A Lecture ON HOSPITALS FOR TREATMENT OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS:

A NATIONAL NEED.*

BY

H. BATTY SHAW, M.D., F.R.C.P.,

PHYSICIAN TO THE BROMPTON HOSPITAL FOR CONSUMPTION AND
DISEASES OF THE CHEST AND TO UNIVERSITY
COLLEGE HOSPITAL.

THE subject of this lecture is of interest not only to the medical profession exercising family or consulting practice, or carrying out the duties of medical officers attached to the various public services of the country, but to the community at large. Members of the medical profession who have to deal with tuberculosis in any of its forms know only too well the importance of having hospitals for the observation of these cases, and for watching the results of the numerous forms of treatment of the disease, whether medical or surgical. The community at large feels the need most acutely, more especially with regard to those of their members who are in the final stages of the disease and require nursing for months, and it may be years. The need is not restricted to the poor; it is felt by the rich as well, because if there is a tuberculous subject being nursed in a home of the well-to-do there is such fear of the spread of tuberculosis to other members of the household that the patient is shunned by the relatives, and the domestic servants refuse to stay. During the war it was frequently impossible to find nurses for ordinary patients, and for the tuberculous the difficulty was still greater. The patients' friends have asked for nurses skilled in the nursing of tuberculous patients, but they were not to be found. Even before the war it was difficult to supply the need of nurses thoroughly acquainted with the management of a tuberculous patient.

The present is an opportune moment to ventilate the subject, because so many traditions in medicine and so many of the past methods of dealing with disease have, when scrutinized in the fierce glare of war, been found wanting. Old problems have to be faced again in view of the unsatisfactory nature of the methods used in the past. To no form of disease does such a remark more aptly apply than to the treatment of tuberculosis, and more especially to pulmonary tuberculosis. Many warnings and rules, some shibboleths, have been uttered:

If curable, why not cured?

Passengers are requested not to expectorate in public conveyances for fear of spreading tuberculosis.

The expectoration coughed up by patients suffering from consumption and the discharges from tuberculous abscesses are sources of infection for other healthy people.

Consumptives should expectorate into a sputum flask containing a strong disinfectant.

A consumptive, when coughing, should guard the mouth by a handkerchief or a clean rag, the former after use being disinfected and the latter burnt.

A special set of cups, saucers, etc., should be set aside for the use of the patient only.

If consumptives will carry out these rules they will assist not only in their own recovery but also in preventing the spread of the disease to those closely associated with them in their homes or at work.

Some of the requests contained in these admonitions are little more than are required of a decently behaved community; some of them are direct advertisements to a patient's fellow-creatures that he or she is a danger to the community, and dismissal may follow if an employed person is seen expectorating into a sputum flask. The danger arising from association with a tuberculous subject has been made such common property that the lot of the tuberculous subject has become most distressing. If able to work, he is shunned by his associates, or if skillful enough to hide from them the fact that he is tuberculous, he may be sowing tuberculosis broadcast; if as the result of the advice given to him he changes his occupation, he may find himself at a most unsuitable age frightened out of his office or warehouse work, and driven into an outdoor occupation which in the winters of this country may be most uncomfortable and may even become disastrous to him.

* Delivered at the Brompton Hospital for Consumption and Diseases of the Chest.

Every medical man or woman who is an earnest student of pathology, and whose judgement has not been biased by alleged therapeutic wonders and clinical proofs of infection by contact, realizes that the tubercle bacillus gains access to the human body at an early stage of life; for our present purposes it matters little how or where the organism enters. A large number of children who die of some other disease are found also to show evidence of reaction to the tuberculous invasion, either by revealing an active or a healed tuberculous lesion.

We may assume that to those children who were found to have an active tuberculous lesion, had they not been carried off by some other disease, several courses would have been open. They might, for instance, ultimately have dealt with the tuberculous infection successfully and rendered it obsolete; others would have continued with less success and the tuberculous process would have mastered them at some date or another; still another group may show that a lifelong continuous civil war had gone on between the tuberculous infection and the patient's resistance, and that the patient ultimately died of some other disease.

