

producing a chronic inflammation with the characteristic actinomycotic filaments, etc., in the sputum, and (b) the serious form in which the germs penetrate into the lung substance, producing first of all a peribronchitis. In this form the disease at first may not be marked, but later the symptoms of phthisis are developed, but tubercle bacilli do not appear in the sputum, but, perhaps, the actinomycotic fungi. In the next stage the disease reaches the pleura and a hæmorrhagic effusion takes place. A swelling of the thoracic wall as in empyema follows in some instances, and this may point through the diaphragm or through the chest-wall. When the case can be operated upon surgically, and the affected parts can be removed, a chance of recovery is presented, as in a case related by him, but when the disease passes into the third stage (c) and metastatic formations take place in various parts of the body with symptoms of septicæmia, the prognosis is hopeless.

In an exhaustive treatise upon actinomycosis hominis and allied affections, by Poncet and Bérard, there is a summary of the experience of these observers in the treatment with **iodide of potassium**. The hopes which this treatment appeared to hold out as almost a specific for the disease do not seem to have been realised when the cases in which it has been used are submitted to a severe examination. In eighteen out of twenty-five cases which they have observed, the authors have demonstrated the absolute uselessness of iodide of potassium. In ten cases the patients died from local spread of the disease or from its becoming general. In the cases in which a favourable result was obtained, generally speaking, some surgical operation had been performed. The authors, however, consider iodide of potassium as a useful adjuvant, which, if administered before the operation, tends to limit the disease; it also appears to hasten the cure and may prevent relapse if its administration is continued after the surgical operation has done its part.

THE OPEN-AIR TREATMENT OF PHTHISIS.

BY F. W. BURTON-FANNING, M.D., M.R.C.P.,

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THE most important events of the year 1898, medically speaking, have been the rapid growth of interest in the open-air treatment of consumption and the spreading conviction that it is both applicable and promising in Great Britain. It has been somewhat suddenly realised that Britain is tending to fall behind other countries in her struggle with this malady, and for the time being all interest is centred in this rational, if unheroic, method of combating the disease. Scarcely a week has passed without a communication on the subject being made to one of our medical journals; and the *Practitioner* devoted its June number to the special consideration of tuberculosis. On all sides the open-air treatment has been warmly endorsed, and the foundation of a national movement for the suppression of tuberculous diseases has been firmly laid.

The curability of phthisis under certain conditions may be taken as an axiom, and failing the discovery of a specific for the disease, we must be content to influence its course more gradually by bringing to bear against it a combination of all those general measures which have been found by experience to be efficacious. The founders of the German sanatoria have made no startling discovery of a cure, but they have taught us this valuable lesson—that many cases can be benefited by dogged and systematic persistence with a line of treatment, that fail to be affected by the less methodical adoption of the same general principles. There is, of course, nothing new in the vaunting of an open-air life for consumptives, but what is new is its promotion, along with certain other measures, into a complete system. Hitherto we have failed in our management of phthisical cases through lack of insistence and perseverance. In our heart of hearts we have been inclined to regard the disease as an intractable one, and we have therefore had insufficient confidence in our treatment of it. This is the point that I especially wish to emphasise. The patient has not

been convinced that particular rules are worth following to the letter, and that the difference between recovery and permanent ill-health may depend on whether he devotes himself absolutely to a certain mode of life or follows it in a haphazard, intermittent fashion.

Recognising the difficulty of enforcing a *régime* which is antagonistic both to the patient's prejudices and former habits, without removing him from home, so far this treatment has been mostly carried out in large sanatoria. The whole *raison d'être* of these establishments is the practice of this particular cure, and not only do patients go prepared to submit themselves to it, but the whole spirit of the place and its equipment make the adoption of the routine an easy matter. The same broad principles govern the treatment at all these Continental sanatoria for consumption. These will be briefly described, reference being made later to the small points of difference which characterise individual establishments.

