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SECTION I.

SANITARY SCIENCE AND PREVENTIVE MEDICINE.

FOUR AND A HALF YEARS' EXPERIENCE OF THE VOLUNTARY NOTIFICATION OF PULMONARY TUBERCULOSIS.

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(FELLOW.)

THE voluntary notification of consumption was begun in Brighton in January, 1899, and the annual number of cases notified since that date has been as follows:—

Year.	BRIGHTON.			
	No. of Cases Notified.		No. of Deaths from Phthisis Pulmonalis.	
1899	...	113	...	180
1900	...	105	...	173
1901	...	153	...	164
1902	...	224	...	174
$\frac{1}{2}$ of 1903	...	165	...	103

If it be assumed that the duration of each case of consumption is four years, it follows that over 30 per cent. of the total cases occurring in Brighton are now officially notified.

NOTE.—The Proceedings of the Section commenced with an Address by PROF. T. CLIFFORD ALLBUTT, LL.D., M.A., F.R.C.P., D.Sc., F.R.S. (*see page 143*).

Having had over four years' experience of the voluntary notification of consumption, our procedure has become fairly settled, and I am able to give a trustworthy opinion on the degree of benefit obtainable from it.

The procedure adopted is that (1) the notified patient is visited at home, or is interviewed at my office in connection with his proposed removal to the Sanatorium for open-air treatment. At this interview exact details are ascertained as to the duration and history of the illness, the possible sources of infection, places of residence during the illness, occupation and work places during the past five years, habits as to spitting, and so on.

(2) The patient's room is cleansed and disinfected when required. This is always done when a change of address occurs, or when the patient is admitted to the Sanatorium. Bedding is usually also disinfected by steam, and all these measures are carried out in every instance after the death of a phthical patient, whether or not the patient's illness has been previously notified.

(3) The patient is instructed as to the precautionary measures required, printed cards being given in addition to exact verbal instructions. If poor he is supplied with a pocket spittoon for outdoor use, and with Japanese paper handkerchiefs for indoor use.

(4) If the patient is lodged under unfavourable conditions, and especially if he is in danger of infecting others, he is, by arrangement with his medical attendant, admitted for a month into the Borough Sanatorium.

(5) A careful sanitary inspection is made of each house in which the phthical patient lives, and sanitary defects are remedied.

The only valid reasons that can be urged against notification of cases of consumption as a necessary preliminary to preventive measures appear to be that—

1. The above measures as to personal precautions and disinfection can be equally well carried out by the family practitioner, with the co-operation of the family of the patient, and that—

2. Sanitary inspections form part of the routine work of the Sanitary Authority.

The answer to the first of these statements is that when visiting phthical patients I commonly find that the necessary precautions are not being taken; and the answer to the second is, that the presence of consumption in a house greatly increases the leverage in securing sanitary improvements. Very few sanitary authorities have a staff of sanitary inspectors sufficiently large to enable them to visit each house in their

district once annually. In the intervals of such visits conditions of overcrowding and dirtiness may long prevail. These conditions are much more dangerous where there is a case of consumption than elsewhere. The notification of phthisis enables such houses to be visited at more frequent intervals, which is a great gain in the interest of the public health.

I must particularly urge the fact that among poor patients, apart from instructions by the Medical Officer of Health, the necessary personal precautions are usually not being adopted, and often no instructions have been given. It would if necessary be easy to multiply instances of this.

This is a convenient opportunity for mentioning the great importance attaching to the *Early Diagnosis of Consumption*. Unfortunately many patients with bad coughs are treated for months or even years, and the tubercular nature of their illness not recognised. In Brighton the importance of the microscopic examination of sputum for the tubercle bacillus was early realised, as is indicated by the number of specimens of sputum which I have examined for practitioners in successive years. In the 14 months' 1897-8 these were 21, in 1899, 47 were examined, 86 in 1900, 125 in 1901, and 169 in 1902. The population of Brighton in 1901 was 123,478.

The measures taken under the headings (3) and (4) have made notification of consumption increasingly popular. There is a great demand for the Japanese handkerchiefs and for spittoons, and the ten beds which have been set apart for treatment of consumptives could be kept filled twice over.

THE SANATORIUM TRAINING OF CONSUMPTIVE PATIENTS.

Even when definite precautionary instructions have been given by myself, it has not infrequently been found on subsequent visits that these are not being effectually carried out. It is one thing to make the patient understand the instructions given, another to ensure that he will conscientiously carry them out. To ensure this end, the patient's self-interest, as well as his conscience, must be utilised. If he can be taught heartily to believe that his own welfare and that of his family is favoured by the precautionary measures recommended to him, we may usually rely on his co-operation. How to secure this educational influence became then an important question early in my local experience of the notification of consumption. Although a large amount of good was done by the visits to consumptive patients, there was reason to believe that some of them continued carelessly to disseminate infection in workshops, etc., by means of their sputa. After a few months' experience of sending

selected patients to an open-air sanatorium outside Brighton, I obtained, in July 1902, the consent of the Town Council to the admission of four consumptive patients into one of the isolation pavilions of our Borough Fever Hospital, which is very favourably situated for this purpose. No difficulty has arisen, owing to patients being afraid of acquiring scarlet fever or diphtheria and no cross-infection has occurred. The consumptive patients are treated on exactly the same lines as in other open-air Sanatoria.

