A British Medical Association Lecture ON SOME PITFALLS IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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HAVING been offered the wide subject-matter of pulmonary tuberculosis for my lecture, it has seemed to me that the best I can do is to concentrate on certain matters which are, in my opinion, of primary practical importance. These, almost of necessity, come within the two headings "Diagnosis" and "Treatment," and we naturally begin with the former. I do not propose to waste time over ordinary points of diagnosis, important though these may be; I am anxious instead to face some special pitfalls which await us, not in the ordinary straightforward case, but in the exceptional case which—paradoxical as it seems—is really the commonest one to meet us in private practice. Most serious among these is the case which develops and progresses without physical signs, or without such physical signs as any self-respecting case of pulmonary tuberculosis ought to present—in other words, the case which is *not* a case of apical phthisis. Let us start with this.

The Example of Childhood Tuberculosis.

It has been my good fortune to be physician to a large children's hospital, and, taking always a great interest in lung disease, to have had much experience of pulmonary tuberculosis as it affects the child. In early life, as you know, a primary lung focus gives rise to secondary infection of glands, and from these the lung is again infected in a case where disease progresses further. Nearly always immunity has by this time reached a high level, the lung infection is a slight one and confined to the neighbourhood of the roots and larger bronchi, and life is in no wise threatened. Here and there we find a case where from early age or other reason immunity fails, and disease spreads outwards, showing itself in the radiogram first as mottling round both roots, later involving a larger and larger area of lung, till, in late stages, it appears to reach out to the periphery. This is the condition, whether slight or serious, which we speak of as hilus tuberculosis, or glandular and hilus tuberculosis. However the spread is accomplished, it has begun deep in the lung, and has only at a late stage reached the periphery over which our stethoscope is hovering.

What, then, is the clinical aspect of tuberculosis in childhood? A child is brought to you with symptoms suggestive of tuberculosis—what do you find on examination? If you examine carefully you will find in practically all cases that the percussion note is slightly against the right lung both front and back, and that there is a right paravertebral dullness disposed as a semicircular area against the spine. You may also find an increase of parasternal dullness, blowing breath sounds over the upper vertebral spines, and various other signs; but what you do *not* find (except in advanced stages of disease) is the presence of crepitations. Indeed, the stethoscope may tell you nothing at all, and this is, in my experience, the rule. Do you therefore say there is no disease of the lungs? Not if you have learnt wisdom from experience. No; having found the signs referred to above you may say with confidence, "This is a case of glandular or hilus tuberculosis," but you cannot tell in the least from physical signs whether the disease is of no account and healing or healed, or whether both lungs are half filled with active bronchopneumonic tubercle. The physical signs are the same or similar in both cases, and the really vital part of the diagnosis has to be deduced from symptoms and the

amount of illness, helped—and greatly helped in many cases—by the study of a radiogram.

And here let me digress for a moment to say a word about that radiogram in childhood. In infancy and up to the age of 5 years or so the lung picture is pretty clean in the healthy child, and a superadded tuberculosis or bronchopneumonia or suchlike is very clear and apparent. But the radiogram of a child of school age—especially from 8 or 9 years upward—is already greatly shadowed with past sins, whether in the shape of silicosis, or of healed tubercle, and other chest infections, and it requires a lot of experience to interpret it correctly in a case of doubtful tuberculosis. In slight and recoverable disease, such as we have mentioned, often it can only be said that the radiogram is "consistent" with a slight active tuberculous lesion. Fortunately in the more serious cases the radiogram is reliable—really active tubercle round the hilus throws shadows which are hardly mistakable, and the x rays are very valuable in following the course of the disease.

Deep Lung Tuberculosis in the Adult.

Now I have lingered so long over hilus tuberculosis of the child because it illustrates what I have to say of the adult. The child is father to the man, and no small proportion of the tuberculous outbreaks of early adult life (and even in later years) are a spread from these deep areas round the roots of the lungs. Hilus tuberculosis, which is the rule in the child, is also by no means uncommon in the adult. Just as in the child, there is nothing discoverable to the stethoscope, and, as the stethoscope is still the instrument of choice with most physicians, nothing may be found in these cases to suggest a diagnosis of pulmonary disease.

