upon a sound scientific basis, and we know far more about it now than any bone-setter has ever known. The most striking thing about it is its extreme simplicity. There is no complicated pathology attached to manipulative surgery. The greater part of it is concerned with the simple inflammatory reaction of living tissues to injury—the first thing that we learn when we begin to study medicine—which, in various parts of the body, leads to fibrosis or adhesions in ligaments or muscles, limiting movements of joints, and causing pain when movements are attempted. Manipulation consists merely in moving a joint forcibly through its full range of movement. I would emphasize the point that manipulation in general requires the use of great force, and that the art of manipulation consists of applying great force effectively *and safely*. Tweaking joints is no part of manipulative surgery.

Frankly, I do not think that the bone-setter abused manipulation so much as some people would like to make out. The genuine British bone-setter, now almost a figure of the past, was for the most part an honest fellow, who did work which nobody else would do, and believed in his work and was largely justified in his belief by the results he obtained. Being entirely without medical or surgical training he could not make an exact diagnosis, and it is not surprising that occasionally he met with disaster. But that, I am charitable enough to believe, was his misfortune rather than his fault.

Osteopathy and Chiropractic

I should like to stop now; but no account of the abuse of manipulative surgery would be complete without some mention of those American stunts which go by the names of osteopathy and chiropractic. It is little more than sixty years since an obscure American physician called Still announced that it had been revealed to him by God that practically all diseases are due to slight displacements of the spine, which produce pressure on the blood vessels in the intervertebral foramina, and so cause disease in various parts of the body. He devised a series of manipulations which had for their avowed object the replacement or "adjustment" of these so-called spinal lesions; by these manipulations, it was claimed, the pressure on the blood vessels was relieved, and the diseases resulting therefrom were cured. He called this treatment osteopathy, and osteopathy it is.

Do not let anyone deceive you by explaining that this is ancient history, and that the "modern osteopath"—whatever that may mean—is a more enlightened fellow who has become, in fact, a "manipulative surgeon." This is not true. It is true that the osteopath has shifted his ground again and again as one after another of his claims has been shown to be absolutely devoid of any scientific foundation. Pressure on the blood vessels in the intervertebral foramina gave way to "congestion," and then to "interference with the autonomic nervous system," and latterly an attempt has been made to identify the imaginary "osteopathic lesion" with the chronic back strain which we know so well. In treatment, too, the osteopath has shifted or extended his ground in that he may employ local treatment in addition to, but not as a substitute for, the spinal "adjustments" which are the essential basis of osteopathic treatment. I need hardly remind you of the impudent attempt which was made a year ago to establish by law a virtual monopoly of manipulative surgery for osteopaths in this country. Osteopathy has nothing whatever to do with manipulative surgery. It is an American "stunt" based on the unsupported assertion that practically all diseases are due to imaginary displacements of the spine. It has been investigated up to the hilt, and it has been found wanting.

About twenty years after Still another obscure American called Palmer, without any medical qualifications,

announced that he had made the "discovery" that 95 per cent. of all diseases are due, not to pressure on the blood vessels at all, but to pressure on the nerves of the intervertebral foramina, brought about by the same imaginary displacements or "lesions" of the spine. He employed manipulations similar to those of Still, but he called his system of treatment chiropractic. This rival venture proved even more successful than its prototype, judging from the fact that there are far more chiropractors than osteopaths in the United States and Canada. There is little to choose between them, but it is the osteopaths particularly, with their more pretentious claims, who have tried to establish themselves in this country. It is up to orthopaedic surgeons to see that these confidence tricks are exposed, and to ensure that the proper use of manipulation in surgery is taught and practised in all our teaching hospitals.

TREATMENT OF CHRONIC RHEUMATISM*

BY

H. LETHEBY TIDY, M.D., F.R.C.P.

PHYSICIAN, ST. THOMAS'S HOSPITAL

I shall assume that there are three clinical groups included in the term "chronic rheumatism"—namely, rheumatoid arthritis, osteo-arthritis, and fibrositis. I shall also assume that the term does not include acute rheumatic fever, or arthritis associated with specific infections such as gonorrhoea, or associated with gout, organic nervous diseases, or with certain other obvious factors such as haemophilia. I shall not further define the subject of our discussion, and shall proceed to review the various methods of treatment which are available.

