gaseous distension, and in the large intestine there are very numerous scybalous masses of considerable size. The liver is pale and somewhat fatty; the gall-bladder normal. The spleen contains a large and very old infarct, which occupies nearly the middle third of the organ. The kidneys are extremely pale and anæmic, while the capsules strip readily. The suprarenals are normal. There is no evidence of malignant disease in any part of the abdomen. A few of the retro-peritoneal glands are enlarged, but on microscopical examination they are found to be quite simple. The heart muscle is very pale and flabby. The valves are normal. The aorta and coronary arteries are quite healthy. There are numerous old adhesions on both sides of the chest. The lungs are extremely oedematous; they contain only a minimum of carbonaceous pigment. Microscopically the kidneys show well-marked though early fibrosis, involving both the interstitial tissue and the glomeruli. The chief points of interest are: (1) Complete absence of any recurrence or dissemination; (2) the very profound anæmia; and (3) absence of any striking jejunal dilatation at or near the site of anastomosis."

The photograph of the specimen brought to Leeds was taken in my laboratory. It shows well the anastomosis between the œsophagus and the jejunum, the slight dilatation of the jejunum, the blind rounded end of the duodenum, and the absence of any secondary growths.

Leeds.

AFTER-CARE.¹

BY H. W. MCCONNEL, M.A., M.B. CANTAB.,
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By after-care I mean the looking after a patient and his surroundings after he has left a sanatorium or a dispensary. But it is of importance that the consideration of his future should be begun as soon as he commences treatment, and that the treatment itself should be modified accordingly. For it should be remembered that the object of the sanatorium treatment is not only to arrest a patient's disease and as much as possible to return him to work, but also to lead him, whether he knows it or not, to act as an educator of his own home circle and of all those with whom he comes into contact. He has not only to be cured, but he has also to spread abroad the principles of the open-air treatment by his example and future life. It must also be remembered that the social side of the circumstances of each individual patient is of great moment, and should be most carefully taken into consideration in the after-care.

After-care is of the utmost importance to the patient and to the nation. Indeed, it may be said that without it sanatorium treatment among the working classes loses much of its advantage for good, and is apt, moreover, to lead to a waste of public money.

There are two chief reasons why after-care is of such importance: (1) It allows the helpers—i.e., those that carry it out—to bring their influence to bear in the homes of the afflicted in a way that no other chance can; it gives them an entrance to these homes at a time when what they have to say and the lessons they have to teach will be fully considered; and (2) it supplements the sanatorium treatment, which is of necessity very incomplete.

Sanatorium treatment among the working classes is incomplete because it is almost always too short. The treatment is expensive and the length of time required for a permanent arrest is longer than the patient or his friends can afford; so in the majority of cases it is essential to supplement it by after-care if the good that has been gained is not to be lost again, and if the money that has been spent is not to be wasted.

Thus, having made out a case for after-care, I should like to consider very shortly what are the difficulties that are experienced by the patient himself or his friends both while he is at the sanatorium and also after he returns, and to mention at the same time how after-care can help to meet them, and then I should like to consider what is being done at present and what more can be done in the matter.

The National Association for the Prevention of Consumption appointed a committee a few months ago to consider the subject of after-care and to make recommendations. This committee sent letters and questions to all the working-class sanatoriums—i.e., to 67, representing 4019 beds—and got more or less complete answers from all except one. It then sent similar letters and questions to a large number of Charity Organisation Society committees and kindred societies—to 228—and about half of these gave full answers and were therefore taken as typical; the information thus gained I have introduced into my subsequent remarks.

Now as regards the difficulties that can be dealt with by after-care, these fall under two heads: (1) those under the patient's control and (2) those not under his control. Those under his control are mainly (1) that he will not take advice and (2) that he is very slack in carrying out the lessons learnt. He will not take advice and delays in going to the sanatorium and thus turns an early case and one suitable for treatment into an unsuitable one from which a partial recovery at the best is all that can be hoped for. Again, after he has been at the sanatorium for a couple of months he begins to feel quite well, and he will not take the advice of those who recommend him to stay there for a longer time but insists on returning home and so loses his best chance of making the arrest of his disease permanent. Of course, I am not referring to the cases where want of money and home calls compel an early return, but rather to cases where these difficulties could be met, and where the chief obstacle lies in the cocksureness of the patient himself who imagines that because he feels well he is well. He is apt to give thanks and pity to the adviser; later he finds that he is wrong. In this difficulty an after-care committee can often control and influence where a casual remark has no effect.

