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ADMINISTRATIVE COUNTY OF ESSEX.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1915.

BY

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COUNTY MEDICAL OFFICER OF HEALTH.

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PREFACE.

*To the Chairman and Members of the Public Health, Housing and Tuberculosis
Committee of the Essex County Council.*

GENTLEMEN,

I have now the honour to submit to you my Report for the year 1915, being the 26th Annual Report prepared by me for your consideration.

Early in the year the Local Government Board communicated with all Sanitary Authorities stating that the Medical Officers of Health's reports might be limited to the Official Tables and a brief account of the most important sanitary matters which had received attention during the year. As a result many of the reports contain nothing of interest beyond the Tables, and in several cases the Reports consist of the Tables only. For these reasons no Summary of Reports has been prepared and this reduces considerably the bulk of the present Report.

The following Medical Officers of Health are serving or recently were serving with the Army :—

Dr. Butler Harris, Major, R.A.M.C. Medical Officer of Health, Loughton.
Specialist Sanitary Officer, Woolwich District, Eastern Command.
Deputy Medical Officer of Health : Dr. Dykes, Buckhurst Hill.

Dr. Dunn, Major, R.A.M.C. Medical Officer of Health, Stansted.
On the Recruiting Medical Board.

Dr. J. F. Taylor, Surgeon-Capt., H.A.C. Medical Officer of Health, Leyton.
Was in Egypt and present at the battles of Fuish and Waht. Now
invalided home suffering from Malaria.
Deputy Medical Officer of Health : Dr. A. Ball.

Dr. Brown, Capt., R.A.M.C. Medical Officer of Health, Maldon Borough.
With a Barge Hospital Flotilla on the French Canals,
Deputy Medical Officer of Health : Dr. Whitney.

Dr. Corfield, Capt., R.A.M.C. Medical Officer of Health, Colchester Borough.
Has been in Gallipoli and Egypt. Now home on sick leave.
Deputy Medical Officer of Health : Dr. Ed. Chichester.

Dr. Wells, Capt., R.A.M.C. Medical Officer of Health Billericay Rural.
At a Base Hospital.
Deputy Medical Officer of Health : Dr. Anderson, Shenfield.

Dr. Dickin, Capt., R.A.M.C.
Served a definite time and now released.
Deputy Medical Officer of Health : Dr. Kevern, Rowhedge.

Dr. Watney, Lieut., R.A.M.C. Medical Officer of Health, Epping Urban.
 With the 9th Cavalry Field Ambulance, B.E.F.
Deputy Medical Officer of Health : Dr. Erskine, Epping.

Dr. Stanbury Brook, Lieut., R.A.M.C. Medical Officer of Health, Chingford.
 3rd Batt. Norfolk Regiment.
Deputy Medical Officer of Health : Dr. Hardenburg, Chingford.

Dr. Godfrey, Capt., R.A.M.C. Medical Officer of Health, Frinton.
 Now on Recruiting Board at Warley.

Dr. Smith. Medical Officer of Health, Halstead, Braintree and Dunmow Districts.
 Is with the Friends' Ambulance Unit in France.
Deputies : Drs. Young, Twamley, Roberts, Smallpiece, and Gimson.

Several other Medical Officers of Health have offered their services, but permission has been refused by the Authorities or by the Local Government Board.

The Tuberculosis Officers who joined the Army were :—

Dr. Roberts, Capt., R.A.M.C. Tuberculosis Officer for N.W. Essex.
 Was killed in Gallipoli (*Vide* page 45).

Dr. Bruce, Capt., R.A.M.C. Tuberculosis Officer for S.W. Essex.
 With the 26th Stationary Hospital, Egypt.

Dr. Williamson, Capt., R.A.M.C. Tuberculosis Officer for Central Essex.
 With the 4th London Field Ambulance in France.

Dr. Macfie, Capt., R.A.M.C. Tuberculosis Officer for N.E. Essex.
 Gone with an Expedition to the East.

Every Report refers to dislocation of work caused by the War, but notwithstanding the large number of troops billeted or in camp in the County, there has been no serious outbreak of disease, and though the death-rate has been higher than usual it is very doubtful whether this is in any way due to the mobilisation. At the desire of the Military Authorities and of the Local Government Board the village of Parkeston in the Tendring Rural District was placed under the sanitary control of the Harwich Medical Officer of Health and Surveyor and Inspector.

It is unfortunate that with an increased death-rate a decreased birth-rate has to be recorded, and in some districts the death-rate is approaching the birth-rate, whilst in one area the death-rate is 18·4 and the birth-rate only 15·8. This, however, is a small rural district and the occurrence of this unfortunate condition is probably accidental.

