

nomata—for example, from a cancer of the breast. The diagnosis is usually obvious.

GAUCHER'S DISEASE

When Gaucher's disease with massive destruction affects the long bones it usually causes thinning of the cortex and a looser type of trabeculation—a somewhat worm-eaten appearance. It also is associated with expansion of certain bones, especially the femora (Fisher's sign). But Gaucher's disease of the long bones may cause massive destruction in the long bones, especially at the ends of the diaphyses; and this is the type to which I am now referring. It involves especially the ends of the diaphyses; and, as has been pointed out, the skiagrams of a single part may lead to the condition being diagnosed as a tuberculous lesion. The widespread character of the lesion should at once disprove this. The possibility of metastases has to be excluded. In a case of mine we watched areas develop in the skull which are very suggestive of lipoid histiocytosis, and it is difficult to see what primary tumour could give such secondary metastases in the skull.

SECONDARY NEUROBLASTOMA

I have already mentioned the early secondaries of neuroblastoma as a possible error in the diagnosis of lesions affecting especially the periosteum. In a patient in whom such secondary invasion is well established one also hears of errors in diagnosis—for example, I heard recently of such a case being regarded in a London hospital as an example of osteomyelitis. The worm-eaten appearance of the long bones and the periosteal reaction, with, later, the formation of larger transradiant areas, are usually diagnostic. The skull changes may clinch the diagnosis, as, if present, they are typical; but, as mentioned before, they need not be present, and yet the picture of the long bones may be quite diagnostic.

Conclusion

These few notes have been put together in the hope that they may be of some value in establishing the diagnosis by suggesting possibilities that have to be considered and excluded. I have confined my attention to the general skeleton; space and time prevent me from discussing corresponding conditions in the skull.

We have received the programme of the third International Congress of Comparative Pathology, which is to be held in Athens from April 15th to 18th under the presidency of Dr. W. Bensis, professor of medicine in the University of Athens. The topics to be dealt with have been chosen from the fields of human, animal, and vegetable pathology, with special reference to their interrelationships. Thus in the first of these there will be discussions on the echinococcoses, the nephroses and amyloses, leishmaniasis, spirochaetoses, and avitaminoses, with consideration of their influence on the digestive functions. The veterinary sides of these questions will also be discussed, and the manifestations of immunity in the vegetable kingdom will be specially reviewed. Professor S. Adler of Palestine and Lieut.-Colonel H. E. Shortt, I.M.S., will speak on the leishmaniasis; the director of the Imperial Mycological Institute will report on the nature of immunity from disease in plants; Dr. K. Smith and Dr. R. N. Salaman of Cambridge will deal with plant virus diseases; the head of the botanical department at Rothampsted will describe the resistance of plants to poisons; and Professor F. T. Brooks of Cambridge will read a paper on the resistance of trees to certain fungi. Several excursions in Greece have been arranged in connexion with this congress, further particulars of which may be obtained from the general secretary, Professor A. Codounis, Club Universitaire, 15, Rue Hippocrate, Athens.

PHYSIOTHERAPY IN THE TREATMENT OF INJURIES IN GENERAL AND ORTHOPAEDIC PRACTICE*

BY

E. B. M. VANCE, M.B., CH.M.SYDNEY,
M.CH.ORTH.LIVERP.

HONORARY ORTHOPAEDIC SURGEON, ROYAL SOUTH SYDNEY HOSPITAL;
HONORARY ASSISTANT ORTHOPAEDIC SURGEON, ROYAL
PRINCE ALFRED HOSPITAL, SYDNEY

The word physiotherapy should, from its derivation, mean "curing by natural means." It is a loose term—introduced by whom and when I cannot tell—meaning as yet nothing to the layman, and of too recent origin to have found its way into non-medical dictionaries. In our medical jargon it has come to denote, in addition to massage, such subjects as heat, electricity, hydrotherapy (now taught in the massage curriculum), and practised in the public hospitals and in private work by the modern masseuse.

It has become the prevailing mode with many of us to adopt a somewhat scornful attitude towards physiotherapy, taking its help for granted, and yielding it faint praise in return. This is a reaction from the boom years. In the military hospitals, during and after the war, physiotherapy reached its zenith. No equipment was then too elaborate or too costly, and there was a large body of ardent young masseuses at the service of these institutions. The large hall, the shining wood, the ladders against the wall, the capstan wheels, the weights, the pulleys, the wooden horses, the stationary bicycles, the smell and sight of electric sparks, the baths (hot and cold), whirling and bubbling—where are they now?

