

THE CAMPAIGN AGAINST TUBERCULOSIS IN THE UNITED STATES¹.

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I.—EARLY HISTORY.

LONG before the discovery of the tubercle bacillus by Koch, and even antedating the work of Villemin, medical pioneers in the United States had made efforts to treat tuberculosis in a scientific manner. Foremost among such leaders might be mentioned Dr. Henry I. Bowditch, of Massachusetts, and Dr. Benjamin Rush, of Philadelphia.

The discovery of the tubercle bacillus by Koch, however, crystallised in the imagination of at least one of these pioneers an ideal which has developed into the organised campaign against tuberculosis throughout the United States. This pioneer, Dr. Edward Trudeau, who because of his own tuberculosis had isolated himself in the Adirondack forest of northern New York, set about at once not only to duplicate Koch's classical experiments in the isolation of the tubercle bacillus, but, more than that, to develop curative measures directed against this disease. Trudeau may well be called the father of the campaign against tuberculosis in the United States. In the perspective of to-day, nearly fifty years after the opening of the historic sanatorium on the hills outside of Saranac Lake Village, we wonder which was really Trudeau's greatest contribution to the tuberculosis movement—his principles of sanatorium treatment, his vision of the preventive measures to control the disease, his classical experiments with crude and limited equipment, or his unbounding hope and belief that by organised, united community effort, tuberculosis could be reduced to a comparative minimum as a cause of death.

Another outstanding pioneer of this great epoch is the late Dr. Hermann M. Biggs. Within less than five years after Koch's announcement Biggs startled the medical profession of New York by his insistence that tuberculosis was a communicable disease and as such should be reported to the health department, of which he was an official, just the same as any other infectious or contagious disease. Biggs himself produced the first tuberculosis tract or leaflet ever published in the United States, and thereby started a volume of printed matter, which to-day runs into the hundreds of millions of places. Biggs also, because of his insistence, after ten years convinced the leaders of the medical profession of New York that his position in demanding the reporting of tuberculosis was sound. Biggs furthermore laid the foundation for a progressive attack against tuberculosis by the New York City and later by the New York State Health Department, and lastly it was Biggs whose vision saw clearly the close relation that should and, in our American democracy,

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must exist between the official and the non-official health agencies in the development of a campaign to control a disease such as tuberculosis.

Among the other pioneers that one might mention are Vincent Y. Bowditch, of Massachusetts, Theodore B. Sachs, and J. W. Pettit, of Illinois, and Lawrence F. Flick, of Pennsylvania, all of whom laboured early and late in the field of tuberculosis to try to disprove the all too common conviction that tuberculosis could be cured only in the high and dry climatic zones of the south-west. These men proved conclusively that tuberculosis could be cured anywhere, even at sea level.

If one were to characterise this early period of the development of tuberculosis work in the United States, probably the most outstanding feature of the period ranging from 1882 or before that date to 1900 or thereabouts would be emphasis on the curability of tuberculosis. Koch's announcement focussed attention upon tuberculosis, and had the immediate effect of expelling to a certain extent some of the age-long superstition with regard to the incurability of the disease, although Koch himself contributed very little or nothing to modern hygienic and dietetic therapy of tuberculosis. It was the influence of Boggindton, Brehmer, Dettweiler and Trudeau that impressed itself more strongly upon physicians in America.

The work of Biggs, coupled with the experience of Philip in Edinburgh, had fired the imagination of a few people, but until the beginning of the present century little or no organised activity against tuberculosis had been developed in America.

II.—BEGINNINGS OF ORGANISATION.

The work of Biggs in the New York City Health Department is probably among the earliest form of organisation against tuberculosis that one finds in the United States. By 1897 tuberculosis had not only come to be recognised by the health department as a disease, the reporting of which was required by all physicians, but it was also recognised as a focus of attack through organisation and educational measures. The dispensary idea, the result of Phillips' activity in Edinburgh, and Calmette's at Lille, began to take root early in 1900. The public health nurse had not yet come into existence, but out of the experience and convictions brought about by this focussing of attention upon tuberculosis these pioneer agents for the prevention of tuberculosis were created.

As early as 1892 Dr. Lawrence F. Flick, himself a tuberculosis patient, as was Trudeau, conceived the idea of forming a society for the prevention of this disease. The Pennsylvania Tuberculosis Society was organised in that year, the first known association of its kind in the world. For many years it functioned very largely in the city of Philadelphia. In 1902 the New York City Tuberculosis Association was organised as a Committee on the prevention of tuberculosis of the Charity Organisation Society. Similar interest and organisation was being manifest about this same time in other parts of the country, as, for example, in Chicago, Buffalo, New Haven, Boston, St. Louis and elsewhere. Meanwhile, the number of physicians and laymen who were becoming interested in the preventive aspect of tuberculosis was constantly increasing, due in part to the growing publicity in social and medical periodicals, and also to interest stimulated by observation of work in foreign countries.

