberculous periostitis of the innominate bone beneath the external rotator muscles. He was advised to rest for three months, to have a succession of blisters, and to take cod-liver oil. At the end of this time he was no better; his condition seemed to be wholly unaltered. His friends now took him to a bonesetter, who, after examining him by passing his hand under the waistband of his trousers, pointed to a spot in the thigh 4 in. directly below the anterior superior spine of the ilium, at which spot he said a bone was out. At the request of the boy's mother he put the bone in by moving the limb, a snap being heard during the manipulation. The patient could now move his limb freely, and walk upon it with only slight pain, which disappeared in the course of two or three days, and left him quite well. Just twelve months later, having in the interval remained quite well, he was asked, while at breakfast, to cut some bread, and while in the act of rising quickly from his seat he was suddenly attacked with his old trouble. He had severe pain in the old spot, and felt sick and faint. The limb was found to be locked in its former position, and he had increased pain if he threw any weight upon it. Getting no better, he was brought to London at the end of a fortnight. The limb was then stiff, slightly flexed, and abducted, and he walked very lamely with his crutch and stick. Movement of the limb at once brought on very painful spasmodic muscular contractions, and he suffered severely at night from startings and twitchings of the thigh. No swelling could be detected, but he had pain on pressure over the neighbourhood of the sciatic notch. Having heard how he was cured before, I put him under the influence of gas, and gently carried the limb through all its natural range of flexion, extension, abduction, adduction, and rotation. I felt nothing give way, and nothing seemed to slip; but when he recovered from the gas all his symptoms had disappeared. He could move his limb freely, and in a few days he lost both his lameness and all his pain. He has had no relapse. This case is a very interesting one. When first seen it was very obscure; yet when all the symptoms had been carefully considered, the diagnosis of periostitis seemed grounded on very strong probability. Looking back on it, and noting what subsequently occurred, I think, however, it must have been an instance in which one of the deeply placed tendons had, on a sudden movement, slipped out of its place.

All these cases, except those of the peroneus longus and the tibialis posticus, would, it is safe to say, have been cured by a bonesetter, and he would have deserved every credit for skill. The case of A. B. shows clearly enough Mr. Hutton's limitation in diagnosis. His "bone" (four inches below the anterior iliac spine) was obviously a myth, but his treatment was a startling success.

DISPLACEMENT OF ONE OF THE SEMILUNAR CARTILAGES OF THE KNEE-JOINT.

Among the various cases that should be treated by movement none are more obvious than those in which one of the semilunar cartilages of the knee-joint is displaced. Indeed, Hey was an exponent of the best kind of bone-setting when he was dealing with this condition 130 years ago, and which he termed "internal derangement of the knee." Here is one of his cases as he recorded it:

CASE XIX.—A clergyman fell from his horse, and bruised his knee. A violent pain was brought on, which continued for an hour and a half, and the joint became stiff and discoloured. In a week the swelling subsided. At the end of a month his power of walking was not at all increased, yet the injured knee appeared like the other. I could bend and extend the limb without difficulty, and without giving him pain; but when he

walked he could give the joint no motion by the natural effort of the muscles. He walked, to use his own expression, "as if he had no joint in his knee." I extended and bent the joint with rather more force than I had used in the preceding cases; yet on a first trial he could not use the joint as well as I had wished. I repeated the operation after an interval of a few minutes, and he immediately regained the power of walking as well as usual, except that he felt a little weakness for a few days.

The displaced cartilage is often tender, and Hey's successors are accustomed, like bonesetters, to press on the "tender spot" during their manipulation of the joint.

Such cases at the present day are familiar to every surgeon. Yet the unwary may still be caught. In some instances the displacement is slight, movement is slightly or not at all interfered with, and the only complaint on the patient's part is that the joint is always uncomfortable, and that it becomes painful and a little stiff and overwarm after exercise. In other instances after a fall or wrench followed by effusion, the condition may be regarded as a simple traumatic synovitis; and when this has subsided the patient may be dismissed with the offhand assurance that the stiffness will disappear with a few more days' rest combined with gentle exercise. But week after week goes by, and he finds that the stiffness persists and that his knee does not get right. Then he goes to a bonesetter, who sees that the knee cannot be put quite right, and who detects tenderness over the internal cartilage. Saying that a bone is out, and pressing his thumb firmly over the tender spot, he moves the limb, and the patient finds that he can walk freely, and fully straighten his knee. In the following case, the fact that the synovitis was due to a displaced semilunar cartilage was overlooked.