In spite of the army of motor-made and machine-made civilian cripples of the present day, there seems to be no strong survival of those temples of physiotherapy. Memories of them still exist in the minds of those who saw them, and when fractures are ugly and function is poor the idea then comes that attendance at one of these places might have saved all this. They have not been perpetuated because they did not achieve as much as was expected of them—and this, because they assumed the wheels, the pulleys, and the sparks could of themselves cure.

Another cause of some of the scorn is the tendency evident to those who see the inside working, to treat the massage department as a sort of dumping-ground for the rubbish of both medical and surgical practice. The vague prescription of "massage," or "radiant heat and massage," seems to engender a vague hope of cure. For the patient the warmth, the rubbing, the social atmosphere, all tend to make the situation pleasant. He likes it and comes again, and keeps on coming until he is a confirmed invalid.

Physiotherapy in the Past

In this attempt at evaluation one is forced to seek fundamentals. The search leads to H. O. Thomas—as most things orthopaedic do.

As a disciple of Thomas, I believe in the restoring of parts impaired by injury by three methods. (1) *A period of rest*: in adequate splints, uninterrupted, enforced, and prolonged until the inflammatory process of repair is nearly complete. This process involved the vascular capillarized granulation tissue being slowly converted into avascular scar tissue—and, in the case of bone, for lime to be deposited in the scar tissue—a process taking typically three weeks, but in bones and joints longer.

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Melbourne, 1935.

(2) A period of tentative use as a *test of recovery*. (3) By gradually increasing *natural use* of the part and the gradual discarding of the splint.

Take, for example, the treatment of a supracondylar fracture of the humerus. After reduction the cuff and collar, or, as Thomas called it, the gauge-halter splint, was applied, and worn without removal for three weeks. This was the adequate "rest in splint." Then the cuff was dropped a few inches and the patient allowed to use the limb in the range allowed by the splint. This was the period of the "test of recovery." If this motion were as free at the end of three days as it had been on the first day, then it had passed the test of recovery. The cuff was then dropped a few inches every few days and the patient instructed to use the hand for eating at table, for hair brushing, and other natural movements. Eventually the cuff was used on and off for a while and then discarded.

In an ideal case, and by this one means a typical case, nothing more was needed. Physiotherapy was not called for. Thomas went out of his way at times to express scorn for the gentle art altogether. He says:

"For successfully treating all degrees and phases of articular diseases the surgeon must possess an unbounded but intelligent confidence in the efficacy of rest as the foundation of treatment, and next in importance, he must accept as infallible the test of recovery. There are, in general use, other mechanical means employed for the treatment of diseased articulations; for instance, rubbing, counter-irritation, shampooing, passive motion, and electricity. To the surgeon who has mastered the principles proper to the treatment of inflamed joints these terms convey no useful meaning, as the operations which the terms imply are used with intent to secure an end which he would see they cannot possibly aid in obtaining."

What, you may ask, has a quotation dealing with *disease* of joints to do with the treatment of trauma? Disease to Thomas was dis-ease, any mal-aise, and included the inflammation of repair following injury. The problems of traumatic surgery are not wholly, but very largely, the problems of injuries about joints. For instance, Robert Jones's *Injuries to Joints* is a *vade mecum*—an almost complete handbook for the accident surgeon.

The ideal case requires nothing but adequate rest, followed by gradually increasing active motion. The ideal case is the thing to aim at. It takes for granted an ideal surgeon and an ideal patient. The ideal patient is a man of mettle, one who eagerly desires to return to work, or, alternatively, one who has to work. The ideal patient is not one who is put into the cotton-wool of sympathy or on workers' compensation. For instance, the woman of 60 with a Colles fracture, surrounded by a family of grown-up children who won't let her do a hand's turn, is not in the position to be an ideal patient. The ideal surgeon is still harder to find.