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This increasing interest led in 1904 to the organisation of the National Association for the Study and Prevention of Tuberculosis, later re-christened the National Tuberculosis Association.

The significance of the organisation of the National Tuberculosis Association lies first of all in that it crystallised an interest which it was found was much more widespread than even those who were leading the movement had thought to be the case. In the second place it provided a potential medium for establishing not only national relationships, but international relationships. In the third place it also afforded a centre from which might radiate force of education and organisation that would eventually realise the dream of Trudeau, namely, that of an organised fight against tuberculosis from coast to coast.

Among the very first activities of the National Association was the holding of the Sixth International Congress in Washington in 1908. For an infant association with very little funds, the undertaking of a project such as an International Congress, involving as it did an expenditure of over \$200,000, was no small task. The Congress met in the fall of 1908 and brought to Washington leaders in various phases of scientific and social activities against tuberculosis from almost every civilised country of the globe and stimulated the latest interest of groups of workers in practically every state of the union.

III.—THE ORGANISATION CAMPAIGN.

Following the International Congress against Tuberculosis, the National Tuberculosis Association entered upon a period of organisation which lasted nearly ten years, and which culminated in the formation of tuberculosis associations with budgets and offices in each of the forty-eight states and the District of Columbia. Two of the most potent influences that furthered this plan of organisation were first of all the International Congress itself, and secondly the Red Cross, or as it is now known, the Tuberculosis Christmas Seal.

For the first four years of its existence the National Tuberculosis Association had struggled not only with its own problem of organisation, but with that much more difficult task of organising the International Congress. Little attention had been paid to the development of local centres of interest and organisation, in fact, little attention had been paid to the development of local programmes, and even those who were working in such cities as New York, Boston, Chicago and elsewhere, had somewhat hazy notions as to what a local programme might be. The Congress performed two very distinct services for the National Tuberculosis Association in this respect. First of all it was responsible for a programme that revolved about the need for providing local community hospitals and machinery for detecting cases of tuberculosis as well as for educating the public with regard to the disease. In the second place the organisation and publicity work of the Congress interested groups of people in every state, out of which groups, state tuberculosis associations and local organisations were later possible of development.

Of the Tuberculosis Christmas Seal much more needs to be said than can possibly be said in the limitations of a paper of this character. The

first national campaign for the sale of Christmas seals was held by the American Red Cross in 1908, following a local campaign in Wilmington, Delaware, in 1907, but it was not until 1910 and 1911 that the National Tuberculosis Association made a definite affiliation with the American Red Cross, and entered upon an arrangement through which the Christmas seal became the most powerful single influence in organising non-official tuberculosis work in the United States. The arrangement between the American Red Cross and the National Tuberculosis Association may be briefly summarised thus: The American Red Cross loaned to the Association its name and emblem, and agreed to underwrite the national expenses of the campaign for the selling of the seals. The National Tuberculosis Association assumed all responsibility for organising the sale and, what is much more to the point, for directing the expenditures of the funds derived from the sale, along lines that were consistent not only with sound tuberculosis programmes, but with the dignity and authority of the American Red Cross.

Based upon this arrangement the National Tuberculosis Association and the American Red Cross developed the policy, that in any state where the Christmas seals were to be sold the bulk of the funds derived from the sale of Christmas seals should remain in the community where the seals were sold. The National Tuberculosis Association and the American Red Cross required only a small percentage, eventually only 10 per cent. of the gross proceeds. This policy brought about another one, namely, that in any given state the money derived from the sale of seals in a local community was to be expended as far as possible upon local work. However, every dollar's worth of seals sold clearly imposed upon the local organisation the obligation not only to support its own programme, but also that of the state and the National Tuberculosis Association.

The establishment of this basic policy gave to the National Tuberculosis Association the means for organising the entire country on a basis that provided not only the material essential for the development of a programme in any state or territory, but what was equally important, the funds with which to execute the programme. This was brought about by contract arrangements between the National and State Tuberculosis Associations. At the beginning of this period of organisation the National Tuberculosis Association evolved the policy that it was far better to organise the movement on a state-wide basis than to attempt to organise local associations independently in different states. The proof of the wisdom of this policy lies in the experience of such rural states, for example, as Wisconsin, Michigan, or Iowa, where only by the development of a state-wide programme would all the territory in the state be covered. Even in such populous states as New York and Massachusetts, the development of local centres only would leave very large parts of the states uncovered, without any organisation, without any programme, and therefore with no machinery for the control of tuberculosis.

