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City of Bradford.

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MEDICAL OFFICER OF HEALTH

(W. ARNOLD EVANS, M.D., B.Sc.),

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Mr. Chairman and Gentlemen,

In accordance with your instructions based on the following resolution of the Bradford City Council of December 6th, 1907, viz. :—

> "That it be an instruction to the Health Committee to consider and report upon the question of the advisability of providing sanatoria for the accommodation and treatment outside existing Public Institutions of cases of Phthisis arising amongst the general population of the City,"

I beg to report as follows :—

The statistics published by the Registrar General show that there has been a continuous decline in the prevalence of Phthisis during the past fifty years.

In 1851 the death rate from pulmonary consumption in England and Wales was 27 per 10,000 of the population, in comparison with 11.5 for the year 1906. A calculation on these figures shows apparently that in the course of another thirty years Phthisis will be practically extinct. A further examination of the figures, however, will throw some doubt upon this optimistic view. In the early part of the period referred to the registration of deaths was not so accurate as at the present time ; many deaths due to Bronchitis were ascribed to Phthisis, and to a certain extent *vice versa ;* also since the discovery of the tubercle bacillus in 1882 there has been a tendency to refrain from ascribing a death to Phthisis unless tubercle bacilli have been demonstrated in the sputum. In addition it should be remembered that there was no compulsion upon medical men to give certificates of death until the year 1874. When sufficient

allowance has been made for these facts it is my opinion that Phthisis will not become extremely rare under less than sixty years, unless some other means are taken to interfere with its prevalence.

The following table shows the fall in the death rate which has taken place in the several quinquennia since 1866–1870.

TABLE A.—ENGLAND AND WALES.

Quinquennia	Death-rate per 10,000
1866–70	24.4
1871–75	22.1
1876–80	20.4
1881–85	18.3
1886–90	16.3
1891–95	14.5
1896–1900	13.2
1901–1905	12.1

It is interesting to note that during the last forty years there has been a material shifting of the maximum incidence of the disease in reference to age.

The following table from the Registrar General's Returns shows that the greatest mortality amongst males is from 45 to 55 years of age, and for females from 35 to 45 years of age, but this has not always been the case, for in the decade 1851 to 1860 Phthisis mortality was at its highest among males at ages from 20 to 25, and among females at ages from 25 to 35. This means "either that the saving of life has been greater at ages which were formerly most liable to Phthisis than at the ages immediately following, or persons specially liable to Phthisis have lived longer than they would have done under the earlier conditions."

TABLE B.