The buildings themselves can be dismissed in a few lines. The essential part of the treatment is conducted outside them, and, so long as certain features are observed, a great amount of latitude is permissible in their construction. All the patients' rooms should face south, and the building should be formed so as to secure full exposure to the sun and protection from the prevalent winds. The rooms should be sufficiently airy and well provided with windows, so that free ventilation may be secured and every corner be well lighted. Stringent precautions must be taken against the harbouring of dust, so curtains and mural decorations are objectionable. The walls must be covered with washable materials, and the floors must be rendered unabsorbent by the use of polished wood, some form of stone, or (as preferred by many on account of its noiselessness) linoleum.

Most of the sanatoria are placed at a moderate elevation, often on the southern face of a hill, which continues to rise above them, and thus offers protection from the north. Further shelter is always secured by neighbouring forests; these are usually of pine, and afford attractive walks and views, while one usually finds a beautiful expanse of country stretching away to the south.

A large verandah forms a prominent feature of nearly all these buildings, and various kinds of shelters are usually dotted about the extensive grounds.

Now, coming to the "cure," the essential feature is the perpetual existence of the patient in the open air. About 9 a.m. every day the inmates adjourn to the verandah or to a "Liege-halle," and settle themselves for the day on their lounge-chairs,

where an attendant arranges their wraps and tucks them up in a way they cannot manage properly for themselves. With the exception of their dinner and supper hours, and, in the case of the more robust invalids, of the periods prescribed for exercise, they lie here until 10 at night—that is, for about eleven hours. Provided that they are sufficiently clothed and sheltered from the wind, no difficulty arises from cold, nor do rain, snow, and mist interfere with the cure, the essence of which is to inure the patient to all weathers. Attention must be drawn to the fact that none of these sanatoria enjoy exceptional climates, and it is the deliberate opinion of those qualified to speak on the subject that climatic conditions may be considered of little account in resolving to adopt the treatment in any locality. The clothing is, of course, a matter of importance. It should be loose, but of warm materials, such as wool or flannel, to encourage a healthy action of the skin. Wraps are pulled on as they are wanted, furs and sheepskin sacks are much used, and exceptional individuals require foot-warmers. The cold is better borne in the recumbent than in the sitting-up position, and it is generally considered that the consumptive should be kept lying down always, in spite of the possible objections that this hinders the drainage of cavities and allows the muscles to lose their natural tone. The same excess of air is supplied to the patient during the night, the bedroom windows being constantly open.

The occupation of these long hours of forced inactivity presents, I should say, much less difficulty than might be expected. In certain cases one notices some *ennui* and consequent demoralisation, but the remarkable power human beings have of adapting themselves to any conditions is a matter of frequent comment among the patients themselves, who soon settle down with complacency to their new lives. Reading is, of course, the great stand-by, and the opportunity is often taken of pursuing a definite study, such as a foreign language. For those less seriously inclined there are games and various forms of handiwork. At some institutions conversation is strictly limited, at others it goes on all day. While all these sanatoria keep most of their patients perpetually out of doors, a considerable divergence of opinion exists about the relative advantages of constant rest and of some amount of exercise. As regards the points of treatment in which the practice of one physician differs from that of another, an attempt will be made later to lay both sides of the question before the reader.

Next in importance to this "hyper-aération" comes the matter of feeding. On the management of the patients' dietary, great

stress is laid by the directors of all these establishments. "*Ma cuisine c'est ma pharmacie*," says Dettweiler. The object always being to get the consumptive to eat the maximum amount of nutritious and fattening food that can be tolerated, the end is gained in slightly different ways at different places. As a rule three large meals, of several courses each, are provided, and at some sanatoria three or four pints of milk are drunk in the intervals, in addition. Alcohol is commonly prescribed in the form of wine or cognac. The ingestion of this large quantity of food is helped by force of precept and influence, but the great promoter of appetite is open air.

