one reason or another—often from pecuniary considerations—changes his residence. Thus, in the clientèle of the Victoria Dispensary, it was found that no fewer than 41 per cent. of the patients had changed residence within two years, thus multiplying infected areas.

The dispensary is in intimate relation with the sanatorium for the cure of selected cases. It chooses for this purpose such patients as are likely to do well, and who require and deserve help. The dispensary also concerns itself, when necessary, with the after-care of patients discharged from the sanatorium.

The dispensary is, further, in close touch with hospitals, municipal or other, which afford provision for advanced, incurable cases, with a view to their segregation. The erection of such isolation hospitals is urgently called for as a factor in the campaign. The Local Government Board for Scotland has concluded that the isolation of such dangerous cases is a primary duty of the local authority.

The dispensary occupies itself likewise with the selection of suitable employment of light, open-air nature for consumptive patients who may not require hospital treatment. This is a valuable department of activity. Many families have, in my experience, been thus saved from destitution. School children affected by tuberculosis are similarly watched over, and removed from school in their own interest and that of others, and their education supervised on physiological lines.

Moreover, the dispensary has connexions with other hospitals and charitable institutions for the double purpose of giving information and advice regarding patients who may be in such institutions for whom other arrangements may be necessary, and of drafting to such institutions suitable cases from outside.

The dispensary comes to fulfil an important function in case of financial distress which is often present. Families and dependants of patients are, through the agency of the dispensary, not only safeguarded in respect of their health, but, when the chief wage-earner is affected, are brought into touch with one or other charitable fund. Inquiry is directed to such points by the nurse and members of the Samaritan Committee.

The dispensary, in this way, forms the connecting link between all agencies concerned in any way with the treatment or relief of the tuberculous poor.

OFFICIAL AND PHILANTHROPIC CO-OPERATION.

It is sufficiently evident that a vast field exists for anti-tuberculosis endeavour. There is abundant room alike for official and for philanthropic effort. If it is to be effective, it is essential that the efforts be organized and harmonious.

The official outlook—that of the State, municipalities, and other local authorities—is specially towards prevention. The philanthropic outlook is towards the cure and the relief of the individual. The two spheres are closely linked, and successful effort in the one is projected into the other.

Within the official sphere falls especially the institution and direction of a scheme of notification. To the same sphere belongs dissemination of information in matters relating to the prevention and limitation of tuberculosis, and the practical carrying out of disinfection.

Intimately related to this is the system of domiciliary visitation which forms so important a part of the dispensary's activity. The dispensary thus forms a link between the tuberculous poor and the authorities. I am so much impressed with the extreme significance to the community of the various operations of the dispensary, that I believe the dispensary should either be worked by the municipality or other local authority itself, or at least be in close touch with such authority.

The more intimate the connexion the better. For a large proportion of patients, and for long periods—it may be throughout the entire illness—the dispensary will take the place of the hospital in respect of care and general direction. On this account the dispensary should be closely related to, if not an actual part of, the public health service.

To the official sphere should certainly belong the hospital for advanced and dying cases. The purpose of these hospitals is entirely different from that of the sanatorium. Such cases ought to be segregated on grounds

of public health, and in the interest of the unaffected citizen. This is emphatically a department of the work to which public funds are legitimately devoted.

Within the philanthropic sphere falls naturally the sanatorium for early cases. The sanatorium exists especially with a view to the effective cure of individuals at an early stage of the disease. Sanatoriums are suitably maintained by charitable effort, by contributions of patients or of private friends interested in particular patients, by working men's sick and benefit societies, in varying fashion, according to the varying conditions of different countries, and by local authorities, in so far as the efforts of these can extend, after due regard has been paid to the other claims which have been cited.

Within the philanthropic sphere fall similarly extensions of the sanatorium in the direction of working colonies, after-care associations, and the like, which may be multiplied indefinitely according as the need presents itself.

To this sphere also belong the various voluntary agencies, associations, leagues, etc., which, as the anti-tuberculosis movement extends throughout the world, serve to effect a popular propaganda until such time as the complete organization can be attained.

LEGISLATIVE ACTION.