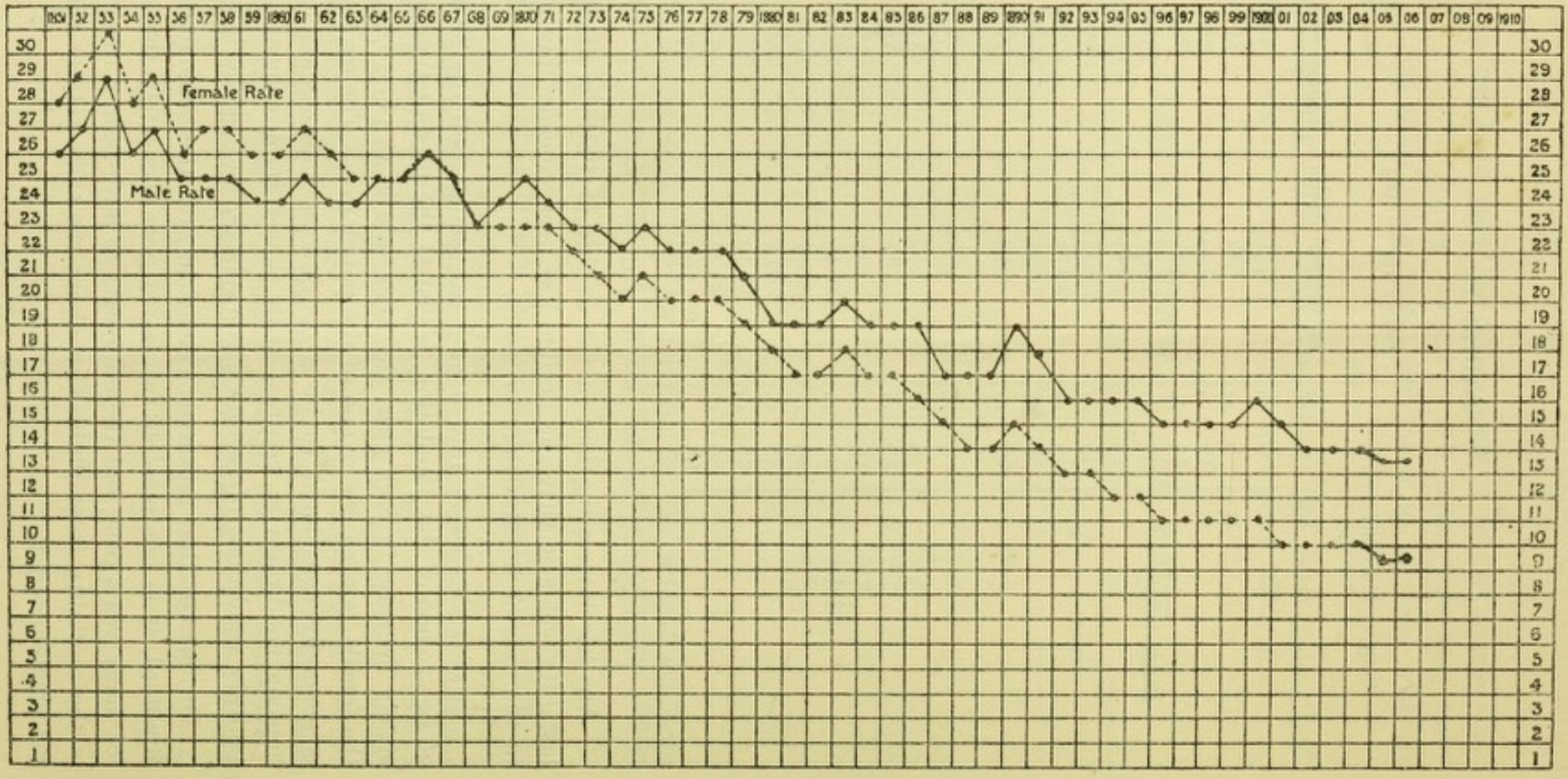
Phthisis Mortality at Age Group		Average 1900—1904	Year 1905
		England and Wales	England and Wales
Both Sexes	0 ..	341	348
	5 ..	176	162
	10 ..	299	261
	15 ..	902	850
	20 ..	1448	1300
	25 ..	1855	1695
	35 ..	2293	2007
	45 ..	2274	2064
	55 ..	1802	1689
	65 ..	949	785
Males	0 ..	366	355
	5 ..	149	141
	10 ..	182	151
	15 ..	799	722
	20 ..	1643	1458
	25 ..	2147	1992
	35 ..	2811	2449
	45 ..	3130	2851
	55 ..	2562	2420
	65 ..	1309	1300

Another interesting fact in the decline of Phthisis during the last fifty years is that the decline has been considerably greater in the case of females than in males.

In 1851 the female rate was 28 per 10,000, and the male rate 26 per 10,000 of the population, whilst at the present time after a steady decrease in each case, the male rate is 14 per 10,000, and the female rate 10 per 10,000 of the population. The explanation is generally considered to be a continuous improvement in the housing conditions in contrast with slower improvement in the sanitary conditions of factories, workplaces, and public houses.

Owing to the repeated extensions of the boundaries of Bradford, it is not possible for me to give accurately the figures for many years past, but there appears to have been a diminution in the mortality from Phthisis at about the same rate as that for the whole country.