Thirdly, come douching and massage, which are much believed in at most of the sanatoria, it being claimed that by these means the healthy action of the skin is encouraged, the general powers of the patient are increased, and the muscles kept firm. The more robust inmates have a cold douche, followed by vigorous friction, the next class have massage with spirit, while the worst cases have only dry massage. No notice of this system would be at all complete that did not make special mention of the part played by the close supervision which the resident medical men exercise over their patients. The most trifling ailments are watched for, and appropriately treated at once; each case is closely studied in every particular, and receives minute instructions for the guidance of every action during the day. The greatest care is taken to impress upon the patients the necessity of following injunctions in regard to the disposal of their sputum, which is usually collected in pocket spittoons, and burnt every day.

Without detailing the oft-repeated figures, one may say that the results obtained by most sanatoria are nearly similar, and may be roughly summarised as follows:—About one-third of the cases recover sufficiently to resume their work in life for an indefinite number of years; another third improve, but to a less extent; while the remaining third make no material progress.

Apropos of statistics, one would like to remark that the most important factor in the obtainment of favourable results will probably always be the careful selection of cases for the treatment.

A few particulars will now be given of some of the individual Continental sanatoria that have become better known in Great Britain.

Goerbersdorf in Silesia. The first institution of the kind was founded here in 1854 by **Brehmer**, who was the originator of this method of treatment. It is 1,700 feet above the sea, and has, therefore, some of the qualities of mountain air, but nothing

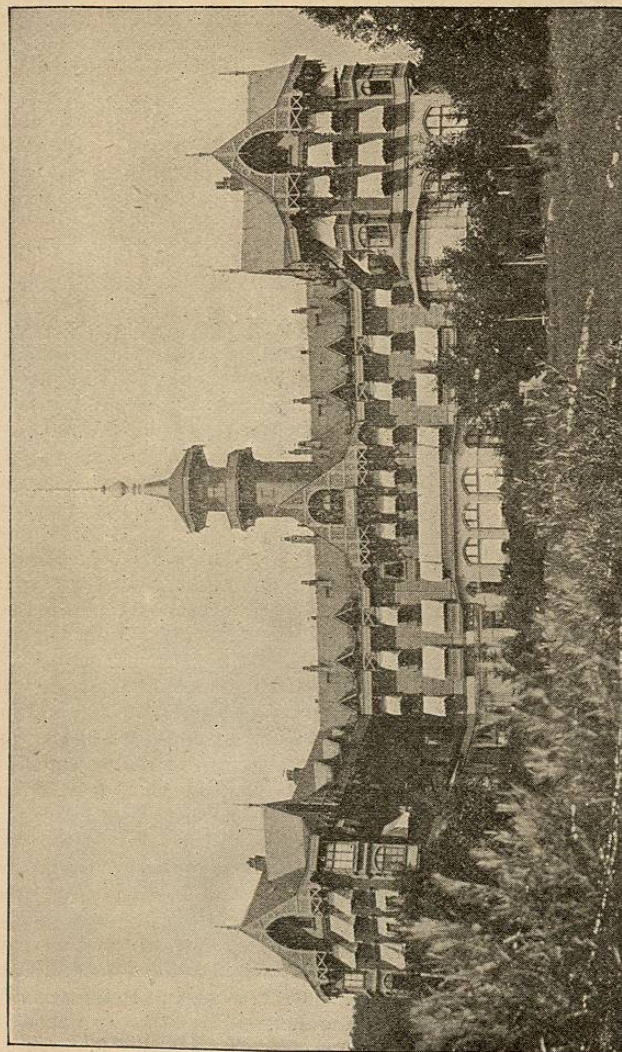


Fig. 1.—THE FALKENSTEIN SANATORIUM.

From a photograph.]

[F. Schilling, Königstein.]