What happens to an adult who develops deep-seated or hilus tuberculosis? Let us hope, for his sake, that he coughs, for otherwise his chances of recognition are small. Unfortunately it is by no means uncommon for such cases to cough but little in the earlier stages, or to take small heed of it, and the main symptoms complained of are often those of neurasthenia—it is, indeed, a neurasthenia, but of toxic origin! Many of these cases, in my experience, have been given rest cures as frank neurasthenia at the outset, and if a careful temperature chart were taken in the nursing home and duly studied this might, indeed, be a step of value. But often in these cases the temperature is not such as to lead to suspicion, and having received the neurasthenic label they are very apt to go further on this journey. It has been my experience of recent years to be asked by a distinguished neurologist to exclude tuberculosis in cases of neurasthenia, so the lesson of these cases has evidently been learnt in high places.

How can we escape the pitfall of deep-seated or hilus tuberculosis simulating other conditions, and especially neurasthenia? First, and especially, by recognizing its possibility, and using means to exclude or confirm it. Among these are a careful temperature chart, x rays, which help but do not always decide the matter, and the search for certain physical signs, among which narrowing of the apical resonance (Krönig's) on both sides—for disease is generally double—is important evidence. Suspicion is the first stage on the road to diagnosis, and full recognition of the fact that a lung may be full of deep disease without giving any definite physical signs at the surface. Recognize frankly that your stethoscope may be as useless in these cases as if you applied it to the wall of the patient's house! Develop your powers of percussion, and do not despise the help of the radiologist.

In these days, when the value of artificial pneumothorax is beginning to gain recognition in this country, it is quite common to be presented with a case in which the stethoscope finds moist crepitations over the whole of one side, and the other side appears to be entirely clear. In such cases when a radiogram is taken it may often be found that disease is active and advanced on both sides, although the stethoscope could only find it on one. The spread on one side is only a bit more advanced than the other, and has reached the surface; presently, in weeks or months, crepitations will appear on the apparently clear side and rapidly spread over the surface. These cases, in fact, present a somewhat different aspect of the same diagnostic

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pitfall—namely, deep-seated disease without surface evidence. Many years ago, when I first started doing artificial pneumothorax, I had no x-ray installation at my hospital on which to rely for help. In one case in particular I remember collapsing a very bad lung where the other lung appeared to be clear, with the result that oedema developed in the apparently clear side and the patient died. At the autopsy it was painfully disclosed to me that the “better lung” was full of deep excavation and abundant disease, none of which gave signs at the surface. At the time this came to me as somewhat of a shock, but experience has taught me that it was an excusable accident. Given advanced hilus tuberculosis and one-sided signs, it is practically impossible to tell from physical signs what may be happening in the depths of the other lung. On the other hand, with symptoms which may or may not be due to tuberculosis, and with absence of stethoscopic signs, it is fortunately quite possible to exclude or confirm hilus tuberculosis—that is, we can diagnose the disease, but details as to its distribution in the depths of the lung are quite another matter.

What I want to emphasize in the matters I have discussed is the pitfall which deep-seated tuberculosis presents to the unwary. Fortunately this form of the disease is often of mild aspect, and a holiday rest and some attention to health may get the patient well, undiagnosed. But this is by no means always the sequel, and if you wish to catch your case early, and to avoid the risk of hearing that your favourite “neurasthenic” has died of tuberculosis, you must keep this pitfall in mind. Never be put off by absence of stethoscopic signs; this means nothing. Take the symptoms seriously until it can be clearly demonstrated what is their cause, or at least that it is not tuberculosis. My experience is that it is deep-seated disease which especially provides advanced cases and swells the mortality table in tuberculosis, and this solely, I think, because the condition remains undiagnosed and hence untreated in its earlier stages. Undoubtedly the disease may spread slowly with but slight disturbance of health, and only after years may it be recognized, too late, that the patient's resistance is finally overcome.

Deceptive Signs.