Chart showing male and female death-rate from Pulmonary Tuberculosis in England and Wales per 10,000 of the population from 1851-1905. It will be noted that the death-rate amongst females was higher than that amongst males until 1864, which after running practically parallel with the male rate for some years became gradually lower than the male rate.



The figures for the past three years averaged as follows :—

TABLE C.—BRADFORD.

Age	Deaths per 10,000 Average for three years, 1905-6-7
— 5	8.3
5—10	3.3
10—15	7.0
15—20	31.0
20—25	39.0
25—30	35.0
30—40	66.6
40—50	63.6
50—65	69.0
65—	18.0

which table shows that the maximum incidence of Phthisis is from 30 years of age to something over 50.

The incidence of pulmonary consumption is also affected by the degree of overcrowding in dwellings.

In the absence of any accurate local figures I give those for the administrative County of London. This shows that Phthisis during the years 1894 to 1898 was twice as common in districts containing a population of 35 per cent. living in overcrowded tenements as in those which contained only 10 per cent.

TABLE D.

Proportion of Total Population living more than two in a room (in tenements of less than five rooms)	Death-rates per 1000 living				
	1894	1895	1896	1897	1898
Districts with under 10 per cent ..	1.07	1.18	1.07	1.14	1.10
,, 10 to 15 ,, ..	1.38	1.49	1.46	1.42	1.43
,, 15 to 20 ,, ..	1.57	1.64	1.61	1.63	1.61
,, 20 to 25 ,, ..	1.81	1.83	1.67	1.75	1.80
,, 25 to 30 ,, ..	2.11	2.09	2.06	2.10	2.07
,, 30 to 35 ,, ..	2.26	2.42	2.13	2.32	2.42
,, over 35 ,, ..	2.46	2.66	2.55	2.64	2.65

As to the communicability of Phthisis it is not contended by any medical authority that it is infectious in the same degree as Measles or Scarlatina, or even as Smallpox in unvaccinated populations; whereas a single exposure to infection in the case of any susceptible person may result in the transference of Measles or Scarlatina, it is generally conceded that tuberculosis is not communicated from one to another unless there has been continuous and intimate association extending over a prolonged period. These, however, are exactly the conditions which prevail in the districts occupied by the poorest section of the population, and it is by the segregation of such patients that the prevalence of pulmonary consumption may be considerably diminished.

Although of late years medical opinion has changed somewhat as to the method in which tuberculosis is communicated from one individual to another, or from animals to man, there can be no doubt that the breathing of the atmosphere of infected dwellings is a potent source of infection.

The statutory powers possessed by borough councils for the erection and maintenance of sanatoria for consumption are contained in section 131 of the Public Health Act of 1875, which provides as follows :—

> "Any local authority may provide, for the use of the inhabitants of their district, hospitals or temporary places for the reception of the sick, and for that purpose may themselves build such hospitals or places of reception; or contract for the use of any such hospital or part of a hospital or place of reception; or enter into any agreement with any person having the management of any hospital for the reception of the sick inhabitants of their district, on payment of such annual or other sum as may be agreed upon. Two or more local authorities may combine in providing a common hospital."

Under these powers many local authorities, for instance, the corporations of Manchester, Bristol, Leeds, Nottingham, Plymouth, Bath, Sunderland, Gateshead, and Kendal, are making annual

contributions to certain already established sanatoria, and the Bristol and Birmingham corporations are borrowing money for the purpose of purchasing sites for sanatoria.

That a considerable amount of benefit, and in many cases an absolute cure, can be effected in persons suffering from pulmonary tuberculosis is shown by the reports of sanatoria. The annual report of King Edward the 7th Sanatorium at Midhurst for the year ending July 27th, 1907, shows that of 46 cases admitted in the first stage of the disease, a cure was effected in 33 cases, and an improvement in 13; the first stage being that in which the disease is of slight severity and affects at most one or two half lobes of the lung. In this group the average stay of the patients in the hospital was 13½ weeks, the maximum being 28 weeks, and the minimum 4 weeks.