In Thomas's day and place the necessity for work on the part of the injured patient was urgent. The Liverpool dock-hand, the sailors of the sailing ships, were stark fellows. It is my belief that this helped Thomas to arrive at fundamental principles. He was dealing with primitives. In these days conditions and men are more yielding. Even Robert Jones, the pupil of the master, had to use less Spartan methods in his practice. Take, for example, the vexed question of adhesions and their treatment by passive motion. H. O. Thomas would have none of it; the joint was either unsound and had to be rested, or sound and had to be used, in spite of adhesions within or without it.

As a principle this is right, nor can we ever, now or in the future, afford to depart from it. But in practice, as Robert Jones found, the patient could be helped to overcome the resistance of an adhesion by passive manipulation under anaesthesia, with benefit to himself, to the credit of the surgeons, and with the shortening of the

period of incapacity. So, too, one finds that Sir Robert employed a masseur in his practice at 11, Nelson Street. It is true, however, that Miss Taft's time was occupied mostly with cases of scoliosis and poliomyelitis, and with flat feet and quadriceps deficiency. It is significant that for his immense practice at Liverpool only one masseur was needed.

Physiotherapy To-day

In this generation there is a softening of the conditions of life, and with the coming of the workers' compensation there arises a new clientele. Few now have the hardihood to break down their own adhesions, nor can we count on grim necessity to drive them into natural action of an injured part. Therefore we are led more and more to use those methods and contrivances called physiotherapeutic by which we cajole reluctant and hesitant limbs back to action.

To send every injured person to the massage department with a note asking for "hot air and massage" is comparable to sending every sick patient to the dispensary with a note asking for a "bottle of medicine." Either we know the powers and limitations of physiotherapy and are prepared to prescribe precisely what physiotherapy the patient needs, or we know nothing of it and should not be using it. For example, "effleurage for twenty minutes daily for a week," or "assisted active movements of shoulder girdle twice weekly for three weeks," or "exercise to strengthen foot inverters once a week with homework," constitute, to my mind, the sort of prescription which should come with the patient to the masseur. To ask for "physiotherapy" is more logical. Here one definitely hands over the case to a second person, and calls upon her to use the varied resources of her art at her discretion. This requires her having full particulars of the nature of the injury, or the operation performed, and if she be very wise, very well trained, or very well used to our own methods, the scheme may work. It might be objected that the routine "hot-air-and-massage" method seems to work in practice. The reason for this is that most cases are cured by nature whilst the patient is kept amused by the treatment.

Let us now survey the field and enumerate the resources of physiotherapy. The subdivisions are: (1) *massage*; (2) *heat*; (3) *electricity*; (4) *passive motion*; (5) *active motion*. These are well adapted to cover the ground. The last-named is the one receiving—and worthily—the most attention. It has to be split into subsections—namely, (a) muscle re-education and co-ordination, (b) occupational therapy and vocational training. Of the others, heat and electricity are comparatively modern, but they are old enough for their disappointing limitations to be apparent.

Massage

The belief in a blend of massage and passive motion as treatment for injuries has been rooted in the human race from times immemorial. Curiously, it is what the public *expects* still; it is what, as a rule, the patient *gets* when loosely ordered massage. As long as the massage is light, and the passive motion not applied to the arthritic joints, no great harm comes of it, and if money is spent for it by the public and by accident insurance companies for cases which would have done just as well without it—because it has become the regular expected routine thing to do—no great harm comes of that.

But the mischief is that, guided by the healthy athletes who relish a rub down (massage) after a game, and like it done energetically, the uninitiated judge their massage by its vigour. The tendency then is to intensify the friction and the pump-handling when dealing with a severe case. In effect this means that, under the loose system of

massage ordered in a routine way, the limb with badly paralysed muscles may fall in for heavy massage, and a joint with arthritis for passive motion—both of which are calamities. The very word massage itself (which comes from the Portuguese *massa*=dough; hence, *amasser* = to knead) seems to imply a heavy hand. And yet the Father of Medicine, Hippocrates himself, has left on record a description of massage, observing that "it loosens stiff joints and gives tone to relaxed ones," but that "it must be applied with soft hands, and in all cases delicately." Always there seems to have been, and still to be, a tendency for two divisions to form in the massage world—one the heavy rubbers, and the other the light rubbers and passive motionists.

