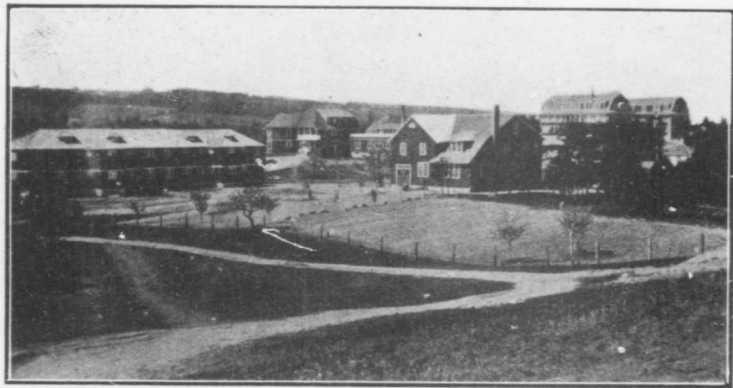




Manitoba Sanatorium, Ninette.



Infirmary, Nova Scotia Sanatorium.



DEPARTMENT OF
SOLDIERS' CIVIL RE-ESTABLISHMENT
CANADA

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The War on Tuberculosis

BY

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Introduction.

Wars of the past have left sad memorials in the broken bodies and weakened constitutions of soldiers, and the great world war from which Canada recently emerged proved no different from other historical struggles. There are living evidences of the amazing ingenuity of man in devising machines of destruction. Yet, on the other hand, man having proven ingenuity in one direction, to destroy, has evinced equal skill in repairing the wreckages of war.

One of the features of Canadian organization in France and Belgium was the thorough manner in which salvage operations were carried out, no object escaping the attention of these ". . . pickers-up of unconsidered trifles." Now the same principle that initiated battlefield salvage is being applied in Canada to those whose service is marked by honourable scars.

The disabled soldier is being enabled to overcome his disabilities and is being retrained so that he may become economically independent, an after-care of war, first undertaken by Canada. One phase of this work, which is under the direction of the Department of Soldiers' Civil Re-Establishment, is the care of ex-members of the Canadian Forces who have developed tuberculosis as a result of the great adventure.

Previous to the war there existed in Canada a considerable percentage of people suffering from this dread disease, and they had been dealt with in a rather spasmodic manner largely through private philanthropy.

But Canadian soldiers affected by the disease are not being left to the haphazard care of individual effort. Their treatment is conducted with the greatest possible degree of efficiency by the Medical Branch of the Department of Soldiers' Civil Re-Establishment. For this purpose a chain of sanatoria, twenty-eight in number, has been established throughout the Dominion and these represent the most determined effort yet made in Canada to combat the insidious disease.

These establishments are maintained under the best

possible conditions and each one is provided with the results of proven discoveries under the direction of skilled physicians and sympathetic trained nurses.

The Department has established new sanatoria and has also made arrangements for the use of existing sanatoria in conjunction with Provincial Authorities and private organizations. Later, when the tide of soldier patients has turned, these will be available for general use.

Each sanatorium is under the charge of a Medical Superintendent and each staff includes a trained dietitian who supervises the catering of the establishment. To overcome the great evil of enforced hours of idleness during treatment, bedside occupations have been introduced in all sanatoria. Ward Aides give lessons to the patients in suitable handicraft, and by this means greatly alleviate the condition of the men.

Pay and allowances are provided for each patient and these continue after discharge to cover the quiet period which should follow before any work is undertaken.

A considerable number of ex-soldiers will "take the cure" for longer or shorter periods, at home; and in such cases this little handbook of detailed, practical information should be a guide for the patient and his family. Nothing can quite take the place of personal contact with the physician, but in many cases frequent professional attendance and trained nursing may be far to seek. Faithful and intelligent following of the instruction given in this book will be a great ally in the fight for health.

When men are discharged from sanatorium treatment and return to work or to their homes, it is expected of them that they shall be zealous in spreading the "gospel of healthful living." This book should enable them to do this, showing them how to protect the health of their families and to be an influence for health in their communities. Having defended their country from the enemy abroad, and won the lasting gratitude of their fellows, let them join in the defence against a subtler enemy at home, and play a worthy part in "The War on Tuberculosis." July 19, 1919.

Peace Day.

THE WAR ON TUBERCULOSIS.

It is well known that tuberculosis is one of the worst enemies of human life and happiness. It kills and renders useless more people than does any war. But its armies are so silent, its attack so obscure, and its methods so slow that we fail to rally our forces against it in time, or in a determined and business-like manner.

In any conflict we are handicapped if we do not know: (1) where our enemy is, (2) how strong he is, and (3) what is likely to be his method of attack. For this reason, young and old, rich and poor, sick and well, *every one should know these things about tuberculosis.*

I. WHERE IS THE ENEMY?

Chiefly in the dust of houses, street and railway cars, public halls, poorly ventilated schoolrooms and factories, in any place where sunlight and currents of fresh air do not come freely and frequently; in any place where there is careless spitting, coughing, or sneezing.

We cannot see the germs (microbes or bacilli) that cause tuberculosis, unless we have a powerful microscope. They are tiny, rod-shaped parasite plants; that is, they live and grow only in living tissue. They are so small that a drop of sputum the size of a pin-head may contain 5,000 or more. But if they find a lodgment in any part of the body they cause the little tubers or swellings (tubercles) from which the disease takes its name, and when these tubercles break open, enormous numbers of the germs may be thrown off in the secretions from that part of the body. *The chief means by which tubercle bacilli are spread is the matter (sputum) coughed up from diseased lungs.* This, falling upon floors or other surfaces, dries and in time gets into the air and may be breathed into other lungs. *Moist sputum is harmless unless swallowed or allowed to*

enter an open wound. But if people step in or trail their garments in moist sputum and so carry it indoors, it soon dries there, *and dry sputum is dangerous*. Here (in the sputum) is where the enemy is in the greatest numbers—they are out in massed formation, so to speak. Here we must concentrate our attention, come upon them and destroy them before they have a chance to disperse and hide among us.

Also the fine, usually invisible spray which comes from the mouth when coughing or sneezing may contain these germs. Therefore, it must never be allowed to float in the air nor to settle upon clothing, carpet, floor, furniture, bed-clothes, etc.

One does not have to be sick to be a carrier of disease germs. *So many persons have tuberculosis, either latent or developed, and do not know it, that all coughing, spitting and sneezing must be considered as liable to infect the surroundings* (that is, to spread the germs) *and must be managed with the care necessary to safety*.

The milk of tuberculous cows, and even good milk handled by a careless tuberculous patient, may contain the germs, and from it children may be infected with the disease.

II. WHERE THE ENEMY IS NOT.

Though tuberculosis is a communicable disease,—that is, it may be and is carried from one person to another,—it need not be so. It is not a contagious disease in the sense that scarlet fever, smallpox, diphtheria, etc., are contagious. *It is safe to live with a tuberculous patient if he is strictly and unfailingly careful about his secretions and his coughing*. Though there is danger in spit particles flying from the mouth, *there are no germs in the patient's breath*. *The clean, well-trained, conscientious patient does not infect his surroundings nor his associates*. A well-kept and supervised institution for consumptives is one of the most unlikely places in which to meet the enemy.

The tubercle bacillus is destroyed in a short time by

direct sunlight, or, in a longer time of exposure, by daylight. It may therefore be said that the disease is seldom contracted out of doors.

Inheritance.

Tuberculosis is not a hereditary disease. That is, we are not born with it. Children do indeed "take it" from tuberculous parents and relatives, but they get it after they are born, not before. The fact that "consumption runs in families" is explained by the spread of the germs from the first sufferer by the means already described, and not by a common inheritance. Such spread of the disease in a family is altogether unnecessary.

It is possible that children of consumptive parents inherit a tendency to contract all diseases. That is, as we say, they may have poor resistance. This is true in the case of parents weakened from any cause—alcoholism, poor living, disease, dissipation, etc. On the other hand, the offspring of tuberculous parents frequently develop wonderful resistance. Everything depends upon their healthful habits of living.

III. THE ATTACK.

When does the Enemy Strike?

Those who have made a study of the subject say that full-grown persons seldom or never contract this disease. When it develops in them, it was in them from childhood and its development now is due, not to infection from outside, but to a weakened resistance to the old infection in themselves. Whether or not it is true in every case, this is true in the great majority of cases. *Tuberculosis attacks you when you are very young or when you are weak. From the first year of a child's life until the fifteenth is the usual age of infection, but in the first four years of life there is most danger.* Figures have been published to show that in nearly every child in a large city, germs of tuberculosis have found a lodgment before he is fifteen years of age. This does not mean that all these children

become sick or have any discoverable tuberculous disease. Most of them have such resistance that the germs, though still living, do not develop, unless, by over-study, too little sleep, poor air or food, an illness or some other means, the health gets run down. Then the tuberculosis is likely to break out, usually before the thirtieth year. The older the person becomes, after this age, the less liable he is to develop this disease.

For the adult, it is weakened resistance you must guard against if you would keep free from tuberculosis. When you are worn out from continued overwork, worry, loss of sleep, or any mental strain; when you get into poor condition from lack of proper food, from chronic indigestion or constipation, or from living, working and sleeping where you have not plenty of fresh air to breathe; when you are run down after any illness or from frequent colds, or when you have been wasting your vitality in any kind of dissipation; then it is that this lurking enemy breaks through your defences. These, therefore, are the conditions you must avoid.

How and where does the Enemy Strike?

Most commonly the germs of tuberculosis enter the body by being breathed in or swallowed; rarely by an open wound in the skin; in children, usually by way of the stomach and bowels, taken in with food, milk, or from dirty hands or other articles put into the mouth.

The parts of the body attacked may be the lungs, glands, throat, skin, bowels, or other organs. In children the joints and bones are frequently the seat of the disease.

OUR OWN PLAN OF CAMPAIGN.

IV. PREVENTION.

Our campaign must be planned with two objects in view: prevention and cure.

We speak first of prevention, for in this both the sick and the well have their part. Here are some of the things we may do to help.

Educate and Protect the Children.—As tuberculosis is contracted in early childhood, even in those cases in which it does not make itself felt until adult life is reached, it is the little children who must be most carefully protected from infection, and the chief battleground is the home. No tuberculous patient or any one with a chronic cough should have the care of an infant. A tuberculous mother should not nurse her baby. Kissing children on the mouth, using your handkerchief about a baby's face, putting a spoon or anything else into your own mouth and then into a child's mouth, are dangerous acts on the part of any one; but they amount to criminal carelessness on the part of a person suffering from tuberculosis. Babies creeping and playing on the floor are liable to breathe or swallow infected dust there. This is their most exposed, as well as most susceptible age. A "coop" with scrupulously clean, floor, or a clean sheet spread for a playing place would be partial protection for the baby. But where there is careless coughing there is always danger for small children on the floors, on covered furniture, and in people's clothing.

Spoons, forks, any dishes to be put to the child's mouth should be boiled for at least five minutes if there is any suspicion of a case of tuberculosis in the family. Indeed whenever members of the family or visitors have colds or coughs, all these precautions should be taken on the small child's account.

The rigid inspection of cows and milk is an important part of the preventive work to safeguard the babies.

If a child seems sickly, or if there is any suspicion of tuberculous tendency or infection, special care should be taken to build up his general health. In addition to careful feeding and plenty of sleep, which every child needs, the open-air life, as complete as it can be managed, often gives splendid results. If kept thoroughly warm, even small babies take their day-time sleep either out on a porch or in a room with open windows. And properly protected from cold or from the hot sun, children can play all day out of doors or in an open-windowed room. A coop or safely-railed porch is a great help in keeping a child out of doors.

A daily cold sponge-bath after his regular bath is now so much a part of every well-kept baby's life that we need barely mention it here. It goes a long way to prevent the bad habit of "catching cold," and it should be continued through childhood and adult life.

Such children should not begin school life nor work too young. Poorly ventilated or crowded schoolrooms are dangerous to any child's health; and for delicate children, especially those with consumptive tendency, open-air schools are most desirable. Every effort should be made to avoid the contracting of whooping-cough and measles, as both these diseases seem to predispose a child to the development of tuberculosis.