As the *motif* for antituberculosis organization becomes better apprehended, it will gradually cease to be a matter for private initiative and enterprise. Communities will be compelled to face the matter in thorough-going fashion.

Subject to modification dependent on local conditions, a scheme of co-operative measures must be elaborated which will recognize the rôle and significance of public and private effort respectively. The scheme will necessarily combine the application of sanitary principles, in the broadest sense, with more direct offensive measures against the tubercle bacillus. This implies the co-operation of public health authorities, local authorities, and legislators.

REMARKS ON THE USE AND MISUSE OF IRON REMEDIES.

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IN the treatment of anaemia it must often happen to the practitioner to note with vexation the failure of the salts of iron to bring about an improvement. He may try the drug in one shape after another, but only to meet again and again with the same unsatisfactory result. Few remedies in their action more often cheat the expectations of the prescriber than the salts of iron, for there are few which demand more accurate judgement as to the cases for which they are appropriate, and the point of the illness at which they may best be prescribed. Given at a wrong time or for a state of things for which they are unsuited, their action cannot fail to be disappointing.

This is, of course, a mere commonplace, and may be said with equal truth of every other medicine. Every remedy, to be a remedy, must be chosen and timed correctly. If we habitually give the right thing at a wrong time, or a wrong thing at any time, the results of our treatment cannot be satisfactory. We are then likely to lose altogether our faith in physic, and to say in our haste that all drugs are vain. A student is early taught that iron is good for anaemia, and many practitioners seem to hold, almost as an article of faith, that in every such case a preparation of iron ought at once to be prescribed. Often they do not stop to reflect that poverty of blood may be the result of many different causes, and that to seek to remove the consequence while the cause continues in active operation is a proceeding which is tolerably certain to end in failure.

Take the common case of an anaemic child who is thin and pale, with cold feet and a poor appetite, perhaps active enough and fond of his games, but easily tired, restless at night, and often peevish and difficult to please. The child's anaemia at once attracts the eye, and a preparation of iron is ordered as a matter of course—usually one of the commercial syrups. Even if the spoonful of stale syrup

which is swallowed with each dose of the medicine do not upset the patient's stomach and make him sick, the action of the intended remedy too often fails to realize the expectations of the prescriber. The appetite does not improve—perhaps it gets worse than ever; the pallor continues, and the child shows no sign of regaining flesh. In prescribing iron in such a case the practitioner is merely wasting time and ignoring the chief cause of the flagging nutrition. Want of appetite in a child who is not suffering from acute illness commonly means stomach derangement, but until this disturbance has been remedied iron and the tonics generally are out of place. To take anaemia as a sure guide to the immediate use of an iron preparation is to fall into one of the commonest of errors. To get benefit from such a remedy, especially from the astringent salts which are often prescribed, the tongue must be clean and the digestive organs in a healthy state. Often, therefore, a preliminary course of antacids and stomachics, with careful attention to clothing and diet, must precede any attempt to introduce iron into the system.