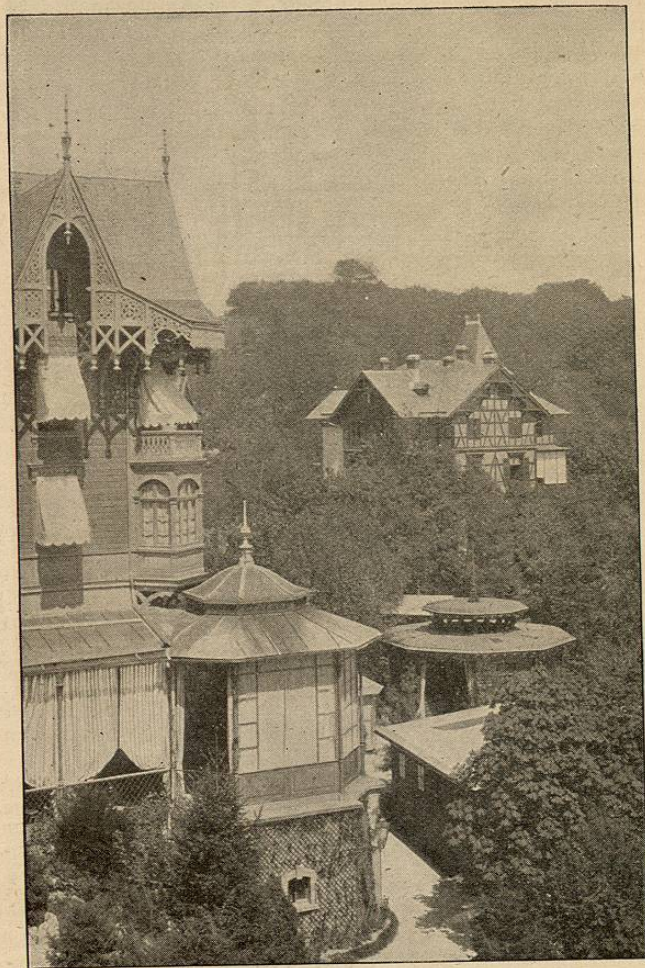


Fig. 2.—SHELTERS, ETC., IN THE GROUNDS OF THE FALKENSTEIN SANATORIUM.

From a photograph.]

[F. Schilling, Königstein.]

exceptional in the way of climate. Brehmer's teaching is still followed by the present superintendent, Dr. Acktermann. Febrile patients are confined to bed in their rooms, with widely opened windows, and are not found occupying shelters, as at some establishments. For non-febrile patients, walks and graduated exercises are much insisted on, for their supposed effect on the heart. About 200 patients are accommodated, and the charges are moderate, from £3 to £4 a week.

Goerbersdorf is reached by train through Cologne and Berlin to Dittersbach, from which station it is a drive of half an hour.



Fig. 3.—INTERIOR OF LIEGEHALLE AT THE FALKENSTEIN SANATORIUM.

Falkenstein, in the Taunus (Fig. 1), has been more resorted to by English patients, though even here they are in a small minority, as compared with those of other nationalities. The site of the sanatorium is at an elevation of 1,300 feet on the southern face of a range of hills, which continues to rise, and affords beautiful shelter on all sides but the south. Its climate, again, is neither distinguished for equability of temperature nor for absence of rain and mist. It is in fact very similar to that of many parts of England, except that its winters are colder and its summers warmer. Dr. Hess now directs the treatment, but Dr. Dettweiler holds the position of consulting physician, and his name is particularly associated with the doctrine that most phthisical cases should be kept perpetually at rest in the recumbent