Have your children examined by a doctor if you suspect that they have the disease. See that their teeth are kept in good condition, and that teeth, mouth and throat are thoroughly cleansed every day. Train them to breathe fully, and always through the nose. If there is any reason for mouth-breathing have a doctor attend to it. Teach the children to have regular hours for everything, to go to bed early and to sleep with the windows open, to eat good, nourishing food, to bathe frequently if not every day, and to observe the laws of health. Keep them in the fresh air and sunshine as much as possible. *Teach them to put nothing in their mouths except food*, and never to put to

the mouth food that has been at another mouth. The necessary teaching can be given, and what is more important, the necessary habits formed, both at home and at school, without filling the child's mind with fear and images of disease, both of which are unwholesome.

Insist upon well-lighted and well-ventilated rooms for living and working, for yourself and others. See that some windows are kept open in your home both day and night in winter as well as in summer. No one has a fair chance to fight against this disease who lives or works in darkened or badly ventilated rooms. Attend particularly to the ventilation of schoolrooms, and places where many work together.

Protest against the dry-sweeping of streets and stop the dry-cleaning of your houses. The feather duster or dry cloth does not clean, it stirs up germ-laden dust which may infect your family. Insist upon the use of moist cloths and mops, to gather up and remove dust in your home and where you work. Vacuum cleaning is a good sanitary method.

Exterminate Flies. Flies carry germs. Keep flies out of your house by screening the windows. You can destroy the places where flies breed by keeping your home and premises strictly clean. You can refuse to buy food that has not been protected from flies, you can protect your food from germ-laden dust, and wash fruits if they are to be eaten raw.

Overcome Morbid Fear. Every one who coughs and expectorates should use the sanitary devices described in this book, without fear of advertising himself as a dangerous consumptive. As Dr. John W. Flinn writes, "Once patients have learned to be careful in their coughing, to destroy all sputum, and, in the last stages of the disease, to disinfect all discharges, they are no more a menace to society than a man with a wooden leg. The fact that a man has active tuberculosis should not in any way affect his standing in the community." *If*

there is one danger as great as the careless or ignorant consumptive, it is fear and cruelty on the part of the public, resulting as it does in the denying and hiding of tuberculosis, the delay in discovering its presence and the shrinking from the open use of the proper sanitary devices for safety. A person should carry a pocket sputum-cup, if he needs it, just as he would carry a match-box.

V. SANITARY PRECAUTIONS.

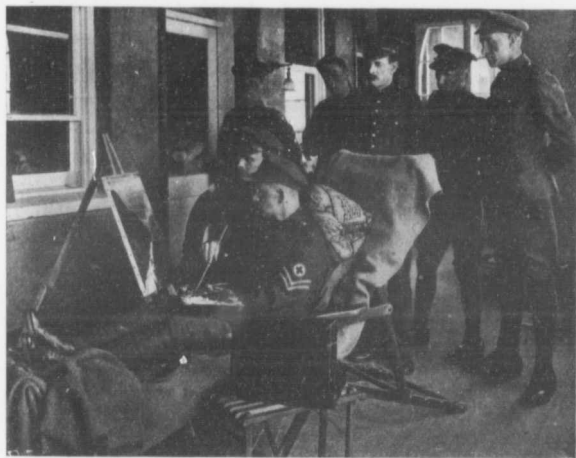
Disposal of Sputum.

Burnable receptacles. The only perfectly safe way to dispose of sputum is by burning. The best receptacle we know of is the waterproof paper cup which must be changed at least once in twenty-four hours, and the used one burned immediately. It is used in a metal holder which should be cleaned with soap and boiling water or a disinfectant solution, whenever it becomes soiled. If a patient has much sputum the cup should be used partly filled with sawdust and before it is burned more sawdust should be added. It should never be kept in use after the contents have reached up to the turned-in edges of the filler. When it is removed it should be wrapped securely in plenty of paper and put into a red-hot fire. The holder is provided with a spring cover which should fit tightly. The paper fillers are made and folded in such a way that sputum cannot readily be spilled if they are not over-filled, and that they may be used cleanly when the patient is in a reclining position.

For the Pocket. For use on the street or when traveling, the best device is the pocket cuspidor of similar waterproof paper, which must also be burned. These are sold filled with absorbent cotton and they prevent the hands and pockets from becoming infected. They are entirely sanitary and we prefer them to any other device we have seen for the purpose.

Rubber Pockets. The next best method of disposing of sputum is by spitting into pieces of cheese cloth, old cotton, or paper handkerchiefs and placing them in a small bag or pocket made of rubber sheeting or table oil-

cloth—a tobacco pouch or small sponge bag would perhaps be still more waterproof. Each piece of cheesecloth or paper handkerchief must be folded into several thicknesses and used only once; and the used pieces must be dropped out into the fire and burned at the first opportunity. The rubber pockets should be kept clean and disinfected with carbolic acid or lysol solution, and when they become imperfectly waterproof should be replaced by new ones. This method, when carefully followed, and



Soldier Patient, Art-Student.

in cases where the quantity of sputum is not great, provides protection for the clothing, but the hands are liable to become infected, though not necessarily so. Strict care may make this a fairly sanitary method.

Paper Bags. Bed patients may use strong paper bags instead of the rubber bags which have to be cleaned. The paper bags are pinned to the side of the bed, not placed about the clothes, and are burned with their contents once a day or oftener if necessary.

If any cloth containing sputum cannot be burned at once it should be placed in a disinfectant solution until it can be burned. Never allow it nor handkerchiefs used for the nose in "colds," catarrh, etc., to become dry.

If at any time it is impossible to obtain sputum cups or any burnable receptacles, and a patient is obliged for a time to expectorate in an earthenware vessel, never use the ordinary floor "spittoon." Use a cup and have it held close to the mouth for spitting. Keep it tightly covered and have it half-full of an antiseptic solution. Use sawdust in it if necessary and *always burn the contents*, disinfecting the cup by boiling or by lysol or lime.

Be most careful to keep flies from sputum and infected articles. Their feet may carry the germs to some child's face or food. Never spit on a floor nor in any place where the sputum cannot be burned or in some way have its bacilli destroyed before they infect anybody. When cleaning the teeth and mouth, do not spit in a bowl which is used for washing the face and hands. Use a special bowl or pail.

Under no circumstances should a patient swallow his sputum. There is a great danger of infecting the bowels or other parts of the body, and so developing more serious forms of the disease.

Covering the mouth.

The patient must always be strictly careful to cover the mouth and nose when sneezing and the mouth when coughing. This means covering the mouth closely, not merely holding something in front of the face. Do not use the hand only, as that would insure the hands becoming germ-carriers. Use a piece of cheesecloth, old cotton or a cheap handkerchief which can be burned. Do not place it about the clothing or bed clothes, but keep it in a rubber or oilcloth bag until it is burned. If an article which you do not care to burn has become infected in this way, keep it in the rubber pocket until you can soak it in a disinfectant solution or have it boiled.

Methods of Disinfecting.

It is not wise to depend too much upon disinfectants. It is best to burn all infected discharges, and for the rest to pin your faith to cleanliness (thorough mechanical cleansing with hot water and soap), and to plenty of sunlight with free ventilation. Most disinfectants are poisonous and must be kept carefully out of reach of children.

Sunlight is one of the best disinfectants. Garments and upholstery may be disinfected by six hours' exposure to sun and air out of doors, if the inside of pockets, braiding, bindings, and all infected surfaces are reached directly by the sun's rays.

Boiling is a safe means of disinfecting, provided the article is vigorously boiled for at least five to twenty minutes. However, we must repeat that no attempt should be made to boil handkerchiefs or cloths which have been used for spitting. The only safe way is to burn them. Spoons, forks, cups, etc., not soiled with visible smears of sputum, may be disinfected by merely dipping them in boiling water or pouring boiling water over them. In every case, even where no tuberculosis is known to be present, family and hotel dishes should be scalded when being washed.

Disinfectants.—For disinfecting discharges or for use in spittoons, use *chlorinated lime* in powder form or in a solution of one ounce to a quart of water, well shaken; or *lysol* in 2 per cent solution. To prepare this put into a pint bottle $2\frac{1}{2}$ teaspoonfuls of pure *lysol* and fill up with water. Or for a larger quantity, eight teaspoonfuls to $2\frac{1}{2}$ pints of water, or half a teacupful to a gallon. Where there is no actual sputum, but only infected dust or the probability of infection by spray from the mouth, either boiling or soaking in a 2 per cent *lysol* or *chlorinated lime* solution, or wiping up with cloths wet in either of these, will be sufficient. *Creolin* or *carbolic acid* may be used for this purpose, the former in a 2 per cent solution, the latter in 5 per cent or one in twenty, that is, one part of pure

carbolic acid to nineteen parts of water. (Approximately, put two teaspoonfuls pure acid in a 4-ounce bottle and fill up with water, or use one teacupful to a gallon of water.)

Clothes.—As the bedclothes around a patient's face may be infected, these and any clothing suspected of harbouring the germs should always be boiled or, if woollen, soaked over night in a disinfectant solution, before being washed. *Carefully avoid shaking out dry infected clothing.* Handle it as little as possible and remember that the danger is less out of doors than in the house. Germs do not live long in the sun and air. If by accident, sputum gets upon the bed or other clothes it must be taken up at once with a bit of soft cotton wet with lysol solution, and burned. The infected article should then be soaked with the lysol solution or put in the sun for at least *six hours*.

Floor and Furniture. In the same way, if sputum accidentally gets upon the floor or furniture, it must be wiped up and burned and the soiled place washed with a disinfectant which is allowed to soak in. For such purposes a bottle of the 2 per cent solution of lysol or of chlorinated lime should be always at hand.

Books used by a tuberculous patient will not become infected unless he coughs into them or uses them with unclean hands, offences which no trained or clean consumptive will commit. The outside can, if necessary, be disinfected by sunlight, but if the inside of a book becomes infected, it is hard to cleanse. If it is hung in such a way that the leaves are all apart, it may be fumigated in a box or in a room where fumigation is being done.

The hands. If a bit of sputum gets on the hands you are quite safe if you wash it off at once with plenty of warm water and soap. Use a disinfectant solution if you wish, but if it is strong enough to kill bacilli on contact, it will be hard on your skin. The patient should be careful always to wash his hands before eating or handling food.

The Mouth. It is impossible to use in the mouth any antiseptic strong enough to kill the tubercle bacillus on

contact. But the mouth should be kept strictly clean. The teeth should be inspected regularly by a dentist and kept free from decaying spots which may harbour germs. A mouth-wash and gargle for the throat should be used morning and night and before and after meals. The tooth-brush or dental floss should be used morning and night, possibly also after meals. No expensive paste, powder or gargle is needed. For ordinary purposes soda bicarbonate (baking soda) half a teaspoonful to less than half a glass of warm water, makes an excellent mouth-wash and gargle. You may use camphorated chalk (precipitate) or common salt for brushing the teeth. Regularity in cleansing is the important thing. The tooth-brush should be kept free from germs by frequent disinfecting, or by hanging in the sun.

Fumigation.

Like disinfection, fumigation should not be depended upon to take the place of strict care and cleanliness. But in those cases where a patient in the last stages of the disease has been using a room, or where there is a doubt about the strictness of the nurse or the patient in attending to the precautions, the place should be fumigated. It should be done by your health officer or a man who understands it thoroughly, as *fumigation is of no use unless it is done precisely right*. And in any case it does not take the place of a thorough soap-and-water cleaning, with exposure to sunlight and fresh air.

Compulsory Service.

Where necessary sanitary measures are concerned, there should be "compulsory service" for those who will not act voluntarily. Tuberculous persons who, when taught and reminded, will not be strictly careful about their coughing and secretions, should be shut out from society until they are made to feel their responsibility in this matter.

Families or landlords who are careless about cleansing, disinfecting, fumigating or if necessary renovating infected premises should be compelled to attend to it, or the Public Health authorities should do it for them.

