guide us in treating individuals after an exhausting illness. We have, however, in addition, to consider the mental condition of the soldier whose experiences have depressed his mental faculties, and who has been told he has some heart trouble. This knowledge always tends to depress, and to make them extremely amenable to that form of treatment that is the worst for them—rest in bed or the avoidance of exertion. If we recognize that such cardiac phenomena as murmurs, increase in size, and variability of rate are but the experiences of an irritated heart, we shall see that too much rest is not beneficial. Every organ benefits by the judicious exercise of its functions, and the heart can also be beneficially stimulated.

The principles of treatment, then, should be devoted to increasing the health of the body as a whole in such a way as to increase the natural resistance to infection, to eliminate toxic influences, and brace up the whole man bodily and mentally. The best way to achieve this is by fresh air and judicious exercise in the fresh air. I need not labour the fresh air idea as it is evident to all, but I want to emphasize the question of exercise.

There is a notion deeply rooted that if there is anything wrong with the heart the patient must be restricted in the amount of effort, and medical men who are themselves afflicted are quite content to lie in bed or move gingerly about.

The line I have adopted with those soldiers who have consulted me is that which I have adopted in civil life. All those I have seen have already been told that their hearts were affected, and this knowledge tended to depress. They often feel miserable, so that there is a mental side to the case, which is aggravated by the supposition that there is something amiss with the heart. This aspect of the case has to be met, and consequently in our treatment this view has to be kept in mind.

When all fever has subsided, or when there is but an occasional rise of temperature, I encourage the patient to get up and go about. I find out the form of outdoor exercise which gives him most pleasure. In my private practice my patients have been officers, so I recommend them to start as soon as possible any form of sport or game which they can get—fishing, riding, shooting, golf, etc.

In recommending such exercise I have two objects in view. The first is the mental condition of the patient, and I need not insist upon the beneficial effects of occupation. The more interesting that is, the more likely is the patient to be taken out of himself. I have referred to the fact that the sense of exhaustion is the predominant symptom in these cases, and that it is probably vasomotor in origin, due to the irritation of the central nervous system. We know that the mental state may play a part in producing exhaustion, for we find that a boring form of exercise will readily produce it, while a form of exercise that is full of interest can be borne for long periods without any exhaustion. Therefore, this out-of-door occupation should be in an attractive form.

In recommending effort, I know it will be said that there is danger in this, just as there was when the soldier was employed in his military duties, particularly when such physical signs as murmurs and dilatation are present. If the true nature of these signs be recognized—that they are but the expression of a temporary enfeeblement of the heart muscle, and that the same measure for restoring a flabby leg muscle applies to a flabby heart muscle—we shall see the importance of exercise judiciously employed. No doubt injudicious exercise may do harm, but there is one precaution of a very simple kind which suffices to prevent any danger, and that is to instruct the patient to indulge in his exercise so long as it gives him pleasure and causes no distress nor discomfort, but to stop or slow down as soon as he experiences the sense of exhaustion, breathlessness, or pain.

This simple and easily comprehended dictum contains in it the whole philosophy of the therapeutics of exercise as applied to the heart, and may be used with safety in all obscure and doubtful conditions of heart weakness.

It will, however, be said that it is all well and good for officers who can afford such means of pleasurable occupation, but what about the private soldier cooped up in the wards? It is for him I wish to prescribe. I used the officer to illustrate the principle so that I may strongly urge that the same principles should be applied to the

treatment of the private. If the officer is depressed and makes but slow progress in his comfortable quarters, what of the private soldier in the gloomy wards, meditating on his troubles, or grouching with his fellows, with an occasional joy-ride in a motor-car? I want this argument for congenial exercise to be fully considered, not only for the pleasure of the sick man, but so that the soldier may speedily regain his health and return the sooner to his duties.

I know that already in convalescent camps the aim of interesting occupation with fresh air is being carried out, and I recommend the same principle to be applied in the so-called heart cases. But in these exhaustion may arise too soon for the participation in mechanical occupation, and I would recommend that the same sort of mental stimulus which has been found beneficial in the officer should be employed—that is to say, games. Games absorb the attention and infuse a different spirit from any other kind of employment, and a selection of some games, as bowling, or quoits, or skittles, would add materially to our therapeutic resources.

As a practical outcome of these suggestions, I would recommend that the Government should provide a large hospital for the reception of soldiers who are supposed to be suffering from a heart affection; that these principles of treatment I have detailed should be employed for the recognition of the nature of the complaint, and the principles of treatment here recommended should be carried out.