In the same sanatorium out of 64 cases admitted in the second stage of the disease, in 7 the disease was arrested, in 41 it was much improved, in 13 there was some improvement, and in 3 the conditions became worse; the second stage being that in which the disease is more extensive than in stage one, but affecting at the most two lobes, or severe and affecting at the most one lobe. The average stay in hospital of those in this group is about 18 weeks, the maximum being 38, and the minimum 6 weeks.

Group 3 includes all cases of greater extent and severity than in stage 2, and in this group the patients have usually lost a considerable amount of lung tissue, and a cure is absolutely impossible. However, out of 42 cases admitted in this group there is recorded a great improvement in 8, some improvement in 19, no improvement in 6, worse conditions in 7, and 2 deaths.

The reports of other sanatoria appear to differ in a considerable degree, whilst at the Crossley Sanatorium in Delamere Forest either a cure or a great improvement has been secured in 35.9 per cent. of the cases, the report of the Bradford Poor Law Sanatorium at Eastby shows a corresponding improvement in 61.9 per cent. of the cases admitted, and the Gateforth Sanatorium supported by the Leeds Corporation, as high as 82.2 per cent. are reported to be either cured or very much improved.

The improvement may not be permanent unless suitable employment and fairly sanitary surroundings can be secured for those who have derived benefit from sanatorium treatment, and there is a danger that there may be a lapse into their former condition. Figures given by the Charity Organisation Society in reference to cases sent by them to different sanatoria show that in October, 1906, 24 out of 54, *i.e.*, 44 per cent., leaving the sanatoriums in 1904, were well and working, that 9 were improved and fit for light work, that 5 had relapsed, and that 16 had died.

The following are the institutions which have already been provided by public authorities.

(1) The Heswell Sanatorium, provided for the tuberculous sick of the City of Liverpool by the three Boards of Guardians who administer poor law relief within its area, viz., the Boards of Guardians of West Derby, Liverpool, and Toxteth Park Unions, these three Boards having been united for this purpose by an order of the Local Government Board. The sanatorium is situated on an elevated site of 15 acres overlooking the estuary of the Dee. Up to the end of 1906 males only had been admitted, but the sanatorium is constructed so as to afford accommodation for 12 patients of each sex. Each patient is provided indoors with a 1000 cubic feet of air space. The cost of the institution, including the price of 15 acres of land, furnishing, etc., was £12,000, an amount which was raised by loan with the sanction of the Local Government Board. The cost per bed inclusive of the land was £500, exclusive of the land £338, and additional beds could be erected at a much smaller cost.

During the fourth year of working the total weekly cost per patient came to £2 8s. 3½d.

The immediate results yielded by this sanatorium during 1906 were as follows :—

Total admitted 58, recovered with fitness for work 36, arrest of the disease with fitness for light work 10, improvement but no dependence on improvement 6, no improvement 6.

(2) The Crossley Sanatorium, Delamere Forest, founded by Mr. William J. Crossley, M.P. for Manchester, consists of 90 beds.

The Manchester Corporation makes an annual contribution of £1000, and for this sum is entitled to send 20 patients, who must be of the poorer class.

These patients are sent through the Medical Officer of Health.

(3) Plymouth Corporation subscribes £150 per annum to the Devon and Cornwall Sanatorium for consumptives, and for this sum has two beds allotted.

(4) Birmingham. The Town Council of Birmingham has recently, at the suggestion of the Medical Officer of Health, acquired a site near Cheltenham upon which to erect a sanatorium for the treatment of early cases of pulmonary tuberculosis. The site, which was acquired after public inquiry by the Local Government Board, entailed an expenditure of £17,000. Although the area of the site, nearly 400 acres, was much in excess of the needs of the Corporation, it was found impossible to secure part only of that site, and consequently in order to procure the mansion which it is proposed to convert into an administration block and the necessary site for the new sanatorium building, the whole estate had to be secured. The greater portion of this area will, however, remain on lease for agricultural purposes, but the patients are to have the right to take exercise over the paths which traverse the estate in various directions.