Secondly, when he gets home, he is often slack in carrying out rules. When at the sanatorium, the patient learns the principles of treatment. He is taught how necessary open windows and fresh air are; how the food should be simple, well masticated and eaten slowly; how he should avoid rush and go early to bed; how he should rest before and after meals and should never sit down to meals when hot or tired; in a word, how he should make the best use of his off-time—i.e., of his out-of-work hours—in regaining and in keeping his health. He is taught all this at the sanatorium, and often when he gets home again he finds the windows shut and the house dusty, and instead of making an effort at once to bring about a change in the home, insisting on cleanliness and fresh air, he is apt to let things be. It is so easy to let things be and so difficult to alter old customs, but the disease has been arrested and the whole control of his home and his leisure hours lies with the patient. If he carries out what he has learned and what he has been taught he may keep well; if he lets everything slide he is qualifying for a relapse. If he is a bread-winner his whole family suffer through his fault and his gross slackness in the matter. Here, again, an after-care committee, by following the case up and by giving the patient advice at his own home, and by urging him to make use of the knowledge gained at the sanatorium, can do untold good, not only to the patient but also to those with whom he comes into contact.

The difficulties that are not under the patient's control are (1) incapacity and (2) the fear of infection.

1. The primary causes of incapacity are going to the sanatorium too late and staying there too short a time, and the result is incomplete arrest of the disease and liability to relapse; but our investigations show that it is probable that there is no greater difficulty in an ex-patient—i.e., in a patient from a sanatorium—getting employment than there is in the case of anyone else who is not fully capable from any other cause. Incapacity from phthisis is not more difficult to deal with than incapacity from any other reason.

2. Now a few words about infection, or fear of infection. It is necessary to mention the fear as well as the infection itself, for in the uneducated and unreasoning mind of the employer the fear has often more weight than the actual thing itself. The risk of infection, has, of course, been grossly exaggerated and is very slight indeed from a consumptive who is able to work, and from an ex-patient who has had sanatorium training it is almost *nil*, and is as nothing compared to that from a consumptive who has not had any hygienic teaching. It is founded on a misconception and a want of knowledge, and therefore must be combated by the after-care committee by every possible means.

¹ A paper read before the National Society for the Prevention of Consumption and Other Forms of Tuberculosis on July 22nd, 1911.

It will be necessary to show the employers that to refuse work to an ex-patient because he has been to a sanatorium is not a very clever thing or a very reasonable thing. He is not dangerous, but, on the contrary, the fact that he went under treatment early and has got the disease arrested has removed all danger from him. If through fear of being turned out of his job he had worked on and on as long as he could till he broke down badly, then indeed there would have been danger to his companions. Once men know that their employers will take them back on their return from the sanatorium if they are capable, then directly they feel they are ill they will put themselves under treatment at once and will give themselves every chance of recovery; but as long as employers say to their men, "You have been to a sanatorium and therefore are dangerous," so long will these men hide up their disease and will remain a real danger to their fellow workers till they break down and go home to die. Combating these difficulties, especially with the employers, the after-care committee can do much to help, and remember, the employers want as much education as the employed.

Now a few words about the after-care work that is being done. The results of inquiries among the working-class sanatoriums show that about half—the exact figures being 36 out of 66—do after-care in some way, and the methods adopted fall under four heads: (1) Preliminary; (2) working patient scheme; (3) advice to patients; and (4) subsequent after-care.

1. Time does not permit of entering into details, but I may briefly state that by preliminary I mean the Gospel of Hope, the feeling that is engendered in all good sanatoriums among the patients that arrest and an active future are the object of their stay, and that to effect this they must work. They all work; all are as busy as busy can be, the loafer is not developed; they all look forward to arrest and future usefulness.

2. To help this still more the working patients scheme comes in. Selected cases are kept on; they give their work and get their board and lodging, and so are allowed a further period of treatment under more strenuous conditions, with time to get quite hard and time to look out for a suitable future. The nature of the work given differs in different sanatoriums. In some the men are employed in and about the place at work that brings into use their former experience and occupation. Thus, a carpenter is made to do his particular kind of work and a painter to paint, &c. At others attempt is made to teach definite trades that may be useful afterwards—French gardening, gardening, poultry farming, &c.² And thirdly, at some few sanatoriums a definite course of work and employment—a graduated system of labour—is proposed, with a view primarily of getting the patient hard and turning him out effective and less liable to relapse; thus, a gravel-pit is worked or ground is levelled—work of little use in itself but devised solely for the patient's improvement.

