Hospital. We are making no more provision for advanced cases, but after the war no doubt many of the temporary military hospitals will be available for this purpose.

NOTIFICATION OF BIRTHS ACT. This Act has been adopted by authorities in this county with a population of 322,320 out of a total population of 580,000, for the rest of the county, the County Council has adopted the Act, but excepting in the three boroughs, the whole-time Health Visitors of the County, who are also inspectors of midwives, do the home visiting. The only fresh departure we have made in Derbyshire is that each Health Visitor has been allowed by the Education Committee to start a School for Mothers. In some districts these are held once a week, in others once a fortnight. These are run under the Board of Education, and the work is essentially educational and not clinical. Four different leaflets have been drawn up, one for expectant mothers, one for mothers feeding their children naturally, one for bottle-fed children, and one for older children. The Health Visitor in charge of the School draws up her own syllabus for instruction. The course of instruction varies with the special knowledge and impetus of the Health Visitor, but all give special instruction to the mothers on bottle feeding, prevention of diarrhoea, and rational clothing. This is a side of the question of which we in Derbyshire are undoubtedly pioneers. This is largely due to the fact that a few years ago the Education Committee appointed an Organiser of Domestic Subjects, who has written most fascinating text-books on Home Management and Infant Clothing. It is too early yet to pass an opinion on the value of the instruction given, but the Health Visitors have all taken up this work with such enthusiasm, that I have little doubt of the result.

CIGAR CUTTERS AND TRANSMISSION OF DISEASE.—Bacteriological studies made at the Research Laboratory of the City of New York show that diphtheria bacilli could be recovered from a cigar cutter which had been used to cut the end off a cigar previously held in the mouth of a person ill with diphtheria.

MATERNITY AND VENEREAL CASES.—Provision has been made by the State of Oregon, U.S.A., for the allocation of \$10,000 annually for the support of wayward girls between the ages of 12 and 18 years, and maternity and venereal cases under the age of 21 years, now being cared for by charitable or corrective institutions in the State.

THE CARE AND CONTROL OF THE TUBERCULOUS PATIENT,

BY

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IN the present paper it is proposed to discuss briefly and with a view to practical application the care and control of the tuberculous patient as an individual. The aim of such care and control which are supplementary to actual treatment of the disease and which must form part of any comprehensive scheme for the prevention and treatment of tuberculosis is threefold: (a) To prevent the spread of infection; (b) to prevent recrudescence or re-infection in arrested and cured cases; and (c) to facilitate recovery by controlling auto-inoculation and increasing resistance.

Pulmonary tuberculosis, which is the type of the disease with which we are chiefly concerned, is now a notifiable disease, and there is some tendency, at least with regard to preventive measures, to view tuberculosis of the lungs from the same standpoint as the acute infectious diseases. In several important particulars, however, pulmonary tuberculosis differs from other notifiable diseases. It presents a much greater variation in type: on the one extreme we have a disease which produces little or no general disturbance; on the other we have an acute illness simulating an acute fever, which may be rapidly fatal. Further, in many cases of pulmonary tuberculosis, there is no risk of infection. Tuberculous deposits in the sub-pleural, peri-bronchial, and peri-vascular pulmonary tissue are frequently closed, and may undergo complete fibrous transformation, without having communicated with the air passages, so that tubercle bacilli have never been shed. Moreover, by a careful and frequent examination of the sputum we are in a position to say whether a given case may be the means of transmitting infection or not, while, except in acute and advanced cases, the patient himself by the carrying out of a few simple precautionary measures can control the infectivity of the disease from which he suffers. Lastly, the tuberculous patient is very frequently an ambulant case: he may be a carrier of the tubercle bacilli for years, and yet continue at work; an open pulmonary lesion is compatible with consciousness on the part of the individual of little loss of general health and working capacity.

These points of difference indicate that the question of the infectivity of pulmonary tuberculosis must be regarded from a view-point of its own and not from the same standpoint as that of the acute infectious diseases.

THE CONTROL OF INFECTION.

The human tubercle bacillus is the chief causative agent in pulmonary tuberculosis, although in the root tuberculosis of children the bovine bacillus is no doubt frequently the cause. Infection is chiefly spread through the medium of sputum which contains the infective organism and the control of infection is secured by destroying the sputum so as to prevent the escape of the bacillus. This, however, can only be successfully attained by the willing co-operation of the patient, and by some degree of friendly control and supervision. Such control can be efficiently carried out in the sanatorium and the hospital, but it is most urgently required in the home. The control of infection would no doubt be greatly facilitated by fuller information on the notification form regarding the type of case, and the degree of possible infectivity, as thereby the expenditure of much time and energy in investigating early non-infective cases would be avoided. The broad control of the spread of pulmonary tuberculosis is a simple procedure, and consists in the destruction of sputum and in the sterilizing of milk, more especially when given in large quantities to infants and children. These measures are simple, but in their very simplicity lies the risk of neglect. The exaggerated fear of infection on the part of the public makes the regular use of the pocket sputum flask by the ambulant tuberculous patient more or less impracticable, and indeed the use of the sputum flask in public has proved a most effective means of scattering a small crowd. It will be necessary, therefore, in certain cases to have some alternative to the sputum flask. When the surgeon is unable to use the receiver, he uses the swab, and the best alternative to the sputum flask consists of one or more swabs of cheap material which are moistened in a weak antiseptic solution, and kept in a rubber bag or pocket lined with some impervious material.

