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PORTSMOUTH,

HEALTH DEPARTMENT,

TOWN HALL.

*Report on the Prevention of Tuberculosis, presented to the
Drainage and Sanitary Committee, and ordered to be
printed on February 21st, 1899.*

GENTLEMEN,

For some considerable time past I have been collecting information and statistics on the above subject, and, as you are doubtless aware strenuous efforts are now being made by the medical profession to awaken public opinion on the matter, the time seems ripe for the inauguration of active measures by the Sanitary Authority to diminish the heavy death rate from this disease, I venture therefore to present you with the following report indicating the various measures it seems to me advisable to take for the prevention of tuberculosis.

PREVENTION OF TUBERCULOSIS.

Introductory

Under the head of *tuberculosis* are included all those diseases caused by the microbe known as the tubercle bacillus, including phthisis or consumption, tubercular enteritis or consumptive bowels, tabes mesenterica, tubercular meningitis or tubercular inflammation of the brain, lupus or tuberculous disease of the skin and scrofulous diseases, to which may be added various tubercular diseases of joints, etc.

The tubercle
bacillus

Although this disease has been recognized for a number of years it is only about 18 years ago it was conclusively proved that a small living microbe or germ, known as the tubercle bacillus, was the sole cause of the disease, and that there could be no tuberculous disease without this tubercle bacillus. It is towards the destruction of this bacillus therefore, that all efforts for the prevention of the disease must be directed.

Consumption
not a heredi-
tary disease.

It is as well to state here that tuberculosis, under which term I include consumption and all the diseases before mentioned, cannot be caught from the breath of consumptive patients, also it is *not* a hereditary disease; to find a baby at birth with any form of tuberculosis is most rare. The utmost that can be transmitted from a tubercular father or mother to their offspring is a predisposition to take the disease, that is to

say, if the child of tubercular parents is constantly exposed to infection by the tubercle bacillus it is more likely to contract tuberculosis than the offspring of healthy parents exposed to similar conditions.

MORTALITY FROM TUBERCULOSIS.

Mortality in
Portsmouth

To appreciate the necessity for active steps being taken against tuberculosis it is only needful to consider the number of deaths caused annually by this disease. In England these amount annually to over 50,000; or to bring the facts nearer home, out of the 29,332 deaths that have occurred in Portsmouth during the last ten years, 1889-98, no fewer than 3668[‡] have been caused by tuberculosis*; in other words out of every eight people who died during the last ten years one died from tuberculosis in one or other of its forms. If the mortality from this disease is compared with others it is found that the whole of the deaths registered during the same period from small-pox, scarlet fever, typhoid fever, measles, diphtheria and whooping cough amounted altogether to 2229, or 1339 less than are caused by the tubercle bacillus. A fact too having important bearing in relation to tuberculosis is, that out of the 3668 deaths just mentioned, no fewer than 1669 occurred among adults in the prime of life between the ages of 25-55, that is among the most valuable and useful members of the community.

These few figures are probably sufficient to enable you to appreciate the enormous mortality caused by the tubercle bacillus, and to justify from the Sanitary Authority the enforcement of all means in their power to combat this fatal disease. Up to the present the efforts of Sanitary Authorities have, and with a considerable amount of success, been directed principally against infectious fevers, if the same energy displayed against, say small-pox or diphtheria, were directed against tuberculosis, there is no doubt a considerable saving in life would be effected.

[‡] In considering the deaths from tuberculosis in this Borough two important factors must not be let sight of; one, that Southsea, with other well known places on the South Coast, is the resort of a number of invalids in an advanced stage of consumption; the other, a still more important factor, is the very large number of men invalided from the Navy and Army on account of consumption, who eventually die in this town from that disease.

* Including all those diseases enumerated under tuberculosis on the preceding page.

CAUSES OF TUBERCULOSIS.