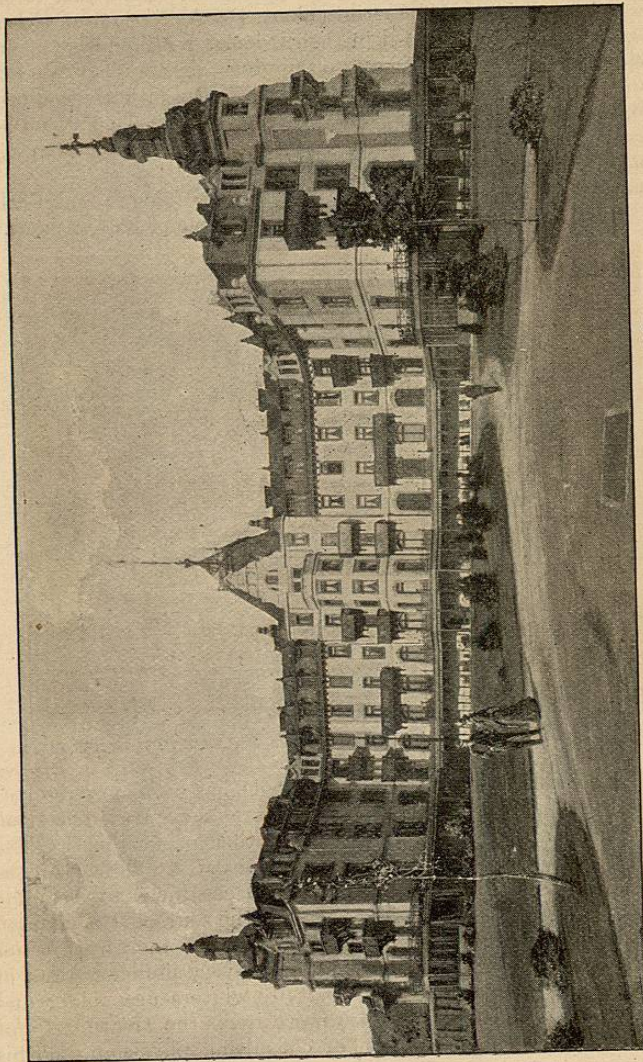


Fig. 4.—HOHEN-HONNEF SANATORIUM ON THE RHINE.

position—not necessarily in the solitude of their own rooms. Here, therefore, the special feature is the provision of various “Liegehalle” (Figs. 2 and 3), which are contrived to afford shelter from any wind, and which are almost constantly occupied by patients who have *chronic* fever, and by those who have none.

The regular charges are from £3 to £5 10s. per week, but there are several extras: baths, rubbing, and stimulants, not being included in these figures.

Falkenstein is ten miles from Frankfort; it is usually reached



Fig. 5.—PART OF NORDRACH SANATORIUM.

From a photograph.]

[Dr. E. H. Douty.

by train from the latter place to Cronberg, whence the sanatorium is within an easy half-hour's drive.

Hohen-Honnef, on the Rhine, is about 700 feet above the sea, and has a milder climate than the foregoing, though its air is always bracing. The distinctive features of this sanatorium are the luxuriousness of the building and its appointments (Fig. 4), and the charming view obtained from it over the Rhine. Dr. Meissen is the resident superintendent, and Dettweiler's teaching is followed in the treatment practised here. The charges are also about the same as at Falkenstein.

The train or steam-boat can be taken from Cologne to Honnef, or the invalid can book from London direct to Bonn, and take

another train thence to Königswinter station. From either place the sanatorium is within a very easy drive.

Nordrach, in Baden Black Forest, has lately become more widely known in England than any of the above sanatoria, largely through the writings of Dr. Mander Smyth (*Brit. Med. Journ.*, April 30, and Oct. 1, 1898). Though no statistics are published on the subject its results are said to surpass those of other sanatoria, notwithstanding that more severe cases are admitted. It is placed at an elevation of about 1,500 feet, at the blind end of a narrow valley, and is well sheltered from all quarters but the south-west. Its climate is in no way remarkable, but it owes its success to the personality of its founder and director, Dr. Walther, who apparently exercises a wonderful influence over his patients, by the force of which they are made to accomplish extraordinary stomachic feats. The special feature here, in fact, is forced feeding. There are three large meals a day, and nothing is taken between them. Otherwise the practice is based on the teaching of Brehmer; febrile patients are considered to be best in bed, in the seclusion of their private rooms, while others are sent for longer or shorter walks into the magnificent surrounding forests. The five component buildings are mostly of wood (Fig. 5), and are very simple in their finish and their furniture. No "Liegehalle" is found at Nordrach, but the patients take their hammocks with them, and sling them in the forest. The visits of friends and even conversation among the patients themselves are discouraged. Cold and damp are sublimely disregarded, and the inmates frequently pass the whole day in wet clothes, acquiring the necessary hardening without the help of the systematic douches and massage which are practised elsewhere.