The segregation of acute and advanced cases from poor and crowded homes is an essential procedure if full control of infection is to be secured. The advanced case of pulmonary tuberculosis may eject 5,000,000 bacilli in one drop of sputum, and owing to general weakness

and the copious expectoration which is usually present, the sputum cup is not always efficiently used, so that tubercle bacilli are liable to be set free. The segregation of such cases is not, however, a procedure which can easily and efficiently be carried out owing to the frequently protracted nature of the advanced stage of the disease and to the psychological difficulties which arise. We have no powers to enforce segregation, and therefore an incentive must be offered to the patient to seek hospital treatment. The success of the segregation treatment of such cases will depend on the extent to which provision is made for appropriate palliative and curative treatment. Patients and their friends must be brought to regard the hospital not as a home for the dying, but as a true hospital, where treatment suitable for each individual case will be carried out, and from which suitable cases will be transferred to the sanatorium.

The third procedure necessary for the control of infection, and which comes in order of importance, is disinfection. The disinfecting of rooms and of clothing used by open cases of pulmonary tuberculosis is necessary, but if it follows notification or removal to a sanatorium, it will frequently be unnecessary and indeed undesirable. The following case is cited in illustration.

A.E., a male, presented certain neurasthenic symptoms, which were regarded as due to auto-inoculation from a pulmonary tuberculous focus; an expert opinion which was obtained coincided with this view. Physical signs were indefinite, and at no time had there been any cough or expectoration. The case was notified as one of pulmonary chiefly with a view to improve his general condition. His house had been recently painted, and following his admission to the sanatorium, the colour effects in his bedroom were considerably altered by the careful process of disinfection, carried out by a zealous inspector. We must avoid branding an individual as having an infectious disease when such does not exist. Disinfection must, therefore, be carried out with discrimination, but it is called for at intervals when the disease is open, and of protracted duration, and after death or removal of acute or advanced open cases.

INSTITUTIONAL CONTROL OF TUBERCULOUS PATIENTS.

In the hospital and sanatorium successful treatment depends to a large extent on supervision and tactful control. The prophylactic

measures which are carried out in institutions for the tuberculous must be rigidly enforced. While discipline must be strict, it should be carried out with tact and discretion. The tuberculous patient has frequently an active and receptive mind; he takes a reasoned and intelligent interest in his disease, and the measures which are being adopted to check its progress. By securing the intelligent co-operation of the patient, the restrictions and measures of control which are essential in institutions for the treatment of tuberculosis will be more easily and efficiently carried out. It cannot be too frequently impressed on the mind of the patient that restrictions as to movement and coughing and the control of excitement and nervous activity during active phases of the disease are employed with a definite end in view, namely, the control of injurious auto-inoculation. In this connection no little responsibility rests with individual members of the nursing staff, who, by the exercise of wise control, will greatly assist in securing beneficial results. Moreover, the extent to which patients will benefit on their return home by the educational advantages of residence in a sanatorium will largely depend on the care exercised in carrying out preventive measures and the importance attached to them by members of the nursing staff. The nurse must constantly keep in mind that she is not only dealing with a case of disease, but that she is educating the patient in an entirely new method of living, and the measure of the ultimate success of treatment will depend to no inconsiderable extent on how far she has succeeded in doing so. Sanatorium patients, because of the supervision which forms part of the daily routine, show less sensitiveness to tuberculin, and more rapidly reach the optimum dose than do patients who receive such treatment, either at home or at the dispensary. I have frequently pointed out that the success of treatment with tuberculin depends on the care and exercise in controlling auto-inoculation before hetero-inoculation is commenced.

The true role of the dispensary so far as tuberculin treatment is concerned, is to provide such treatment subsequent to residence in a sanatorium, where complete control of auto-inoculation has been secured and where the patient has been taught to recognise the importance of self-control and an ordered life in relation to the cure of tuberculosis.

THE CONTROL OF DISPENSARY AND DOMICILIARY PATIENTS.

The efficient control of dispensary patients presents a difficult problem as the weekly or bi-weekly visit to a tuberculosis dispensary affords little opportunity for efficient care and adequate control. Efforts must be directed towards educating the patient in the necessary measures to be taken to prevent the spread of infection, and in securing his intelligent co-operation in the carrying out of treatment, so that all influences adverse to favourable progress may be avoided. The more frequent examination of the sputum of dispensary patients with the knowledge derived therefrom would tend to impress them as to the source of infection and as to the importance of the sputum flask. The information derived from the temperature chart and weight records is of value to the patient, as it encourages him to exercise self-control and to avoid conditions of life injurious to health.