To effectively combat tuberculosis it is necessary first to thoroughly understand the causes of the disease. The one essential in the production of tuberculosis is, as I have already stated, the tubercle bacillus, and without this bacillus there can be no tuberculosis. Our whole aim must therefore be, firstly to destroy the bacillus and abolish the influences favourable to its growth, and secondly to consider by what means the bacillus gains access to man and to destroy these means of access.

Method of
spread of
disease

The most common means of access of the tubercle bacillus to the human body is by inhalation. In the expectoration of a consumptive person there are thousands of tubercle bacilli, this expectoration in the ordinary course of events becomes dry and is converted into dust, this dust is stirred up by various movements and the bacilli become thus diffused in the air of rooms, railway carriages, theatres, etc. The bacilli in the air are then inhaled by some one whose vitality or state of health, is, perhaps from a cold or some other slight ailment, somewhat below par and the result is that person becomes tubercular or consumptive. Such a course of events is especially liable to occur in an overcrowded room where the atmosphere is vitiated; for the vitality of people breathing a vitiated air is invariably impaired and they become ready victims to the disease. Another great factor in the causation of tuberculosis is *damp houses, which play their part by rendering the lungs particularly susceptible to the inroads of the tubercle bacillus. An even more favourable form of house for producing consumption is what is known as the "back-to-back" house, *i.e.* one in which the doors and windows are all upon one side of the house and in which consequently it is impossible to get a through circulation of air. These are most frequently found in courts and alleys, a number of the houses of which never get sunshine or fresh air, and have repeatedly proved themselves most fertile in the production of this disease.

Overcrowd-
ing

Dampness

Back-to-back
houses

Milk

Among children one of the chief causes of tuberculosis

*In Ely the phthisis mortality was reduced by 47 per cent. and in Salisbury by 49 per cent. by drainage of subsoil.

is to be found in milk. Cows, under the unhealthy conditions in which the greater number are kept in this country, are particularly liable to suffer from tuberculosis, and there is not the least doubt that at the present time a large proportion of the milk sold contains tubercle bacilli*, resulting in the frequent production of tuberculosis amongst babies, children, and invalids.

Meat

The last factor in the production of tuberculosis I shall mention is tuberculous meat. As I have before mentioned cattle are very liable to tuberculosis, and doubtless this disease is often transmitted to man by the ingestion of tuberculous meat.

People in
good health
not attacked

The above are the principal factors in the production of tuberculosis over which it is possible for you as a Sanitary Authority to exercise control. It is however important to remember that a person in good health rarely if ever contracts tuberculosis direct, it is only when his vitality is lowered from other illnesses such as cold, scarlet fever, typhoid fever, measles, &c., from overcrowded, insufficiently ventilated, damp houses, or other insanitary conditions that the tubercle bacillus is able to effect a lodgment or grow in his body. From which it follows that every step taken by the Sanitary Authority for the abatement of insanitary conditions is in itself a preventive measure against tuberculosis.

PREVENTION OF TUBERCULOSIS.

Prevention of
tuberculosis

In the foregoing I have endeavoured in as brief a manner as possible to put before you the enormous fatality from tuberculosis and the most common methods in which the disease is contracted. I now come to the most important part of this report namely the enumeration of the various measures it is in your power as a Sanitary Authority to take for the prevention of the disease, for it is now almost universally agreed by medical men that tuberculosis is to a very large extent a preventible disease. It is as well to note here that every step taken for the prevention of the disease is

*It was found in Liverpool that out of every 100 milk supplies sent into that city from the surrounding country, 29 contained tubercle bacilli.

in itself also a curative measure for those already suffering from it.

The measures that may be taken for the prevention of tuberculosis by the Sanitary Authority are threefold in character :

Firstly.—The securing of the co-operation of the public.

Secondly.—The enforcement of those powers of which the Sanitary Authority is already possessed.

Thirdly.—The taking of measures to obtain still further powers from Parliament towards the same end.