By 1917 this campaign of organisation had been completed, and a State Association was in existence in every state, equipped with an office, a secretary, a programme and a regular source of funds. Organisation had also been effected with a fair degree of success in a number of outlying territories, such as in the Philippine Islands, Hawaii, Porto Rico, the

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Canal Zone and elsewhere. It would be unfair to give the impression that the campaign is equally effective in all the forty-eight states. Like any other social movement, the organisation is much better in certain states than in others.

IV.—A TYPICAL STATE PROGRAMME.

To give a better idea of tuberculosis work in the United States, the New York State Tuberculosis Campaign outside of the City of Greater New York might be illustrated. In 1907 and 1908, when the Tuberculosis Committees of the New York State Charities' Aid Association began its work, there were only two local tuberculosis associations in this territory, and only two so-called local hospitals for tuberculosis, and this for a population of over 4,000,000 at that time. To-day there is a well organised country association in every county, and in 39 of them there are full-time executives at work. There are 34 county hospitals, besides a state sanatorium of 320 beds, and two large municipal hospitals in Buffalo. These figures do not include New York City's tuberculosis hospitals located outside of the city. The present population of this territory is nearly 6,000,000.

In addition to this institutional provision, there are more than 25 clinics and dispensaries for tuberculosis, and several hundred nurses doing tuberculosis work. Scattered over the state are 50 or more open-air schools and scores of nutrition classes. The budget of the state and local tuberculosis associations in this "upstate" New York district has increased from about \$50,000 in 1908, to nearly \$500,000 in 1924, almost all raised by the sale of Christmas seals.

But even more significant than these figures is the fact that due to the activities of these health agencies the State Department of Health has been completely reorganised, and is to-day spending in efficient work more than ten times the budget of 1908, a total of \$1,253,000 in 1923. Local health departments have been organised and re-organised in scores of cities throughout the state.

In New York, as in most of the states, the unit of organisation is the county not the municipality. A full equipment for fighting tuberculosis in a typical county provides for the following agencies:—

- (a) Hospital and sanatorium beds equal to at least one bed for every annual death.
- (b) Summer camp, open-air school or preventorium equipment to care for all children who have been exposed to massive infection, or are physically sub-standard, and therefore suspected of tuberculosis.
- (c) Clinics, dispensaries and nurses for the following purposes:—
 - (1) To find and diagnose tuberculosis.
 - (2) To provide training and treatment in the homes of the patients.
 - (3) To serve as a connecting link between the institution and the home.

In general, American experience warrants the conclusion that one may expect at least nine active tuberculosis cases for every annual death, and another nine inactive cases.

- (d) Special machinery for the relief of those families needing it, and for building up and training in nutrition.

(e) Educational machinery to use the following media or methods:—

- (1) Newspapers and other periodicals.
- (2) Posters, circulars, booklets and other printed matter.
- (3) The spoken word before special and other groups.
- (4) Graphic methods, such as motion pictures, exhibits, parades, clowns, &c.
- (5) Special training in health habits of school children.

(f) A well organised health department closely co-operating with a non-official voluntary tuberculosis or health association.

This is in brief a typical local tuberculosis programme, which in turn is closely related in all of its departments to the state tuberculosis programme and through the state association to the National Tuberculosis Association. While not too compact, nor so closely centralised as the British tuberculosis schemes, it fits American conditions much better.

V.—THE BROADENING MOVEMENT.

Looking over the last twenty years of the programme against tuberculosis in the United States, one may detect three distinct trends of development. First of all, there has been the development along the lines of treatment and cure of tuberculosis of which mention has already been made. Emphasis on other phases of the campaign have to some extent, it is to be regretted, side-tracked activity along this line until within the last two or three years. A second trend was along the line of prevention of infection. The announcement of the infectiousness of tuberculosis and the specific cause of the disease focussed attention here as elsewhere upon measures to prevent infection. The earliest work of Biggs, for example, was directed against spitting in public places. Even the campaign to build local hospitals following the International Congress was based very largely upon Newsholme's classical dictum that the segregation of the advanced foci of infection was the most important preventive measure in the campaign against tuberculosis.

The development of scientific knowledge particularly within the last six to eight years with particular reference to childhood infection, immunity and resistance has to a very large extent turned the attention of tuberculosis workers in the United States in another direction, namely, what one might call efforts in the "building of resistance." It is now generally accepted in the United States that the universality of infection makes it very difficult to prevent tubercle from developing in the human body. On the other hand it is possible by the organisation of sound protective measures designed to improve the individual and community health to maintain the level of resistance against tuberculosis so that breakdown with this disease may be minimised to a very considerable degree.

The lines of most successful attack against tuberculosis as has been demonstrated recently by Dublin¹ have been directed against the environmental causes of tuberculosis. Thus the tuberculosis movement in the United States to-day has been developed along these definite lines:—

- (a) The general improvement of the environment of all individuals.
- (b) The discovery and care of the tuberculous sick.