The due appreciation of the statements made in the last paragraph compels us to take quite different views as to the real time of onset of pulmonary tuberculosis. Many of us believe that when we find tubercle bacilli in the expectoration, with no or slight signs in the lungs, the case is one of early pulmonary tuberculosis; but this should not make us think that the process of tuberculosis, whether general or pulmonary, so far as that patient is concerned, is really in its early stages. It is more probable that the apical rales and tubercle bacilli in the sputum are relatively late manifestations of tuberculosis of the body, and possibly of tuberculosis of the lungs. It is a familiar fact that these cases of early pulmonary tuberculosis commonly manifest themselves in the young adult. That is the period at which those who have been infected with the tubercle bacillus in childhood reveal their tuberculosis in the special form known as pulmonary tuberculosis—a clinical and pathological fact; it looks as if lung tissue was specially susceptible to the tubercle bacillus. Pulmonary tuberculosis may not reveal itself until the age of 40, 50, and even 80 or 90 years of age; in such latter cases the battle between the tubercle bacillus and the patient's resistance has been long and slow, and the patient has been able to live a long life and discharge all his duties.

It really does look as if the statement made many years ago that everyone has tuberculosis, has been confirmed by more modern investigation, and may have a new significance. To the layman such a remark comes as a shock; he feels that so long as he avoided infection by the tubercle bacillus he would never contract it. He has to learn that the *post-mortem* room teaches that he cannot avoid being infected in early childhood; that a robust-looking subject may be a case of active tuberculosis; that the constant struggle between the infection and the patient may end in the defeat of one or other at any period of life, and that when the micro-organism wins, and the seat of battle is in the lungs, the combat is discoverable at any period from early childhood to extreme old age. Because the seat of the combat is in the lungs, the existence of the tuberculosis may be more easily detected than if the combat were elsewhere, owing to the material results of the combat, the coughed-up debris showing entangled tubercle bacilli.

Have we, or have we not, as members of the medical profession, insisted upon these points properly, or do we still believe that adults catch pulmonary tuberculosis from other cases of pulmonary tuberculosis? There can be no denying that many do actively teach it, or the whole of their actions passively support the idea that they believe it. Other medical men accept the different idea that the pulmonary tuberculosis is merely the terminal expression of a lifelong tuberculosis. I fear others want to adopt the comfortable parts of both views, and shut their eyes to those parts which are unpopular. Let us think for a moment how our management of tuberculosis as a whole would be influenced if we held one or other of these views absolutely.

1. *The Tubercle Bacillus gains First Access to the Body at different Stages of Life.*

We should, then, as in the case of typhoid infection, endeavour to trace every tuberculous subject. We should

isolate and nurse him till he was cured of his tuberculosis, or until he died. We should have special hospitals and institutions for the care of such patients, all sputum or tuberculous discharges would be destroyed, all cases would be notified, all patients would be thoroughly studied, when apparently cured, to see that they were not "carriers," so that on their return to civil life they should not infect other people. Lastly, we should attempt to carry out prophylactic vaccination with tuberculin, hoping for the excellent results that have been obtained by the army authorities by prophylactic vaccination against typhoid. All nurses and practitioners in special attendance upon tuberculous subjects would certainly be prophylactically inoculated; indeed, the method would be thrown open to the whole community, as in the case of small-pox vaccination. As in typhoid fever, the protection might wear out, and we should have to repeat it. It is conceivable that the enormous numbers of cases of proved tuberculosis would make future generations feel that preventive inoculation against tuberculosis should be compulsory.

Finally, every one who was found to be tuberculous would be provided with sanatorium benefit *until he was cured*, or hospital treatment *until he died*. Common fairness would say that if a man or woman was found to be tuberculous, was notified, and was sent to special institutions for cure, he or she should be protected from any subsequent disabilities that would arise when people found, as they do now, that alleged cures were not cures at all, and object as they do to associate with such alleged cures.

Judging by our present knowledge, the cures of tuberculosis of the lungs in the only sense which warrants the use of such a term, are so few and far between that physicians recommending sanatorium treatment know that they cannot promise a cure; they can only say "It may cure you"; they cannot in any form of tuberculosis, as in typhoid fever, say what the percentage of cure is. The returned patient would be a menace to his fellow creatures; they would shun him in the workshop or the house or office; the outlying parts of our empire would refuse to accept him, and such a man would have the right, as one of your number has already heard it insisted, in his own State, to demand lodging, food, and general maintenance, not only for himself, but for those dependent upon him. If such a man is a danger to the community he should be separated from it; but he should not be penalized. An effort might then be made to set apart some district as a colony only for tuberculous subjects. This ostracism must be complete; but can we imagine such a plantation of tuberculous men, or tuberculous women going on for long? It would be bearable of course if such men or women had their dependants near them, living with them in the colony, but then this would defeat the very purpose for which the colony was established—the isolation of the infected individual.