Presence of a Septic Focus

All cases should be carefully examined for a septic focus, and when such is found it should receive the appropriate treatment. The opinion of the dental surgeon should be followed, but indiscriminate extraction of teeth, which is usually contrary to his advice, should be discouraged. These steps constitute the routine procedure in the treatment of most chronic conditions. But I do not agree with those who consider there is sufficient evidence for the view that bacterial action is the invariable cause of chronic rheumatism, and, in the absence of anything more definite, will accept as the cause some organism which is isolated from the stools and possesses slightly irregular sugar reactions.

Vaccines.—Those who hold that vaccine therapy is the correct treatment for chronic sepsis are justified in employing it when a definite focus is identified. But there is no justification for the routine use of vaccines in chronic rheumatism. We know that sepsis will disturb a diabetic regime, but it is not suggested that vaccines are a treatment for diabetes. No evidence that is satisfactory, or even nearly satisfactory, has been produced in support of the use of vaccines in chronic rheumatism within the definition of our discussion. It is particularly illogical to employ in chronic rheumatism irregular methods of vaccine therapy which have no support in general use.

Drugs and Diet

Analgesics such as aspirin may relieve aching, especially in fibrositis, though failure is frequent. Many an osteo-arthritic has faith in iodine and in "Chelsea pensioner" for easing pain. Gold is the only drug for which a specific effect can be claimed, and its use is

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Oxford, 1936.

limited to rheumatoid arthritis. Its introduction is due to the French view that rheumatoid arthritis is tuberculous in origin, a theory which is not accepted in this country.

I have seen several cases in which there was undoubted improvement during a course of gold injections. But results are difficult to evaluate in a condition which is liable to exacerbations and remissions, and further study is necessary before its value can be accepted as established. There is a distinct risk of producing a serious form of dermatitis by its use. During a course of gold injections the local care of the joints must not be omitted.

Chronic rheumatism may develop in association with or at an age when hypothyroidism is common and the general condition will benefit from the administration of thyroid, but there is no reason to ascribe any specific action to thyroid. With regard to hyperthyroidism, Dr. Gardiner-Hill has examined extensive material and finds no evidence that it is associated with any type of chronic rheumatism.

Local treatment with drugs is almost confined to the analgesic action of methyl salicylate in rheumatoid arthritis, to Scott's dressing in osteo-arthritis, and to other similar measures. In certain types of fibrositis pain may be relieved by injections of saline or of such substances as quinine urea hydrochloride.

Diet.—There are few principles of any value, in spite of the firm belief of the public in a diet chart. The diet should be well-balanced and contain a sufficiency of vitamin. Patients with rheumatoid arthritis are often thin, and fat appears to be indicated, but increase in weight is more often associated with a remission of symptoms than attributable to the diet. In obese osteo-arthritic subjects weight should be reduced by systematic dieting. Sufferers from fibrositis know that an attack will be precipitated by special articles of diet, such as malt liquors.

Local and Physical Treatment

In rheumatoid arthritis absolute rest in bed is essential while there is pyrexia and the joints present the appearance of acute inflammation. Vincent Coates' phrase may be recalled: "The treatment of every case is orthopaedic from the start." The object is to prevent or control the development of deformities and adhesions. The joints must be placed in splints and in the positions opposed to those deformities which are known to develop. The splint must be taken away and each joint moved daily. The object of this is to prevent adhesions and not for the benefit of the muscles. A single movement in each direction is thus sufficient, and the repetition which is often encouraged is inadvisable. It is essential that the joint should not bear weight during the movement, nor indeed should an inflamed joint bear weight at any time. Active movement is better than passive, especially if contractures have already developed, since it is less apt to cause injury to the joint in the early stages of treatment.

Heat is indicated in all forms of chronic rheumatism. It tends to relieve pain and stiffness of the muscles, to improve the capillary circulation, and to promote the resolution of inflammation and effusions. It may be applied locally or by electrical and balneological methods. For rheumatoid arthritis radiant heat lamps are the simplest method.

Massage is a valuable part of treatment in most forms of chronic rheumatism. It is especially helpful in fibrositis, as it assists in dispersing nodules and adhesions in muscles and deep tissues before these become organized. It also improves circulation and muscular tone, and thus is of value when muscles are tending to waste and atrophy, but it cannot affect adhesions involving joint tissues.