VI. EARLY DISCOVERY.

For prevention, and for cure as well, it is of the utmost importance that the presence of this disease be discovered in its earliest stages. *Tuberculosis is one of the most generally curable of diseases when taken at its incipient (beginning) stage.* Many moderately advanced (second stage) cases may be cured or permanently arrested if the treatment is taken faithfully and persistently. Even far advanced cases have become quiescent—that is, the disease ceases to be progressive and life is spared.

Early Symptoms.—Any continued loss of weight and of appetite, or especially an unaccustomed feeling of tiredness, languor, lack of energy, or nervous irritability, unless accounted for by some other cause, should lead one to suspect beginning tuberculosis. Unusual “brightness” and feverishness in later afternoons and evenings has been noticed as a characteristic symptom.

A cough lasting more than four weeks should arouse your suspicion. If, in addition, there be expectoration, a specimen of the sputum should be given to your doctor or to the local health authorities for microscopic examination. If, however, tubercle bacilli are not found, that does not prove the absence of tuberculosis. The raising of pink or blood-streaked sputum, and especially the spitting of blood, even a teaspoonful, should be set down as due to tuberculous activity until it is conclusively proven that it is not. Pleurisy (pain in the chest) is now known to be usually caused by tuberculosis. Such symptoms should be met at once by the rest-air-and-feeding treatment. Go at once for examination to the best doctor you can find, and do not allow yourself a false sense of security. If you have the disease, it will probably save your life to know it. If you have not, it can do you no harm to be assured of that fact.

VII. THE CURE.

Where to “carry on.”

We come now to the second part of our plan of campaign, the cure. Generally speaking the best place to “take the

cure" is, for early cases at a good sanatorium; for advanced cases, at a special tuberculosis hospital. It cannot be denied that, material conditions being equal, a patient does best where he is happiest. There may be some persons who cannot do well at an institution. The wise physician will soon find this out and advise accordingly. But a sanatorium is usually a happy place, with more of cheer and of suitable amusement than the average home can provide. The companionship of others who are following the same routine and facing the same discouragements is likely to make both routine and discouragements more



Rest and Occupation Combined.

bearable. Moreover, getting away from home is in itself a valuable part of the rest-cure, especially for responsible members of a family; while on the other hand the irresponsible need the sanatorium as a training school where they may be taught to regulate their life. And all need the special instruction regarding their disease, which a sanatorium affords.

It takes a good deal of intelligence and patience, unusual will-power and determination, to approximate to sanatorium conditions in the home.

Taking the Cure at Home.

Temperature.—One of the first things to be done is to procure a clinical thermometer of reliable make and get your doctor to show you or some member of your family how to read and record your body temperature. This is one of the most valuable guides we have in judging your condition and so regulating your daily life. Your temperature should be taken three times a day; in the morning before rising, in the afternoon at 3.30 or 4 o'clock, and again at 8 in the evening. You will find it lowest in the morning, rising gradually until afternoon or evening. *It is the highest temperature in the 24 hours which must be used as a guide.*

To take the temperature, place the thermometer-bulb under the tongue, well back, and keep it there for at least five minutes. Frequently in a cold wind it will take ten minutes to register. Be sure that the mercury is shaken down to 97° F. or lower, before the glass is put into the mouth.

The normal mouth temperature is about 98.5° F. The temperature is normally higher after exercise and during digestion.

For the first ten to fourteen days, while the study of your case is going on, you should stay in bed or at least take no exercise but sit quietly in a reclining chair, preferably on your verandah. If you have to be on foot, you must rest absolutely for half an hour before taking your temperature.

Generally speaking, *if your temperature persists in running above 99° F., you should go to bed and stay there until it has been normal for three days in succession.*

All through your treatment, your exercising must be regulated chiefly by your temperature, and the above rule holds good throughout.

Factors in the Cure.

Patient's History and Mental State as Factors in the Cure. Your doctor will have to decide whether your case is advanced or beginning, whether you are in good condi-

tion to fight the disease or worn out from long fighting it unknown to yourself. By these things as well as by your temperature it will be decided just how you are to "take the cure". But, from the moment you know you have tuberculosis, every act and hour of your daily life should be arranged with one end in view—getting well. Everything else must go by the board, if it interferes with "the cure". It may seem hard, but you have to choose between this and a much worse state of things later on. And you must not let yourself become unhappy about it. There will be friends and pleasures that do not interfere with the cure. And it is remarkable how pleasant the resting time can be made, with most of the ordinary little pleasures of life cut out. A love of good reading is a blessing and it should be cultivated. Any out-of-doors interest such as birds or flowers, and a love of the outdoor life for itself, are most wholesome.

It may take a good deal of self-control to sit still and let your former companions go to parties and picture-shows without you. You may feel ashamed to act the invalid and let others do little things for you which you feel well enough to do for yourself. You have been accustomed to lift and pull, to wrestle and run; you have been proud of your strength. It will be hard, now, to give up these things, as you must do, to get well. You may feel, at times, that such a life is not worth living. But many tuberculous patients have lived splendidly worthy, interesting, and helpful lives. You will have to remember too, that even your thoughts must be mastered. *All unwholesome, exciting thoughts, as well as discontent and worry are exhausting; they waste the forces that you need for the conquest of the enemy.*

It is not too much to expect of a soldier that he should be able to do hard things cheerfully. And indeed, if tuberculosis, with its long period of quiet and discipline, leads a man to the mastery of his own mind and to the development of resources in himself, it is not an unmixed evil.

VIII. REST.

We must emphasize as strongly as we can the importance of rest in the cure of tuberculosis, particularly at

the outset of treatment. The matter is so well and forcibly put by Dr. Lawrason Brown, of Saranac Lake, in his book* "Rules for Recovery from Tuberculosis" that we take the liberty of quoting several paragraphs.

"The time that should be devoted to rest, and the degree of rest vary, of course, with each individual and must be prescribed by his physician. *In early stages when the disease has just been discovered the best treatment is without doubt rest in bed.* When high fever is present (or, the present writers would add, when the patient is persistently very weak and languid), the patient should be allowed for a time to move neither hand nor foot, reading and writing must be forbidden and reading greatly curtailed when it is permitted. It may even be advisable for a time to feed the patient. All excitement must be absolutely avoided, for anything that quickens the pulse and the circulation may flush out of the diseased area the poisons which cause fever, loss of appetite, loss of weight and strength, night sweats, indigestion and possibly constipation. Bathing should be performed so as to avoid tiring the patient. A talkative nurse, especially one who tells harrowing stories or excites the patient, has no place in the sick room. In any case, however, whether or not there is fever, a patient is never injured by a six weeks' rest in bed, but often so greatly benefited that he feels profoundly grateful for the advice which brought it about."

The time of greatest improvement in many cases occurs during the period when the patient, having lost his fever, still remains in bed.

The idea that some patients have that should they "give up" and go to bed, they would rapidly lose what strength they have, is wrong. They get up feeling stronger in every way. *It is the poisons of disease which cause the weakness, and not the rest in bed.* "When a patient decides that he will risk remaining up at the beginning of treatment, he should avoid for at least two months all unnecessary exertion such as packing up to move, climbing stairs, all games like pool, billiards, cards, or any games

* Published by Lea and Febiger, Philadelphia, \$1.25.

of chance, all sports and all walking except what is absolutely necessary. The risks should be fully realized and the responsibility taken by the patient who, if the plan fails, must pay the penalty. . . . If by remaining in bed a few weeks a patient can shorten his time of treatment by several months, it is time well spent."

Reason for Rest. How Healing goes on.—"Any injury demands rest for repair. No one attempts to walk on a broken leg or to wiggle a finger with a skinned knuckle to hasten its healing. If patients could only see the disease in their lungs, and watch the slow progress that is often made toward healing, it would be difficult to persuade them to take any exercise for a long time. For this purpose it seems well to tell, in a broad way, what is going on in the lung when you are recovering from pulmonary (lung) tuberculosis. The dots of disease in the beginning are scattered through a small part of the lung, much as specks may occur in an unsound apple. In these dots lie the germs which give off poisons to weaken the body. On the other hand the body is trying to wall off, to shut up the germs by forming scar tissue about them. At first this scar tissue is very delicate, possibly not stronger than spider web. A forced breath, a sudden exertion, which causes us to shut our windpipe and contract our chest muscles, may easily stretch and break this delicate scar tissue, allowing the germs to escape and form new dots of disease, when the walling-off process must begin all over again. *Recovery from tuberculosis, then, consists in walling off the diseased areas and in maintaining and strengthening the wall so that no germs can escape, even their poisons being kept in, and the resistance of the body finally becoming so strong that the germs are starved to death. That this requires much time is readily understood. . . . If the disease advances and the tubercles (swellings or disease spots) become so numerous that a part of the lung is so destroyed that it can never again be of use to us, nature steps in and cuts it out. If the end of one's finger had become so full of tubercle germs that the bone was destroyed and it could not be used but was*

only a source of danger, you would naturally determine to have it amputated. When nature or the body's forces cut off a bit of the lung, they are acting in the same way. The result is a hole or cavity which, we see, is, after the disease has reached a certain stage, the first step toward healing. This hole may be surrounded by scar which gradually shrinks and contracts the cavity. In some cases more scars form than in others, and as the scars shrink, the lung cannot expand so freely, nor can it take in as much air as formerly. The result is the patient is short of breath, owing to the healing process."

Your Army of Cells.—It will be helpful to you to remember that the body is composed of millions of tiny cells, each with its own work to do. There are millions of cells in your blood, some of them fighting the enemy-cells and trying to destroy them, some building scar-tissue, some bringing food material, some taking from the air the oxygen which is so necessary to your life, and some carrying away waste. They are doing their best for you, trying faithfully to get you well. You must do your best for them. Give them good food, keep clean inside and out so they will have as little waste to remove as possible, give them plenty of fresh air, and a chance to build and heal without their work being broken down by your exertions. This is the bed-rock idea in the rest-air-and-food cure. Give nature a chance.

IX. EXERCISE.

It takes some strength of mind to refuse the advice of kind and well-meaning friends who think you can take more exercise than your doctor allows, or more than you can take and get well, especially when that advice agrees with your own inclinations. But when you fail to make steady improvement, unless that failure is definitely due to some other cause, you may be sure you are taking too much exercise.

On this subject we will quote another of Dr. Brown's pointed paragraphs:—

"There comes a time when exercise is necessary, but it is a medicine and a dangerous medicine. It has been

said that few would care to dose themselves with arsenic or strychnine when an unlimited quantity was placed before them and they were told that one-fiftieth of a grain would benefit them while one grain would seriously poison them. They would hesitate long and no doubt finally decide that they would take their chances without depending upon the tonic effect of either drug.

“Now exercise in tuberculosis works far more harm, poisons vastly more people, than either arsenic or strychnine ever does. But, like food and air and rest, exercise is at the beck and call of everyone, and most of us foolishly imagine we can employ it in our own case cautiously and helpfully. We argue that because in health exercise benefits us, it ought to do so now. But that is reckoning without the tiny dots of disease and the poison they contain. *For the patient with pulmonary tuberculosis there is no danger so great as that contained in exercise.*”

“As soon as you leave your bed you begin to exercise, for many large muscles are used in merely standing. Simply getting out of bed sometimes raises the temperature, and sitting in your chair requires more food to prevent loss of body substance than lying in bed. Walking is very considerable exercise. Seeing visitors, writing, and games are all forms of physical and mental exercise. These and all kinds of mental excitement are very injurious to some patients and should be avoided for many weeks after physical exercise has been begun.”

To know when to begin your exercise and how to increase it you should obtain the most expert medical advice you can, and then faithfully and trustingly follow it. But for your help and guidance there is a special division of this book given to detailed suggestions (see “Daily Routine.”)

Another point to be remembered is that when you are exercising you use up more food than when you are at rest. If you are losing weight, you are either spending too much body substance in exercise, or not taking enough

food,—probably both. The best thing to do is to take less or no exercise. At the same time your appetite will be likely to improve.

And if you feel tired after exercise you may be sure you are spending strength that your body needs for fighting the disease. Two good rules therefore, are

When there is continued loss of weight, cut down the exercise.