It is seen from the above sketch that only too soon we are brought to an *impasse*. The final result would be that we should not try to establish a scheme of treatment of the tuberculous patient based on the idea that tuberculosis is caught, as typhoid fever is caught, at any period of life; any plan of treatment based on such idea would be as unstable as an inverted pyramid.

As a profession at the present day we are not at all satisfied with the management and treatment of the tuberculous subject; but so much momentum, however, has been given by the Insurance Act to the crusade to pick out and isolate the tuberculous subject that to change it all will only be possible when the public knows the truth. Further, if every tuberculous subject in England at the present day could be brought into this scheme of isolation there would probably be such an upset, socially and economically, that there would be a revolution. The country could not afford it, and human nature would not stand it. Let us look again at the fundamental pathological belief that all this superstructure is built upon.

Is it true that we first contract tuberculosis by infection from one another at any stage of life? Let us confess at once that this view no longer holds water and that the plan of dealing with tuberculosis based upon it has failed. On *prima facie* grounds many of us say that it is very likely we infect one another through the respiratory tract; yet the actual experiments carried out in the laboratories do not carry full conviction that this is the way human tuberculosis is spread, and it is common knowledge that

the entrance may be by the food through the alimentary system, and animal experiments prove that this is a very probable point of entrance. While there is this fully admitted divergence of opinion as to how the tubercle bacillus gains access to the body, it is freely to be admitted that we might act on the mere *prima facie* idea and allow that part of the Insurance Act dealing with the tuberculous subject to be tried. It has been tried, and the many failures are obvious. The present-day dissatisfaction is based not only on the paucity of the results secured under the Act, but on the failure to pursue such methods logically and completely. We know it is logically *impossible* to carry out the lines of prevention. If the child's milk is boiled to kill all tubercle bacilli, would the housewife or the cook boil the separated cream as well? If all cases of pulmonary tuberculosis showing tubercle bacilli in the sputum are dangerous to the community, should they ever, while they are in that state, be allowed to go back to their families, or even to their civil occupation? If the respiratory route is the one by which human tuberculosis is engendered, we have no right to ask a number of perfectly healthy men and women to act as physicians, nurses, ward-maids, and hospital orderlies in institutions for the care of tuberculous pulmonary disease. It should be criminal for children to be allowed to play on the pavements and streets of our cities, inhaling tubercle bacilli laden dust, brought into existence by bad-mannered people expectorating instead of swallowing, or collecting in a special pot, the sputum laden with tubercle bacilli. It should be criminal for the housewife to send handkerchiefs and pillow cases to the laundry which have been rendered dangerous by cases of pulmonary tuberculosis without previously sterilizing them.

One particular school has endeavoured to make us easy in our minds about the infectivity of dust by reminding us that sunlight soon leads to the death of the tubercle bacillus; but how does this help us in a climate like that of the British Isles, where the sun is so often obscured? What scheme is there going by means of which those who are infected with the tubercle bacillus and have tuberculous discharges are compelled to go to, or even given the option to live in, parts of our empire where the sunlight more fully exerts its beneficent power? The long and short of the position appears to me to be this: that if the care of our tuberculous patients is to be based upon the belief that those suffering from pulmonary tuberculosis especially have caught the infection at a comparatively short time before they develop the signs, it is absolutely impossible to be logical; however enlightened a community may be, it could not stand the application in every detail of rules for the prevention of the spread of pulmonary tuberculosis according to such a belief. Such an enlightened community would try to escape, and would say: "You are attending too much to the seed, why not attend to the soil." Indeed, this is what is happening at the present moment, and we have a great outcry for the clearing out of slums, the object being to raise the defence against infection from the organisms of disease. We have accepted the pleasant parts of the Act, such as the stay in the country in a sanatorium for the poor, who hitherto have never had such a treat; but we have woefully failed to provide proper treatment for the poor man or woman who may not go to a sanatorium, and who has failed to respond to treatment. We can no longer ignore and neglect such cases; they have as much right to help as the so-called early case of pulmonary tuberculosis.