Movements

Movements exercise the muscles and militate against adhesions and diminished mobility of joints. They are an integral part of the treatment of practically all types of chronic rheumatism at some stage. It should be emphasized that no joint should be moved while it is bearing weight, or at least that the weight should be reduced to a minimum. In osteo-arthritis movements are best employed in conjunction with balneotherapy. If pain comes on during movements or exercise it is evidence that the movements have been excessive, and the same is probably true of pain developing at night. But pain on movement after a joint has been at rest is no contra-indication to the use of movement in treatment.

Massage, movements, and all methods of physical treatment and balneotherapy should be under the direction and sufficient supervision of a medical man. There can be little doubt that the degree of massage, for example, is at times excessive. Unfortunately few medical men have the necessary knowledge and training, a defect which, it is hoped, will be remedied in the next medical generation.

Electrical Treatment and Radiation

There are numerous methods of administering electrical treatment and radiation. Many are convenient for applying heat, with the undeniable result of relieving pain, though, unfortunately, this is often only temporary: such is the effect of radiant heat or electric light in rheumatoid arthritis or infra-red light in osteo-arthritis. Diathermy heats the deep tissues, but it may be doubted if it has any advantage over other methods except in rapidity and for osteo-arthritis of the hip. It is not devoid of undesirable after-effects, and its value has been over-estimated; indeed, exaggerated claims have been made for the results of many methods. I can find no satisfactory evidence of any benefit from ionization or deep x-ray therapy.

The faradic current is of great value in the intramuscular forms of fibrositis, the muscular contractions produced dispersing and removing nodules and adhesions. It also aids the control of muscular wasting in all forms of chronic rheumatism.

Balneotherapy, Mineral Waters, and Spa Treatment

The value of treatment at spas has been recognized almost from the beginning of history. For many hundreds of years a spa depended on the reputation of its "cures," and no attempt was made to explain how the waters or medium acted.

About eighty years ago lengthy analyses of spa waters began to appear, patients being left to draw their own conclusions. Later, the results of much so-called research were published, few of them fulfilling the canons of scientific evidence and research. The aim appears to be to prove that the good results of a certain spa are due to the presence of some substance or quality in its waters which is absent from the waters of other spas. The unprejudiced observer can feel little doubt that many spas with widely different waters and surroundings produce approximately similar results. Unless something more definite, or, alternatively something common to many spas, can be produced with scientific support, the profession and public may decide that the various claims cancel out, and that the maximum benefit from treatment can be obtained without visiting a spa.

External Uses of Spa Waters

There is no evidence that there is any appreciable absorption by the skin of the ingredients of any medium used for "baths," either water, peat, or other varieties

of mud. Those who claim that the result of any balneological or spa treatment is due to such absorption have the burden of proof laid on them.

Beneficial results, therefore, depend on physical qualities and effects, such as temperature, specific gravity, consistency, and percussion. The action may be, first, mechanical. The weight on the joints is reduced and movements of weakened muscles are thus aided. This is a very important action. Secondly, it may be thermal. A warm medium will raise the temperature of the skin and increase the rate of peripheral circulation. Together with the mechanical action, this may greatly relieve pain and at the same time assist movement. Peat and mud baths combine mechanical and thermal effects to a greater extent than water, and the deep mud pools are of special value in osteo-arthritis and fibrositis. A cold medium is stimulating, as everyone appreciates from sea-bathing, but it has little part in the treatment of chronic rheumatism.

Thirdly, there is the percussion effect. This may combine the good results of heat, massage, and movements, as is shown in whirlpool baths. The same result may be achieved by the massage douche, performed with various types of needle baths and jet douches. The physical action may have some physiological effects on the kidney and cardiovascular system, but there is little evidence that balneological treatment directed against chronic rheumatism achieves appreciable results of this kind, and exaggerated claims have often been made in the past.

The effects here described are those of balneotherapy, and the treatment can be made available anywhere. In the past such substitutes for spas have too often been

incomplete and on an unsatisfactory basis, by reason of the large financial outlay involved, but there is no reason why they should continue to be so.