And now I will turn to a quite opposite aspect of tuberculosis, with the object of reminding you that stethoscopic signs, on which we physicians are very apt to rely, may also deceive us at the other end of the scale—that is, that in cases of tuberculosis crepitations do not always indicate active disease. Many are my patients, or former patients, going about their ordinary avocations with an area of crepitations over the site of their most advanced lesions. For the most part such cases harbour a deep cavity, but this is not always the case. The condition is generally due, in my opinion, to a dilatation of small bronchi or bronchioles—a bronchiolectasis—brought about by the contraction of underlying or surrounding tissues. Often the sound is a dry crackle, but at other times, particularly in conditions of catarrh or after a haemoptysis, moist crepitations may be heard. Such signs are very apt to be taken for those of active disease—indeed, good observers may differ as to their significance in a given case. Particularly difficult is it to exclude activity, or to persuade others that tuberculous activity is absent, in cases of haemoptysis or of fever in such cases. Nevertheless a prolonged experience of tuberculosis has convinced me that in cases of long standing, and where disease has reached to stages of cavitation, haemoptysis, febrile attacks, and moist crepitations may all be found in the entire absence of tuberculous activity. Not a few of such cases have recurrent attacks of haemoptysis without further disturbance. The febrile attacks are due to secondary infections and are often periodic, sometimes recurring to a day every three or four weeks. If such a case, being known as tuberculosis, has retained crepitations over a large area of one lung, it may be difficult to decide and difficult to persuade others that, *qua* tuberculosis, the condition is arrested. Where, moreover, disease has been widespread, it must be admitted that it is unwise to rely too much on such arrest where secondary infections are constantly disturbing the balance.

Another sign of tuberculosis which may persist in an embarrassing way long after the disease is in abeyance is the presence of sputum containing the tubercle bacillus. Patients are known to me who have been well and at work for periods up to eight years at least with no relapse, but with tubercle bacilli still present. I suppose in such cases there exists an unhealed sinus leading to a caseous area at some spot. Truly in tuberculosis things are not always what they seem, but it was especially the possibility of crepitations without activity to which I wished to direct your attention. Do not, however, bank too much on this possibility in individual cases, or they may let you down.

The Stethoscope as a Pitfall.

Now I have taken two pitfalls in the diagnosis of tuberculosis and its activity, both directed towards warning you against too great reliance on the stethoscope as opposed to other means of diagnosis. The stethoscope is a valuable instrument, so long as there are no holes in the rubber, no wax in the meatus, and no prejudice in the mind of the user, but it is not, or should not be, the alpha and omega in the diagnosis of pulmonary tuberculosis. It may, as I have pointed out, “omit to mention,” and it may even deliberately lie. I do not, on this account, recommend its abolition, for in the hands of those who fully grasp the situation its silence will not deceive, and its lying, like most lying, will not sound quite like the truth. But it should be put in its due place as one only of the sources of information as to what is happening in the organs of the chest.

TREATMENT.

Dangers to the Early Case.

I will now turn to the subject of treatment, and the point which above all others I wish to stress is the harm which the patient may do himself during the stage when he is awaiting a definite diagnosis, or at any rate awaiting treatment. The wise practitioner will confine his patient to his home or even his room where he suspects tuberculosis but has not yet confirmed his suspicion. This may be done on the excuse of a rest temperature chart, and if this shows fever the patient should be kept to bed or couch. I am convinced that the active stage could be vastly shortened, with the result that disease would spread less far and recovery be more complete, if cases were treated thus for acute illness, as indeed it is, at the immediate outset. What, instead, happens as a rule? The patient goes about his occupation for weeks or months after definite symptoms have commenced, and thereby greatly prejudices his chances of recovery. This is often, of course, the fault of the patient alone—he may never have visited his doctor during these early stages, or he may refuse to follow advice. But such advice must be insistent, and pressed with real conviction, and with the force of massed medical opinion behind it. All those who speak with authority are at one on this need of rest at the outset, only they do not speak loudly enough. The cry is for early diagnosis, and rightly enough; but the doctor who has started precautionary treatment before he can deliver his diagnosis has gone one better, and has earned, even if he does not get paid, the real gratitude of his patient. If a mistake has been made his conscience will be easy—he has done the right thing, and whatever was wrong with the patient other than tuberculosis the rest was probably beneficial.

When the case has been diagnosed start a resting régime right away; remember that the case came to you for “symptoms,” and these mean active disease whether there is fever or not, and active tuberculosis, like any other active inflammation, needs, above all things, rest.

The lung is a difficult organ to rest, but its movement can be curtailed by bodily rest and absence of talking, and its blood supply lowered by damping down the systemic circulation with which it is in continuity.

The Therapeutics of Rest and Exercise.

Let us inquire a little into the rationale of rest, and incidentally of exercise, in the treatment of pulmonary tuberculosis.