Only fifty patients can be accommodated at present, and there is always difficulty in obtaining admission, on account of the excessive demand upon the beds. The charges are £3 to £3 10s. a week.

From Strassburg the train is taken on the Schwarzwald railway to Biberach-Zell, from which station the sanatorium is distant nine miles.

Davos. A few sanatoria have also been instituted in places where the particular climate has been thought to constitute an important factor in the treatment. A good example of such is Dr. Turban's establishment (Fig. 6), situated on the outskirts of Davos-Platz, and at an elevation of 5,170 feet above the sea. The well-known advantage of residence in mountain air is here combined with the general treatment, advocated by Brehmer, of Goerbersdorf,

and Dettweiler of Falkenstein. The charges vary from £3 15s. to £5 per week. The access to Davos is easy, through Bâle, Zurich and Landquart, thence by the mountain railway to Davos.

Overwhelming arguments have been adduced in favour of the feasibility of the same treatment in Great Britain, there being a general consensus of opinion that climate plays a less important rôle than the strict observance of the various principles of the treatment. The fact that most of the sanatoria have been placed



Fig. 6.—DR. TURBAN'S SANATORIUM, DAVOS.

in localities whose climates boast of no distinguishing feature speaks for itself, to say nothing of the more or less similar results that have been obtained under the most diverse climatic conditions. Dr. H. Weber, and Dr. C. T. Williams, in their many contributions to the literature of the subject, Dr. Walters (*Lancet*, Aug. 14th, 1897), and others, have stated, with all possible force, their conviction that the practice of the treatment in England will yield results which will bear comparison with those obtained elsewhere. Moreover, the matter has been put to the actual test, and gratifying results have been already recorded by Miss Jane Walker (*Lancet*, April 9th, 1898), Dr. A. Ransome (*Brit. Med. Journ.*, May 28th, 1898), Dr. Philip (*Brit. Med. Journ.*, July 23rd, 1898), and the

writer of this article (*Lancet*, March 5th, 12th and 26th, 1898). A more detailed description will now be given of the application of this treatment in Great Britain, and reference will be made to points of difference in the teaching of various writers. Dr. C. T. Williams (*Brit. Med. Journ.*, May 21st, 1898) says—"It is obvious that if we want to introduce the open-air treatment largely into England, we must, if it can be done without sensibly impairing its utility, modify it to suit the spirit and habits of the people, and this is easy enough. There is no reason why it should not be carried out in country houses, or even in suburban ones."

The following conditions should be looked for before embarking on the treatment: a healthy house, with an airy south room for the patient to sleep in; the air of the locality should be pure, and according to most observers, bracing; there must be a garden with some provision for the protection of the patient, as he lies out of doors, against wind and rain; the soil should be dry; and, lastly, an attendant should be secured, who can be relied on to carry out the medical man's instructions intelligently. The best results may, of course, be expected where the conditions most closely comply with what is demanded, but comparatively good results may certainly be obtained where these fall short of our standard. While agreeing in the main with Dr. Philip's belief (*Brit. Med. Journ.*, July 23rd, 1898) that phthisis can "be treated with approximately equal success, or want of success, in all climates, according as the larger indications for treatment are fulfilled or overlooked," I do not think that the observed effects of particular climates on particular classes of consumptives should be altogether disregarded. Where possible, it will often be advantageous to select the locality for the adoption of the open-air treatment, according to individual characteristics. With the object of obtaining some information on this subject, I have observed closely the progress made by the same patients, while they carried out the open-air treatment in an extremely bracing air, and while they were subjected to the same treatment in a less bracing air, and have satisfied myself that the natural effect of the increased appetite and general stimulation, of which they were sensible in the former air, manifested itself by a more rapid gain of weight, and consequent mastery of various phases of their disease. Where the patient is so situated that home treatment is impossible, it will generally be wiser to send him to a special sanatorium, than to attempt the treatment in an English hotel, or in lodgings; these seldom provide the necessary means for pursuing the prescribed mode of life, and the patient follows regulations only so far as they do not clash with the customs of the place. The great point