The co-operation of the public

To enlist the co-operation of the public is perhaps the most important of these three, and for this it is first necessary there should be awakened an intelligent interest in the subject, to this end I suggest the Authority have printed and sent to the head of every house in which there is a case of consumption, a leaflet on the subject pointing out that consumption is to a certain extent a curable disease and that it is not a hereditary disease, this is necessary because the opinion of the majority of people is that if the parents are consumptive the children are almost certain to be so, consequently unless they are first convinced to the contrary, they are unlikely to take other than half-hearted preventive measures. The leaflet will also give full instructions for the measures to be taken to prevent the disease spreading to other members of the household, &c. A specimen of this leaflet is attached to this report (Appendix A). The Authority might perhaps also see its way to giving a course of popular lectures, and to the publication and circulation of a popular pamphlet on the subject.

To the head of every house in which a death from tuberculosis has occurred I propose a circular-letter (Appendix B) should be sent offering to disinfect the infected bedroom free of charge and giving advice as to the cleaning of the room, and the method of dealing with the infected clothes, utensils, &c., of the deceased person, and suggesting further means that may be adopted by the household for the destruction of any germs of consumption that may be left in the house. Also that a leaflet of advice for distribution be sent to the heads of large institutions, the clergy, district nurses, district visitors and

others who work largely among the poor. And lastly that a circular letter (Appendix C.) be sent to all medical practitioners in the borough asking for their hearty co-operation, acquainting them with the steps the Sanitary Authority are taking for the prevention of tuberculosis, and informing them that a bacteriological examination for the presence of the tubercle bacillus will be conducted for them in any doubtful cases they may have amongst their patients.

Legal powers
possessed by
the Sanitary
Authority

Next as to the powers the Authority already possesses which should be enforced. Here the broad principle aimed at by the Authority must be to exert all their powers to do away with every condition that tends in any way whatsoever to pollute the air or to prevent the access of fresh air or sunshine to each street in the borough. To this end care must be taken in the laying out of new streets that none are constructed so that fresh air may not freely circulate about each house, and, as opportunity offers, the existing narrow streets, courts and alleys which the sun rarely visits must be pulled down never to be rebuilt. In regard to houses the bye-laws for the provision of proper ventilation to each room must be stringently enforced, and it must be regarded as an essential that no house be allowed to be built through which fresh air cannot freely pass by means of windows, doors, &c.

Ventilation in
and about
houses

Dampness

Dampness in houses can be prevented by covering the foundation of every house with six inches of concrete, by the provision of proper damp courses, gutters, stack-pipes, &c. All house refuse should be removed from houses as frequently as possible and disposed of rapidly in such a manner as not to pollute the air. Fouling of the atmosphere by chimneys sending forth black smoke ought no longer to be permitted. Ample powers for the prevention of this nuisance are provided and only need enforcing. Steps may also be taken for enforcing ventilation in certain existing houses where possible by the insertion of windows on staircases &c.

Smoke
nuisance

Back-to-back
houses

"Back-to-back" houses must never be erected and those that already exist should where possible be got rid of, and where this is not possible means of through ventilation should be established by the insertion of windows or other means. Overcrowding in houses and workshops can be abolished, and if necessary, proceedings should be taken to that end.

Milk

Milk is so common a means of communicating tuberculosis to children that the Authority should enforce every means in their power for the proper keeping of cowsheds in the borough, and by the frequent examination of these cows prevent the milk from any that show tuberculous disease of the udders being sold.

Meat

With regard to the communication of tuberculosis by meat there are at present ample powers for condemning the carcass of any animal so affected, the great difficulty is to get hold of such meat; owing to the large number of slaughter-houses in the borough the inspection of meat for the presence of tuberculosis is little short of a farce, and, though occasionally a carcass is seized and condemned there is no guarantee that tuberculous meat is not frequently sold and consumed.

Further legal powers to be acquired

Under the third class of preventive measures I put those further powers which the Sanitary Authority should obtain from Parliament. These are—

Over dwellings and workshops

- (a) Power to close "back to back" houses, insanitary courts and alleys, without having to pay exorbitant compensation to the owners of such property.
- (b) Power to insist on the provision of means of more effective ventilation by the insertion of windows, &c., in certain houses.

