

TUBERCULOSIS DISPENSARIES.

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PART VII.

DOMICILIARY TREATMENT.—This consists practically of sanatorium methods modified to suit home conditions and may be grouped under three heads—Fresh air—Rest and graduated exercise—Diet.

Aerotherapy is suitable to every class of case—febrile and afebrile—catarrhal and noncatarrhal—complicated and uncomplicated. It is curious that the more advanced the case the more marked the *immediate* improvement. The hectic flush, the irritating cough, the low arterial tone, the myotatic irritability, and night sweats, all improve, for a time at any rate. In the British Isles it can be carried out all the year round. It is in fact a common experience that patients do better in winter than in summer. Nor is there the difficulty in getting patients to submit to it that one would suppose. A special point was made of enquiring, particularly from nurses, whether patients raised objections to carrying out the spirit of the procedure, with negative results. Some little difficulty is as a rule at first met with in connection with the police, who ring people up in the middle of the night to tell them their windows are open, but this is soon overcome. Tuberculous persons are particularly liable to chilblains but this too can be guarded against by the use of suitable clothing, warm gloves, and hot water bottles. The ideal method of carrying out open air treatment is for patients to live and sleep in the open but climatic conditions will not permit this. The next best is to provide them with some form of shelter of which Dr. Halliday Sutherland's 'Pure Air Shelter' already described is one of the best. For this purpose a flat roof, open balcony, or fairly airy back yard are necessary. As a rule the treatment has to be carried out in the patient's house. Windows should be open top and bottom to the full extent and the bed should be placed across an open window so that the breeze blows on the patient's face. In foggy weather a gauze screen will keep out the coarser smuts. If a gale is blowing a board 6 inches deep should be placed below the lower sash and the bed moved to a less exposed window or a weather board 4 feet deep may be fixed outside at an angle of 45° so that the window can be open from the bottom. The patient should, if not confined to bed, spend as much of his time as possible out of doors.

All patients who are getting about should rest for three quarters of an hour before and after meals. All patients when they first come under treatment should be kept at rest in bed, until their general condition has been ascertained. Absolute rest in bed including the use of the bedpan, is an imperative necessity in all patients whose temperature is above 99° and whose pulse is above 95. When the general condition, as judged by these two phenomena, has settled down the patient may be allowed to get up for half an hour in the afternoon, then gradually more and more frequently until he is up the whole day. He can now be promoted to graduated and respiratory exercises. Right through the course, from the feeblest right away to the heaviest exercises. The patient should be carefully watched. An immediate

rise of temperature over 2° F, an evening rise to 99° or over, a persistent pulse rate of over 95, and a feeling of tiredness, indicate that the exertion has been too great. The theoretical grounds upon which this system is based are very much as follows. We know that the muscular system is weak and poisoned by bacterial toxins and that the heart is similarly affected and diminished in size. Its action is interfered with not only by direct poisoning from the general toxæmia but also by the obstruction to the pulmonary circulation produced by the disease in the lungs. In afebrile cases, and in cases in whom rest has brought down the temperature and pulse, the blood of the general circulation is rich in opsonins. Exercise stimulates the muscular system generally, improves nutrition, and help the destruction of toxins. Walking exercise and especially hill climbing, induces deep respirations and so stimulates the heart and venous circulation, diminishes pulmonary venous engorgement and improves the circulation in the pulmonary vessels. Thus it happens that the diseased areas will be more thoroughly permeated by blood rich in opsonins. But there is yet another very important theoretical consideration which governs the regulation of exercise. It is this: that exercise of every kind causes the liberation into the circulation of bacterial debris and toxins (autoinoculations) which, like the artificial method of tuberculin injections, in small and gradually increasing doses, stimulates the tissues to produce antibodies but in excessive doses will do exactly the reverse. Thus it is that graduated exercises aim at producing the same effect, and in the same way, as tuberculin injections, with this difference, that the one is more under control than the other. Nevertheless it must not be supposed that a knowledge of the theory underlying graduated exercise and of its practical application is of no use to those who practice vaccine therapy. It is of the utmost use. For they must perforce send their febrile cases to bed till the temperature and pulse have come down, and remained down, before they can begin with injections, and when they do get their patients up they had better do so gradually lest the added doses of subcutaneous and intravascular tuberculins be too much for them. As has been already stated, whenever the patient can remain up all day without showing signs of disturbance he may be promoted to exercises. He begins with a quarter of an hours walk on the flat once, or later, twice a day. The length of the walks are gradually increased until he can stand two or three miles without disturbance. He is then ready for hill climbing. This is added to his flat walks and gradually increased in length and gradient till he can do five miles, including the hill climb. The next step is graduated physical labor, or, in the case of those who can afford it, out door recreations such as riding, mild golf, croquet and shooting. Cycling, tennis, hockey, and football are too severe to be permitted. In addition to these exercises the patient is instructed to practice breathing through his nose, to take slow full deep inspirations, and to avoid conversation, especially during exercise, as this necessitates irregular hurried and jerky respiration. After exercise he should take a tepid sponge, rub himself down with a rough towel, and change his underclothing.

(To be continued.)