Never get overtired. If you tire easily, take less exercise.

AIDS AND COMFORTS.

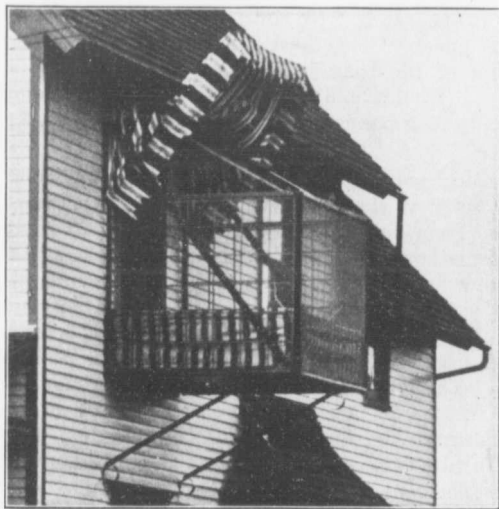
X. LIVING ARRANGEMENTS.

The Porch.

One of the chief needs for recovery from tuberculosis is that the patient shall spend his days and if possible his nights too, out in the open air. In no room, be it ever so well ventilated, can you take the cure so profitably as out of doors. It is free, constantly moving air that has the best effect. Cold, fresh air quickens all the healthy processes of the body better than any tonic you could swallow. To this end you should make every effort to have a sleeping porch which will be, for you, a living-out porch.

The ideal porch for this purpose is built out from the second story of the house, for the sake of privacy and freedom from dust. It should be on the most sheltered side of the house, preferably facing the south, south-east or south-west if you are to be out the year around, as you should be, for sleeping at any rate, even after you are well. The north side should not be selected except for summer use, as it is the windiest and coldest position in winter. The porch should be about ten feet wide, ten or twelve feet long, and at least seven feet from floor to ceiling, allowing room for bed, table, "cure-chair", and any other furniture needed to make of it a pleasant living-room. The end most exposed to the weather may be boarded up, but there should be a window or shutter to open on warm and windless days. The open sides should be tightly boarded up as far as the railing, two and a half feet from the floor. From the top of this boarding to the ceiling there should be canvas curtains on rollers, or slid-

ing or swinging windows for use in stormy weather. But on a wide porch, the bed can be rolled back to the wall in moderate storms, where the wet will not be likely to reach it. In good weather the patient should be as near the outer side as possible, but keep the head out of strong sunlight. It must be remembered that *a porch that is partly shut in with windows or canvas is little better than a room.* These should be used only when necessary to keep the patient from getting wet or to protect his eyes from the glare of the sun. The floor should be laid with narrow pine or spruce boards, using white lead and oil for filling the cracks. It should have a slight grade, say one inch in 5 feet, so that water will not stand during



Suspended Porch.

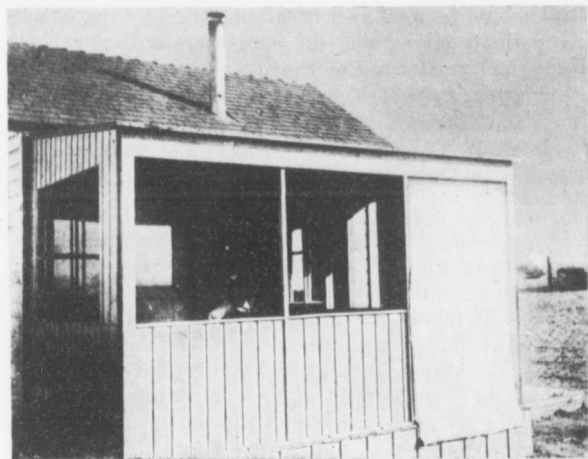
rain. There should be a well-heated room to which the patient can go to dress or to get warmed up when cold. It will be found most convenient to have your porch con-

nected with your room by a door $3\frac{1}{2}$ feet wide to allow a hospital bed to be rolled in and out. A window may be cut down for this purpose. In summer the porch should be screened with mosquito netting.

This, as we said, is the ideal porch, but almost any roofed verandah may be used for the purpose, with a canvas curtain at one end to give privacy. Or a very cheap rough porch may be built. So long as the patient is comfortably at rest in the open air and protected from the weather, the main object is served.

Shack.

A shack costs more and is less convenient than a porch, but it is to be preferred to a tent. It should contain a



A Cheap Porch.

room that can be heated and a porch as nearly as possible like that described.

Tent.

We do not advise the use of a tent, unless for a short time, for a fairly vigorous patient without fever. A tent is better than a stuffy room; and, for summer and fall, a tent in a dry situation can be made fairly comfortable if it has a fly or a second roof with air space between it and the tent proper. It must have a board floor, laid several inches above the ground, and boarded-up sides to a height of $2\frac{1}{2}$ feet. The canvas must, of course, be kept rolled up, except in storms, else the tent is no better than a room indoors. *Porch, shack, or tent should be open on two sides at least.*

Use of Roofs.

The flat roofs of tenement and apartment houses in cities should be used as a breathing place by the tenants, and patients might take the cure there with the use of cheap shelters of wood or canvas.

Room.

If it is absolutely impossible to get any out-door living quarters, and you have to "take the cure" in a room, let it be the sunniest and airiest room in the house, and with two or more windows if possible. A corner room with cross-corner ventilation is best. One of the great disadvantages of taking the treatment in a room is that you will find it hard in cold weather to make the room warm enough for bathing, dressing and taking your meals, as the windows have to be open at all other times. That will mean not only some discomfort and danger of chills, but the very serious loss of four or five hours a day of taking the cure. One of the advantages of a porch, it will be seen, is in being able to keep your room warm while you are in the open air.

The room should be uncarpeted and free from hangings

and upholstery which may harbour dust. If the floor is not varnished hardwood, oilcloth is the best substitute. Cracks and rough wood it is most difficult to keep sanitary. *The floor should never be swept but should be wiped each morning with a cloth or mop dampened in water or in a solution of carbolic acid or lysol. Dusting should never be done with dry but always with damp cloths.* Small foot rugs which may be kept free from dust by moist cleaning out of doors may add to the patient's comfort. A bare room which can be endured for a few weeks' illness may become depressing during months of a rest-cure. The room, therefore, should be made as pleasant as is consistent with perfect cleanliness. Anything that tends to cheer or inspire the patient helps in the cure. An open fire is not only delightful but an aid to ventilation. It should be carefully managed so as not to cause dust in the room.

Window Tent.

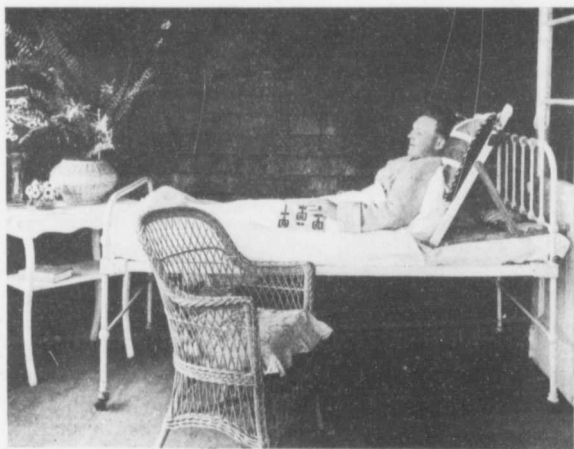
If you are obliged to use a room with one window, about the best you can do is to arrange a window-tent so that your head and shoulders shall be in the air from the window, while the air of the room is kept from you. It is a poor substitute for outdoor life, but this is how the window tent is made: Use 12 to 15 yards of heavy denim or light canvas. One straight piece of canvas should be hung from the top of the window casing to the outer side of the bed to be fastened to the bed rails with tapes, and the openings between this and the side casings of the window filled in with sides cut and fitted from the remainder of the canvas. Or take two large and heavy cotton sheets, sew them together along the edge, tack one end of this double sheet to the top of the window casing, and drop the lower end over the outer side of the bed, fastening it to the bedrail with tapes. There will be enough cloth hanging on each side of the window to form the sides of the tent, and these should be fastened to the side casings of the window. A window tent may be bought from the Cabinet Manufactur-

ing Company of Quincy, Illinois, who will furnish a catalogue of prices.

XI. SLEEPING OUT.

The Bed.

In summer, sleeping out is a simple matter, but in winter special means must be devised to keep warm. A



Use of the Back-rest in Bed.

narrow bed with strong springs that will not sag (a hospital bed is best) and as good and thick a mattress as possible should be used. Rubber-tired castors on the bed are a great comfort. In cold weather it is very desirable that you should get into bed in a warm room and be rolled out to the porch, particularly if you are in poor condition, or have any fever (are "running a temperature" as we say). If this is not possible, the use of a warm dressing-gown will enable you to go back and forth without taking

cold. When the bed is out all day, it should be warmed by placing between the sheets a hot-water jug (stoneware "pig"), or some sort of warmer, an hour or more before bed time. Flannelette sheets ("cotton blankets") should be used instead of cotton sheets. In a changeable climate it is well to adapt the amount of covering to the changes of weather. In winter, at least six woollen blankets will be needed, but of course if all these are used on milder nights, you will be chilled under the same covering on



Open Air all the time—Winter. Wrapped up in Chair,

colder nights. It is well to have your blankets light and soft, though thick. A good rule is to have the bed covering as light in weight as possible to keep you warm. Too heavy covering is likely to leave you feeling tired. A warm "comfort" should be within reach to be drawn up if there is a sudden change in the weather before morning. There should be a fairly thick pad of some kind placed on the spring to prevent cold coming up through the mattress. An old quilt or blanket may be used for

this purpose, or a good spring pad can be made from many thicknesses of paper held together by a cotton covering. Some use two mattresses.

The Klondike Bed.

The bed must be very carefully made up for the night so that there is no smallest opening around the bed-clothes, through which cold air can reach your body. One way to be sure of an air-tight bed is to make a sort of sleeping bag of the covers. To do this you should have a smooth pad on top of the mattress (the under sheet doubled will do) and all the coverings, when they have been spread in place, are tucked smoothly under this pad or sheet—not under the mattress as is usually done—on both sides and across the foot. Then the outer cover—a large comfort or horse blanket—should be spread over all and tucked firmly under the mattress at foot and sides to keep all in place. This is what is known as the “Klondike bed”. To get into it one must slip down from the top.

If there is difficulty in keeping cold air from getting in between the pillows and shoulders, try crossing two thin pillows in inverted “V” shape, placing your head in the point of the “V” and allowing the two ends to cover your shoulders. For the same purpose some patients attach to their sleeping hood a wadded cape just large enough to cover the top of the shoulders.

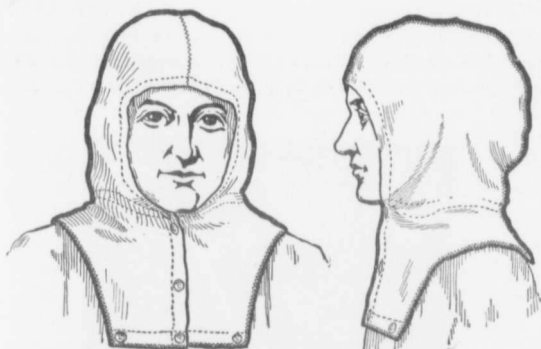
Your head should be protected from strong winds. *But never cover the head with the bed clothes*, nor allow them to get in front of your nose, and interfere with the free current of your breath.

A waterproof sheet (oilcloth or rubber) may be used to cover the bed when rain or snow is likely to reach it, but it must not be kept on long enough for the patient to become damp. The body is always giving off “insensible” perspiration and this must be allowed to evaporate through both bed clothes and mattress. Needless to say, if bed-clothing gets damp it should be taken indoors and dried.

Patient's Clothing.

Patients differ so greatly in their ability to stand the cold that it is impossible to give rules for dressing which will apply to all. What would be too much for one might be too little for another. One rule can be laid down and that is "wear enough to keep you comfortably warm, but no more." You must not be cold, and you need not be. Patients sleep out when the thermometer is below zero and keep quite warm. You can do the same with proper clothing.