is so to arrange everything that the patient finds the adoption of the *régime* a natural and easy matter. Returning to the directions that should be given to the patient or the attendant, one must first consider the bearing of the patient's temperature on his management, and the different opinions that are held on this point. While all agree that non-febrile patients may be allowed to spend the whole day out of doors, the teaching of Brehmer differed from that of Dettweiler in regard to febrile patients. Brehmer confined to bed those whose temperatures rose at all above the normal in the mornings, or above 100.2 F. in the evenings. He considered that these cases required complete rest and seclusion, though the free admission of fresh air was always secured by open windows. Dettweiler and his followers, on the other hand, permit patients with chronic fever to occupy a couch out of doors. Any exacerbation of fever is treated by confinement to bed, and in cases with considerable elevation of temperature (102° or more)—even though apparently habitual—a preliminary trial of a week or two in bed is made. If, however, at the end of this time it is not reduced, the patient is allowed up and spends the day reclining in the verandah or "Liegehalle." In support of the confinement to bed of all febrile patients, it is argued that only thus can be secured perfect quietude and absence of distraction; while, against this restriction, it is urged that the air of the best ventilated room is less pure than that found outside, and pure air is considered the most reliable antipyretic. Personally, I have not confined to bed patients with chronic moderate fever, unless other points in their cases or in their temperament suggested the advisability of seclusion. According to the condition of the patient and, to some extent, of the weather, it will be laid down that from six to twelve hours are to be spent out of doors each day. Though wind and wet are absolutely disregarded by some practitioners, it is generally thought that the consumptive should be screened from them by a shelter, which at the same time is freely open to the lee side. Dr. H. Weber insists especially on the unfavourable influence exerted by wind on the consumptive. I have certainly observed increased discharge from bronchi and vomicae follow free exposure to wind and other inclemencies, to say nothing of the difficulty of breathing and of keeping warm in the presence of wind. The shelter may take the form (1) of a revolving shed, (2) of one whose sides can be removed, (3) of a three-fold canvas screen painted and fixed to a light platform, or (4) of a tent (Fig. 7). In this is placed a cane or wicker lounge-chair or a couch on which the patient can recline at full length, the number of extra wraps

and rugs depending on the temperature of his surface. The acclimatisation of the patient will generally be proceeded with gradually. He must use no room whose window is not widely opened, and he must of course shun all vitiated atmospheres, but at first some caution will be exercised in exposing him to wet and cold, though in a week or two he will have learnt that these do



Fig. 7.—SIMPLEST FORM OF SHELTER, USED IN THE GARDEN OF A LODGING-HOUSE.

not injure him, that he is less susceptible to catarrhs than formerly, and that the outdoor life is essential for his well-being. The daily amount of exercise to be taken by the patient must also be exactly regulated according to his general strength, his temperature, and other considerations. To begin with, for example, ten minutes' stroll in the morning and afternoon may be allowed and gradually increased according to its effects; later, gentle ascents may be undertaken and instructions as to breathing may be added. The relative importance for certain non-febrile patients of perpetual

repose and of regulated exercise is a matter of discussion. On the one hand it is urged that all energy should be conserved, while on the other it is thought that the stimulus of exercise is more beneficial to the heart, the other organs and the muscles. It is agreed that the pulse and the temperature constitute our guide in the amount of exercise to prescribe. As showing how a correct decision can be formed only by studying each case separately, Dr. Huggard informs me that he has met with exceptional cases in which fever did not subside until the patients commenced to take walks. It is certain that consumptives with very feeble circulations or perturbed nervous systems, are much benefited by skilful massage, which can advantageously be allowed to replace exercise in a large number of cases. It cannot be claimed that hydrotherapy is an essential part of the "cure," as at one very successful establishment, at least, it is not used systematically at all; at the same time douches and baths may reasonably be expected to have some tonic effect on the skin and general system.