3. Under "Advice to Patients" is included the general lectures and teachings, and the individual advice. The latter is best done after a month's stay, when the prognosis is the more clear and the future can be better estimated. Each case is dealt with separately and on its own merits, and the possibilities considered, taking into account the home ties and the surroundings, and recognising the great advantages of the old employment, because it is the one that is known and therefore the easiest, and recognising, too, that a bad employment is better than none at all, for none means starvation and therefore relapse. It must always be remembered that the bad effect of what seems a hopelessly unsuitable employment may be neutralised by the correct use of the remaining 16 hours which are absolutely under the patient's control. Usually, also, further advice and a useful leaflet are given just on leaving, and each and every one is made to understand that when they leave they must avoid excess, must lead a quiet, sensible life, and always carry out the principles of open-air treatment, fresh air, plain food, and rest before and after meals.

4. And then, finally, the subsequent after-care—the looking after the patients after they leave. Experience shows

that not much can be done in this way by the sanatoriums. It is possible, indeed, by postcards and Christmas cards to keep in touch with the ex-patients, and it is desirable to get them to call periodically for advice and examination, but this is about all that can be done. To follow the patients up after they leave and to keep a systematic hold on them are beyond a sanatorium's powers. This work must now be left to the senders—to those who sent the patient to the sanatorium: they must now step in and take charge. All ex-patients need a friend, and it is very pleasant to be able to state that the societies—the Charity Organisation Society and similar societies—mostly do help in this way; that out of 102 that send patients to sanatoriums, 83 look after them on their return, in some way mostly through the ordinary visitors; six have special visitors and six others after-care committees, and about a third make special efforts to get employers to coöperate in finding work, &c.

This, then, is the present position: 1. After-care is an essential to meet the various difficulties. 2. The sanatoriums, either by special after-care committees, by lectures or by individual advice, do much to help and to start the patient off well. 3. A large proportion of the senders are already organised to do what they can to carry on the work. But it is here, in the link between the sanatoriums and the senders, that the failure comes in; there is apt to be a hiatus, and the link is apt to be missing; there is a want of continuity in the advice given, and much good is lost by want of coöperation of the various advisers.

After careful investigation of the situation the National Association for the Prevention of Consumption has decided to meet this difficulty by the following recommendations, believing that much better results will be arrived at by some uniform scheme. The recommendations are as follows:—
A. To advise both the sanatorium authorities and the senders: 1. To recommend their patients (*a*) to return as much as possible to their old employment; (*b*) to make the best use of their leisure time; and (*c*) to carry on in their own homes in every possible way the principles of the open-air treatment learnt in the sanatorium, both as regards themselves and their friends. 2. To see that each patient has a leaflet of instruction in his own home. 3. To try to convince employers that the risk of infection from an ex-patient is very slight and as nothing compared with that from a consumptive who has not had any teaching.
B. (And this is the important recommendation.) To ask the superintendents of all sanatoriums for the working classes, with a view of getting continuity of advice, to secure in some way that advice and help be given to patients while at the sanatorium about their future life and work, and to arrange to give, if asked, a report or memorandum of this advice to the sender.
C. To ask all Charity Organisation Society committees and kindred societies who send patients to sanatoriums to look after the cases they have sent on their return; and to get and make use of the sanatorium's report and advice about each patient.
D. *As regards London*, to ask the Medical Advisory Subcommittee of the Charity Organisation Society to appoint representatives in each borough who as private individuals and not as Charity Organisation Society workers will undertake, with the permission of the patients, to visit the homes of the patients notified to them by sanatorium authorities as having come to sanatoriums independently of societies, and who also will undertake on the patient's return to give advice when needed.
E. *As regards the provinces*, to get some similar scheme of representation started according to the need of the place and in the manner best suited to it. The medical officer of health's advice may well be asked in the matter. It is hoped that something on these lines will commend itself to those interested, and it is hoped to start work energetically in the autumn to carry them out.

Special attention is being given in this congress to the National Insurance Bill, and if a reference is to be made to it in the consideration of after-care the following two thoughts may be allowed:—

1. After-care is mainly dependent on individual effort acting in individual cases, and there is a great danger in sanatoriums supported by State funds that this individuality of the workers will be hampered and checked, that private interest and work will be superseded by officialism which will not only be more expensive but less effective, and that the little touch that just makes all the difference between good results and exceptional results will be found wanting.