(c) Power to insist in certain cases on the provision of more than 250 cubic feet of air space to the occupiers of workshops.

Over cowsheds

- (d) Power to prevent the sale of milk from any cows suffering from tuberculosis, and to insist on the cows which supply this town with milk being kept under sanitary and healthy conditions. The milk question is a very serious one, and too much importance cannot be attached to it. In Portsmouth over two-thirds of the milk supply is sent in from the country. The cows supplying this milk are often kept in a most insanitary condition, herded together in close, badly lighted and ill-ventilated cowsheds; yet over these cowsheds, although the milk from them is sent into and consumed in this town, this Sanitary Authority has not the least control.

It is of interest to note that in Glasgow the Corporation have secured a bill (from which I print an extract Appendix D.) giving them exactly the same control over every cowshed supplying milk to the city of Glasgow situated outside that city as over the cowsheds inside the boundaries; Manchester, Leeds and Salford have inserted similar clauses in *omnibus* bills now being prepared. Such power is even more necessary in Portsmouth where there is no County Medical Officer of Health to insist on the cowsheds being maintained in a sanitary condition in the county of Hants whence most of the milk supply of this town is brought. The Authority should also obtain the right to apply the tuberculin test to all cows supplying the town with milk, and have power to forbid the sale of milk from any cows which under the test show evidence of tuberculosis.

Abattoir

- (e) Never until a public slaughter-house is [established, through which all the meat sold in the town must pass and be stamped, will there be any effective control over the meat supply; under the present legislation the provision of a public slaughter-house is out of the question, and our efforts must be directed towards securing the right not only to build an abattoir but to close the existing slaughter-houses without compensation.*

CONCLUSION.

Sanatoria

The above are the principal measures I would advise the Sanitary Authority to adopt for the prevention of that terrible disease tuberculosis. Before concluding, however, there are one or two subjects that must be mentioned in connection with the disease, foremost among which is the

* In the Report of the Royal Commission on tuberculosis issued last year the Commissioners recommend that, when the local authority in any town have provided a public slaughter-house, power be conferred on them to declare that no other place within the town shall be used for slaughtering, except that a period of three years be allowed to the owners of existing private slaughter-houses to apply their premises to other purposes. If Parliament adopted this suggestion the difficulties in the erection of a public slaughter-house would disappear.

question of the establishment of sanatoria, or large hospitals for the open air treatment of consumption. I do not think the beneficial results from these are sufficiently demonstrated to justify the Authority in spending money on their erection, and for the present at any rate such institutions may well be left to private and charitable enterprise.

Compulsory
notification

As to the question of notification of tuberculosis. It is known to you that on the occurrence of a case of scarlet fever, small pox, &c., the medical man in attendance is bound forthwith to notify the same to the Health Department, and it has been proposed by some that consumption or phthisis should be added to the list of these notifiable diseases. I do not however think that the benefits to be obtained from this would be in any way commensurate with the very heavy expense it would entail, and I believe that nearly all the benefits of compulsory notification can be obtained by the voluntary assistance of the public and the medical profession.

These then, Gentlemen, constitute in as brief a manner as possible the various measures it is possible to take for the reduction of the tuberculous death rate, doubtless still further measures will occur to us in the future, but the careful carrying out even of these will probably exert a very considerable saving of life.

I am, Gentlemen,

Your obedient Servant,

A. MEARNS FRASER,

Medical Officer of Health.

APPENDIX A.

Leaflet to be sent to the heads of households in which there is a case of consumption.

THE PREVENTION OF CONSUMPTION.

Tuberculosis (including phthisis or consumption) causes annually over 70,000 deaths in Great Britain and over 350 each year in Portsmouth alone. Almost the whole of these deaths can be prevented if a few precautions entailing very little trouble are taken. The Sanitary Committee therefore present the following leaflet which they trust the inhabitants of Portsmouth will read and carefully follow out the instructions given, together with any others that may be given by the medical man in attendance to the same end.