In the Greek, and also in the Roman, world, massage formed a necessary complement to the toilet of the bath, and there were slaves who were specially trained for these duties. Apart from these there seems to have been a regular profession of rubbers competing with, and often superseding, the physicians of the period. Compare those times with these! We still have the heavy-handers in the athletic trainers and in the masseurs of the physical training institutes (to which, by the way, doctors and insurance companies still send patients for "massage"), and in some of the regularly trained masseurs; and have we not got the light-handers in others of the trained, and in those who combine passive motion with their massage—namely, the osteopaths, bone-setters, and chiropractors, who are clamouring for registration?

Its Use in Recent Injury

For recent trauma massage, in my opinion, plays a useful part, both in sprains, fractures, dislocations, and septic compound wounds. In a recent sprain early massage—effleurage and pétrissage—will expel the exudate round the torn ligament, and this is followed by the application of a pad and bandage. Early use of the limb is the next step, but though the use should involve all the adjacent joints, the affected ligament should be, by strapping, bandaging, or, for example, wedging one of the shoes, protected against fresh re-straining. Sprains treated in this way do much better than in the more common plaster-of-Paris immobilization, which gives rise to the formation of painful adhesions from the undisputed exudate.

In fractures early effleurage to the site of fracture is of the greatest comfort, and very useful. Under the influence of gentle, caressing stroking the muscles relax and lose their spasm, and the exudate—even a large haematoma—will palpably diminish in size and tenseness with twenty minutes' effleurage. After this one proceeds to reduction, with or without anaesthesia. In the splints, if one uses those of Thomas, there is always some bare flesh which is available for the gentle stroking, either as homework or at the hands of the masseuse. I do not ask or allow the masseuse to remove splints in the first three weeks of massage. I deem it my duty to do this. In dislocations early effleurage reduces the exudate and lessens the likelihood of future adhesions. Against these one takes the precaution of asking for a guarded, assisted active movement of the joint once a day in selected joints.

Its Use in Long-standing Cases

So much for recent injury treatment. In old-standing injury stiffness is the symptom which evokes, almost automatically, alas! the mental association of "hot air and massage," which, as we have seen, loosely used and loosely applied means heat, friction, and passive movement. But the stiffness may be due to *bony block*, as after imperfect reduction of an elbow, or as a result of myositis ossificans, very common in an elbow injury, or traumatic suppurative arthritis, or ankylosis.

Massage would be either useless or dangerous for any of these conditions. If oedema or skin thickening presents itself in the generalized stiffness after too prolonged or incorrectly applied immobilization, or in convalescence from compound wounds or sepsis, or from fracture, daily massage improves the circulation and reduces the thickness.

Heat

The part played by heat now comes for consideration, and here one is confronted with an endless array of methods and contrivances to reproduce and exploit that comfortable feeling which heat gives to the injured part.

It is handiest in the form of *diathermy*. This gives us penetration of heat into the tissues, and heat brings hyperaemia—which is favourable to callus formation in bone—and the absorption of excess exudate in the adjacent soft tissues, which form obstacles to muscle use later. One great advantage of it is that it can be given with the splints in position. You will no doubt hear from someone enthusiastic for diathermy a great deal more about its virtues and the cures it helps to effect in septic conditions of hands, etc.

What are called "*hot-air machines*" are appliances fitted with several incandescent lamps and metal reflectors, and provided with a thermometer. The air in the chamber becomes heated to 180° or 200° F., and the heat is very penetrating. A limb may be heated for fifteen to thirty minutes, but care is necessary to avoid overheating, especially in anaesthetic areas. In old scarring, whether superficial or deep, in indolent sluggish wounds which are not actually inflamed, in fibrositis, or in non-active arthritis, such an apparatus has a use, and is worth acquiring by any practitioner.

Hot water, rightly used, is valuable. Sponging in hot water for a prolonged time—ten to twenty minutes—overcomes spasm, increases circulation, and induces hyperaemia. In the *ultra-violet lamp* we have a method of employing heat which has a great value in rickets, and a value in Paget's disease, and is no doubt useful in traumatic work, for any case requiring heat and a general tonic effect. An arm and a leg bath for a warm *running-water* bath comes into use for bad open wounds, compound fractures, and septic cases. In the "*whirl-pool*" bath heat and gentle massage are combined.