CASE XX.—A gentleman some time since remarked that he wished surgeons would be more careful in the management of their cases. When I asked him to reduce this sweeping complaint to the particular instance he had in view, he said that his gamekeeper had been for a month in a hospital for lameness, and had been discharged no better, and that on leaving the hospital he had gone straight to a bonesetter, who told him his knee was out, and there and then "put it in." When, my censor continued, the man expressed surprise that the doctors did not find that his knee was out, the bonesetter replied, "Oh, doctors understand the big bones, but they know nothing about the little ones"—a remark which seemed to the patient, and also, I found, to his master, a full explanation of what had occurred. From what I subsequently learnt, there seemed no doubt that the case had been one of internal derangement, followed by sharp synovitis. This had led to an oversight of the displacement, which remained to cause lameness after the synovitis had subsided. There was a clear history that the joint had slipped on a previous occasion.

Cases have been met with in which slight displacement of a semilunar cartilage has existed for several months, and after the injury which produced it was forgotten. A surgeon examining such a case may see clearly enough that there is something amiss, as the patient complains of slight stiffness, and some aching after exercise. But he cannot make an exact diagnosis, so he orders douching and prescribes a lotion. Getting no better the patient goes to a bonesetter, who finds the tender spot where the little bone is out, moves the limb, and works a complete cure by slipping the cartilage into place. I have met with several instances in which, from a careful examination of the history of the case, it seemed highly probable that the internal cartilage had been displaced for a long period and in which the symptoms disappeared as soon as movement was employed. These cases are so obscure at first sight that they challenge careful investigation, but when this is expended upon them a strong suspicion as to their real nature should arise, and when this point is reached the chance that manipulative movement would succeed should be laid before the patient who—as the proceeding is entirely free from risk and is painless, for an anaesthetic should be used—will generally wish to have the trial made. Should the patient, however, prefer to go to a bonesetter, and should he cure him, the surgeon will have nothing for which to blame himself.

It is only a way of speaking to say that a cure has been wrought merely by the act of returning a slipped cartilage to its place. Now and again it happens that a cartilage as the result of a twist in the knee is squeezed out of its position without any laceration of its attachments. Here when reduction has once been effected there may be no recurrence. But in the great majority of instances either the cartilage itself is torn, sometimes into two separate portions, or its connexions are torn so that it

frequently slips. In such cases the bonesetter's "cure" does not last, and further surgical treatment is required.

DISPLACEMENT OF THE CARPAL OR TARSAL BONES.

Opinions will probably differ as to the frequency with which the individual bones of the carpus and tarsus undergo displacement as the result of wrenches or contusions. Dr. Wharton Hood has remarked that subluxation of these bones must occur in a considerable number of instances, and he believes that the lameness, which in Mr. X's case returned after over-exertion and which was immediately removed when Mr. Hutton manipulated the foot, must have been due to some change in the relations or apposition of the articular surfaces. That displacements may occur is, of course, well known. They are, in fact, mentioned in most of the handbooks of the day. A case or two will be enough in illustration:

CASE XXI.—An officer in a cavalry regiment, while hunting, put his horse at a fence. The ground was on a slope and wet, and the horse slipped and fell on his side, coming down heavily on the rider's foot, which was sticking up vertically like a peg. Thus the foot was violently shortened and bent upon itself, with the result that the astragalus was partly displaced forwards and outwards, so that it lay close beneath the skin, which was tightly stretched over it. By manipulation and the use of considerable force the bone was pushed back to its normal position with an audible snap. Recovery followed.

CASE XXII.—Mr. T., while serving with his regiment in South Africa was thrown from his horse, and severely wrenched his hand. I saw him two months later. The wrist was stiff and he was unable to flex his index and middle fingers. A pit could be felt on the dorsum of the carpus as if one of the bones was displaced, and on the palmar aspect a deep-seated hard swelling was detected. An x-ray picture showed that one of the carpal bones was lying on the palmar aspect of the radius. This was dissected out, and was found to be the semilunar bone which had been jerked out of its bed and was lying entirely isolated, about an inch away from its normal position. I agree with Dr. Wharton Hood that these displacements are less rare than they have been supposed to be.

FRACTURE OF THE CARPAL OR TARSAL BONES.

Another condition to be borne in mind is fracture of the carpal or tarsal bones and the formation of adhesions, or perhaps spurs of callus, producing pain and limiting movement. X-ray photographs show that these fractures are not rare. They have no doubt formerly been the unrecognized cause of the pain and lameness which are apt to be persistent after a wrench or contusion of these structures, and which bonesetters are likely to cure.

A medical friend jumped off his bicycle, and alighting heavily on one foot had severe pain in the inner part of the sole. The foot remained painful on exercise, and at the end of three weeks an x-ray picture showed that there was a V-shaped fracture of the scaphoid bone.