Consumption is not a hereditary disease; the most a child can inherit from a consumptive parent is a constitution likely to contract consumption if much exposed to the germ or microbe of consumption.

This germ or microbe is a small living creature called the tubercle bacillus, it rarely attacks anyone in good health, but anyone whose state of health is in anyway low, especially when this is caused by intemperance, overcrowding, darkness, dampness, breathing stale air, or by a cold, sore throat or after measles, whooping cough, typhoid fever or scarlet fever, is very likely to contract the disease if they breathe air containing the tubercle bacillus.

Consumption is an infectious disease and is usually spread through the phlegm or spit coughed up by consumptive people, which contains thousands of tubercle bacilli. If this phlegm is allowed to dry on the floor, on handkerchiefs or elsewhere, it soon becomes converted into dust and these bacilli or germs of consumption float about in the air and are breathed into the lungs of other people in the same room. If however a person take care never to let his expectoration dry he will not be a source of danger to other people.

People who live in damp, or dark, or badly ventilated, or overcrowded rooms are specially liable to get consumption.

Children often contract consumption, and especially consumptive bowels, through being fed on the milk of tuberculous cattle.

It follows then that the following rules should always be observed

1. A consumptive person must not expectorate or spit about the house, in cabs, omnibuses, tramcars, railway carriages, or public places where his expectoration may dry and be converted into dust, but should always use a spitting cup in which is a little water and disinfectant such as carbolic acid, or spit into the fire. It is better to spit into a rag which can afterwards be burnt before it becomes dry, than into a pocket handkerchief, but if a handkerchief is used it should after use be put into boiling water before it has had time to become dry. The spitting cup should be emptied down the W.C. and afterwards washed in boiling water.
2. All cups, spoons, knives and forks, etc., used by consumptive people, should be put into boiling water directly after use.
3. A consumptive person must not kiss or be kissed on the mouth.
4. A consumptive person should where possible have a bedroom to himself, but in any case he should sleep in a separate bed.
5. No consumptive mother should suckle her own children.
6. No milk should be given to children before it has been boiled or properly sterilized.
7. Rooms occupied by consumptive people must always be cleaned by damp dusters, which should afterwards be boiled, and in sweeping use damp tea leaves or sawdust, which should afterwards be burnt.

The following general rules should also be observed—

Sunlight and fresh air are the greatest enemies to consumption. Windows therefore should be left open as much as possible, and especially in bedrooms, windows should be kept wide open during the day, and slightly so during the night all the year round, unless otherwise ordered by the medical attendant.

It is necessary that thorough cleansing and disinfection should be carried out after the removal of any consumptive patient from a house; the services of the Health Department are at the disposal of ratepayers for this purpose, and immediate notice of such an event should be sent to the Medical Officer of Health.

During the currency of a case of consumption the Medical Officer of Health will give any assistance that may be deemed expedient in the public interest.

Consumption is not communicable by the breath and if the above precautions are attended to there is no danger of catching the disease in the ordinary intercourse of family and society.

The golden rule for the prevention and cure of consumption is to obtain as much fresh air and sunshine as possible.

A. MEARNS FRASER,

Medical Officer of Health.

Health Department,

Town Hall,

February, 1899.

APPENDIX B.

Circular letter sent out to the head of a household in which a death from consumption has occurred:—

Portsmouth,

Health Department, Town Hall,

..... 189...

Sir or Madam,

In connection with the death from consumption registered as having occurred at No..... I beg to call your attention to the important fact that consumption is communicable from person to person and is due to the entrance into the body of a germ or microbe which is usually found in the dust of the room or rooms occupied by consumptive persons. To protect subsequent occupiers the room or rooms recently occupied by the deceased should therefore be disinfected and afterwards the wall papers should be stripped off and the room thoroughly washed and scrubbed out. All the clothing, bedclothing, curtains, carpet, &c., should be thoroughly washed and afterwards exposed to the sun and fresh air for several hours.

After this is done see that the doors and windows of the rooms are left wide open for a day or two, and there will then be no danger in a person subsequently occupying them.