(5) Nottingham Sanatorium, Sherwood Forest. This institution is built of temporary wooden buildings. The cost of erection, furnishing, lighting, sewering, water supply, slightly exceeded £5000.

Amongst the public bodies subscribing were the Corporation of Nottingham £1000, and the Town Council of Mansfield £200. The total cost per bed amounted to £220, exclusive of the site. The following authorities contributed to this institution in 1906, Nottingham Corporation £75, Newark Corporation £75, Mansfield £32, Basford £20.

(6) The Westmoreland Sanatorium overlooking Morecambe Bay, occupies a site comprising 4 acres of land. The following authorities contributed, Kendal Corporation £60, Kendal Guardians £60, South Westmoreland Rural District Council £60,

together with several other authorities, including Dumfries, Bolton Corporation, and Bolton Guardians.

(7) Winsley Sanatorium, opened 1904, erected by the Gloucestershire, Somerset, and Wilts. Branch of the National Association for the Prevention of Consumption. Original cost, £30,000, to which the following authorities contributed :—

	Capital Contribution	Annual Contribution	Number of Beds
	£	£	
Bristol Corporation	5000	1300	20
Bath Town Council	500	130	2
Swindon Town Council ..	500	130	2
Gloucester Town Council ..	250	65	1
Highworth Rural District ..	250	65	1
Cirencester Rural District ..	250	65	1

(8) The Bradford Poor Law Sanatorium, Eastby, situated at Skipton, at an elevation of 930 feet above sea level, and providing 33 beds. The cost per bed excluding the cost of laundry and porter's lodge, was estimated at £230. The average weekly cost per head for the year ending March 31st, 1905, was as under :—

Maintenance	£1	5	9¼
Establishment Charges	0	8	8½
Repayment of Loan	0	9	0
	£2	3	5¾

(9) Leeds Sanatorium. Situate at Gateforth, 3 miles west of Selby, and consists of 34 beds. The contribution of the Leeds Corporation is £2000 per annum.

Adverting, however, to local matters, I find that the average number of deaths from Phthisis in Bradford during the last three years has been 341. On the assumption which I think is reasonable that the life of a consumptive averages two years, there will be about 700 persons at any given time in Bradford suffering from pulmonary consumption. Probably about half of these are suitable

for sanatorium treatment, and in my opinion would avail themselves of it. A reference to the reports of sanatoriums shows that the average stay of a patient is about thirteen weeks, that is, a quarter of a year, so that in order to provide sanatorium accommodation for 350 persons it will be necessary to provide 87 beds. The Bradford Poor Law Guardians have already provided 33 places at the Eastby Sanatorium, which leaves a deficiency of 54 to be provided. On the assumption that accommodation could be made at the same price as has been done by the Bradford Poor Law Guardians, viz., £230 per bed, the cost of the erection of a sanatorium for 50 cases would be £11,500 exclusive of land, and the annual upkeep on the basis of £2 3s. per week (that is the cost at the Eastby Sanatorium), would be £5590.

Assuming what appears to be the average in cures or great improvement, viz., 40 per cent. of the cases admitted, I calculate that 140 lives would be saved annually.

It is difficult to place a money value on life, but if the estimate of the late Dr. Farr, of the Registrar General's Office, be correct, viz., the value of the life of a working man at 30 years of age averages £160, then the value of the 140 lives saved would be £8000 per annum.

I submit this report with the suggestion that you recommend the City Council to erect a sanatorium for 50 persons suffering from Pulmonary Tuberculosis.

Believe me,

Mr. Chairman and Gentlemen,

Your obedient Servant,

W. ARNOLD EVANS,
Medical Officer of Health.

TOWN HALL,
August 12th, 1908.