Without entering at length into the discussion of the important subject of dietary for these patients, I will content myself with saying that the physician should set before himself the aim of building up the organism by a very liberal supply of nutritious and digestible articles of food. The principle of "forced feeding" enters more or less into the management of all cases, but it is accomplished in different ways according to individual peculiarities. Sometimes the appetite must be coaxed by a succession of delicacies, and the digestion assisted by drugs, or a deliberate attempt may be made to excite the stomach to greater activity by increasing the nutriment that it is called upon to digest. When the patient has been fairly started on the open-air course of treatment, the doctor will find that in many cases his subsequent visits will be largely concerned with attention to the functions of the stomach and with the attempt to adjust the diet to its capabilities.

Under the heading of discipline, I will only refer to the educational possibilities of this course of treatment. Not only will the intelligent patient become instructed in the right way of living, but he should also be impressed with the necessity of caution in regard to the disposal of the sputum, about which explicit directions will be given.

The *rationale* of this treatment lies in the removal of the patient from those conditions which favour the activity of the tubercle bacillus, while at the same time his constitutional resisting powers are sought to be increased in every conceivable

way, to the end that he may successfully repel the attacks of his destroyer. In the carrying out of this object there is infinite scope for ingenuity on the part of the medical man, and I anticipate that the general adoption of the system in Great Britain will be followed by fresh developments, and by an increase of its power for good. Seeing that the greater number of sufferers from consumption cannot avail themselves of the treatment which is offered abroad, and that in the case of those more fortunately situated banishment to a foreign land often involves many unnecessary hardships, the necessity for establishing sanatoria at home is manifest. Besides this, it is held by many that a cure wrought in the consumptive's own country is more enduring than one brought about in a foreign climate. The provision of institutions for the rich may be left to private enterprise; before long the supply will doubtless become adequate to the demand. But the problem of supplying the poor with the means of recovery is a vast undertaking which has been wisely approached by a powerful association. This should command the active support of the whole medical profession; for it becomes our duty to inform the country of the best means for mitigating its scourge.

THE TREATMENT OF NERVOUS AND MENTAL DISEASES.

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THIS article includes the following subjects:—

- I.—Tabes Dorsalis.
- II.—The Treatment of Epilepsy.
- III.—Lumbar Puncture.
- IV.—The Treatment of Tetanus.
- V.—Paralysis Agitans.
- VI.—Chorea.
- VII.—Mental Diseases.
- VIII.—Miscellaneous.

For the first time for many years there is no special article on insomnia or on the treatment of pain, as nothing new has been published on these subjects during 1898. It is, perhaps, as well that no new hypnotic or analgesic has been brought forward, because during the last few years there has been such a plethora of these drugs that it has been difficult to keep up with the list of them. Time can now be utilised in further and more extensive trials with those already at our service. Nothing new in the treatment of epilepsy has been produced, but fresh observations on Bechterew's and Flechzig's methods are given. Interesting experiences with lumbar puncture as a means of diagnosis and treatment will be found further on.

I.—TABES DORSALIS.

A somewhat lengthy account is given below of the aetiology and symptomatology of tabes dorsalis, and an examination of the papers abstracted will show that there can be no question of the enormous importance of syphilis as a cause of tabes. It seems probable, however, that former statements that such a large proportion as 95 to 97 per cent. of tabetics have suffered from syphilis are exaggerated, and have led to the neglect of examination for other possible causes.