But efficient control of dispensary patients is impossible without house visitation and supervision carried out by health visitors or nurses. In the domiciliary type of case, which, owing to constitutional impairment or toxic symptoms, is precluded from attendance at a dispensary, efficient care and control in the home are essential. It is in the homes of advanced and incurable cases of pulmonary tuberculosis that the health visitor finds her most useful field for preventive work in relation to this disease. Ventilation, nourishment, clothing, cleanliness, isolation, and the destruction of sputum and infected material, require investigation and control in such cases. Much of the great war of prevention must be carried out in the homes of the people, and the public must be taught to realize that the prevention of tuberculosis requires no elaborate procedure, but simple rational measures. The individual suffering from tuberculosis must also be taught to recognize the fact that so long as some degree of strength remains, he has control over the infective nature of his disease. But he requires much encouragement to persevere, and it is to the health visitor and nurse to whom we must look for that measure of home control which is so essential to successful prophylaxis.

THE CARE TREATMENT OF TUBERCULOUS PATIENTS.

The care treatment of tuberculous patients constitutes an important and essential adjunct

to medical treatment. By the Public Health (Prevention and Treatment of Diseases) Act, 1913, public health authorities may, with the sanction of the Local Government Board, carry out care treatment in connexion with tuberculosis, and this may be done either directly or by grants to voluntary care committees. Further, the Local Government Board will make a grant towards the expenses incurred in the clerical work of Care Committees. The care treatment of tuberculosis is for the most part carried out by voluntary care committees. The aim of such treatment is to increase and conserve the good results obtained by medical treatment in the sanatorium, dispensary, or other institution. The care treatment of tuberculous patients is, however, not a new departure, as much advice and assistance have been given in the past to those suffering from the disease. It is desirable, however, to co-ordinate such vicarious assistance into one comprehensive scheme, so as to prevent overlapping and unorganised effort. Whenever possible, an existing committee should constitute the nucleus of the care committee. The nucleus may be formed by a local nursing committee, a charitable organization or a district insurance committee, if such be still in existence, additional members being co-opted to form the full committee. Co-opted members should be representative of health authorities, insurance committees, the medical profession, nursing organizations, boards of guardians, and charitable organizations, while the medical officer of health and tuberculosis officer should be members *ex-officio*.

The formation of voluntary care committees should only be undertaken in large dispensary areas; in rural districts care treatment can be efficiently carried out, through the medium of a corresponding secretary, who will be responsible for securing the necessary assistance. Recommendations regarding care treatment will be forwarded to the care committee by the tuberculosis officer; certain cases, however, will be referred directly to the care committee by the medical practitioner or nurse. Through the health visitor or nurse, information will be obtained to satisfy the committee that the case is one deserving of care treatment, and also regarding what assistance, if any, has already been given from private sources, charitable associations or boards of guardians. The outdoor relief granted by boards of guardians to chronic and advanced cases of tuberculosis is frequently of the greatest value,

and it would solve the problem of care treatment if this department of the poor-law system were re-organised and became part of the present scheme for dealing with tuberculosis. Financial considerations stand in the way of the carrying out of an efficient and uniform standard of care treatment by voluntary care committees.

The various methods of assisting tuberculous patients comprised under the term care treatment may be summarized as follows:—

- (1) Friendly visitation and advice.
- (2) Extra nourishment and clothing.
- (3) Assistance to obtain suitable employment and to combat the fear of infection felt by employer and fellow employees.
- (4) Assistance to obtain dental treatment.
- (5) Help to dependants of patients.
- (6) Assistance to obtain appliances in cases of non-pulmonary tuberculosis.
- (7) Assistance towards altering windows to secure efficient ventilation.

The individual with arrested pulmonary tuberculosis if he is to remain well and continue to be a national asset, must be well fed, well clothed, have an abundance of fresh air, and be able to follow some employment suitable to his capacity for work. The question of employment for tuberculosis patients calls for special consideration. In certain types of the disease, a return to full working capacity is impossible or is only attained after a prolonged period of treatment and observation. In many of these cases, however, light outdoor work or part day employment could be undertaken for half wages, if no rules and regulations stood in the way; what is urgently required is permission to undertake a half-day's work for a half-day's pay. By grading the work according to the capacity of the individual, a return to full working capacity is more likely to be attained, while the risk of relapse from overstrain is reduced. It would be a great boon to the tuberculous patient if sick pay were graded according to his capacity or incapacity to undertake light or part day employment. During a somewhat lengthy experience of tuberculosis, I have frequently been impressed by the tragic lot of the chronic tuberculous patient; although much is now being done for him, he requires a greater share of organized care and kindly control and a somewhat larger meed of sympathetic consideration.