Pyjamas of wool or flannelette are better than night-gowns; and these, with a sweater or woollen jacket and



Hood, front and side views.

long bed socks reaching above the knees, are usually found sufficient by the most sensitive to cold. The Denton sleeping garment with hood, jacket, trousers and feet in one piece is a good arrangement. A wool and cotton mixture, or wool and silk, is usually more comfortable than heavy all-wool for underwear; and of course, if you wear it at night, it should not be the same suit you wear all day. If you are thin and weak, or if you cannot keep warm in any other way, have hot bricks or "pigs" or hot-water bags in your bed; but it is unwise to become dependent on these things. Better produce your own heat. Some

patients wrap themselves in a warm blanket before getting into bed.

A warm hood or cap will be needed, and, if the nose suffers too much, a warm strip to cover the top of it should be attached to the sides of the hood and held in place by elastic round the head, but remember that nothing must interfere with your free inhaling of air. Chapping of the face can be prevented by using cold cream or toilet lanoline.

XII. SITTING OUT.

The Cure Chair.

If you are able to be up and dressed, you will need a special reclining chair for sitting out. The ordinary easy chair is seldom suitable, as you need a foot rest and an adjustable straight back to support the head and keep the chest in good position as you lie in it.



Back rest on the grass.

With a back-rest you can use your bed for a cure-chair if you so desire. This back-rest is a real convenience and, with cushions, makes a comfortable seat, even on the grass.

How to Wrap up in Chair.

If your cure-chair is not provided with a mattress you will have to have a fur or other thick rug over it; one made of many thicknesses of blanket and paper could be used. When preparing to sit out, you should have the

chair overlaid with double blankets and possibly a large "comfortable" besides, extended their full length, the free end and sides lying on the floor. The end upon which you are to sit should come to your waist, covering the lower part of your coat when you are wrapped in it. After seating yourself, draw up the free end at your feet, covering the legs above the ankles; pick up the right side, tucking it under the legs at the left, then the left side, tucking it under you at the right. Thus you are in an air-tight bag. (See illus., p. 35). A steamer rug may be placed over all.

How to Rest in Chair.

Do not get into the habit of sitting with your back curved. A poor arrangement of cushions often causes this position. For that reason the flat mattress or rug without pillow is usually better. When you lie back in your chair completely relaxed, the chest should be high and abdomen in. A small firm cushion at the lower back may help in throwing you into this position. Be comfortable. Relax every muscle and nerve. When you are resting outwardly, rest inwardly. Have a table beside you with such work and amusement as you are allowed. But, whether reading, playing games, or doing anything else, do not sit up straight in your chair. You may have to get the chair-back raised, but use it.

Day Clothing.

For the day, as well as for the night, your clothing should be of light weight but warm. Use the warmest coat you can get, with a high soft collar, and wear a wool sweater under it when necessary. A fur or fur-lined coat is best for sitting out in cold weather. One of the cheapest and warmest of coats as well as a very nice looking garment is of corduroy lined with sheepskin and having a high fur-lined collar. If desired a cap and muff can be made to match. Do not wear chest-protectors nor muffle the throat and chest too much. Warm underclothing is

needed, and some use leather leggings and wool tights as extras for walking on very cold days. Cloth spats are a good protection for the ankles. *Do not get chilled; it is harmful and unnecessary.*

Be sure to keep your feet and hands warm. High-topped boots over woollen stockings are good if you are allowed to exercise. Felt boots are warm and light for sitting out. If wool stockings are too irritating, wear cotton ones under them. Wear as many pairs of stockings as necessary, but have nothing tight on either hands or feet. Large fur-lined leather boots over your soft leather shoes are very comfortable, but expensive. Foot muffs may be used on coldest days. They are made of fur or thick quilts sewed up like a bag in which the feet are placed. Do not sit out in rubber footwear. If you cannot keep your feet warm in any other way, use hot stones or a hot-water jar but, as we said before, artificial heat is to be avoided if possible. If you are taking no exercise and have poor circulation, it may be improved by having someone massage the feet and legs each night and morning. Cold feet may be caused by sitting with the feet too high. For the hands use thick wool or fur mittens with gauntlets or long wristlets to keep the wind from your arms. Or use a muff or anything else that will keep you warm. "There is no virtue in shivers."

XIII. ATTENDANCE.

It is impossible for a patient to get the rest we have described unless he has someone to give him good care. Too often, because he looks well and is able to move about, a patient is allowed to do many trifling things that he ought not to do (but we may say right here that in tuberculosis there are no "trifles". Every smallest detail is important.) If you have a tuberculosis patient in your home, you can greatly help him in his fight by not letting him lift this or reach up for that, move this or fetch that. Do not let him raise or lower his window nor arrange his bed and chair until it is safe for him to do so. Remember the spots of disease and the slow forming of scar-tissue

about them. Every muscular movement you can save the patient, every worry and fret you can spare him, is so much to the good and against the enemy. Even when he is allowed slow walking out of doors he may need help in dressing in heavy clothing, and he may be quite unfit for exertions about the house. When a patient is improving he is likely to feel very energetic, and one of the best aids he can have is someone firmly and kindly to restrain his activities so that he shall not overdo it. Unfortunately, in tuberculosis, there is a tendency for the mind to drive the body beyond its safe limits. *Do not suppose that as soon as the patient is out of bed, he needs no more attention, or you will soon have him back in bed and worse than ever.*

Bathing and Rubbing. For giving a bath in bed, use a woollen blanket to protect the bed from splashes and the patient from unnecessary exposure or chill. Remove the bed covering and have the patient roll over to one side of the bed; spread the bath-blanket over the bed, tuck one edge under the patient and have him roll back upon it; pick up the two free sides of the blanket and cover the patient with it while his clothing is removed. Part of the blanket is turned down while chest and arms are bathed, then the patient turns over to have the back done. The upper part of the body may then be clothed or wrapped in the blanket while the lower body and limbs are bathed, either under the blanket or preferably by turning it back, one side at a time. Or simply spread the bath-blanket over the patient, using thick towels to protect the bed from dampness. For the cleansing bath, two basins should be used, one for warm water with soap, the other for cold water. All soap should be carefully removed from the skin. A gentle rub with talcum powder is a pleasant finish, and may sometimes be used when no bath is given. For a soothing effect rubbing should be in long downward strokes, especially down the back; for tonic and stimulating effect, vigorous upward rubbing with a coarse towel is the thing. For an oil-rub, use strong, slow, circular movements. The daily cold bath is useful

for its tonic and invigorating effect, but it is not enough to keep the skin clean. The warm cleansing bath should be given at least two or three times a week and always followed by the cold sponge. This, with care in drying the skin well, should prevent bed-sores. But if they threaten, try alcohol rubs. If the patient is too weak to react to cold sponging—that is, if he is blue and chilly rather than in a glow after it—the second water should be slightly warmed. The cold sponge is such a healthful habit and valuable tonic that it is worth while to try to accustom a patient to it unless it is doing him harm. Most patients stand it well. Consult your doctor.

Care of a patient at absolute rest. If it is found that a patient could make better progress by remaining absolutely at rest for a time, it will be necessary to secure a bed-pan and not allow him to go to the toilet. With proper covers and care, all that is necessary can be done in an inoffensive and sanitary way. Consult your doctor in any difficulty.

To tighten or change the sheets with the patient in bed, proceed much as in preparing for the bath. To change the under sheet, have the patient roll to one side of the bed—say the right. Loosen the used sheet at the left side and push it back under the patient; tuck the fresh sheet under mattress at left side and foot, and spread it smoothly to middle of bed, leaving the right half in a fold close to the patient. Roll the patient over this fold back to the left side on the fresh sheet, remove the used sheet and stretch the fresh one, tightly tucking it under the mattress at right side and head.

When it is possible, the bedclothes should be exposed to the sunlight for an hour or more each day.

When it is advisable that the patient should not raise himself in bed for a few days, he can have nourishing meals of such liquids as can be taken from a feeding mug, and sandwiches, etc., which he can eat lying down. If he must take food in small quantities, he should have it oftener than usual, say every three hours. If a patient has to lie awake for hours at night or early morning, he

should have a glass of malted milk, or milk and possibly a biscuit at hand.

Do not forget the first thing in the morning to take the patient a cleansing solution with brush or swabs of cotton to clean his teeth and wash out mouth and throat. He should spit into a small basin kept solely for this purpose. Then give him a supply of fresh drinking water. Preferably, this should be half an hour before breakfast.

It is most important that the attendant upon a case in the last stages of tuberculosis should not only attend strictly to the patient's cough when he is too weak to do so properly himself, but should be scrupulously careful to disinfect all discharges.

What to do in Case of Hæmorrhage.

The treatment of hæmorrhage depends upon the amount of expectorated blood and the frequency of the bleedings. When the sputum is merely tinged or streaked with blood, all that is necessary is to omit all exercise and to keep very quiet for a few days until the sputum clears. The patient may go from the porch to his meals as usual, if necessary, but it is not wise to make light of blood-tinged sputum. Disagreeable results may follow if the patient exerts himself or follows his usual routine, while a bad hæmorrhage may be avoided by rest. When the spitting of blood is of a teaspoonful or more, the patient should go to bed and be kept at *absolute rest* until the sputum has remained clear for four or five days. Profuse bleeding is usually alarming to the patient, but it is important that he and his attendant should keep calm. There is no cause for excitement and it is harmful to the patient. It is one of the rarest occurrences in tuberculosis for a patient to bleed to death, and if it were going to happen it would probably be all over before he had time to realize it. Place two or three pillows under his head and shoulders and be ready to hand him a small basin or sputum box when he has to expectorate. Call your doctor and follow his orders. Give a laxative the first even-

ing, or use an enema so that the bowels move freely. The patient should have no solid food while bleeding continues. A feeding mug with spout or a drinking tube should be used. A glass of milk containing about four teaspoonfuls of lime water should be given every three hours the first day. If the bleeding has ceased on the following day, light diet may then be given, such as junket, jelly, mashed potatoes, raw scraped beef sandwiches. Increase the diet gradually, and for some days avoid stimulating foods, such as tea, coffee, pickles, pepper, etc. Especially avoid alcoholic drinks. If the bleeding has been severe, it is well to keep the patient at rest in bed for ten or twelve days after all bleeding stops, and longer if there is any fever.

Should a hæmorrhage come on while you are on foot, sit down, keep quiet, and let some one help you to bed. It is important that you should not exert yourself nor try to keep back the blood.

XIV. FOOD.

Importance of the Feeding Problem.

We now come to the third part of the "rest-air-and-feeding" treatment. One of the necessary factors in the cure of the consumptive is plenty of good nourishing food. Many families which might be properly fed on the sum they now expend are under-nourished because the housewife does not understand food-values and the body's needs well enough to spend money to the best advantage, nor does she study, in many cases, how to prepare and combine foods for use in such ways as to get the most benefit from what is at hand. It is not always those whose food costs most or even those who eat most who are best fed.

What Food is Needed for.

In health the full-grown body needs its food-supply for three purposes, heat, energy (meaning power to do work, to exercise) and renewal of waste, that is tissue building and repair. Our heat and energy are supplied chiefly by

the fats, starches and sugars, but for tissue building and repair we must also have foods rich in the chemical element nitrogen.

Terms Used. In reading about foods you will often come across the word *proteid* or *protein* foods. That is the accepted term for the food-material which provides the necessary element nitrogen. And as the starches and sugars are especially rich in two other chemical elements, carbon and hydrogen, you find them referred to as the *carbo-hydrates*. The term *calorie* is used to express the amount of heat that a food can produce in the body; or, generally speaking, *calorie* is the unit of food value.

Proteins. Our main sources of protein are lean meat and fish and what we may call, in a diet, meat substitutes, such as eggs, milk, cheese, nuts, and the legumes or pulses which include beans, peas, lentils and peanuts. There is protein in many other foods, especially in the gluten of wheat, in oatmeal, and in smaller proportion in the other grains, rice, corn, rye, barley and in potatoes.

Fats. Our sources of fat are butter, cream, milk, fat of meats, vegetable oils and nuts. There is a small amount of fat, also, in the grains, in eggs, and in some other foods.