A good example of the uselessness of chalybeate remedies given in the ordinary tonic dose to a patient whose condition prevents her from deriving appreciable benefit from the treatment is seen in the case of chlorosis in young women. On account of the obvious anaemia this complaint is commonly treated with a preparation of iron, usually the sulphate combined with aloes, as in the aloes and iron pill of the *British Pharmacopoeia*. The chief value of this prescription lies in the aloes, for the small dose of iron is probably of little account; but even the aperient, although a step in the right direction, is given in too trifling a quantity to be of appreciable service. A persevering patient will often take this pill for months at a stretch without obvious improvement, for chlorosis in a severe form is not to be put an end to by such inadequate means. Some years ago a physician, now dead, who practised in a large provincial town, was consulted at the hospital by two servant girls who both suffered from pronounced chlorosis. He ordered them the usual aloes and iron pills, and the patients took the prescribed remedies for several months, returning to the hospital regularly for each fresh supply of medicine. Their anaemia, however, in no way diminished, and at last the girls, disheartened by the want of success of the treatment, ceased to attend. A few weeks later the physician happened to meet his former patients walking in the street, and noticed with surprise that they were ruddy and healthy looking, having quite recovered their colour and good looks. Full of curiosity, he stopped the girls, and begged an explanation of their altered appearance. The girls, in some confusion and with many apologies, confessed that, growing weary of the ill-success of the legitimate treatment, they had sought the advice of an irregular practitioner—an old woman of the neighbourhood who professed to cure the "green sickness." This old person had given to each of them a packet of twelve powders with instructions to take one fasting every morning until all were finished. The girls had begun at once to follow the advice, and had each found that before she had come to the end of the packet her chlorosis had completely disappeared. The physician, after a few questions as to the mode of action of this specific, begged for a sample of the remedy, and they very willingly brought him one of the remaining powders on the following day. This on analysis proved to be nothing more than 20 grains of the common commercial sulphate of iron. It appeared that each powder had made the patient violently sick, and that she had brought up a large quantity of tenacious mucus. After a few repetitions of the dose the stomach had been thoroughly cleared of its unwelcome contents, and had then resumed its healthy functions, which previously had been almost at a standstill. That it is purely the emetic action of the iron which is the curative agency in these cases I have often proved to my own satisfaction by adopting the old dame's treatment, but using the sulphate of zinc in 20-grain doses instead of the iron sulphate. The effect was always satisfactory, for six or eight doses taken fasting on successive mornings never failed to bring the complaint to a favourable end. This method may not be the most pleasant way of effecting a cure of chlorosis, but I am sure it is a certain and a quick one.

The main point in the treatment of this derangement consists in relieving the stomach of the thick tenacious

secretion which clings to its lining membrane, and must not only seriously impede the admixture of the gastric juice with the food swallowed, but must also hamper the action of the absorbent vessels. Its removal may also be effected by irrigation of the stomach with a normal saline solution used hot; but a less unpleasant way of reaching the same end is to prescribe frequent doses of salts and senna—the compound senna mixture of the *British Pharmacopoeia* taken three times a day. The magnesium sulphate in this prescription dislodges and liquefies the collected mucus, and the senna, which has an aperient action especially upon the upper part of the bowel, hastens the escape of the mucus from the system.

In this complaint, then, as in that previously referred to, the anaemic state of the patient is no true guide to the use of iron. This remedy can only act with advantage when the digestive organs are in a healthy condition, for a clean tongue is essential to the beneficial employment of the stronger chalybeates. There is, however, an exception to this rule which should be mentioned. In cases of general weakness, such as is found during convalescence from acute illness, or in cases of severe indigestion when the derangement has subsided, leaving much loss of tone and flabbiness of mucous membrane, the tongue is pale, with a thin coating of silvery fur, and is indented at the edges by the teeth. Such a tongue is seen in cases—rarer now than they used to be—where a mother has kept her infant at the breast although her strength has become unequal to the task of nursing it. In this condition the acid preparations of iron are especially indicated, given at first in small doses and gradually increased in strength.

In ordering a chalybeate the choice of the preparation can never be a matter of indifference, for besides that patients vary greatly in their ability to tolerate these remedies, a stomach rendered irritable by recent derangement is often found to bear ill a form of iron which at another time it could dispose of without difficulty. Under ordinary conditions of debility, unless the tongue is quite clean, it is best to begin with the ammonio-citrate of iron in an infusion of calumba, changing when the tongue is clean to one of the stronger preparations. In the treatment of anaemia in the child, after the state of the digestion has been attended to (an indispensable preliminary), the ammonio-citrate is also useful. It is especially to be preferred in cases of lingering gastric catarrh, after alkalis have ceased to do good and the stomach is as yet unable to profit by an acid tonic. In fact, this salt and the tartrate are the only preparations of iron which can be given in such a condition with any prospect of benefiting the patient. Two or three grains may be prescribed with five of potassium citrate, and a few drops of sal volatile in a spoonful of infusion of calumba. It should be sweetened with glycerine, never with syrup. The ammonio-citrate makes a perfectly clear solution with sodium salicylate. It therefore forms a useful addition to the prescription in cases of subacute rheumatism in the child, when the articular pains are slow to subside or recur again and again when the salicylate is discontinued. Rickets and splenic anaemia show improvement most quickly with the acid preparations, especially the perchloride or sulphate of iron. These forms should also be chosen when this remedy is required in cases of haemorrhagic purpura. To strumous children who suffer from tuberculous disease of bone, or chronic enlargement of glands, the iodide of iron has long been held to be especially suited; but in my experience incomparably the best preparation for these cases is a mixture of the tincture of the perchloride of iron (5 to 10 drops) with the *Pharmacopoeia* solution of the perchloride of mercury (10 to 20 drops) taken perseveringly three times a day for a period of months. Cases of mucous disease do not benefit, as a rule, by the stronger preparations. For them the best form is the tartrate or the ammonio-citrate given with an alkali in a bitter infusion. In cold weather one or two drachms of the decoction of aloes may be substituted for the alkali with advantage, but this becomes irritating in summer, and should be omitted. Dialyzed iron and haematogen are favourite remedies with some practitioners, and as a rule are unirritating to the stomach, although I have known the latter to excite vomiting in certain cases. Still, even an unirritating preparation of iron, although it may set up no obvious disturbance, is not likely to be a source of benefit to the