In my report on this subject I pointed out that the cases notified to us are usually suffering from the disease in a stage at which cure cannot be expected even by three months treatment in an open-air Sanatorium; but that apart from the possibility of cure, it was in the public interest to admit Consumptive patients not living under favourable conditions at home to the Borough Sanatorium for a month or two, according to circumstances. It would diminish disease and improve the public health in three ways:—

1. The patient himself would improve in health, and be enabled to start afresh, with an increased prospect of recovery.
2. While he was in the Sanatorium, his home could be cleansed and purified, his wife and family would have a holiday, in the sense of being free from repeated attacks by the infective material causing Consumption.
3. The patient when sent home, would have been taught to so manage his expectoration that it would no longer be a source of risk to his family and to those with whom he worked.

This course was at once adopted, and before the end of 1902 the number of beds utilized for this purpose had been increased to ten.

The majority of the patients are unable to come into the Sanatorium for longer than a month. They would lose their means of livelihood if they were absent from work for longer than that time. In a certain number of other cases, however, it has been possible to arrange for a longer treatment, and if the improvement made in the month has been such as to justify continuing the expense of the treatment, it has been continued for a second or even a third month.

Under present circumstances we are annually passing through the Sanatorium 100 to 120 consumptive patients. As the total deaths from consumption in 1902 were only 174, as each consumptive patient lives several years, and as those of higher social status are not so likely to be

the cause of infection to others, it can confidently be hoped that in a few years nearly every consumptive patient in Brighton will have had a month's practical training in the simple precautions required to prevent him from being a source of danger to others.

From the above statement it will be gathered that the curative aspect of Sanatorium treatment is regarded as of secondary importance. We are chiefly concerned with educating these patients, and thus avoiding risk to others. At the same time they have a practical personal demonstration of the benefits to be derived from abundant food, an open air life, and freedom from infective dust. When they leave the Sanatorium at the end of the month, which in the majority of instances is the limit of time, they are without exception ardent advocates for the fresh air *régime*, and I have not yet come across a single patient out of the 71 thus treated (to June 25th, 1903) who after leaving the Sanatorium has again become careless as to coughing and expectoration; and this notwithstanding the fact that only a minority of the patients leave us without expectoration. They have so far improved in health that they are most eager to continue the *régime*, so far as their means will allow.

It appears to me that in connection with Sanatorium treatment too much stress has been laid upon the cure of the patient. Such cure must be exceptional unless the treatment can be continued for six or more months, and unless it can be begun earlier in the disease than the stage at which cases of consumption are usually notified. Each of our patients is informed before he is admitted to the Sanatorium (unless the disease is at its earlier stage) that a cure is impossible in the time during which he will be treated, but that he will have a thorough holiday and rest under excellent conditions, and that he will be taught how to manage himself so that when he leaves he can, so far as his means admit, continue the treatment, and can pursue his daily life without risk to his relatives or fellow workmen. It is made a *sine quâ non* that as soon as the patient is admitted to the Sanatorium his house shall be thoroughly cleansed and disinfected. When he returns home therefore both he and his family are freed from the risk of infection by old infective material.

The educational aspect of Sanatorium treatment, as developed above, is more important in the public interest than its curative aspect. The majority of cases are notified in the second or even in the third stage of the disease. The natural history of consumption is, as is well known, one of repeated exacerbations with intervals of quiescent disease. During the quiescent intervals the patient, if belonging to the artizan and labouring classes, resumes his work, and so is a continuing source of danger not only

to his family but also to those employed with him. Hence it is of the utmost importance that, although there may be extensive disease, the patient should receive that practical instruction in the management of his expectoration, and should receive that practical demonstration of the benefits which will accrue to him personally which, in most instances, can only be secured by a temporary residence in a well-managed Sanatorium. Our rule in selecting patients out of excess of applicants over available beds is to prefer (1) men to women, and (2) those still able to work; because, as a rule, by treating and training these the circle of good achieved is wider than when we treat and teach those with a more limited environment. There are exceptions to this rule. Several instances could be quoted in which the mother of a large family suffering from chronic consumption has infected every child in succession, while she has remained able to carry on her family duties. Hence a certain number of selected female patients are admitted when we have beds available for them.