Can we find at the present moment room in sanatoriums for all who are entitled to it? And can we find accommodation for them long enough for their active signs to subside completely? It is well known that we cannot. All that we can do at present is to allow some tuberculous subjects to rest in healthy surroundings for a too brief period, trusting that even this short stay will work what many of us, alas! know to be impossibilities. The fate of these patients is most sad. They have to return to their work; they become "taboo"; often they have become exceedingly nervous about themselves. In some cases they become wilfully indolent and defend themselves by saying that if they do too much they may damage themselves. In many the disease progresses further and further and at last they become bedridden. What do we do with them then? We are obliged, on economic grounds, to condemn them to domiciliary treatment. But if the theory above mentioned is correct, we are undoing all that

we tried to do. The bedridden patient is put back into his or her home, and can infect the family as badly as ever. The position would be a laughable one were it not so serious. We do not forget that there are health visitors and tuberculosis officers who visit these homes; no doubt they are most serviceable, but they cannot always be on the spot, and those of us who have knowledge of the homes of the poor can guess what happens—in the intervals between such visits it can be seen that the visits might never have been made!

So far as this particular doctrine is concerned, both medical and lay folk give lip-service to it. We doctors merely carry out parts of the plan of treatment which the doctrine requires; just as much as we may. As soon as a practical difficulty arises we beat a retreat and tell our patients to act up to the ideal as much as they can. We admit that the doctrine is largely a creed, and is not based on demonstrated facts, and our patients wonder whether we are doctors scientifically trained, or whether there is not a great deal about us of the dogmatic religionist. I have heard it said, "Don't be critical about the imperfections of the present attitude towards tuberculosis, because what we are doing now is more active than it used to be"; or again, "Even if we are not curing consumption, yet under the cloak of our present activities and propagandism, we are stirring up the public conscience and using it as a lever; we are going to get the poor to hate to live in slums, to want to go back and live on the country-side, to be more decent in their manners, and we are giving them, when we send them to the country for three months to a sanatorium, an escape from the miseries of town life"; and "we are showing the working classes that politicians have a real and abiding interest in them, and that the health of the poor is of national importance."

2. Everyone is Infected in Early Life.

Now let us turn our minds to the way we should tackle the tuberculosis problem if we accept the view that every member of society, *volens volens*, is infected with the tubercle bacillus in early life. This has been demonstrated in the dead bodies of children dying of some other disease. This view, therefore, has much surer pathological foundations than the first, which we have seen assumes as true something which it is very difficult to prove. It is certain now that tuberculosis in childhood is universal. It looks from the evidence as though the tuberculosis was brought about through food. It may also have been brought about through the respiratory tract. It does not seem that high social status, perfectly healthy surroundings, unimpeachable companions and food, can prevent the child of civilized parents from taking tubercle bacilli into its system. We have not the same access to the results of the *post-mortem* examination of the children of the well-to-do as we have to those of the poor; but judging from the fact that tuberculosis hits the well-to-do so hard, it may be assumed that the same widespread infection, universal in type, affects even that class of society. A corollary is that since infection by the tubercle bacillus is universal in childhood, we can at once allay the fears of a large number of nervous people, who in the ordinary course of life have to meet and deal with people who are suffering from active pulmonary tuberculosis. The very fact that they have reached their particular age without developing tuberculous disease shows that the soil of their bodies is, to date, so strongly hostile to the growth of the tubercle bacillus that though it has found a lodgement it has not produced disorder, organic or functional.

If we ask what proof we have that one tuberculous person has caused tuberculosis, whether of the lungs or of any other tissue, in another person, I think I am right in saying that the evidence rests largely upon data which have not been sufficiently controlled. For example, on one occasion there came under my observation a family of children, nearly a dozen in number. More than half of these children had either died of pulmonary tuberculosis, or had suffered from, or were suffering from, tuberculosis in some other part of the body. In those days, like many others of our profession, I was enthusiastic in tracking the individual who was the source of infection. I examined both father and mother: the mother revealed no evidence of any kind of disease; the father resented coming to the hospital to be examined, because, as he said, he had reached the age of 54 and had never had a day's illness in his life; the only symptom he had ever had was slight

cough in the winters, but that never caused him to stop work. On examination, I found that this spare man, whose weight had never been up to standard for his height and age, was suffering from pulmonary tuberculosis, involving two or three lobes of his lungs. Strange to say, he died of his disease within about eighteen months. This little story may be made to answer all sorts of questions connected with tuberculosis. According to one school of thought, it is almost certain—

1. That this man infected his children, and that had his disease been discovered earlier, and had he been dealt with logically, he might not have married at all. Suitable methods would have rendered him safe to the community, and by so much the mass of tuberculous material in the world would have been reduced.