Starches. Some of our commonest starch foods are those made from wheat flour, barley, rice, tapioca, sago, corn-flour, dried fruits, pulses (beans and peas) potatoes, etc.

Sugars. Sugar, including syrups, that is cane sugar, though a valuable source of energy, cannot be taken in large quantities, as it upsets the digestion. In the form of jams and sweet jellies, though not very economical, it adds variety to the diet. The sugar found in fresh fruits or prepared from grains is not open to the same objection as cane-sugar.

Mineral Salts. There are valuable and necessary elements such as iron, lime, phosphorus, etc., found in various foods which are low in heat-producing value. Among these are fresh fruits and green vegetables. These should be used freely.

Planning a Diet.

With the help of even this general knowledge, you can plan meals so as to keep the balance of the different food materials, protein, starch and fat. For instance, *as beans, peas, cheese, eggs, etc., are rich in protein, at a meal when they are used freely, meat and fish may be omitted or used in much smaller quantity than usual.* A meal consisting of a meat course, cheese, and an egg dish is greatly overbalanced on the protein side, while a meal of bread, potatoes, tapioca and "preserves" would have an overbalance of starch and would be deficient in protein. As gelatine is a partial substitute for protein, a jelly made with gelatine, or a custard, should be used when little protein is served; while at a dinner where a large helping of meat is served, a starch pudding (cornstarch, tapioca, etc.) should be used. Plan whenever it is possible to have some fresh fruit for breakfast and a green vegetable for dinner. One or two glasses of milk should be taken at each meal.

Beef teas, chicken broth and meat extracts have practically no value as foods. It should be understood that although the flavour of meat is appetising to many, and to them consequently, has its value, flavour is not food. It is largely the toxic properties produced in an animal's body which, dissolved out in boiling, give to broths and extracts their strong "meaty" taste, while it is in the fibre and substance of the meat which is left behind that our protein is mostly to be found. That is why strong beef tea acts as a stimulant or drug or mild poison, and in cases where the body is already poisoned by disease, may do actual harm. These toxins have to be carried away as waste by the blood-cells which are probably already overworked. The free use of meat and fish may be open to the same objection in advanced cases of tuberculosis when the body is overcome by the absorption of tuberculous toxins (poisons) from the diseased area. It lays extra work upon the organs which carry away poisons and may help to keep up the temperature and also to induce the kidney troubles which so often result.

Pudding, etc. Of the many excellent puddings that can be made, probably the most nourishing is a fruit suet pudding. Dried fruits (dates, raisins, currants, figs) have good food value and should be used freely. With plenty of suet and plenty of chopped dates and raisins, currants or figs, such a pudding is a rich and well-balanced article of diet—almost a meal in itself. But to be digestible it must be very light. Steaming is the best method of cooking these puddings. If they are boiled in a cloth, the water should be boiling violently when the pudding is put in, and no cool water added at any time to stop its boiling. Baked puddings consisting of bread crumbs with raisins, currants, or other fruits and milk and butter or beaten eggs are highly nourishing dishes. So are rice-with-fruit puddings, and the other starch foods mentioned. These should be served with cream or a sauce. Pies if very light, with their fruit and sugar fillings, have good food value, but poor pastry is a waste of flour and ruinous to the digestion. Speaking generally, puddings are more wholesome than pies and should largely replace them. A sauce made smooth, of milk, flour and butter, whether used as a white sauce for fish and vegetables, or, sweetened and flavoured, for puddings, adds materially to the food value of the meal.

Cheese is not only a rich food substance but a useful flavouring. Grated fine and mixed with the usual white sauce it changes escalloped potatoes to a different dish altogether. Macaroni and cheese makes an excellent supper dish, but be sure that the macaroni is thoroughly cooked first by boiling, that the cheese is so well grated and placed that it will not form a tough, indigestible mass, and that the baking dish is closely covered until a few moments before it is taken from the oven. If raw cheese is found difficult to digest, (it should not be, if well chewed) it may be cooked in a variety of ways, after being dissolved by the help of bicarbonate of soda (baking soda). Served hot on buttered toast it is a good protein dish for supper. Grated and rolled in an omelette it helps to make a most appetising breakfast dish.

When the cost must be considered with saving as an object, it may be well to remember, in addition to what we have said about relative food values, that eggs, though they are an excellent and highly concentrated food, are not profitable to buy when their cost is above forty cents a dozen, if plenty of milk is easier to get. The necessary food elements can be supplied more cheaply from whole milk, even if it is twelve cents a quart. If many eggs are used they should be taken soft-boiled or raw, either whole or beaten up with milk and flavoured. Fried eggs and especially hard-boiled eggs are indigestible. When it is impossible to procure enough whole milk for drinking and cooking, try using separated or skimmed milk for cooking—but not for drinking. Buttermilk, it may be added, is a very wholesome drink. Use it whenever you can; but it does not completely replace whole milk. Whole milk soured by the Bulgarian Bacillus is widely advised by experts as serving to overcome intestinal toxins and at the same time being more digestible than sweet milk.

Cottage Cheese is one of the best of protein foods or meat substitutes. A third of a cupful will give you as much protein as a generous helping of beef. To make cottage cheese, warm sour milk on the back of the stove, or stand a bowl of it in a pan of hot (not boiling) water for about twenty minutes. Stir occasionally. When the curd and the whey have separated, pour off the whey through a sieve. Work the curd well with a spoon and let it drain. When fairly dry, work again until smooth, adding a little salt. Cream may be added before using. It may be served with vegetables, as meat is served, or with sweet jelly or preserve. The whey may be used in bread-making.

Fats and Oils. The ordinary diet usually contains too little fat, and the tuberculous patient needs extra fat to keep him warm and increase his resistance. You should make it a rule to eat at least a cubic inch of butter at each meal, and if you are not taking much meat fat, you must make up your supply from other sources. It is an

excellent plan to take a dessertspoonful of pure olive oil at each meal. Only the highest grade oil is palatable. If you like it, it can be used in dressings or with your food; if you dislike it, it can be washed down by a few mouthfuls of milk or fruit juice without being tasted at all. Cod liver oil is as good, but few would prefer it. Cream is a pleasant form in which to take fat, and you will do well to use plenty of it so long as your digestion stands it well. Peanut butter is rich in both protein and fat.

Digestion. We have said that our food combines with oxygen in our blood and that tissue repair is carried on by the blood cells. It follows, then, that food, to nourish us, must first be dissolved so as to be absorbed into the blood. Any food which is hard to dissolve gives extra work to the digestive organs and any cooking process (frying especially) which makes a food tough and insoluble is to be avoided. The dissolving or digesting is done by certain juices produced by the stomach and other organs, one of these juices being the saliva in the mouth. *For this reason it is most important that food should be well chewed and mixed with this first digestive juice.* This is particularly true of the starchy foods, for starch is not soluble, it has to be changed to a form of sugar before it is dissolved, and this is partly done by the saliva. Chew a piece of dry biscuit and you will notice that it develops a sweet taste. Indeed, we miss the full flavour of our food and at the same time promote indigestion and "nervousness" by our hurried eating and insufficient chewing. There is this objection to the frequent use of porridge or mush and soft food, that they need little chewing and do not get well mixed with the saliva. Indeed, some forms of indigestion may be cured by confining oneself to a diet largely of dry foods and avoiding liquids at meals. The dry cereals, crisp crackers, oatmeal or whole wheat wafers, and toast which is lightly browned all through, are excellent for this purpose and to encourage the chewing habit. If you have good digestion, there is no reason why you should not drink

water at meals, but do not take water, tea nor any other drink in the mouth with solid food, as that dilutes the saliva and interferes with its action upon the food. Absolutely avoid warm breads, and sour or poorly-baked bread. These are ruinous to the digestion. Avoid highly seasoned foods, pepper, mustard and hot pickles. Use little vinegar. When an acid is needed, use lemon juice whenever possible. It should be remembered too, that the state of mind and emotion has a marked effect upon the digestion and absorption of food. Worry, suspense, anger, discontent, and excitement, as well as fatigue, interfere seriously with both appetite and digestion. Irritating and depressing subjects of conversation should be avoided, especially at mealtime, while "a merry heart doeth good like a medicine. To eat at east in pleasant company is one of the means to a good digestion. *Observe the half-hour's rest before and after meals.*

The Cultivated Appetite.

Do not get into the habit of refusing food because you do not especially like it. If you are not eating enough, you can use your will power to eat more, just as a person who is eating too much has to use his self-control to eat less. *A person can gain weight even if the necessary food is eaten without desire.* For those who have always been "poor eaters" it is possible—and profitable—to cultivate the habit of sufficient eating, if not as a pleasure, then as a business.

Gaining Weight.

It will be seen that, when any part of the body tissue is being attacked and broken down by tuberculosis the blood cells need a better food supply, especially of tissue-building elements, than they do in health. If you are not taking enough food, the body substance itself is drawn upon and "consumed," its stored-up fat is used, and the tissues waste—the body becomes very thin. That is why this stage of the disease has been called "consumption."

If a patient is below weight, he must take in more food than that consumed in his body each day, so as to increase his body-substance and store up some reserves for any extra demand that may be made upon him. He should be weighed at regular intervals, always at about the same time in the day and always wearing the same weight of clothing. If his weight is below what it ought to be for his height and age, he must try to gain gradually (a pound a week is a good average gain) until he reaches that weight and goes a little beyond it. At this point the weight should be kept about stationary. In most cases three good meals a day will be sufficient for this. If not, a glass of milk may be taken at 10.30 in the morning and at 3.30 in the afternoon just after the temperature is taken, and possibly again after the evening temperature-taking, about 8 p.m. If it is found that the appetite or digestion is unfavourably affected by this frequent lunching, omit the morning and evening lunches. If the patient seems better without anything between meals, he will have to give up all three lunches and take the extra milk at meals instead. Malted milk is sometimes taken better than milk between meals, or a lemon-albumen may occasionally be substituted. This is simply lemonade into which the beaten white of an egg has been stirred.

Over-Feeding.

Here we may mention the idea of over-feeding in tuberculosis, which used to be popular, but which has been quite given up. *Remember that one of the main dependences of the consumptive is his digestion and nutrition. If over eating or wrong eating impairs his appetite or his digestion it is doing him the greatest injury.* If a patient cannot eat well and digest well, he has a poor chance to get well. Over-feeding may do as much harm as under-feeding.

Elimination.

The importance of prompt and thorough removal of waste products from the body is greater than most of us

realize. We hear a great deal in these days about "auto-intoxication," that is, self-poisoning. Certain scientists have told us that the absorption of poisons produced in our own bodies is one of the largest factors in lowering our resistance and bringing us under the power of "all the ills that flesh is heir to," including old age. Now, as the overcoming of tuberculosis is a question of increasing and keeping up our bodily resistance, we must impress upon patients the need of strict attention to regular *and full* evacuation of the bowels. Twice a day is better than once, but one full movement a day is usually sufficient. Regularity of hours is essential. In the morning before or right after breakfast is the best time to fix upon. A better method than the habit of taking laxatives should be found with the help of your doctor. Some find that drinking a glass or two of water half an hour before breakfast is an aid to internal cleanliness. It is an excellent habit in any case. Often the use of fruits or fruit juices in the morning serves the purpose. Coarse foods or any harmless preparation to give bulk in the intestines may be used.

Certain poisonous products have to be eliminated by the kidneys and the skin. Keeping the skin active by the daily bath and rub tends to relieve the kidneys and prevent their being overworked. It is well also to drink pure water freely, at least a glass or two in the morning as soon as the mouth has been cleansed, and a glass half an hour before each meal.

XV. DAILY ROUTINE.

Incipient and Walking Cases.

In incipient or very early cases, where there is no fever, and where symptoms (loss of strength and weight, etc.) are not marked, the patient may not have to stay in bed, although, as we have said, a month to six weeks' rest in bed is the best beginning of treatment in any case.

When your condition has been studied as described under "Taking the Cure at Home" (p. 22) and when it

has been decided that you are to be a "walking case," the usual sanatorium daily routine should be strictly followed:—

Each morning on rising take a cold bath and rub all over, or at least to the waist.