That the educational aspect of sanatorium work is overlooked by many is shown by the remark made by a Metropolitan Medical Officer of Health*: "It is questionable whether, in London, sanatoria would be of very much good to the poorer classes. What would be the use of discharging a patient from a sanatorium and sending him back to Battersea?" It is just in such an instance that the maximum good would be achieved. The patient might not improbably relapse after his return home; but if the sanatorium treatment had been intelligently given and received (and my experience is that the working classes are most intelligent in receiving instructions as to their health) he would not continue to be a serious source of danger to his relatives and fellow-workmen. The essential cause of consumption is the tubercle bacillus. Furthermore dosage is an important element in the infection of this disease. The trained patient, even under the least favourable home conditions, is a much less serious cause of risk to others than he was before he had the benefit of sanatorium treatment.

THE RELATIVE IMPORTANCE OF DIFFERENT MEASURES FOR THE PREVENTION OF CONSUMPTION.

A similar line of fallacious reasoning has led one Medical Officer of Health to place on record the statement that: "It may safely be said that a given sum of money invested under the provisions of the Housing of the Working Classes Act will do more towards the permanent reduction of the death-rate from phthisis than many times the same sum expended

*"Public Health," March 1903, p. 321.

on the building and support of sanatoria."* Such a statement would scarcely be made by anyone having experience of the Housing of the Working Classes Act, and who knew how expensive and relatively unproductive and unsatisfactory are such schemes in the majority of districts, even when it is imperative to carry them out. The enforcement of the law as to over-crowding and as to the dirty interiors of houses, has undoubtedly had great influence in diminishing the mortality from consumption; but the operations of the Housing of the Working Classes Act throughout the country have been on too small a scale (in the majority of districts there has been no action whatever under these Acts) to have much bearing on the question.

It is important to preserve a sense of perspective in our preventive measures. Consumption is caused by consumption, and cannot occur apart from the existence of a previous patient suffering from this disease. The tubercle bacillus is not ubiquitous. It haunts the vicinity of the consumptive. The acquirement of consumption depends on three factors— infection, susceptibility and environment. In certain families proclivity is so strong that environment becomes completely subordinate. The members of such families will acquire consumption when living under the best conditions as to housing and work if they are exposed to infection. Numerous instances of consumption occurring under the best sanitary and social circumstances must be known to us all. In others susceptibility needs to be increased by unfavourable environment before infection (unless it be frequent and large-dosed) can take root. The vital resistance is lowered by attacks of other diseases, by debauchery, by fatigue, by overcrowding or by want, or by combinations of these influences. Of the diseases which most lower vital resistance, probably alcoholism and influenza in the adult, and whooping-cough and measles in children, hold a chief place. With the exception of alcoholism, almost the entire community is at times subject to one or other of these causes of lowered resistance to disease. Furthermore, the fact that in 30 per cent. of a large series of autopsies evidence of tubercular infection was discovered shows that a certain amount of tubercular disease is recovered from by a very high proportion of the total population. That they have recovered may be considered good evidence of partial insusceptibility. It is equally good evidence of serious exposure to risk, from which we should all be glad to free those in whose welfare we are deeply interested.

The registered mortality from consumption has declined to the extent of

* "Public Health," April 1903, p. 393.

about fifty per cent. in the last fifty years; and this is regarded as sufficient evidence that general sanitation, apart from direct measures against infection, will suffice for its extermination. I have shown elsewhere* that owing to lax statements as to the causes of death in the early registration years, and the increasing tendency in recent years to return deaths as due to "tuberculosis" or "general tuberculosis," which would formerly have been returned as phthisis, there has been some exaggeration of the decline of the phthisis death rate. It must be remembered also that among the agencies which have caused the improvement already secured, some of the most important have directly diminished the opportunities for infection. Improvements in housing and diminution of overcrowding, undoubtedly have had this effect. The improved habits of the people have had the same effect to an even greater extent. Quite apart from the present crusade against spitting, there has been an immense improvement in domestic habits in this respect and in general domestic cleanliness, which must have had a material effect in diminishing opportunities for infection.

At the same time I do not wish to minimise the importance of indirect means for preventing phthisis. Opinions will doubtless differ as to the relative share which direct infection by means of spray during coughing or by dried expectoration on the one hand, and dirty over-crowded damp dwellings on the other hand, play in the causation of Consumption. The wise hygienist is he who attempts to control both sets of factors.

Sanatorium treatment itself is the best testimony to the importance of these indirect means of preventing consumption. The patient lives an almost completely out-door life; he is brought into a condition of high nutrition, and is freed from any fresh external infection. While emphasising the importance of the last cause of improvement, I realise that of improved nutrition and aeration. Much of the reduction of consumption in the last half century has probably been caused by the cheaper and more abundant food which we have owed to the abolition of the Corn Laws. Poverty and consumption are inseparable companions, for if infection causes the disease poverty furnishes the appropriate soil, besides increasing the closeness of contact and frequency of opportunities of infection.

(For discussion on this paper see page 275.)

* *Elements of Vital Statistics*, 3rd ed., p. 239.