patient as long as the digestive processes continue to be in an unsatisfactory state.

The strong preparations of iron are best taken immediately after a meal. The tartrate and ammonio-citrate, especially when given with an alkali, have always seemed to me to act best when taken about an hour before food. The medium in which the dose of iron is prescribed is not a matter to be neglected. The bitter infusions—and of these the infusion of calumba is to be preferred—are usually ordered, and not only agree well, but no doubt add to the value of the remedy. It is important, however, to insist that the infusion be freshly made, for the concentrated infusions, diluted with water to the required strength, which are often made to do duty for the fresh preparations, are not desirable additions to the mixture. Moreover, they are frequently stale, and on that account not unlikely to upset the stomach. If this happen, the blame is at once referred to the metallic salt, and the patient is said to be “unable to digest iron.” In every case of such assumed incapacity it is well to dispense with the bitter, and order the perchloride drops to be taken well diluted with one of the aerated waters. The kind of water to be used is immaterial, for it is the gaseous constituent of the medium which gives its value to this method of administration. The aerated fluid not only renders the draught more agreeable to the patient, and less unwelcome to the stomach, but seems to invest it with the qualities of a natural ferruginous water so as very appreciably to enhance the efficacy of the remedy. In using this or any of the stronger preparations of iron it is important to insist upon thorough dilution. For an adult the dose should be taken in a full claret glass of soda or seltzer water three times a day immediately after food.

In addition to their tonic influence upon the system generally, certain of the chalybeate salts have special uses in their action upon particular organs. Thus the per-nitrate in small doses (mij to mij of the solution) is of value as a safe and efficient remedy for children in cases of convalescence from prolonged chronic diarrhoea. This ferric nitrate, indeed, seems to have a special invigorating effect upon all the mucous membranes, giving tone to relaxed tissue and reducing secretion. It has been used successfully for this purpose in cases of chronic bronchitis, menorrhagia, and leucorrhoea. For an adult the dose is 10 to 15 minims. It must be well diluted, preferably with one of the aerated waters.

The perchloride has a diuretic action which is taken advantage of in the treatment of albuminuria. It is especially useful towards the end of an attack of acute Bright's disease, when the albumen is slow to disappear from the urine. I prefer the form devised by the late Dr. Basham in which the perchloride drops are given with the acetate of ammonia, and a few drops of dilute acetic acid are added to prevent precipitation of the iron by the alkali. For an adult 20 minims of the perchloride tincture should be added to 1 fluid drachm of the liq. ammoniae acetatis and 10 drops of dilute acetic acid. This can be taken in 1 oz. of water three times a day after food, but I think the value of the draught is increased by a further dilution with double the quantity of an aerated water.

There is a special action of the perchloride which may be mentioned. In cases of erysipelas this preparation used to be regarded as a specific, and very exaggerated estimates of its value have been recorded. For an adult the dose recommended is 15 drops to be taken every two hours, beginning after the action of a brisk aperient. This treatment is no doubt useful in certain cases, but I have not found its beneficial effect to be “immediate and invariable,” as was claimed for it by an ardent advocate; indeed, in cases of infantile erysipelas, for which complaint this observer especially recommended it, the perchloride in the prescribed dose of 2 or 3 minims every two hours has appeared to me to be absolutely useless.

