standard, and this required numerous experiments by a metallurgist; it was necessary to know what changes took place in the magnetism of the earth during the experiments, and this required the attendance of the director of a magnetical observatory; a scientific electrician presided over the experiments, and associated himself with a mathematician who was well versed in the theory of electricity. The unit of resistance thus determined by the British Association has now been universally adopted by practical engineers; men of science have laboured, and the Postmaster-General has quietly entered into the fruits of their labour; but the experiments in connection with other units are not yet finished; in fact such researches, requiring as they do great skill and time for their accomplishment, must necessarily hang fire if the men who can perform them do not receive some support which will enable them to devote their best energies to the conduct of these and similar experiments.

We have now said enough to establish our point that the extension of Science is of national importance, and that in its present state this extension is beyond the means of private individuals, but not beyond the means of the State. Before concluding, we ought to mention (more especially since it cannot be gathered from the *Times* report) that one of our most distinguished men of science, Dr. Joule, was present at the banquet to which we have alluded, and in returning thanks for Science took the opportunity of stating that he trusted Science would soon obtain that recognition which it imperatively required. If men of science will be true to themselves and to their noble cause, we feel confident that sooner or later they will prevail.

HOOD ON BONE-SETTING

On Bone-Setting. By Wharton P. Hood, M.D., M.R.C.S. (Macmillan and Co., 1871.)

TO any but the professional reader this title is not attractive; and yet we are greatly mistaken if the book itself does not prove to the full as attractive and as lastingly interesting to the intelligent non-professional as to the professional reader; and this, not because the subject is lowered to the level of general comprehension, or written in what is called a "popular" style, but simply because the subject itself is of such wide and varied interest, and its whole treatment in the present little volume is so frank, so clear, and so convincing.

It will be asked, What is bone-setting, who are the bone-setters, and who are their patients? And it will be readily answered, Why, of course, bone-setting is the art of setting bones that have been broken, or joints that have been dislocated, and this is done, doubtless, by surgeons; and equally doubtless and of course, their patients are persons whose bones are fractured, or whose joints are dislocated—

There needs no ghost come from the grave to tell us that. Perhaps not, but the answer is quite wrong for all that; quite the reverse indeed of what is actually the case, for bone-setting is *not* the art of re-setting broken bones or dislocated joints; bone-setters are *not* surgeons, or regular practitioners in any sense of the title; and their patients, even when they have suffered injury to joint or bone, have been pronounced by the regular practitioner *cured* before seeking the help of the bone-setter.

Having stated this triple paradox, let us hear what Dr. Hood has to say in explanation.

"A healthy man sustains a fracture of one or both bones of the fore-arm, and applies at a hospital, where splints are adapted in the usual way. He is made an out-patient, and the splints are occasionally taken off and replaced. After the lapse of a certain number of weeks the fracture becomes firmly united, the splints are laid aside, and the man is discharged as cured. He is still unable to use either his hand or his fore-arm, but is assured that his difficulty arises only from the stiffness incidental to long rest of them, and that it will soon disappear. Instead of disappearing, however, it rather increases, and in due time he seeks the aid of a bone-setter. . . . The bone-setter would then by a rapid manipulation, hereafter to be described, at once overcome the stiffness of the fingers, and enable the patient to move them to and fro. The instant benefit received would dispel all scruples about submitting the wrist and the elbow to manipulation, and these would be set free in their turn. The man would go away easily flexing and extending his lately rigid joints, &c."

Now what was the cause of stiffness in the foregoing typical case? What was the nature of the impediment to normal movement, ignored by the surgeon and overcome by the bone-setter? The impediment above indicated, it is argued, might arise from articular inflammation, producing adhesions between surfaces "resting in apposition," and that such adhesions, if so placed as to restrain movement, will cause pain and irritation whenever they are rendered tense; and, moreover, that inflammation sufficient to produce these adhesions may be insidiously set up in a joint by extension from neighbouring structures—as in the above-recited case. Again, it is argued, "possibly in some cases, the proper ligaments may become contracted or rigid, or adherent to neighbouring parts; in others, internal or external adventitious fibrous bands may be formed; in others, muscles may have undergone shortening. Again, effusion may have become solidified, and thus movement be impaired, as if by a state of things analogous to a rusty hinge." And further on: "If we consider the amount and character of the effusion which takes place after some sprains and injuries, in some gouty and rheumatic affections, and in some cases of suppuration occurring in bursa, or beneath deep fascia, we cannot doubt that such effusion may easily assume forms in which it will tie down muscles, tendons, or even articular nerves themselves."