As soon as signs of improvement are shown, the soldier should begin drilling—at first for a short time each day; and, as improvement goes on, the time increased until he was able to undertake a normal amount. In this way his preparation for fitness would begin early, and he would be rendered fit much sooner than under the present method of treatment.

I would also suggest that this view of the nature of the soldier's heart should be communicated to the medical officers, in order that the diagnosis should be in conformity with the actual condition, and in this way prevent the grievous injury that is done to the sick soldier by implanting in his mind the depressing idea that he suffers from an affection of the heart.

THE IRRITABLE HEART OF SOLDIERS.*

BY

R. McN. WILSON, M.B., CH.B. GLASG.

IN the course of my work as assistant to Sir James Mackenzie, in the inquiry conducted for the Medical Research Committee, I have examined upwards of 200 cases of the condition known as "the irritable heart of soldiers." Careful study of these cases has brought me to the same conclusions as those enunciated by Sir James Mackenzie. I have met what I can only regard as a definite clinical picture, sharply defined and differentiated. The cardinal symptoms he has indicated—great exhaustion after effort; breathlessness on slight exertion; a rapid pulse, which becomes much more rapid upon the slightest attempt at action; pain over the precordial region or along the left costal margin; and a vasomotor condition of greater or less stability—have been present in all my series. I have observed also the tendency to attacks of giddiness to which he drew your attention, the nervous symptoms, the generally high blood pressure, and the tendency to persistence of the condition so long as the soldier is kept confined to his bed.

I propose, therefore, to confine myself to a consideration of the history of the condition, and shall include under this heading the various theories regarding causation that have at one time or another been advanced.

In 1864 the British Government appointed a committee to inquire into the heart conditions prevailing in the army. The committee was assembled by Earl De Grey, and consisted of three generals and two doctors. It sat during the years 1864, 1865, 1866, 1867 and 1868, and issued four reports. In the last the question of infantry accoutrements was considered, and a recommendation was made that the

* Read at a meeting of the Section of Therapeutics of the Royal Society of Medicine.

principle of the brace should be adopted. The idea was that the old form of accoutrement restricted the heart's action. The committee described the condition of irritable heart, which it seems to have recognized clearly as "an extreme excitability of the heart, combined with some, but not great, enlargement. During rest a heart of this kind beats easily, but on the least exertion its action becomes irregular, and the man becomes breathless." The recommendation of the committee regarding the change of accoutrement was later on adopted.

The American Civil War meanwhile was furnishing a large number of cases of "soldier's heart," and in 1864 Henry Harthorne published a paper in the *American Journal of Medical Science* which, I venture to say, furnishes an exact picture of the condition as Sir James Mackenzie has described it to-day. Dr. Harthorne laid stress on the rapidity of the pulse, on the acceleration of the heart's movements on the slightest exertion, on the shortness of breath, and on the cardiac muscular weakness. He suggested that in the soldier the heart was injuriously affected by long-continued over-exertion with deficiency of rest and often of nourishment, and he pointed out that several months of rest and treatment in hospital failed to do more than improve without really curing a large proportion of well-marked cases.

Two causes had thus been suggested so far back as 1864—tight accoutrements and over-exertion. The tight accoutrements were done away with, but the irritable heart remained. I pass over here the contribution to the subject made by Dr. Arthur Myers, of the Coldstream Guards, in 1870, because his description is similar to that already given, and because he also regarded accoutrements as the exciting cause of the trouble. But I must call attention specially to the paper of Da Costa published in 1871 in the *American Journal of Medical Science*. It is the best known contribution to the subject. Da Costa saw upwards of 300 cases in a hospital in Philadelphia, and he affords the following striking picture:

A man, three months or so on active service, was seized with diarrhoea, annoying yet not severe, soon rejoined, and then noticed that he could not bear exertion as well as formerly. Out of breath and unable to keep up with his comrades; dizziness and palpitation; accoutrements oppressed him, yet otherwise he seemed well and healthy. Sought advice; was sent to hospital, where his persistent quick heart confirmed his story. Digestive disturbances, if present, passed away, but the irritable condition of the heart remained, and only very slowly did this get normal or it failed to do so.

Da Costa then proceeded to paint the same picture as that which has been shown to-day by Sir James Mackenzie. He mentioned, however, that he had noted that intercurrent attacks of fever caused the pulse to become less and not more irritable, and to slow down while the attacks lasted.