After breakfast, rest in your cure-chair on the porch until 10.30. Reading may be allowed.

At 10.30 take your morning walk as prescribed.

Rest in cure-chair at least half an hour before dinner.

After dinner, rest until 3.30 or 4 o'clock. This would be better taken on your bed. Sleep if possible.

At 3.30 or 4 take your temperature, then your afternoon lunch, if prescribed, and go for your afternoon exercise, walk or drive.

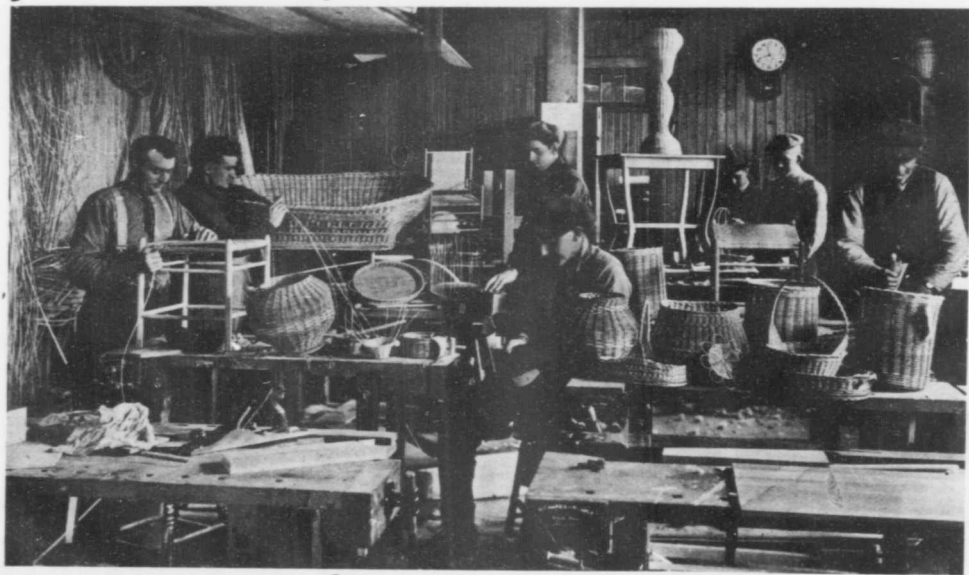
Do such reading and writing as you are allowed, but keep out on your porch.

Rest in your cure-chair for half an hour before supper.

If you go to bed at 8 or 8.30 you may spend the hour after supper indoors. Otherwise, rest in your chair on the porch for half an hour after supper, then spend an hour indoors, but always *be in bed at 9 or 9.30*. A warm cleansing bath should be taken at least twice a week.

Bed Cases.

If you are to stay in bed you may be allowed to go to the toilet, but special effort should be made to avoid going up and down stairs. Your doctor will tell you if you should take your own daily bath or have someone to bathe you. You may after a few days sit up in bed for a short time, (say ten to twenty minutes) to read or do a very little writing or talking, at 10.30 a.m. or at 4 p.m. If the temperature fails to come down in a week, leave out the writing and reading. If after a few weeks the temperature still does not come down, *all exertions should*



Sanatorium Patients at Basket-work.

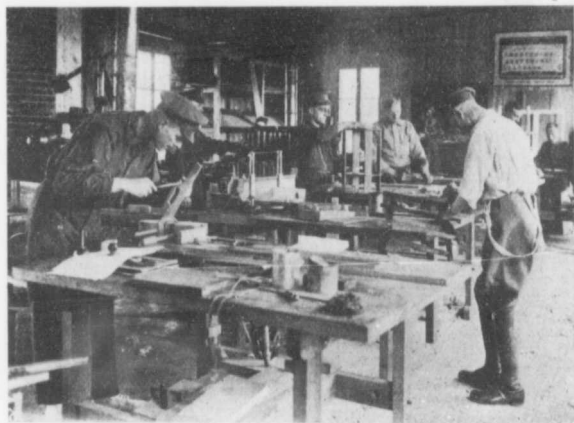
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be dispensed with, and an attendant secured so that you shall not have to get out of bed at all. (See Attendance, p. 40). If there is not between your porch and room a door through which your bed can be rolled, there should be a warm bed in the room, to which you may go to be bathed, and, when it is too cold out of doors, to take your meals. Then the only moving you do should be from bed to bed. Even this entails considerable exercise, and if absolute rest is the object, it can not be done. Possibly you might be carried from bed to bed when all exertion on your part must be given up for a while. Wait patiently and cheerfully for your temperature to come down.

When the temperature has been normal for several days, you may sit up in bed (made comfortable with back-rest; see p. 34) at first for half an hour and then for an hour each day. If there is no rise in temperature, you may then begin going to the toilet once a day, if you have not been doing so, but take no further exercise whatever for a week or so. Then try sitting up well wrapped up in your cure-chair from 10.30 to 11.30. Soon you may begin dressing yourself at this hour. Rest in bed from breakfast time till 10.30, dress slowly, and sit in your chair a little longer each day until you are spending all the time in it with the exception of your afternoon rest-hour, after dinner to 3.30 or 4 o'clock, when you should be on your bed and asleep if possible. If you cannot obtain a good "cure-chair" use the back rest on your bed, but it is understood that you are always out of doors, or just as many hours as you possibly can be. You may now do some reading or writing as you sit in your chair, but never get tired nor excited. You should now be able to go to the table for your meals. If you find this tiring or exciting, try having breakfast and supper in your room for a time. After a week or more of this, *if the temperature remains normal* you may begin exercise, that is taking slow walks of five or ten minutes, on the level, and always at the same hours, say 10.30 a.m. and 3.30 or 4 p.m., after the afternoon rest. Always return to your chair and rest until supper time. Once you have begun

to exercise without ill results, you may take your own cold bath each morning, and your warm cleansing bath twice a week.

If your condition permits it, that is, if your strength is good and your temperature normal, your time of exercise should be gradually increased at the rate of about fifteen minutes each week until you can take at least an hour's walk twice a day without tiredness or the return of any symptoms. Until the disease is well healed, avoid running and hill climbing. As soon as you are taking



Sanatorium Workshop, Ste. Agathe.

exercise, you should adopt the daily routine of sanatorium patient as given on page 53. If at any time your temperature is above 99° , stop the exercise. If it goes above 99.5° stay in bed until it has been normal for three days. And if your sputum is pink or streaked with blood, take no exercise until it is clear of "colour." (See p. 43.)

Getting Back to Work. When you are able to take an hour's walk twice a day, you may undertake light work; but avoid such exertions as lifting, pulling and

jerking, and always remember to stop short of fatigue. The afternoon rest hour should still be observed. You should not return to regular work for some time; not until you have been examined by a physician and assured that it is safe for you to do so. When you have returned to work you should continue to sleep out at nights and to spend every possible moment at rest on your porch or in the pleasantest outdoor spot you can find. You will always have to be careful of your general health and avoid undue strain. This sounds slow and tedious, and in advanced cases it usually is so. But you can be fairly certain of results if you go about it in a thorough way and are persistent. And, though a moderately advanced case, where the body is slow in gathering resistance, will often take a year or two or even longer to become arrested, an incipient or early case may sometimes be arrested in three to six months. Then if at any time you find your symptoms returning, you must promptly resume the rest-cure—the more promptly, the sooner you will be restored.

A Word to the "Cured."

In tuberculosis we are slow to say that a person is cured, because the disease has a habit of persisting long after a patient seems to be well, and breaking out when he becomes careless. If you can get your disease apparently arrested, that is, so that you have no cough nor expectoration nor symptoms of any kind, with the spots of disease in your lung securely walled in; and if you can keep it so for six months or more under ordinary living and working conditions, you may be called an arrested case. If you keep the disease arrested for two years under ordinary living conditions, you are for practical purposes a cure. But, thereafter, in addition to your careful living it would be well to take the precaution of having a physician examine your lungs once a year or whenever you feel in the least "out of condition." It is not wise to wait until your temperature indicates an outbreak of the disease. Languor and tiredness, nervous-

ness, loss of your usual vim and energy, are often the first symptoms which should make you beware.

It has been said that the most critical point in a case of tuberculosis is the day you are discharged from the sanatorium and pronounced cured. That is only a forcible way of saying that, while it is easy to take care of yourself while you are "taking the cure," it becomes hard when you are no longer considered a patient; and that many cases which were well arrested when they stopped regular treatment, failed finally to become cures because they yielded to temptations to do things that only well persons may safely do. Do not be in a hurry to consider yourself a cure nor to imagine that you can take as much out of yourself as those do who never had tuberculosis.

XVI. CO-OPERATION.

It is often hard for a patient who is feeling and looking well to realize that he is making a fight for his life. It is hard for his friends to realize it. But that is just what any one is doing who has been attacked by this enemy. Many fail to get right down to the business of a determined fight until they get a big fright—a bad hæmorrhage, or a verdict of "incurable" from a doctor. Much time and money and many valuable lives might be saved if patients and their friends, their doctors and the public would work together and get hold of that determination early in the case.

Family and Friends.

Then there comes the need for the patient's family and friends to back him in his fight by every means in their power; to refrain from disheartening talk and discussion of his disease; to avoid interfering with his rest hours, and yet to keep him from feeling utterly cut off from the life about him. This takes some thought and intelligence, but it is a common experience that thoughtless and uninformed persons, even when well-disposed, can do a great deal of harm, while the right associates can do much good. When a person has to give up all activity, the hours are

likely to drag and the routine to seem unbearable unless he has pleasant company occasionally. But if the patient is tired, too easily stimulated, or feverish, his first need is privacy and peace. Never make a long call upon a sick patient. *Never encourage a patient to neglect "the cure," that is to stay indoors, or to take more exercise than his daily routine allows.* You can amuse him or play games with him as he sits in his cure-chair on the porch. Study the trifles.

The person who has tuberculosis often needs the co-operation of his family and friends in observing those vitally important sanitary measures described on pages 14-16. If they notice that he is growing careless, they are not doing him justice if they fail to remind him. There are some acts, for instance spitting on the floor, kissing a child on the mouth, or putting anything from one's own mouth into a child's mouth, which are unpardonable.

The Patient Himself. A patient who has suffered from poor advice, in writing of his experiences¹ tells of the good physician, the one who put him on the right track, saying to him, "I can't cure you. It's up to you to do that. You have to keep quiet. By keeping quiet I mean you must not even move your little finger unnecessarily. Rest out of doors, eat plenty of good food, and after a month I can tell you whether the chance is in favour of your making a 'cure' or not. But it's a long uphill fight and you yourself will have to do most of the fighting. No doctor can do it for you." That is the truth in a nutshell.

We have been talking of the co-operation of others with you, taking it for granted that you are thoroughly in earnest, determined to get better and to do your part faithfully to that end. But there are patients who do not do their part. If your doctor has told you that you must stay in bed when your temperature is above 99.5° F., and you cannot resist the temptation to get up and dress and go for a drive or a walk without his permission; if

¹ T. C. Galbreath's "Tb. Playing the Lone Game." (Published by Journal of the Outdoor Life, 289 Fourth ave., New York. 25 cents.)

your patience gives out when you have to sit in your chair without exercise, or even lie in bed, for many months, and you permit yourself little indulgences which your doctor has forbidden, then you are not "playing fair." If you are given fifteen minutes' walk and you take half an hour, if you are told to stay out of doors and you will sit indoors, no doctor can get results for you. When you are told definitely what to do, you must trust your doctor and obey, even if your friends think—as many have thought—that it is "all nonsense," and that you would be "far better at work than lying around weakening yourself."

If you cannot give your physician such confidence and co-operation as are essential between you, you would better let him go, and find one to whom you can give them.