The last two, though they have fallen into neglect, are worth reviving. *Sun bathing* and hot sand baking are available, and are used naturally by people themselves during convalescence. For a stiff hand *bathing in hot soapy water* for seven minutes three times a day is quite one of the most useful forms of hydrotherapy I know. It is "homework."

Contrast baths, by means of which one gives "gymnastics to the arterioles," form an exceedingly valuable home remedy for sluggish circulation, oedema, etc., after old injuries. Dry heat before massage, and moist heat (baths) before muscle re-education, is a good general rule to follow.

Electricity

Successive waves of high hopes of curing by applied electricity have passed across the medical world, but they have now receded, leaving behind little of great value. After galvanism and faradism there was the "static wave," and towards the end of the war came the interrupted sinusoidal currents. Now, I am informed, we are threatened with a "wireless wave."

It often happens that when fracture cases come to the orthopaedic surgeon, or to the physiotherapeutic department, the stiffness from immobilization has reached a point where cortical (voluntary) control of muscle action seems to be gone. The "wires are down" between brain and muscle. Absence of effort to use, the hurt produced by the effort to use and the consequent disuse,

joint stiffness from adhesions and consequent reflex inhibition of muscle action, have all helped to bring about this state of affairs. For such as these it seems useless to ask for muscle action. They refuse to believe they can move a muscle. The Bristow coil, which uses interrupted high-frequency faradic current, and is capable of producing *painless* muscle contractions in a most natural manner, demonstrates to this person that the muscle can still move, even without his will, and even, indeed, without his good will.

The latter is a most important point in dealing with the over-cautious laggard, who is as yet neither neuropath nor malingerer, but is capable of becoming either, according to how he is handled. This type of patient is common enough to-day among persons insured against accident. Having shown him the muscle movement, the next thing is to make his mental effort to move it coincide with the movement imparted by the machine, until he learns gradually to do it for himself. The Smart machine is, I am informed, a recent improvement on the Bristow coil. Galvanic and faradic currents are brought into use, first, for testing purposes in peripheral nerve injuries, and, secondly, for treatment of the same.

A reaction of degeneration seems to me only to confirm what one already knows by clinical observations. Its presence gives us no clue as to whether recovery can or cannot take place.

For example, I was recently called upon to treat a case in which there had been operative traction on the fifth and sixth cervical nerve roots. The arm was splinted in an abduction arm splint—the report from the physiotherapist stated: "R.D. present." No electrical stimulation was given. In ten weeks no recovery was present; in the eleventh week recovery began, and was eventually complete.

Faradic testing remains as a standby in separating organic from functional nerve lesions. Galvanic stimulation is asked for in post-operative treatment of nerve suture, provided the paralysed muscle can be stimulated without the current affecting the non-paralysed muscles. It is very useful, for example, in keeping the interosseus from wasting too much whilst awaiting the repair of an ulnar nerve lesion. Of the use of painful stimulation by faradic current in functional disabilities, one may say that in skilful hands it prepares the ground for the psychotherapist—who does the real work. For malingering it has a distinct use, as, too, has the cold needle douche.

Passive Movement

This is the most difficult and most dangerous of all physiotherapeutic measures. The case in which it is used and does no harm would have got better with natural use or active exercises. In the cases in which it is used unwisely it produces calamitous results. Should it not be removed from physiotherapy and put into surgery? It calls for the greatest certainty of diagnosis before it can be used. The pitfall consists in moving the not yet sufficiently recovered articulation (which Thomas's test of recovery would have enabled us to detect).

Take, for example, the case of the elbow injury already quoted, this time imagining a Y-fracture into the joint. To subject this joint to early passive motion—that is, to assume that the early stiffness requires overcoming by "pump-handling" the joints—is to run the risk of ruining it. The masseuse succeeds on each of the first few days in getting, carefully, nearly full extension, but as the days go on the range of movement, instead of gradually increasing, becomes gradually less, and the movement itself hurts more and more. The masseuse, anxious to earn her fee by her zeal, redoubles the effort to "get more movement." The granulation tissue had not, when the movement began, reached the necessary stage of avascularity. Movement caused fresh exudate

of plastic lymph, which, by the following day, was beginning to organize its own system of capillary loops. The articulating surfaces become glued together entirely by this new, and renewed, exudate. A final effort to move the joint produces avulsion of the articulating cartilages and the ruin is complete. The final stage, one admits, is not usually accomplished until an anaesthetic is given and the joint forcibly moved "to break down the adhesions," and this, of course, is *not* done by the masseuse.