In 1876 a new phase of the subject was presented when, the change in form of accoutrement having failed signally to effect any improvement, Surgeon Arthur Davy suggested that what he called "setting up" drill was the cause. His theory was ingenious. Setting-up drill, he said, by over-expanding the chest, caused dilatation of the heart and so induced irritability. This view found support in 1880 from Brigade-Surgeon Veale, and again in 1896 from Surgeon-Captain J. B. Wilson, but the discontinuance of setting-up drill does not seem to have put an end to the condition. On the contrary, I have met it in cases in which this cause could be absolutely excluded, the patients having undergone little or no drill.

The theorists, therefore, are bankrupt; the disease remains. More recently we have been asked to view it from the bacteriological standpoint, and more recently still as a condition depending upon faulty action or excessive action of the thyroid gland. I am not in a position to discuss these views, but it is interesting to note in this latter connexion that I have observed that in some eighteen of my cases the thyroid gland was definitely enlarged, and that administration of thyroid extract seemed to exacerbate the symptoms. The application of *x* rays to the thyroid gland is said to have effected improvement in some cases. Let me say, however, that I have seen cases presenting very much the same clinical picture in which the administration of *x* rays did not help matters at all.

In view of the dangers which have attended the making of theories to explain this disease in the past, I am

strongly of opinion that we must preserve an open mind. There would appear to be but one sound method in regard to the condition—the method of prolonged observation and continuous study. Many tempting views suggest themselves, but few stand the test of further investigation.

On the other hand, a few facts seem to have emerged. One of these is that a cheerful atmosphere confers benefit, and a depressing atmosphere exaggerates the condition. The patients are always better when their minds are enlisted in some more or less congenial occupation.

A NOTE ON CERTAIN OF THE VASCULAR PHENOMENA OF CARDIAC DISEASE.

BY

BASIL PARSONS-SMITH, M.D.

THAT considerable importance should invariably be attached to a complete investigation of the blood vessels in all cases of heart disease has long been maintained, and, particularly from the point of view of prognosis, with obvious advantage, for the circulatory mechanism, in its dual constitution of heart and blood vessels, needs a careful and complete study if anything approaching accuracy in the forecast is to be obtained.

Whilst, therefore, every cardiac case that comes before us must undergo a minute examination of the heart itself, its size, rhythm, sounds, etc., our responsibilities do not stop there: we must go further and undertake a rather more generalized study of each particular patient, inquire into the condition of the kidneys and their excretive powers, form some opinion as to the condition of the arterial walls, estimate the blood pressure and pulse tension, and glean additional information from various of the graphic tracings taken from the large superficial vessels, from electrocardiographic records, and by the method of direct vessel auscultation.

The strides which have been made in these latter methods during the past few years are very extensive and widespread in their application; they render possible a diagnostic accuracy hitherto unknown, at the same time facilitating treatment and firmly establishing it upon a sound scientific basis.

With regard more especially to the particular physical signs evinced by the vessels a mass of interesting data is forthcoming; for the purposes of the present communication it is proposed shortly to consider the great venous and arterial channels at the root of the neck and detail a selection of the causes which warrant their very careful study.

In the first place we may conveniently discuss the value of simple inspection, and by so doing formulate a working comparison between the healthy subject and the victim of disease. Reference to the former need but be brief, for the normal neck presents remarkably few noteworthy features; careful inspection discloses results of a singularly negative character; arterial pulsation cannot be made out, and it is only on looking carefully that one can appreciate some slight amount of venous movement, either produced by the external jugular vein, which pursues a superficial course for the majority of its length—in fact, to the root of the neck, where, immediately above the mid-clavicular point, it perforates the deep fascia to join the subclavian vein—or by the internal jugular vein, which, lying rather more deeply in the neck on the outer side of the common carotid artery, may be noticed to visibly pulsate, especially if the overlying sterno-mastoid muscle be relaxed. While, however, this slight amount of venous pulsation may be perfectly obvious in the healthy subject, we must clearly realize that it is by no means a *sine qua non*, for one frequently notices that it is entirely absent, and unable to be appreciated by naked-eye observation, especially in those normal adults who are possessed of necks nicely proportioned and free from hollows. It seems, therefore, from the foregoing that one must accept both slight venous pulsation and its complete absence as conforming entirely to the healthy state of the normal adult, and, as a general rule, it may be taken that the amount of subcutaneous fatty tissue is the determining factor in every case.

Following inspection one must proceed a step further and endeavour to become conversant with any auscultatory