And what of those patients whose family and friends are doing their full share and who yet will not co-operate with them? What of those who will get out of bed or exert themselves unnecessarily when skilled or loving hands are ready to serve them, or who tire and excite themselves merely for amusement when they are spared every hardship at home? While there are patients who have put up a long, determined fight against all manner of odds, wounded by the neglect and indifference of strangers, forced by lack of attendance to do things injurious to them, depressed by isolation, discouraged and perhaps beaten in the end for want of intelligent co-operation, does it not seem shameful that there should be those who, having been well cared for and brought back to comparative health, should by some unnecessary over-exertion, indulgence, or carelessness, bring on a relapse or keep the disease "open" until an arrest is impossible?

Then there are patients who, from the constant attendance and the long period of idleness which have been truly necessary, become selfish and idle and lose their sense of responsibility, their "moral tone," so to speak. If you feel this coming upon you, pull up, learn to draw upon the spiritual forces in the silence of your resting time, and spread cheer rather than gloom around you. Be glad to share in the world's work as soon as you are able. In the

meantime, think of others while others care for you, and remember that, even if shut out from the busy world, your porch may become a centre of helpfulness and inspiration to your friends.

Never let go hope and courage, for the power is indeed limitless with which Nature backs up those who know and obey its laws.

XVII. GENERAL ADVICE.

Under this head are taken up some of the questions often asked by patients.

Medicines.

Patent medicines and cough cures should be absolutely avoided. It is best to take no drug unless so ordered by your doctor. The understanding and use of foods, with the regulating of one's habits, should take the place of dosing with medicine. A simple iron preparation or a mineral oil as a laxative when necessary is usually all that is prescribed. The old stand-by drugs, creosote, iodine, arsenic, mercury, etc., have no direct effect upon the disease in the lungs. Cod liver oil has value as a food, but not as a medicine. There is as yet no known drug or other remedy for tuberculosis except the rest-air-and-feeding treatment, that is, the increasing of the body's resistance.

Tuberculin.

The injection of tuberculin does not cure tuberculosis. A small percentage of cases appear to have benefited by it, but tuberculin should be given only by a physician who has been specially trained in its use.

Sun-baths.

There is some doubt as to the advisability of exposing the body to the sun's rays. Direct action of the sunlight has a marked effect, and if too prolonged may cause a rise of two or three degrees in the body temperature. It may also produce heart irregularity and increase the irritability of the nervous system. It is very often pleasant to lie in the sun with the head well protected, and if you enjoy it and feel better for it, it is probably doing you

good. But do not undertake a regular sun-treatment except by the order and under the careful supervision of your doctor.

Climate.

The value of climate as a factor in the cure has been greatly over-estimated. Wherever you can get the best care and attendance and food, where you can be happiest and freest from worry, where you can spend the greatest number of hours out of doors and be most faithful to "the cure," there is the best place to get well. Many a patient has gone to the keen, dry, bracing climate of some noted health resort where he has either taken too much exercise or been homesick and neglected among strangers or worried about money matters, and has failed to get the best results. Others going to the same place under more favourable conditions get well rapidly. Climate is no doubt a factor in the cure, but not one of the greatest importance. A damp, foggy climate is depressing to many, while clear, sunny weather is tonic and inspiring. In most cases of tuberculosis, cold air is better than hot. Low, malarial districts should of course be avoided, as also the murky air of crowded streets and dusty, smoky towns.

Change is certainly beneficial in many cases; a change of surroundings, even such as can be had within a few miles or in one's own home, often improves the appetite and spirits of a patient, provided he is not over-tired by exertions incidental to moving.

Breathing Exercises.

While deep breathing is most wholesome and necessary, it should be carefully managed by one who has an open (that is, unhealed) tuberculosis in his lung. Breathing exercises are as good in their place and as bad out of their place as other exercise. There is an important difference between gentle full breathing and the forced breathing of lung-exercises. The former, the easy, slow inspiration, gently expanding the chest from the diaphragm upward,

allowing the air to enter every part of the lungs *without effort*, followed by the complete expulsion of air from the lungs, constitutes simple deep-breathing, upon which the attention may be fixed for some minutes each day with a calming effect upon the mind, nerves, and heart, and by which the blood is better aerated than it can be by cramped or shallow breathing. But beware of breathing exercises in which there is danger of distending or straining the lung. These may break the delicate scar tissue in a partly healed area and do much harm, spreading the disease or even rupturing a blood-vessel. Keep the windpipe open and the mouth closed. Breathe through the nose always. If there is any stoppage of breathing passages, have it attended to.

For the arrested case, properly planned lung exercises may be excellent, but consult your doctor before undertaking them.

Alcohol.

As to wines and stronger alcoholic liquors, we all know that alcohol is a nerve and muscle poison and that its habitual use, even in small quantities, has an ill effect upon the tissues and lowers the bodily resistance to disease. The fact that alcoholic liquors are not used in American or Canadian sanatoria is sufficient proof that they are of no value in treating tuberculosis. Furthermore, "Many a good man who could easily have won his battle, has gone to his death as the result of inability to control his desire for alcoholic stimulants."

Tobacco.

If a man who is accustomed to smoking cannot give it up without making himself miserable and upset, he may be allowed a pipe or a cigar after meals—no more. Smoking seems to have no direct ill effect upon the tuberculous process in the lungs, provided the smoke is not inhaled. But if a patient can do without tobacco it is better that he should. Inhaling and tobacco-chewing must, of course,

be prohibited. Those who have tuberculosis of the larynx should absolutely avoid smoking, as it causes irritation and cough.

The Sex Question.

To every one desirous of enjoying health and vitality, and especially to those fighting a disease of lowered resistance, such as tuberculosis, it is of the utmost importance to know the facts and to realize the value of moral cleanliness, both of body and of mind. The sex instinct is a normal and primal instinct, but it differs from the other primal instincts, as hunger and thirst, in that its purpose is not the preservation of the life of the individual but rather the perpetuation of the species, and consequently *its satisfaction is not necessary to the health of the individual*. There is no more pernicious belief than that so commonly held that sexual indulgence is favourable to health. It is true that repeated strong and unsatisfied appeals to the sex-instinct may be injurious. Passions of all kinds are extremely exhaustive of nervous energy, and one should avoid dwelling upon any subject which tends to arouse feelings of anger, fear, resentment, and especially sexual desire. Quite apart from moral considerations, which must always be respected, *it is really essential to the best enjoyment of health that everything should be avoided which is likely to cause sexual excitement*.

As for sexual immorality, Nature, in her abhorrence, inflicts a terrible punishment upon practically every persistent offender. Far too little is known of the seriousness and prevalence of the venereal diseases. If they are present with tuberculosis they constitute a very grave complication. It is most important that any one suffering from *any* venereal disease, should not attempt unskilled treatment nor keep the matter hidden from his medical adviser, but be scrupulous in attending to every detail of the instruction received from him. Otherwise, there may be disastrous consequences to the patient and possibly infection of others.

Occupation.

When a patient is able to return to work, the question arises as to whether he can safely take up his former occupation or must look for another. It is well known that stone-cutting and working in textile factories where there is a great deal of dust are bad for the lungs. Any occupation which calls for long hours in close or crowded rooms should be avoided, and those also which entail exposure to extremes of temperature, frequent chills and "colds." If there has been much trouble in the lung, heavy muscular work will have to be considered as bad for the arrested case.

It may sometimes be necessary of two evils to choose the less, and in such cases the physician who knows most about you will be able to help you decide. The ideal work for the partly-recovered consumptive is that which keeps him out of doors or in well-ventilated and comfortable quarters; which does not overtire him, but which allows him some leisure for rest in the open air or a long night's sleep on his porch.

Colds.

It is well known that one of the most frequent causes of lowered resistance, one which opens the way to the tuberculosis enemy and hinders in the fight, is the common "cold." It would seem vain to say "avoid catching cold" and "never neglect a cold" without adding a few directions as to how this may be done.

It is important to remember that colds are contagious—more so than tuberculosis itself—and that all the sanitary precautions with regard to sneezing, coughing and spitting (see p. 16) should be strictly observed by those suffering from a cold as well as by consumptives. The victim of a "cold" should isolate himself in a room with open windows, rest in bed and take the proper treatment until the acute stage is past. At the onset, take a hot bath and a laxative and then go to bed between warmed blankets with a hot water bottle, if necessary, at the feet.

A drink of hot lemonade will generally promote perspiration and relieve the headache and body pains. The diet should consist of light non-toxic and easily digestible foods. If the cold hangs on, call in a doctor; it is folly to neglect any acute or chronic catarrhal conditions. Have them properly treated.

To avoid taking cold, keep the body clean, well fed, but not over-fed, and free from intestinal waste-poisons. Breathe deeply of pure air, avoid chills, and keep away from places where people have colds.

APPENDIX.

SHORT RULES FOR PATIENTS.

1. When coughing or sneezing, always cover your mouth with a piece of cheesecloth or a paper handkerchief which is to be kept in a rubber pocket and burned.
2. Never swallow your sputum.
3. Always spit into a waterproof sputum-box which is to be burned, or into a mug partly filled with lysol solution.
4. Learn to control your cough.
5. Keep the hands clean and free from infection.
6. Live out of doors.
7. Observe strictly your hours of rest.
8. Get ten hours sleep in the twenty-four, and sleep alone.
9. Keep your skin active by frequent bathing.
10. Avoid catching colds.
11. Get your weight up to normal and keep it there.
12. When you are on exercise (i.e. walking)—
 - (1) Walk slowly.
 - (2) Do not get tired.
 - (3) Never get out of breath.
 - (4) Do not lift or pull heavy articles.
13. Stop the exercise—
 - (1) If your temperature is running above 99° F. (If it is 99·5° or over, stay in bed.)
 - (2) If your pulse is very fast.
 - (3) If you are losing strength or weight.
 - (4) If the sputum is coloured with blood.

14. When you are nearly well—

- (1) Avoid going to theatres or any place where people congregate. Let your amusements be out of doors.
- (2) Avoid late hours and exertions such as heavy work, violent games, tennis, rowing, racing, etc.
- (3) Deny yourself every indulgence that may deplete your vitality and lower your resistance.
- (4) Avoid following the advice of friends. Stick to your rules. Faithful persistence is the price of success.

15. At all times—

Keep sweet. Get the Happy Habit.

If you feel a grouch sprouting, nip it in the bud.
If you feel blue, perhaps it's constipation, or idleness—or it may be tiredness.

If you cannot change your surroundings, you can change your thoughts.

Declare with James Whitecomb Riley—

“It aint no use to grumble an' complain,
It's just as cheap an' easy to rejoice;
When God sorts out the weather and sends
rain,
Why—rain's my choice.”

RULES FOR CHILDREN.

1. Put nothing in your mouth except food and drink.
2. Especially, never put in your mouth, gum, whistles, apples, half-eaten candy, *or anything that has been in another's mouth; and be strictly careful never to put money in your mouth.*
3. Remember to keep your fingers and pencils out of your mouth. Never wet your finger in your mouth when turning the leaves of books.

4. Always wash your hands clean with soap and water before eating a meal or your lunch.
5. Do not use a drinking-cup or glass which has been used by others without washing it first.
6. Never spit on a slate nor on the floor, playground or sidewalk.
7. If you have to spit in a handkerchief, have some one put it in water until it goes to the wash. When you have a cold, it is better to use cloths instead of handkerchiefs so that they can be burned right away.
8. Do not pick your nose nor wipe it on your hand or sleeve.
9. Do not cough or sneeze without covering your mouth with a handkerchief. That is the way colds and other diseases are spread. Especially, never cough or sneeze in a person's face.
10. Do not give nor accept kisses on the mouth.
11. Keep your teeth clean. Clean them with your own toothbrush and wash the mouth with water after each meal, or at least on getting up in the morning and on going to bed at night. Be sure your toothbrush is clean. Scald it and hang it in the sunlight.
12. Keep your body clean, outside and inside.
13. If you get a cut or wound, tell some one, and have the cut kept clean; disinfected if necessary, and protected from dirt.
14. Breathe deeply in the fresh air and often. Learn some good breathing exercises and practise them every day in the open air.
15. Do what you can to get others to keep these rules and be healthy.

Several of these rules are adapted from Dr. S. A. Knopf's Prize Essay "Tuberculosis as a Disease of the Masses and How to Combat It." (Journal of the Outdoor Life.)