Said Hermann Weber once in days gone by, "I would not willingly undertake to treat a case of phthisis without the help of exercise," to which Penzoldt retorted, "I would not willingly undertake to treat a case of phthisis without rest, keeping exercise as an exceptional measure." Whereupon Dettweiler settled the dispute with the remark, "The truth lies really in the proper application of both measures to suitable cases, though rest is, to my seeing, the primary factor." The key to success lay, he opined, in the "correct dosing of rest and exercise," and that is much where the matter remains to-day.

Theory and experiment have, however, come to the assistance of empiricism, and have provided a working basis—the blessed word "auto-inoculation" has filled our minds with peace, and our mouths with a plausible explanation of many perplexing problems. Almroth Wright revealed to us the great game of "antigen" and "antibody"; he showed us how the resisting power of the body to chronic infections depends on a proper balance between them, how a suitable supply of bacterial products (antigen) is needed to produce an immunizing response (production of antibody), and how excessive and uncontrolled dosage may overcome antibody formation, with the result that symptoms appear and disease spreads; how, further, once the balance is disturbed it can only be recovered by control of the bacterial toxins let loose (control of auto-inoculation) by rest and similar measures. At a later stage there may be brought about a gradual training of the body to resist larger and larger doses (tolerance), while at the same time "immune reactions" are developing to every adequate dose of exercise. For auto-inoculation may follow upon "all active and passive movements which affect the focus of infection, and upon all vascular changes which activate the lymph stream in such a focus." Here is our working hypothesis, and it has been to the work of Paterson and Inman in particular that we owe its full application to the case of pulmonary tuberculosis. The rôle of rest and exercise in its treatment resolves itself, in the words of Paterson, into two aims:

1. "Control of auto-inoculations when the protective substances are unable to deal with them."
2. "The artificial inducement of auto-inoculation adjusted to the resisting power of the protective substances."

It is, of course, the former alone which applies to the newly discovered or still half-diagnosed case—it is a case with symptoms, and these are evidence of a breakdown of immunity which only rest can straighten.

The Rationale of Rest.

The main reason for rest is fever—it provides "control of auto-inoculations when the protective substances are unable to deal with them," and enables us to reach eventually a fresh formation of antibodies. Not only does uncontrolled dosage with antigen defeat the formation of antibodies, it also acts deleteriously by "activating" all tuberculous lesions within reach of the blood stream. Just as an overdose of tuberculin will let loose "focal reactions" in company with a "general" or febrile reaction, so is fever in tuberculosis accompanied by a disastrous flooding of the tuberculous areas with blood deficient in antibodies, and a further washing out of toxins and waste products into the blood stream. This leads to further fever, and thus a vicious circle is kept up, which can be broken only by rest, unstinted and sufficient.

But a further task awaits the tissues in the erection of "fortifications" round the areas of disease with a view to their encapsulation, and this, again, requires a period of rest after all fever has subsided. It has been shown that the injection of a chemical irritant into the lung excites the formation of inflammatory zones whose nature varies with the concentration of the irritant—thus a central necrosis, then a fibrinous layer, next serous inflammation, and lastly, around all, a zone of proliferating fibrous tissue. A similar process occurs in response to the toxins of the tubercle bacillus. When the parts are at rest a zone of fibrous tissue will form at the spot of "optimum irritation," and good encapsulation ensue. If much movement is allowed

there will be no fixed optimum, and a wider spread of less well developed fibrous tissue instead of a limiting capsule. In addition to this it may be further expected that immobilization acts by reducing the lymph flow to the diseased area and thereby diminishing the introduction of nutriment and the extraction of waste products till the growth of bacilli and the formation of toxins cease.

In connexion with this argument, and perhaps with those to come, it is but fair to point out that immobilization of the lung acts as a two-edged sword in its application to tuberculosis. While collapse and immobility of the organ are, on the whole, unfavourable to the development of tuberculosis, there is a phase of expansion and movement between this and complete activity which is very favourable to the development of tubercle. This shows itself in the more rapid growth of tubercles in the apical regions of the lungs than in the more greatly aerated basal areas in cases of miliary tuberculosis where we know all tubercles are of equal age.

As a matter of experience it appears that the control of auto-inoculation is of vastly more importance than any accidents of extension or movement in portions of lung tissue, and it is primarily to this that our therapeutic rest should be applied.