The art of bone-setting, then, is the art of overcoming these impediments in joints, these conditions of arrested or impaired freedom which not unfrequently supervene on the curative processes of treatment in use by surgeons in cases of fracture or dislocation; or which may arise from, and be observed only after the subsidence of, active rheumatism, gout, ganglionic swellings, or other local affections; and this brings us to the question, How is it done? how are these stiffened joints set free? how are these impediments to healthy action overcome? The answer of the regular practitioner is that which has been already quoted, namely, to rest it—advice which usually entails a distressing failure; the answer of the irregular practitioner, *i.e.*, the bone-setter, is precisely the opposite, namely, that freedom can only be restored to the stiffened joint by movement, by manipulation, and manipulation too of the most formidable kind, nothing less than suddenly and forcibly rupturing, tearing asunder, the adhesions formed

between the articulating surfaces of the affected joint, an operation which is so frequently successful that it forms the very basis of the bone-setting craft.

It is here that the bone-setter steps in front of the scientific surgeon, and we must confess to a feeling of disappointment that their relative positions are not reversed, that the surgeon is not called in to rectify the malpractices of the quack, instead of the latter being sought out to complete the shortcomings of the former. Let us see how this manipulation is performed. The bone-setter has a clearly defined system of treatment for each separate joint, if not for each specific affection to which each joint is subject. Next to the list of authenticated cases of successful treatment, this is, perhaps, the most valuable part of the treatise; for in addition to the ample and detailed modes of procedure with each joint, diagrams showing the act of manipulation are given, taking in succession those of the upper and lower limbs, and also of the several regions of the spinal column. One example may here be given :—

“The proximal side of the affected joint being firmly held, and the thumb-pressure made in the ordinary way, the tarsus is so grasped as to give the greatest attainable leverage, the foot twisted a little inwards or outwards,

then sharply bent up upon the leg and again straightened. As a rule it is desirable to execute this manœuvre twice over with an inward and once with an outward twist, and also to take care that the movements of the joint are free in all directions.”

Bone-setters, we are told, are for the most part uneducated men, wholly ignorant of anatomy and pathology; but we are not told what we greatly wish to know, and that is, the manner and method in which the secrets, the mysteries, and the traditions of their craft, are communicated to each other. No doubt there exists a free-masonry in the craft, so that when individual members meet revelations are made and notes compared, but we are not informed of any regular or organised system of instruction, either for the maintenance and extension of the craft, as a craft, or for the enlightenment of the separate and detached members of the fraternity. The most celebrated, we may even say distinguished, bone-setter of our day was the late Mr. Hutton, whose successful treat-

ment of cases that had baffled the skill of the foremost surgeons now living, cases related in detail by Dr. Hood, and about the accuracy of which there can be no question or doubt, is little short of marvellous; and the question is ever recurrent while we read, “How and where was this skill acquired?” for a bone-setter of Mr. Hutton’s calibre could put his finger on the spot where lurked the seat of an affection that had crippled a patient for half-a-dozen years, and had defied the scientific treatment of the ablest surgeons of our time; nay, he could point to this spot without ever seeing the limb affected, guided merely by observing the attitude, gait, or action of the patient. Now, whence comes this undoubted skill of these illiterate men? It appears to be obtained solely by observation of symptoms and results of treatment, the accumulated knowledge of from day to day experience; and as we often see that one sense is quickened and functional power increased by the loss or impairment of some other sense, so perhaps the narrowing of the field of instruction, the limiting of the sources of information, may have intensified the powers of observation of the bone-setters, atoning in a measure for the absence of the revelations of science.

It was from Mr. Hutton himself that Dr. Hood received the secrets of the craft. The motive for, and the manner of, making this revelation are so interesting, that we must give them in Dr. Hood’s own words :—

“About six years ago my father, Dr. Peter Hood, in conjunction with Dr. Iles, of Watford, attended the late Mr. Hutton, the famous bone-setter, through a long and severe illness. On his recovery my father refused to take any fees from Mr. Hutton, out of consideration for the benefit which he had rendered to many poor people. Mr. Hutton expressed himself as being thereby placed under great obligation, and as being very desirous of doing something to show his gratitude. He offered as an acknowledgment of the kindness he had received to explain and show all the details of his practice as a bone-setter. Pressure of work prevented my father from availing himself of this offer, and Mr. Hutton then extended it to me. After some consideration I determined to accept it, and accordingly I went, when I could spare the time, to Mr. Hutton’s London house, on the days of his attendance there. My decision was prompted, not only by the curiosity I felt to see how he treated the cases that came under his care, but also by the desire to make known to the profession, at some future time, any insight that I could gain into the apparent mystery of his frequent success.”

By this means Dr. Hood in time found himself, as he tells us further on, able to take charge of all Mr. Hutton’s poorer class of patients, “whom he was accustomed to attend gratuitously,” and found that he could accomplish all that he had seen done. “And this practice,” he elsewhere emphatically says, “gave me knowledge of a kind that is not conveyed in ordinary surgical teaching—that when guided by anatomy is of the highest practical value, as well in preventive as in curative treatment.”

With this knowledge, thus acquired, the author’s course was clear. In a series of letters in the *Lancet* he communicated to his professional brethren some of its most important facts, and now to the general reading public he submits the whole in the shape of a well-arranged and clearly-written volume.

ARCHIBALD MACLAREN