2. That if he had only been diagnosed early he might have been cured, or he might have been shown a new mode of life by which his children would have escaped infection.

3. That it was an argument for the routine examination of the whole nation, ill or well, so as to find out those who are infecting their children unwittingly.

4. That when the father was found to be tuberculous he should have been taken from his work and given an outdoor occupation, or even been encouraged to leave England for a more suitable climate.

5. That each child who had become infected should have been treated as the father was and cured, and also have been given outdoor work, or sent to a more healthy country.

But another school answers questions raised by this story in quite different ways. It would argue—

1. That when one thinks of the number of tuberculous parents who have children who never develop tuberculosis, it is reasonable to ask whether the above story does more than exemplify the possibility that, seeing that all his children were infected by the tubercle bacillus, like the children of the rest of the community, only those succumbed to the disease who had inherited from the father a non-resistant soil. The rest of the children had inherited the mother's healthiness, and they were able to resist the disease. Further, if the father was so infective, surely he would have infected his wife! So far as could be ascertained she was, and had been, perfectly healthy all her married life.

2. That seeing how little agreement there is in our profession as to whether we possess a certain cure for tuberculosis of the lungs, it really did not matter that the father had not been found out to be tuberculous years before; indeed, from the economic point of view it was better that he should have worked on for so many years, despite his disease, instead of being a charge to his family or the state by adopting long periods of treatment which took him from his work.

3. On the same lines there would be no argument for the routine examination periodically of the whole nation, because in the present state of legislation a subject could not be compelled to allow himself to be examined, and accept medical treatment, or to live apart from his family and to give up work. He could only be notified, which might lead to him being dismissed from his work, in the event of his being unable to find other occupation; he ought, strictly speaking, to have the right to look to the state to support him and his family.

4. That since the man was able to carry on, and only had slight cough in the winters, it was just as well to leave him at work, helping him with advice and medicine till the time came when he could work no longer and needed complete nursing.

5. Each child which had been found infected should be placed under symptomatic treatment, including the change from a slum home; if the child required nursing it should be sent to a hospital; if all means failed at home to improve its appetite, a trial should be made of institutional treatment at the seaside or in the country. If such trial failed, and nursing became essential, the child should be sent to a hospital near its parents' home. If the parents wished it, and could manage the nursing, the child might stay at home.

By thus stating these two views of how and when tuberculosis of the lungs is laid down in the human body, and by sketching what would be the logical method of dealing with the disease according to the particular view accepted as a basis, I hope I have shown that the first

view, which is based rather upon assumptions than upon facts, and is the one we are trying to use as a basis for treatment under the Insurance Act, is only being used in part. We dare not, and even if we dare we could not, carry out treatment completely based upon such a view; in the meantime, so eager is the pursuit of cases of early pulmonary tuberculosis, that very much injustice is inflicted upon those unfortunate sufferers from the disease who do not come under such a favourable category; moreover, the great purpose of the Act, based upon the above view, of trying to stamp out tuberculosis by prevention, is rendered null and void by making the advanced tuberculous subject live in his own home.

I think it is more reasonable to base our treatment upon the second view. By doing so we shall get rid of much of the unnecessary terror and ostracism which tuberculous people encounter. We shall in no way minimize any alleged benefit that sanatorium treatment confers upon its patients; we can give such a scheme of treatment more years to run, with the hope of obtaining figures which will justify the belief that open-air treatment of consumption cures it; but at the same time this view will lead to our holding what I think is a more correct idea as regards the treatment of the patient. We shall not be so certain that early diagnosis of pulmonary tuberculosis means more certain cure, and we shall try under the Act to spread out the benefits of sanatorium treatment more evenly, and allow the advanced consumptive more benefit than he receives at present. I am trying, through this lecture, to secure more help for the advanced consumptive.