Nevertheless, on the mechanical side there seem to be two other arguments in favour of rest while disease is still active. One is the increased movement and extension, the result of exercise of an organ doomed of necessity to some amount of this. It must be difficult enough for a wound or inflammatory area to heal under the peculiar conditions of elastic tension and continual movement always present in the lung. If these are increased by talking and exercise it must necessarily make the process still more difficult. The other point is the peculiarity of the pulmonary blood supply which puts it at the mercy of the systemic circulation. Provided with but little vasomotor control, with no power of stopcock action such as obtains in the greater circulation, the lungs are doomed to pass through, with no protection of diseased areas unless by mechanical blockage, whatever mass of blood the systemic circulation sets in motion. Especially does muscular activity increase this circulation, and a patient moving about is all the time flushing his inflamed lung areas with blood. This may not lead to fever (the patient may have developed "tolerance"), but even apart from this such intermittent flushings are not the best treatment of tuberculous areas as long as these are active. This, in my opinion, is one of the pitfalls in treatment: the belief, commonly held, that exercise is harmless so long as it does not cause fever—that is, so long as there is "tolerance."

Now it is especially where large areas of exudative inflammation exist—that is, in cases of fairly acute type—that flushing and movement very certainly do harm. We are familiar with the softening and discharging of caseous cervical glands where heat and unrestricted movements are applied. In the neck this may shorten the cure, but in the lung it means "cavitation," a disastrous method of removing diseased material since the tissues kept at tension cannot close the breach. Hence for all cases of active disease tending to the formation of areas of bronchopneumonia or exudation which may become caseous and soften, prolonged rest is surely indicated. But it must also be remembered that in every tuberculous lung such areas on a smaller scale are present; Dettweiler has compared it to a mulberry tree on which are found at the same time flowers, and fruit both green, red, and black together—in the tuberculous lung we may have areas of fibrosis and softening near together, and also all stages of inflammation, exudation, bronchopneumonia, formative processes, etc., in the same organ. This mixed process must be borne in mind in treatment. But what must also be specially kept in view in relation to this is the fact that absence of fever is not evidence that disease has become inactive. The physical signs clearly indicate that activity is still present, and only slowly abating, for months after rest in bed has reduced fever and symptoms to a minimum. Such patients can be got up and tolerance established, but as long as disease is active, if it is of any extent or seriousness (and it needs much skill to know what cases are not) there is no

doubt that movement and intermittent flushing with blood are the wrong treatment for them. We have taken as our text disease but recently, or even incompletely, diagnosed, but it must not be supposed that all such cases are really "early," or that disease may not already be of a serious nature at the moment of its discovery. If it is deep-seated, especially, it may already be extensive.

There still remains a further reason for rest at the beginning of the illness called pulmonary tuberculosis—namely, the need of the body for its physical recuperation. "It needs a given amount of energy," remarks Joslin, "to meet the demands of ordinary metabolism; it requires an extra amount to meet the extra demands made by a disease like tuberculosis; and it requires still more to fight the infection and bring about a healing." Pottenger says, "The disease-fighting power of a patient will depend on his ability to maintain an excess of energy after meeting the natural metabolic requirements of the body," and for this adequate rest is required.

Practical Considerations.

And now what does all this "boil down to," to use a colloquial phrase? That pulmonary tuberculosis, and the suspected case also, should be treated as a serious matter unless, or until, it can be shown to be otherwise. That bed, or at least rest on a couch, is the right place for it at the outset, and pending complete diagnosis, and that this should be continued as long as, and beyond, the period of active symptoms. Especially must the patient be prevented, where possible, from "settling up his affairs," which means, in many cases, a strenuous attempt to put several weeks' business into a few fevered days. If it is put to him frankly that this may mean a serious prolongation of his illness, or worse, it often becomes apparent that this "settling up" is not so indispensable as it at first appeared, and a relative or friend can be deputed to carry it through. In cases where fever is a prominent symptom—cases, therefore, which will probably require the training of a sanatorium course—it is necessary to carry on bed treatment for a considerable period. If the conditions are suitable this early rest period can sometimes be advantageously carried on at home, if the friends can be trusted, or a reliable nurse is obtainable. Sanatoriums do not provide for many bed cases, and therefore it is convenient to get through a good part of this period before the patient is sent. There is also this to take into consideration—that in institutions for the treatment of pulmonary tuberculosis, whatever class they serve, there must always be a bias towards getting their patients up and about, and pushing onwards towards convalescence. Convenience, economic forces, and generally the patient's desires all push in this direction, and whatever the doctor's views may be they are likely to get carried in this direction also. The tendency is to curtail the initial resting period.