To avoid such ills one should remember, first, to put back to rest any joint whose range of allowed natural motion is decreasing, and, secondly, never to manipulate under anaesthesia any joint which has little or no free movement in it. Post-traumatic adhesions are apt to follow sprains, fractures, and dislocations, etc. "They suggest, but do not always imply, defective treatment." One prevents them, if possible, by one movement once a day. One deals with them after formation by *assisted active movements*—that is, they should be stretched as much as possible with an active movement, to which is then added a modicum of passive stretching. After three months they are best dealt with by manipulation under anaesthesia, and therefore do not belong to the domain of physiotherapy, though the masseuse will be called upon for the after-treatment of putting the patient through the full range of movement for several days after the operation of manipulation.

Active Motion

In this lies the sap of the matter of physiotherapy. It is only active motion that restores function to a part. Active motion calls for voluntary effort. No massage, no heat, and no machines can, from the outside, bring back active motion. That is why the post-war temples of physiotherapy collapsed, and that is why it is unnecessary to spend much money on elaborate equipment. The secret is, it is *muscles* that matter. Bones and joints exist only as the servants of muscle. Life itself is only expressed by motion, and muscles produce motion.

When a limb is injured in any but the most trivial way there is some affection, some wasting of muscles. There may be direct muscle injury, or interference with its blood supply or with its innervation. The wasting may be a reflex from some remote injury or from disuse alone. But whatever the cause these wasted muscles have less strength and respond more slowly to impulses than their less wasted fellows. The skill of the physiotherapist is here required to get the least possible interruption of function whilst repair is taking place. The splint imposes certain restrictions, but all movements not restricted by the splints should be encouraged. The earlier function is resumed the better the chance of complete recovery.

Let us compare the results in Colles's fracture. In one case the fracture has been treated in a splint coming well up on to the palm, and the patient has had no advice or incentive to move the fingers. The other has had splints applied to the forearm (but leaving the hand free), and has been told to peel a potato on the fifth day. Five or nine months is the period of disability of the former, as many weeks that of the latter.

Muscle Re-education

The principles of muscle re-education are the same for traumatic cases as they are for poliomyelitis. It is only a question of amount and degree. There is the posturing by a splint, to favour the weak muscle and check the action of its antagonist; there is the giving the muscle a minimal task; and there is the gradual daily increment of work. It demands an intimate acquaintance with each and every muscle and its action.

It was Colin Mackenzie, in this city of Melbourne, who first accomplished the task of working out for each muscle

Protected by Copyright
Downloaded from <http://www.bmj.com/>
April 19, 2024
BY GUEST

one, and only one, definite action. By his comparative anatomy studies of the Australian fauna he enriched our knowledge of the evolutionary history of the muscles, and first worked on the lines of restoring weak muscles by making them climb the ladder of evolution again, from the horizontal to the upright position. This is an art difficult to acquire and difficult to teach, and those who possess it require designation by some other name than "masseuse": they are more than kneaders. My preference would go to the word "myologist" as a name. The equipment required would be a warm room, a table, a few pillows, and a polished board. She would look at the case from the point of view mainly of function.

As a sample of her work let us watch her methods of dealing with, say, a musculo-spiral nerve palsy. The patient is, of course, wearing a cock-up wrist splint. This has been taken off. Muscle re-education starts with the hand in full supination. As soon as the extension of the wrist can contract in this position pronation is added until the mid-position is reached, the last stage being accomplished when the contraction can take place in full pronation. If you want to form an idea of whether you have got the right sort of person to help you, watch her at her work on a weak hand and see if she exercises the lumbricals and the interossei, the finger flexors, and the finger extensors adequately and correctly.