A few days ago my house-physician, Dr. Karunaratne, took a census of the cases under my care in the wards of this hospital who were suffering from symptoms which led to their being admitted to the hospital. The proportions of the various groups were as follows:

(a) Patients suffering from tuberculosis of the lungs, as shown by active signs in the lungs, and by the presence of tubercle bacilli in the sputum	64%
(b) Patients who before admission were found to have tubercle bacilli in the sputum. Some of these cases had signs in the lungs suggestive of tuberculosis in an active stage; others had signs which indicated that in the past they had had active tuberculosis of the lungs, but that at present there was no active disease of the lungs; still another part of this group showed no signs of disease of the lungs whatever. The common feature of the whole of this group was that with repeated examination in the hospital of the expectoration tubercle bacilli could not be found. This group formed	17½%
(c) A third set of patients included those whose expectoration, whether outside the hospital or within it, was always found to be free from tubercle bacilli; in some of these cases there were signs suggestive of active tuberculous disease of the lungs, and in others signs of arrested tuberculous disease of the lungs	17½%
(d) A last category is that of a patient whose only claim for admission to the hospital was that he or she had had symptoms of pulmonary tuberculosis; no one had ever been able to detect, either outside the hospital or within its walls, any physical signs of the disease	1%

With reference to Class (c), it is pertinent to recall that subacute and chronic disease of the apices of the lungs is not necessarily due to tuberculosis; in the absence of tubercle bacilli in the sputum, such cases must not be necessarily considered to be tuberculous in origin.

This analysis of the cases in the wards has its analogue in ordinary practice, with this qualification, that owing to selection and concentration there is relatively a larger proportion of proved cases of pulmonary tuberculosis in the wards and a relatively smaller proportion of "suspect" cases. Particular practices will include the same category of cases, but the percentages will differ. I venture to think that the last category of 1 per cent. will be swollen enormously if the view that mere symptoms are a safe guide in the diagnosis of pulmonary tuberculosis be entertained. Into this category will be put every one who has a cough, and who as well has bodily wasting, anorexia, night sweats, debility, haemoptysis, diarrhoea, pleurodynia, anaemia, dyspnoea, or amenorrhoea. Under the present legislation the doctor may try to secure state sanatorium benefit for them, or in the case of the richer classes treat the patient in his own home on sanatorium lines, or send him or her to a sanatorium. If the cases have access to this hospital they will be responsible for the last two categories above

mentioned—that is, for the 18½ per cent. of the cases above referred to. I am setting the rest aside for the moment—that is to say, 81½ per cent. of the cases—because tubercle bacilli have been found at some time or other in their sputum, but not in the 18½ per cent.

What I want particularly to point out is that by having hospitals like the Brompton Hospital these doubtful cases may be placed under observation without doing them harm, which may follow socially and economically when it is known that they have been under treatment for consumption. Patients of this class leave the hospital knowing that they were only sent in for observation, and a large proportion of them learn that they have no pulmonary tuberculosis. They have also learnt on coming into such an institution that they do not run the risk of catching pulmonary tuberculosis, because in common with every other human adult, they have already taken the tubercle bacillus into their systems in childhood. I have heard it said that we must continue to avoid contact with tuberculous subjects, to destroy every trace of tuberculous discharge and sputum, to boil all milk (and cream), to "sterilize" all tuberculous subjects, because though it is true we have all contracted tuberculosis in childhood and many of us have survived the attack, yet we are likely to succumb to future invasions; if such an argument is sound, we should not only avoid hospitals for consumption where the inmates are on guard and being guarded, but we should avoid churches, theatres, concert rooms, restaurants, trains, and public conveyances, where we must come in close contact with consumptives, who may or may not know that they are consumptive. I am told by tuberculosis officers and others that one of the crying needs of the day is the provision in every large populous centre in the United Kingdom of similar institutions to this for the admission of difficult cases. Indeed I have heard some whisper that it would be far better to spend money in the erection near all populous centres of similar institutions, rather than to continue building and maintaining in the depths of the country sanatoriums whose value as a certain cure is problematic. It is rather difficult to know how to label such institutions. Of course it would be most inadvisable to use as part of the nomenclature the words "tuberculosis," "consumption," or "sanatorium." They might be called "observation hospitals."