All spa and most balneological treatment is influenced by the length of time devoted to it. Patients desire the maximum effect in the minimum of time and look for intensive treatment. They would possibly do better if they arrived at the maximum effect in the maximum time, but duration is largely controlled by the purse and by opportunity, and partly by the mental outlook of the patient. Experience has led to general agreement that a course of treatment should not exceed a few weeks, and that longer periods cause debility. But the course can be repeated after an interval.

The question of the value of the internal use of spa and medicinal waters is a thorny one. Reports of so-called researches, often widely disseminated through the post, have in the past been little more than advertising propaganda. So far as chronic rheumatism is concerned, there is at present no satisfactory evidence of any special beneficial effect, even in the presence of radio-activity. Of course the general health of many individuals will benefit from a period under a regulated regime.

Indications and Contraindications.—Balneotherapy and spa treatment for chronic rheumatism are contraindicated in advanced diseases of the heart, lungs, and kidneys, and in all conditions of severe debility. In rheumatoid arthritis simple hot-water baths aid movements at joints and help to relieve pain, but other balneological treatment in general is contraindicated. Balneotherapy is of special value in osteo-arthritis and in the intramuscular forms of fibrositis.

FACTORS PREDISPOSING TO RESPIRATORY DISEASE IN THE PRE-SCHOOL CHILD*

BY

A. DOYNE BELL, M.A., B.M., M.R.C.P.
PHYSICIAN TO OUT-PATIENTS, BELGRAVE CHILDREN'S HOSPITAL;
CHIEF ASSISTANT, CHILDREN'S DEPARTMENT, ST. THOMAS'S
HOSPITAL

In preventive medicine a study of predisposing factors is clearly of primary importance. In such study lies the best hope of controlling and preventing overt disease.

Thirty years ago, when the rate of infant mortality was about 140 per thousand, infective disease of the digestive tract headed the list of causes of this high death rate. But to-day, largely as a result of intelligent prevention of the underlying causes of diarrhoeal diseases, the rate of mortality has fallen to about 60 per thousand, and the list of causes, now much reduced, is headed by infections of the respiratory tract. This high incidence of fatal respiratory disease is even more marked in children over the age of 1 year. Thus, if we take a ten years' average from 1923 to 1933 of deaths in the County of London of children between the ages of 1 and 2, we find the total rate to be 18.7 per thousand living, of which measles, whooping-cough and pneumonia combine to provide 12.32 per thousand living, or over 60 per cent. of the total deaths. The battle front against mortality in the pre-school child has shifted from the digestive to the respiratory tract.

Peculiarities of Respiratory Disease in the Child

I

The respiratory mechanism has to start work quite suddenly within a few minutes of the moment of birth. In this respect it differs from almost all the other systems of the human organism. It is true that the circulation under-

goes profound modification shortly after birth. The digestive tract also will, in the ensuing days, have new experiences to undergo; the skin will suffer new insults. But in all these organs the change is gradual as compared with that with which the respiratory tract is confronted. Nature seems to prefer curves to angles, evolution to revolution, and, although in fact the changes which occur in the lungs are now known not to be quite so rapid as they were once thought to be, still they are sufficiently revolutionary to throw a temporary strain on the respiratory mechanism.

II

This rather abrupt introduction to its life's work may account for a peculiarity of the respiratory tract in young children which I want to take as my second point—namely, its liability to infection. Respiratory disease, and especially infective disease, has a very high incidence in the first two or three years of life. A sharp decrease in this incidence occurs between the ages of 3 and 4 years.

III

Accompanying this high incidence is a high virulence. The severity of infectious respiratory disease is much greater in the first three years than it is later. An organism which causes quite a benign infection in an adult may be responsible for a very severe or even fatal infection in an infant. After the age of 3 or 4 is passed, respiratory disease, both in its course and in its sequelae, approximates much more to the adult type. This is in part due to the great relative growth of the respiratory organs which has taken place, in part to the greater measure of immunity which the child has acquired, and in part to the increased stability which the older child possesses.

IV

This question of the relative instability of the infant is important in this connexion. Perhaps one of the most obviously unstable things about an infant is its heat-

* Lecture given to the Maternity and Child Welfare Group of the Society of Medical Officers of Health on May 15th, 1936, at St. Thomas's Hospital.