And now I feel you will be mentally asking what I consider this period of rest should run to. And this I find very difficult to answer in general terms—it is so very much a question for individual consideration. For cases running fever one may perhaps say *double* the febrile period, but in no such cases should the resting period be shorter than a couple of months. In cases of slight exacerbation in an old tuberculous case the resting period may often be more curtailed than in a first attack. With disease of decided amount and activity a period of four to six months' rest is none too long; and for the hospital class, in particular, owing to their ignorance of the dangers, and inability to obtain frequent medical observation, a long resting period at the outset is most vital. It is to be presumed, though I have not mentioned it, that the maximum of open air is combined with this rest in all cases. Rest may be in bed (and should be in febrile cases) beside the open window (preferably with the sashes removed), or on a balcony, or in many cases divided between bed and an outside couch (but stairs must not be allowed). A matter worth mentioning with regard to rest treatment is that the patient's "tolerance" to auto-tuberculin is apt to fall low during prolonged rest, so that but slight causes may lead to rises of temperature. This can generally be ignored, and "toler-

ance" can be readily built up again when it is decided that rest has been carried far enough.

When the bed period has been carried through, then will begin the period where constant attention, resource, and knowledge are most necessary—namely, the period of graduated movement and re-establishment of tolerance. This time, in cases of any seriousness, is most safely carried through in a sanatorium, where daily supervision is possible, and where conditions and surroundings are arranged to facilitate this end. Where rest has been carried on till disease is really quiescent, then the period of graduated convalescence can be carried through with more confidence and safety.

Pratt's Class Method.

At the conclusion I might add a few words on the most modern application of rest—namely, what is known as "Pratt's class method" of treatment, practised with success among the tuberculous poor of Boston, and also since in Montreal and elsewhere. The patient is put to bed in his own home under the maximum of open air allowable, and remains there for several months. He is visited at regular intervals by a visitor, generally a nurse, records are kept of his progress, and when it is considered safe for him he attends once weekly at a centre or "class," where he is seen by the doctor, weighed, and the names of those who have gained most weight, and those who have spent longest in the open air, are chalked up on a board. The patients' chat among themselves and are given a short "talk" by the doctor, and then return to their beds. Each class is limited to twenty-five, and competition among them in the battle for health becomes very keen. Adams noted that in Montreal these patients gained twice as much weight as did similar cases treated in a sanatorium under more rural conditions. The average bed rest among Pratt's cases was four months, of "graduated exercise" combined with bed rest four to seven months, and the whole treatment ran up to a year and sometimes longer. When we remember that recovery from tuberculosis must take at least a year and often two or three years, according to what hold it has been allowed to get at the outset, it will be seen that this is not over long for treatment.

And now what were the results? Comparing them to those of Frimley and of Midhurst Sanatoriums in this country, they may be stated as follows:

Years after Discharge.	Frimley (at Work).	Midhurst (Well or Alive).	Pratt (at Work).
1	61 per cent.	69 per cent.	95 per cent.
5	39 "	39 "	71 "
10	—	35 "	50 "

These are striking figures, and though Pratt's cases (though unselected and all positive to tubercle bacilli) amount to but 191, and hence are over small for statistical valuation, still the superiority seems too marked to be accidental. If this claim is substantiated, and I see no reason to doubt that it will be, there seems little doubt of where the secret of success lies—namely, in the institution of rest at the outset. These patients went to bed when otherwise they would have been walking about, and perhaps trying to work, and they remained in bed over the dangerous period of active disease. It is as an illustration of this point that I have introduced this system and these figures to your notice at the end of this talk, and it is on this note, that I should like to finish. Let tuberculosis be treated, however mild the symptoms, as an acute illness at the outset, and I feel sure we shall notably reduce its mortality. Do not wait for the diagnosis to be established; especially do not wait for tubercle bacilli, which can never be trusted to keep an appointment; do not wait for such further investigations as the diagnosis may necessitate; do it now, as the advertisers say! Put your patient at rest and keep him there till your suspicions are confirmed or otherwise, and you can greet him hereafter with an easy conscience in the Elysian fields.