² Here I should like to mention that the garden in the women's quarters at Kelling is being turned over to two girl gardeners, who are not only doing it very well but by their increased health are showing what such work can do for such cases in the way of cure.

2. The working patient scheme where patients are employed in and about the sanatoriums, possibly for a small wage, will be hampered because, unless the Bill is amended, these workers will have to be insured and the sanatoriums will have to pay the insurance, and so a scheme which is only in operation for the patient's good will lead to a larger loss to the sanatoriums than it does at present.

Possibly these difficulties can be removed (1) by working the State-paid sanatoriums through the existing sanatorium machinery and so keeping its individuality; and (2) by freeing all working patients whose work is part of their treatment from the action of the Bill; but unless this is done it is impossible that sanatoriums can have the satisfactory results that they do at present.

Norwich.

EXCESSIVE LOCAL PERSPIRATION.

AN ACCOUNT OF THE SUCCESSFUL TREATMENT OF FIFTEEN CASES.

BY A. HOWARD PIRIE, M.D. EDIN.,

CHIEF ASSISTANT IN THE X RAY DEPARTMENT AT ST. BARTHOLOMEW'S HOSPITAL.

My attention was first directed to this subject about five years ago, when I noticed that after a long-continued series of sittings under X rays the patient ceased to perspire on the part treated. Since that time I have had 20 cases of excessive perspiration to treat. Nine of these have been qualified medical men. In every case which has been fully treated the rays have produced their effect on the sweat glands, and either entirely stopped their action or reduced it to less than normal.

The parts I have had to treat have been: the face, 2 cases; armpits, 10 cases; hands, 9 cases; and feet, 1 case. One case included hands, face, and armpits. In two cases a cure was got after only two applications and no more sittings were given, but usually from three to five have been required. The number of treatments required depends on the dose given. In the two cases which were cured by two sittings both suffered from the effects of too large a dose of X rays (pain, irritation, blistering, and redness), and since these two cases the others have been done by the longer method. I believe six sittings of one pastille dose each at intervals of one month is the best treatment, as it causes absolutely no discomfort and the patient runs no risk.

The rationale of the treatment is, I believe, as follows. When an X ray photograph of the thigh is made the negative shows the bone lighter in colour than the surrounding tissues, because the bone, being denser, has absorbed more X rays than the surrounding tissues. Looking at a normal cell and at a karyokinetic cell, we see that in the latter the chromatic filaments are more condensed, and these denser filaments absorb more of the rays than the normal cell does. There is a limit of X rays which has no effect on a cell. More X rays will stimulate the cell, still more will damage it, and still more will destroy it. The greater absorptive power of the karyokinetic cell to X rays makes it more vulnerable, so that the dose of X rays which will just not kill a normal cell, kills a cell undergoing division. The dose required for this is, I believe, a little more than a pastille dose, so that by giving one pastille dose each month for a period of six months the karyokinetic cells (especially those of slow growth) are destroyed. This principally affects the hairs, sebaceous and sweat glands.

I have had the opportunity of having a piece of skin so treated examined in the Pathological Laboratory at St. Bartholomew's Hospital, and many sections cut from it were examined. The report states:—

April 28th, 1911. Examination required: Skin after treatment by X rays. Pathological report: The skin was very difficult to dehydrate. On section it appeared normal as regards the epithelium, except that the cells were difficult to stain and much keratinised. No hair follicles, sebaceous or sweat glands found. The tissue underlying the surface epithelium was composed of dense fibrous tissue. H. G. B.

Kolipinski has reported one successful case of hyperhidrosis axillæ treated by the thermocautery. The result was got by producing burns of the second and third degree. Major F. J. W. Porter, R.A.M.C., recommended dissecting away the skin of the axilla in order to stop perspiration. No other method but these and X rays have been found efficacious in stopping perspiration. Drugs are useless as a permanent cure.

In treating the hands or armpits I get all parts of the surface of the skin equally exposed to the rays by means of a delivery tube which has a firm base of celluloid. The celluloid is a part of a sphere whose radius is 24 cm. The source of the rays is placed at the centre of this sphere and the hands are pressed firmly against the celluloid. Thus all the parts of the hands which touch the sphere are exactly 24 cm. distant from the source of the rays. A barium platinocyanide pastille is placed 12 cm. from the source of the rays and another pastille is placed on the hands. The dose can thus be measured by Sabouraud's method and at the same time by the control on the skin.¹ Another control I use at the same time is the milliamperè minute method with a water meter. The celluloid absorbs a small quantity of rays, and I trust mostly to the pastille on the skin and look on the other two methods as controls.