Dr. Laurence Humphry allows me to relate that while fishing, as he was moving along the river's bank on uneven ground, he came down heavily on his left foot. He had severe pain, and was still lame three weeks later. I suggested that he should have an x-ray picture taken. This showed that he had sustained a fracture of the fifth metatarsal bone. He slowly but perfectly recovered. In all such cases pain and stiffness that remained would very likely be removed by a bonesetter of Mr. Hutton's capacity and who found a tender spot, pressed hard upon it, and then carried the foot in the direction in which movement was restricted.

FLAT FOOT.

Some five and twenty years ago Mr. Alfred Willett, when he was in charge of the orthopaedic department of St. Bartholomew's Hospital, was in the habit of using manipulation in the treatment of flat-foot. When the patient was under gas or ether, the foot was forcibly "moved" and inverted, and was then retained in this position by a light plaster-of-Paris bandage. This manipulation was often repeated and was combined with massage and exercises. Under this treatment even the more severe cases—characterized by great deformity and rigidity—underwent a very marked degree of improvement. Patients regained to some extent the power of rising on tiptoe, and of hopping; they lost their pain and were able to walk long distances without inconvenience. By no great exaggeration of the improvement thus obtained, it would be easy to speak of such cases as "cures." In the more acute cases, in messenger boys and shop girls who are on their feet during long hours every day, it is

well known that, when combined with some rest, manipulation, to turn the foot inwards to a full degree, and massage will afford so much relief that the patient may think that a "cure" has straightway been effected.

"HYSTERIA."

Manipulation, with the strong mental impression it produces, is a very good method by which to treat cases of so-called hysterical contraction of the joints, such as the following:

CASE XXIII.—Annie M., aged 14, was brought to the out-patient room of St. Bartholomew's Hospital, with the left knee strongly flexed that the heel touched the tuber ischii. Her mother said that, fourteen days before, the child had fallen down upon her knee, and that the limb had contracted two days afterwards. A bruise was still visible over the prominent part of the internal condyle of the femur. On examination of the knee I could find neither swelling, heat, nor tenderness; in fact, the joint looked perfectly normal. Regarding the contraction as of mere nervous origin, I pretended to search for and find a particular spot in the popliteal space, and, pressing my finger strongly in, peremptorily ordered the patient to straighten the limb. She did so at once, and while the finger was still pressed upon the surface she walked round the room. The contraction did not return.

CASE XXIV.—A servant, aged 17, after she had accidentally pricked her third finger, had kept it tightly flexed on the palm for two months, and protested that she could not straighten it. Seeing there was nothing the matter, I pretended to pass electricity through it by pressing two sponges in holders (but not connected with the battery) upon it. She immediately straightened her finger, and was quite cured. Although movement under gas was not the method adopted in these two cases, they belong to a group in which that treatment is highly efficacious.

In conclusion, it remains to state that the part which the profession has to play in reference to bonesetting is obvious. A good motto for each one of us would be, "To thine own self be true." Every surgeon must give his cases full attention in all their stages. He must begin with a thorough examination, and unless he is quite sure as to the condition present he must follow the golden rule so often and so strongly insisted on by Sir James Paget, and "revise his diagnosis." He must clean the slate and go over the case a second time, and check his first impressions, for he has to remember that the same signs and symptoms may be due (in early cases) to diseases which are, both in their nature and in the treatment they require, wholly different from each other. Take, in illustration, affections of the knee. All surgeons know that, in their early stages, such widely diverse conditions as inflammation persisting after a minor injury, tuberculosis, syphilis, some forms of gout and sarcoma—others could easily be mentioned—produce exactly the same symptoms, namely, lameness, impaired movement, pain, swelling, and some degree of muscular wasting. These diseases in short, in their early stages, are so much alike that no surgeon, be he who he may, can be sure of differentiating them at sight, or even after a single examination. Indeed, in some instances the more a surgeon knows and the more carefully he examines a case the more doubtful he will feel, and the more conscious that he must examine the case afresh.

There is a story told of Sir William Gull to the effect that, on hearing that one of his colleagues had given an offhand diagnosis which proved to be right in a case which Sir William Gull himself had found very obscure, remarked: "It takes a fool to be right in such a case as that." It is sometimes necessary to suspend judgement till other symptoms either appear or remain absent—that is, till further evidence can be secured, often including a skiagraph. Furthermore, do not let the practitioner use the term "recovery" in too narrow a sense, and say, in a case of fracture, that the patient is all right, merely because the bone is united. In the narrow sense that the bone is firm the patient has recovered. But, as he has pain and cannot get his heel down, to tell him that he is all right sounds to him like mockery. Again, let the surgeon remember that manipulation under gas will often remove these and similar defects, and that if he neglects this part of his plain duty the patient may be cured by a bonesetter with dramatic facility. Let the surgeon go further still, and bear in mind that manipulation will sometimes there and then remove pain and restricted movements, although it may not be possible to say on what precise condition they depended or exactly how manipulation has acted (see Cases iv and v). In obscure cases in which the

surgeon can definitely exclude the existence of serious disease the matter should be explained to the patient, and manipulation, if consent is given, should be employed.