I have one more point. Before I cease my lecture I want again to give expression to a very abiding hope, and it is this: I want to consider the 64 per cent. of patients at present in the wards who have tubercle bacilli in the sputum. Two-thirds of them have to spend their days in bed; one-third of them are able to be up and about. We hope that the two-thirds by resting will all, sooner or later, also be able to be up and about. We also hope that all who are up and about will be considered suitable for sanatorium benefit, but whatever our hopes are, we know for a fact that only some of the two-thirds will be able to go to a sanatorium in the country and enjoy such a country holiday as they have never known in their hard-working lives. A good number of them will never be able to leave their beds. For as long a time as we can manage for them we shall keep them there, but their temperature will not fall, their pulse rate will not become normal, their physical signs will increase, and to the lasting shame of those of us who are responsible for the management of this disease, these helpless men, women, and children will be sent home for domiciliary treatment, a burden to themselves and their relatives. Some of us would like more beds at this hospital made available for incurable cases, but funds are hard to come by, and we have to follow the fashion of the day. If we find after a good trial that cases do not improve, we send some home, some may be sent to homes for the dying, some may go into infirmaries!

I do most sincerely hope that each one will work to secure provision, in the shape of institutions like this, as

(1) A means of carefully studying "suspect" cases of pulmonary tuberculosis, and

(2) Institutions, call them Invalid Homes if you like, or by any other euphemism, where patients who are suffering from pulmonary tuberculosis and are rendered incapable thereby, may be nursed and treated until they are fit to earn their living, because even that happy issue is well known to all workers here, or until they die.

Other advantages will follow indirectly. Such institutions being in the heart of populous centres, and not buried in the country, will allow these invalids to be near

their families, without being a burden to them. The opportunities for the study of the disease will be greatly enhanced, and the need for the discovery of better methods of treatment than the present will be better advertised. There will develop quite a definite body of nurses who have been trained in tuberculosis. A saner view will be held about the dangers of contracting the disease by contact, and nurses will not shun the work. The rich who do not wish to send their tuberculous relatives from their homes will be enabled to secure the help of these nurses for home treatment. The scheme would make no attack upon the present plan of providing sanatoriums for the poor, or for the rich. Lastly, though I admit it is a large undertaking, the provision of Invalid Homes for the permanent maintenance and nursing of tuberculous subjects who are incurable, may in course of time become extended most beneficially, so that Invalid Homes will be provided for the permanent reception of those who are incurable of other diseases which render the patient a complete invalid and a burden to his family. To the cry "decent homes for the poor" must be added "decent permanent hospital accommodation for those who are laid aside by pulmonary tuberculosis or any other disease which has reached an incurable stage."

ECLAMPSIA: ITS PREVENTION AND TREATMENT.

BY

A. LAPHORN SMITH, B.A., M.D., M.R.C.S. ENG.,
FORMERLY SURGEON-IN-CHIEF OF THE SAMARITAN HOSPITAL FOR
WOMEN, MONTREAL, AND PROFESSOR OF DISEASES OF WOMEN
AND ABDOMINAL SURGERY IN BISHOP'S UNIVERSITY, AND
AT THE UNIVERSITY OF VERMONT AT BURLINGTON.

ECLAMPSIA, in my opinion, is a preventable disease, and one which in a few years, like many others equally fatal, might be made entirely to disappear. To show how this may be done is the main object of this article. In the meantime I believe that a great many of the lives which are now lost by the wait and see method of treatment might almost all be saved by a policy of prompt action. What this action should be is the second object of this paper. Most of what I am about to say is generally well known to specialists in this department of our art, but unless the views I am about to express are generally adopted and carried out by the rank and file of the profession who are engaged in general practice, and who are the first to see the patients, things will still go on in the way they are going. During the last three years 1,052 mothers in the British Isles have lost their lives from this cause, and approximately 600 children. The Registrars-General of England and Wales and of Scotland and Ireland have kindly furnished me with the following figures for the last three years available.