Pusey in 1903 and Bulkley in 1904 reported cases of hyperhidrosis in the axilla which were improved by X rays. Engmann was the first to recommend the application of a dose which would produce an erythema. Lanari recommended in treating the palms of the hands that the surface should be divided into four areas and each area treated by itself. The dose to each area he recommends is 8X—i.e., nearly two pastille doses—so as to produce redness, swelling, and skinning. The skin is shed in large flakes, leaving red, smooth skin underneath. The skin becomes normal after several weeks. He considers one such application sufficient for a permanent cure, and reports a perfect result in one case a year after the treatment. In one case in which I carried out this treatment the perspiration was not checked. In other two cases (Cases 7 and 8) such a dose had the desired effect, but caused much discomfort, and I do not recommend so large a dose. Stover in 1905 and Kromayer in 1907 reported cases of hyperhidrosis treated by X rays.

I can only find reports of isolated cases, and I therefore think that a report on a series of 20 cases should prove of interest. They are the following:—

CASE 1.—The patient, about 45 years old, had suffered from excessive perspiration in his armpits for the last 30 years. He was very definite in his description of its type, which was as follows. It began after 10 A.M. and continued till about 6 P.M. During the evening and in bed he was not troubled by it. Cold and worry aggravated it; therefore he disliked driving on a cold day and writing letters which required much thought. Treatments by X ray were given on May 25th, June 19th, and July 24th, 1909. On the last date he said the perspiration was less. He noticed that when he perspired in the morning his shirt was wet, but that it dried again before evening, whereas it used to remain wet all day. On August 28th he reported that he no longer required to change his undershirt while dressing for dinner, provided he had not been working hard during the day. Another treatment was given on August 28th. On Sept. 19th he reported perfect comfort except on extreme exertion.

On June 23rd, 1910, he wrote to me: "I am glad to say that my arms are still quite comfortable. Even yet I have not got used to the indescribable feeling of comfort. There are many people, especially women, who ought to have your treatment." On April 12th, 1911, he came to see me for another purpose, and I noticed that both armpits were quite dry. There were telangiectases in the lower half of the right axilla. The left axilla had no telangiectases, and the hair was thin.

CASE 2.—A surgeon, of about 25, suffered from excessive perspiration over his face, hands, and armpits. He was of a nervous disposition, and his perspiration was of the ordinary nervous type, made worse by excitement and lessened by cold. His father also suffered from it. Having so many areas to treat, many sittings were required from July 16th, 1909, till March 25th, 1910. The face was the most troublesome area, and caused me considerable anxiety, but, in the end, hands, armpits, and face ceased to sweat profusely, and have continued so since. In June, 1911, I heard from him, and he remains quite comfortable.

CASE 3.—Dr. — came to me on May 17th, 1909, suffering from excessive perspiration in the armpits. It had troubled him all his life. On touching the armpit of his shirt and coat I found them quite wet. He showed me what he called his high water line—i.e., the line to which the perspiration on his coat extended. At this line a white deposit of the salts of perspiration lay owing to evaporation. He remembered this line on his Eton jacket at school 20 years before. The perspiration was made worse by excitement and heat. It was very troublesome in cold weather. It rotted his clothes. Treatments were given on May 17th, June 19th, and July 2nd, 1909, and on the last date he was improved so far that each day after midday perspiration ceased, and his shirt which got wet in the morning became dry in the afternoon. I noticed his left axilla sweating while his right did not. Further treatment was given on Sept. 17th and since then the patient has been quite comfortable.

An interesting thing happened after the first application of the rays on May 17th—viz., he did not perspire for the rest of the day. He did not remember to have ever before experienced a day without perspiration. On July 24th, 1910, 11 months after his last séance, he described his case to me as one of "unqualified and permanent cure." I have not heard from him since, but I believe he remains cured.

CASE 4.—A surgeon, of about 40, came to me at the end of 1909, complaining of perspiring hands. The perspiration was made worse by exertion and excitement. He had suffered from it as long as he could remember. It troubled him most while attending a confinement or

¹ See Archives of the Röntgen Ray, 1911, for description of this method.