The Sanitary Authority will on receipt of enclosed card send and disinfect the room with sulphur at any convenient time.

I am, your obedient Servant,

A. MEARNS FRASER,

Medical Officer of Health.

APPENDIX C.

Circular letter to the Medical Practitioners of Portsmouth:—

Portsmouth,
Health Department, Town Hall,
..... 189...

Dear Sir,

The Sanitary Authority of the Borough is now inaugurating active measures for the prevention of phthisis and other forms of tuberculosis and I am requested to write and solicit your hearty co-operation with them toward that end.

Arrangements have now been made to disinfect premises free of cost after a death from consumption, at the same time leaving a pamphlet, a copy of which I enclose,* giving instructions for dealing with the clothes, bedclothing, utensils, etc., that have been used by the deceased. The Authority trust you will use your influence with your patients and those in charge of them to induce them to avail themselves of the means thus provided for the prevention of the disease.

I enclose you a leaflet,† which I have drawn up for circulation, pointing out simple preventive measures to be taken with a view of preventing the spread of the disease. These preventive measures are well known to you, and are, doubtlessly, taken already by patients under your care; but I shall be glad to furnish you with printed copies of the leaflet, if you are of opinion that such would be of use to you, and will kindly let me know.

I may add that I shall be prepared, in any doubtful case you may have, to undertake a bacteriological examination of the sputum for the presence of tubercle bacilli. Bottles for the collection of the sputum may be obtained at the Town Hall.

I am, yours faithfully,

A. MEARNS FRASER,

Medical Officer of Health.

*Appendix B.

†Appendix A.

APPENDIX D.

Section of Omnibus Bill promoted by the Corporation of Manchester.

(1.) Every person who knowingly sells or suffers to be sold or used for human consumption within the city the milk of any cow which is suffering from a diseased or indurated udder shall be liable to a penalty not exceeding ten pounds for each offence.

(2.) For the purpose of giving effect to this section the medical officer or any inspector of nuisances exhibiting the authority in writing of such medical officer may at any time or at any place within the city take samples of milk for the purpose of bacteriological examination and may submit the same for such examination. A duplicate of the sample shall be forthwith delivered to the person (if any) in charge of the milk.

(3.) The medical officer or any veterinary surgeon exhibiting the special authority in writing of such medical officer may from time to time within reasonable hours enter any byre or cowshed within the city or wherever situated if the milk produced therein is being sent for sale within the city and may inspect and examine the cows kept therein for the supply of milk in order to determine whether any cow suffers from diseased or indurated udder and every person in charge of such byre cowshed or place shall render such reasonable assistance to the medical officer or such veterinary surgeon exhibiting the authority in writing of the medical officer for the purpose of inspection and examination as may be required by them, and any person refusing such assistance or obstructing the inspection shall be liable to a penalty not exceeding five pounds.

(4.) Every dairyman or keeper of a byre or cowshed whose milk is sold within the city who after intimation has been made to him by the medical officer that any cow in his possession kept for the supply of milk suffers from temporary disease of the udder, shall send the milk from such cow for sale within the city before such intimation is withdrawn by the medical officer, shall be liable to a penalty not exceeding five pounds.

(5.) Every dairyman or keeper of a byre or cowshed whose milk is sold within the city who after intimation has been made to him by the medical officer that any cow in his possession kept for the supply of milk for human consumption suffers from a chronically diseased or indurated udder shall retain such cow in his possession, shall be liable to a penalty not exceeding five pounds and a daily penalty not exceeding forty shillings.

(6.) This section may be carried into effect by the Corporation as the Sanitary Authority of the city who are hereby authorised to appoint inspectors for such purpose.



MAP SHOWING INCIDENCE OF CERTAIN INFECTIOUS DISEASES IN PORTSMOUTH DURING THE YEAR 1897.

HOUSES in which SCARLET FEVER have occurred marked with a RED DOT.
do TYPHOID FEVER do do RED CROSS.
do DIPHTHERIA do do BLUE CROSS.