Deaths from Eclampsia (Three Years).			
England and Wales	...	...	545
Scotland	...	...	311
Ireland	...	...	196
Total	...	...	1,052

There are no figures for the children, but 60 per cent. is a low average, and even that gives the 600 above mentioned; it is probably a great deal more. This is only for the British Isles. If we take the population of the empire as approximately ten times the population of these isles, we would have the death of 10,000 mothers in the last three years and at least 6,000 children. This number of lives of mothers and children is well worth saving. Owing to the partial acceptance of the views which I am about to advance, which have been adopted by many professors of midwifery, there has been a decrease of about 14 per cent. in the deaths from this cause in the last three years. In the first of the three years given me by the Registrars-General there were 374 deaths, while in the last of the three years the total deaths in these isles of mothers were 323, or about 14 per cent. less. This decrease is very gratifying and goes to show that the general adoption of prompt action following early diagnosis might do away with the death-rate altogether.

This improvement in the treatment of eclampsia is going on in other countries, as is proved by recent statistics of one of the largest maternity hospitals in the

world, the Sloane Hospital of New York. The director, Dr. Cragin, says that among 35,774 confinements in the last twenty years there were 389 cases of eclampsia. In the first series of 20,000 deliveries there were 231 cases of eclampsia with 28 per cent. of maternal deaths and 60 per cent. of fetal deaths. In the second series of 15,774 deliveries there were 138 cases of eclampsia, with 14 per cent. of maternal deaths and 44 per cent. of fetal deaths.

The first marked improvement took place when ether was substituted for chloroform. This is explained by the fact that prolonged chloroformization over many hours, as used to be the custom in convulsions, was very injurious to the liver, while at the same time the eclamptic condition had already seriously disturbed the functions of that organ.

The next great lessening of the death rate took place when it became generally recognized that once an eclamptic convulsion occurred the sooner the uterus was emptied the better. But it soon became evident that there was a great difference in the death rate depending on how much shock there was accompanying the speedy delivery. In other words, there was a much lower death rate when the speedy emptying of the uterus was accomplished by gentle means instead of by *accouchement forcé*, with its rapid dilatation of an undilated cervix, necessitating tears or incisions of the cervix and lacerations of the soft parts of the birth canal caused by rapid extraction, all of which led to shock.

Thus at the Sloane Hospital during the first period, when there was a death rate of 28 per cent. in 231 cases of eclampsia, the treatment had been by rapid dilatation and rapid extraction, or what is now known as *accouchement forcé*. In the second period, with 138 cases, the maternal death rate diminished exactly one half, to 14 per cent., while the child death rate fell from 60 to 40 per cent. In this second series delivery was also accomplished as quickly as possible, but by gentle means, and while these were being carried out everything was being done to lessen the toxæmia by favouring excretion and to diminish shock by quieting the nervous system.

I believe that by the general adoption by doctors and midwives of a few simple precautions the number of cases of toxæmia might be very greatly reduced and almost prevented altogether. My paper will be divided into two parts—prevention and treatment.

Prevention.

As the success of the preventive measures depends entirely upon their early application, how can we detect the cases which are going to be eclamptic ones in time to head the convulsive stage off, so to speak, and carry the woman on to full time without ever allowing sufficient of the toxic material to accumulate in her blood to cause an eclamptic explosion? The means of making an early diagnosis is well known—namely, to make an examination of the urine at the end of the sixth, seventh, eighth, and ninth months. If no albumin is present at any of these examinations, there is not one chance in a thousand that the woman will have puerperal convulsions. I therefore believe that the presence or absence of albumin is such a sure test that if it were carried out by every one of the thirty-five thousand doctors in practice in these isles, and if all the midwives and nurses would instruct all the women whom they were engaged to attend as to the importance of going to a doctor for examination of the urine three, two, and one months before delivery was due, practically every case would be detected in time to be treated so that convulsions would be prevented. A great many good doctors whom I have interviewed on this point have said that they had all been taught to take this precaution, but that they seldom or never took it because many of the women were not seen by them until they were called to attend them in labour or in convulsions, when, of course, it was too late to prevent the disaster. As for the woman who had engaged a midwife, the latter, it would seem, rarely if ever mentioned the subject of an examination of the urine. A general crusade carried on by thirty-five thousand doctors as well as by the highly intelligent midwives under the control of the Central Midwives Board would soon result in the mothers of the future realizing that a safe delivery is not a matter which should be left to chance, but that every precaution should be taken to place themselves under the care of a good doctor or midwife not later than the beginning of the sixth month, so