[We are indebted to Messrs. J. and A. Churchill for permission to reproduce three illustrations from Professor Howard Marsh's *Clinical Essays*.]

REFERENCES.

¹ *Strand Magazine*, October, 1910, p. 340. ² *On Bone Setting*, Macmillan and Co., 1871, p. 15. ³ *Ibid.*, p. 37.

QUACKERY—WITH SPECIAL REFERENCE TO FEMALE COMPLAINTS.

BY

SIR JOHN BYERS, M.A., M.D., M.A.O.,

PROFESSOR OF MIDWIFERY, GYNAECOLOGY, AND DISEASES OF CHILDREN IN THE QUEEN'S UNIVERSITY OF BELFAST; PHYSICIAN FOR DISEASES OF WOMEN TO THE ROYAL VICTORIA HOSPITAL, BELFAST; PHYSICIAN TO THE BELFAST MATERNITY HOSPITAL; AND CONSULTING PHYSICIAN TO THE BELFAST HOSPITAL FOR SICK CHILDREN.

THERE is nothing more remarkable in life than the fact that, where healing is concerned, human credulity seems to learn nothing from human experience, and so it comes about that at all ages, even though it be true, as Carlyle puts it, "Quackery gives rise to nothing; gives death to all things"—it still prevails, until we have arrived now at "an epoch when puffery and quackery have reached a height unexampled in the annals of mankind."

QUACKERY IN THE PAST.

In the *BRITISH MEDICAL JOURNAL* of September 24th, 1910, as well as in the recently issued *Glenbervie Journal*, there are interesting accounts of the famous "quack of quacks," Count Alessandro Cagliostro (b. 1743, d. 1795), the assumed name of the Italian impostor, Giuseppe Balsamo—whose adventures supplied Dumas with materials for his novel, the *Memoirs of a Physician*, and who, when he visited London and Paris in 1771, sold love philtres for both sexes, and mixtures for making plain women handsome. It must not, however, be forgotten that the famous, or rather notorious, Earl of Rochester (John Wilmont Rochester, second Earl, b. 1647, d. 1680), a boon companion of Charles II, who appointed him Gentleman of the Bedchamber, and who, among the many satires on his royal master, wrote the witty and oft-quoted epigram:

Here lies our Sovereign Lord the King,
Whose word no man relies on,
Who never said a foolish thing
And never did a wise one;

practised as a quack doctor. During one of those numerous occasions in which he was expelled from Court for lampooning the King or some of his friends it is said he had a stall on Tower Hill, where, with his remedies fully displayed, he appeared under the name of Alexandro Bindo, and that he was specially consulted by women, to whom he gave advice and sold cosmetics. It is recorded that this occurred about 1677, and an old number of *Notes and Queries* represents him as saying to his audience:

I am the famed Paracelsus of the age, by name Segnior Doloso Euprontorio, son of that wonder-working Chymist lately deceased in Alsatia and famed through all Europe, Asia, Africa, and America; from the oriental exaltation of Titan to his occidental declination, who in pity to his own dear self and other mortals has by the prayers and solicitations of divers Kings, Emperors, Princes, Lords, Gentlemen, and other Personages been prevailed with to oblige the world with notice to all persons, young and old, lame and blind, that they may know where to repair for their speedy cure in all Cephalgies, Orontalgies, Paralytical Paroxysms, Rheumatisms, Gout, Fevers, Fractures, Dislocations, and all other Distempers incident to the human Body, external or internal, acute or chronic, curable or incurable. My Medicines are the Quintessence of Pharmaceutical Energy; the Cures I have done are beyond the art of the whole World.

I have an excellent hypnotical, captical, odoriferous, carminative, renovative, stiptical, corroboratory Balsam of Balsams, made of dead men's fat, rosin, and goose grease. It is the true Pharmacopoeia of Hermes Trismegistos, the true Pente-maggon of the triple Kingdom, which works seven several ways, and is seven years preparing, which being exactly completed *secundum artem* by Fermentations, Solutions, Sublimations, Rectifications, and Quiddifications in Balneo Mariæ in the crucible, becomes Nature's Palladium, Health's