¹ "The Causes for Recent Decline in Tuberculosis," by Louis L. Dublin.

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(c) The discovery and care of those, particularly children, who are suspected of tuberculosis or who because of malnutrition or other reasons are peculiarly susceptible to breakdown with the disease.

(d) Education directed toward the creating of proper habits of good personal health in children and adults.

(e) The improvement and development of strong municipal, state and federal health authority, adequately supported by community funds.

The implications of this broadening campaign are many and widespread. For example, the National Tuberculosis Association has within the last four years taken a leading part in the development of the National Health Council, a body aimed to co-ordinate all of the national health agencies in the United States and in whose membership are included such agencies as the American Red Cross, American Child Health Association, American Social Hygiene Association, American Society for the Control of Cancer, National Organisation for Public Health Nursing, National Committee on Mental Hygiene, National Tuberculosis Association and several others.

Similarly, the development not only of this broadening emphasis on tuberculosis, but the pressure also of an increasing number of specialised national health organisations, is broadening the sphere of influence and activity of local and state tuberculosis associations, and is tending to make them more and more in the nature of local and state health associations. Thus far in the United States there has not yet been developed a real state health association, although some exist in name. Experiments have been tried in a number of states, but the obstacle of financing a broad health programme is one that has not yet been overcome.

VI.—THE OFFICIAL AND NON-OFFICIAL AGENCY.

No picture of the campaign against tuberculosis in the United States could be complete without some discussion of the relations between the official and the non-official health agencies. The tuberculosis movement in the United States has developed largely as a result of the stimulation of non-official local, state and national tuberculosis associations. These non-official, voluntary associations have laboured in season and out to secure, through such official agencies as city and county governing bodies, health departments, school departments, community equipment with which to fight tuberculosis. Such equipment has included well-trained health officers, institutional provision, nurses, dispensaries and open-air schools.

There has never been and probably never will be any centralised federal health agency acting in the same capacity in the United States as the Ministry of Health in England, for example. On the other hand, the fundamental distinctions between American and British democracy which are too well known to need exposition in this place, seem to make the organisation and maintenance of non-official health agencies in close co-operation with the official agencies a necessity in the United States.

In state after state and city after city one may point to municipal and state health departments that have been brought into existence or reorganised or financed on an adequate scale largely if not entirely as the result of the activities of the non-official tuberculosis associations. One

might instance the health department of the state of New York or New Mexico, or that of St. Louis as illustrations of this experience. The underlying philosophy of the organised movement against tuberculosis in the United States is that no non-official agency should undertake or continue activities that the official agency can and should operate. Thus, the non-official agencies' chief functions become that of demonstration, education and criticism or stimulation of official activities.

The results of this process are manifest not only in the establishment of health departments but in many other ways as already indicated. In the field of development of tuberculosis hospitals, the tuberculosis associations—national, state and local—have consistently since 1908 worked for the establishment and maintenance of hospitals in cities, counties and states under official auspices. The result of this movement has been that at the present time there are in existence in the United States tuberculosis institutions numbering nearly 700 with nearly 70,000 beds. The capitalised value of these institutions would aggregate over \$160,000,000.

This enormous sum of money invested by public officials in the prevention of tuberculosis has been brought about largely by the expenditure of a relatively small sum by tuberculosis associations in education and organisation.

VII.—CONCLUSION.

The campaign against tuberculosis in the United States organised as it is upon a state and local basis differs naturally from the organisation of the British tuberculosis schemes centralised in a Ministry of Health. Whereas in England the emphasis is upon the local character of the problem, because of the magnitude of the country, traditional influence of various kinds, and historic development, the campaign in the United States has of necessity assumed certain national and State proportions which are more or less foreign to schemes of this character in many other countries.

The declining death-rate in the United States seems to have been accelerated by the activities of the tuberculosis associations, according to the best authorities available. In 1900 the death-rate for tuberculosis in the registration area of the United States was 195·2 per 100,000 population. In 1910, when the organised movement in the United States had barely gotten under way, the rate had declined in the same area to 164·7 or 15·6 per cent. In 1920 the rate in the same states had dropped to 112·0 or 42·6 per cent. below the 1900 figure. In the second decade from 1910 to 1920, the rate fell 32 per cent. or a little over twice as fast as in the first decade. In 1921 the rate fell to the remarkably low figure of 94·2 per 100,000, and indications are that the reported rates for 1922 and 1923 when available will be lower yet for these states.

There is, therefore, every reason to believe that the campaign against tuberculosis in the United States has been organised on sound lines. The results locally and nationally seem to bear testimony to this fact. We look forward to the time when tuberculosis shall become, as Trudeau believed it would be, a relatively minor cause of death and sickness.

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