Re-education of the grip is best done by training the flexors (sublimis and profundus) to contract as if in gripping a golf club—that is, with the metacarpo-phalangeal joints extended. The lumbricals are trained by flexing these joints while the interphalangeal joints are kept extended. The long extensors of the fingers, which according to Mackenzie act only on the metacarpo-phalangeal joints, are trained by flexing and extending these joints while the interphalangeal joints are kept flexed. The interossei are dealt with by alternately flexing and extending the interphalangeal joints while the metacarpo-phalangeal joints are kept fully flexed. Both these actions are taught first in supination and then in pronation. The lateral movements of the phalanges are best taught by fixing posterior splints lightly over the dorsum of the fingers. The hand is then placed flat on a smooth board, and abduction and adduction are practised. This is the kind of work—active motion—which would diminish greatly our annual crop of stiff hands.

Along with the particular work on particular muscles is the need of keeping alive the sense of co-ordination in the adjacent uninjured muscles and joints. In other words, when working on a hand one thinks of the elbow and shoulder. In old cases, the cases the orthopaedic surgeon sees, the whole limb may be stiff and useless just because the hand is affected, and the effort to bring it back requires encouragement of the shoulder action first, then elbow action second, the principle being to commence on the coarse movements and proceed to the finer.

In foot and back injuries and their sequelae one finds a disturbance of balance in weight-bearing as a painful disability. For example, a strained sacro-iliac joint causes protective muscle spasm of the erector spinae, the glutei, and the hamstrings on the affected side, with elongation of the muscles of the opposite side. To prevent this occurring, or to help correct it when established, we employ remedial exercises. This, in orthopaedic practice, is a highly important and technical branch of the work. It and muscle re-education occupy most of the time of the modern masseuse, or shall we call her "myologist," or "physiotherapist"?

Occupational Therapy

For all but the ideal patient occupational therapy has a definite and large part to play. Its importance in industrial accident and workers' compensation cases can-

not be overestimated. It is the post-war application of the war-time lesson of the "curative workshop." Even the best of us is the better for objective work during convalescence from an injury, something to throw the interest from the hurt limb (which interest has been maintained by splinting, exercises, and what not) into some outside object, in the making of which the hurt limb has to be used—however clumsily. Raffia work, clay modelling, rug making, chair caning, leather work, wood carving, and book binding, to name but a few on the list, are avenues which open up interest, demand bilateral manipulation (a great help), and hold the interest by the joy of creation.

It is rather too much to ask the already overburdened masseuse to be a multi-craftswoman, but she can point the way to this avenue. In practice the advice to a person with stiff fingers to buy a pound of putty or modelling clay and, after working it up, make a simple thing, such as an ash-tray, generally succeeds in arousing interest. For its proper development this branch should be under the control of a specially trained exponent of the art of occupational therapy. In a large accident hospital there should be such a person, and a sub-branch of it should have to do with vocational training for new jobs for persons unable by the nature of their injury to pursue their old work.

Conclusion

This ends my description of the subject as it appears to me. Reviewing the subject of our discussion, my findings are: first, that the essential processes of repair after injury take place independently of any of the artifices of physiotherapy, and, secondly, that the true role of physiotherapy in the treatment of injuries is to help the hesitant to help themselves.

PHYSIOTHERAPY IN THE TREATMENT OF INJURIES IN ORTHOPAEDIC PRACTICE *

BY

S. A. S. MALKIN, M.B., B.S., F.R.C.S.ED.
SURGEON IN CHARGE, HARLOW WOOD ORTHOPAEDIC HOSPITAL,
NOTTINGHAM

In discussing the role of physiotherapy in the treatment of injuries in orthopaedic practice, it is impossible in a short space to do much more than deal with the subject in general terms.

If an unbiased observer could visit unselected hospitals in Great Britain and Europe he would find that among surgeons there exist two opposed—though not diametrically opposed—schools of thought. Taking the treatment of fractures as an example, there are, on the one hand, those who believe that with adequate fixation and a little simple instruction and encouragement a patient who has sustained an ordinary or simple fracture should be able to perform for himself all that physiotherapy could do. On the other hand, there are those who believe that physiotherapy is so important in the treatment of fractures that the sooner it is begun the better, for only so can unnecessary stiffness be prevented and a speedy return to the normal be ensured.

It would seem, therefore, that in this, as in most matters, the middle course is probably the correct one, and that while physiotherapy in its widest sense is of value in the treatment of some injuries and some fractures, it must be used, not as a routine, but with discretion after considering the individual needs of each case.

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Melbourne, 1935.

Dr. Med. J. first published as 10.1136/bmj.1.3914.53 on 11 January 1936. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.