The sulphate of iron is a strong tonic, and in combination with sulphate of magnesia forms one of the stock mixtures in all hospital pharmacopoeias. In this form it is useful in pure anaemias when there is no digestive derangement. I have used the exsiccated sulphate largely in cases of children left weakly and anaemic after acute illness, and have found it well borne in fairly large doses—2, 3, and 5 grains. They take it well in glycerine directly after a meal. In ordering iron it is the usual practice to combine the drug with a sufficient

quantity of aperient. The object of the addition is to counteract any possible constipating effect of the astringent salt; but I think in most cases it is advisable to push the action of the aperient further than this, for there can be no doubt that judicious purgation enhances the value of the remedy. It is also beneficial in preventing retention of the iron and consequent colicky pains. It is wise in all cases during a course of iron to order a liberal dose of any saline aperient to be taken twice a week before breakfast. If this practice be followed, it will not be necessary to discontinue the use of iron for some days every few weeks, as used to be recommended.

The chalybeate salts, when given with judgement, are remedies which we could ill spare, but the indiscriminate use of these preparations is to be deprecated. Iron must not be regarded as an infallible specific in every form of anaemia. The cases for which it is curative must be chosen with judgement, and every care must be taken to see that the digestion is in a condition to profit by the remedy. Any sign of irritability of stomach is to be taken as an indication that the stronger preparations are to be avoided, and even the milder salts—the tartrate and the ammonio-citrate—should be prescribed timidly, and only in conjunction with an alkali, such as citrate of potash or the aromatic spirits of ammonia, in a freshly-made bitter infusion. If the tongue be clean, or merely flabby and pale, showing indentations of the teeth at the sides, the stronger salts may be prescribed with confidence, and the dose may often be pushed with advantage if aperients are given from time to time as already recommended.

ON THE ANALOGY BETWEEN SPONTANEOUS RECOVERIES FROM CANCER AND THE SPECIFIC IMMUNITY INDUCED BY X RAY IRRADIATIONS OF THE LYMPHATIC GLANDS INVOLVED.*

By H. D. McCULLOCH, M.B., C.M. GLASG.

To the *Lancet* of January 26th, 1907, I contributed an article entitled, “Observations on the Induction of Auto-vaccination in Tuberculosis and other Chronic Glandular Infections by the X Rays as Revealed by the Opsonic Chart in the Former.” Since then I have had opportunities of continuing these observations and of confirming the opinions submitted in that article in regard to tuberculosis and its secondary infections. Moreover, I have applied the same method of treatment to the lymphatic glands which are involved in cancer and its secondary infections, but in these cases it was not possible to control the glandular irradiations by estimations of the opsonic index to the primary infection, as the micro-organism of cancer, if such there be, is not culturable.

The clinical symptoms of these cases were, however, sufficiently marked and progressive to be depended upon. It should be noted that the glands in these cases, which are usually remote from the site of the lesion, were alone exclusively irradiated, the rest of the body, including the lesion, being effectually screened from the influence of the rays.

By the kind permission of Mr. Neill MacGillycuddy, whose patients they were, I am able to submit the following details of four cases, the first of which was treated by me in the autumn of last year.

I.

The patient, aged 48 years, is a medical man actively engaged in private practice. He is married, and has a grown-up family. His general health is good, and he is of abstemious habits. He traced his throat trouble to an attack of influenza, which manifested itself by a profuse naso-pharyngeal catarrh in the winter of 1906-7, when he was obliged to take to his bed for a few days. He made a good recovery, and has been engaged continuously in a busy practice. He is a free, though not excessive, smoker.

At the end of the summer, 1907, he went away for a six weeks' holiday, when he motored about a good deal. During this period he felt an uneasiness in his throat, some pain in swallowing, fatigue of the vocal muscles in prolonged conversation, and an inability to phonate certain high notes. He is not a vocalist. There was also a constant “taste of blood” in the

* Read at the spring meeting of the Dorset and West Hants Branch.