The excessive death-rate is chiefly due to diseases of the lungs and is discussed in Section I., and this is reflected in the death-rate from Tuberculosis, which has also

increased. In last year's report the opinion was expressed that notwithstanding the apparent increase, as shown by the mortality statistics, of deaths from Tuberculosis, there had been a decrease. The explanation then suggested appears to be the correct one. A very large proportion of the deaths from Tuberculosis occur in institutions, many of which are outside the County and previous to 1911 very many of these were never included in the County returns. Making correction, as far as such is possible, for these, it is found that the death-rate from both Pulmonary and Non-Pulmonary Tuberculosis is still declining.

The work in the Public Health Departments continues to increase. Every year the Local Government Board adds to the list of Orders and Regulations which have to be administered by the County Council, chiefly through the County Medical Officer of Health. A few years ago conditions, affecting the population generally, and usually referred to as "insanitary," alone received consideration. Now Treatment of Disease as well as Prevention has to be organised and from birth to death every person will ere long be watched over by the Health Department. The time has arrived for a thorough re-organisation and I am glad that the County Council is taking advantage of my retirement to consider this very important question.

I have to thank the past and the present Chairman of the Public Health Committee for the interest they take in the sanitary administration of the County and for their kindness and courtesy whenever I have had to consult them.

I have the honour to be, Gentlemen,

Your obedient Servant,

JOHN C. THRESH.

September, 1916.

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REFERENCE TO VARIOUS DISTRICTS.

<i>Urban.</i>	Report printed, typed or manuscript	Nature of Report.	Pages containing reference to Reports.
Barking ...	Printed	Tables only	10, 44, 55, 57, 61.
Braintree ...	"	Full	10, 29, 44, 50, 53, 55, 57.
Brentwood ...	"	Brief	20, 21, 55, 57.
Brightlingsea ...	"	"	20, 22, 49, 55, 57.
Buckhurst Hill ...	"	"	20, 53, 55, 57.
Burnham ...	"	"	20, 45, 55, 57.
Clacton ...	Typed	"	10, 20, 29, 50, 55, 57, 61.
Chelmsford ...	Printed	- Full	20, 22, 25, 44, 50, 52, 55, 57.
Chingford ...	Typed	Tables only	10, 20, 22, 27, 45, 55, 57, 61.
Colchester ...	Printed	Full	19, 20, 21, 28, 44, 45, 49, 50, 55, 57.
Epping ...	Mss.	Tables only	20, 55, 57, 61.
Frinton-on-Sea ...	"	"	19, 20, 21, 22, 55, 57, 61.
Grays ...	Typed	Brief	19, 20, 44, 50, 55, 57.
Halstead ...	Printed	Full	19, 20, 30, 45, 50, 53, 57, 61
Harwich ...	"	"	10, 20, 53, 56, 57.
Ilford ...	"	Brief	20, 44, 50, 56, 57.
Leyton ...	"	"	20, 33, 44, 45, 49, 56, 57, 61.
Loughton ...	"	Fairly full	20, 56, 57.
Maldon ...	"	"	19, 20, 21, 45, 50, 56, 57.
Romford ...	"	"	20, 21, 30, 44, 45, 50, 53, 56, 57.
Saffron Walden ...	"	"	20, 49, 50, 56, 57, 61.
Shoebury ...	"	Brief	20, 56, 57.
Tilbury ...	"	Full	20, 30, 56, 57.
Waltham Holy Cross ...	"	Brief	20, 50, 53, 56, 57.
Walthamstow ...	"	"	20, 27, 30, 44, 45, 50, 56, 57, 62.
Wanstead ...	"	Fairly full	20, 53, 56, 57.
Witham ...	"	Full	20, 22, 53, 56, 57.
Woodford ...	"	Brief	20, 31, 44, 45, 56, 57.
Walton-on-the-Naze ...	Typed	"	19, 20, 56, 57, 61, 62.
Wivenhoe ...	Printed	"	20, 21, 56, 57.
<i>Rural.</i>			
Belchamp ...	Printed	Fairly fully	20, 45, 56, 57.
Billericay ...	"	"	20, 50, 52, 56, 57.
Braintree ...	"	Full	10, 20, 23, 31, 53, 56, 61.
Bumpstead ...	"	"	10, 20, 56, 58.
Chelmsford ...	"	Brief	20, 32, 52, 56, 58.
Dunmow ...	"	Full	20, 32, 50, 53, 56, 58.
Epping ...	"	Brief	20, 32, 56, 58.

REFERENCE TO VARIOUS DISTRICTS—*continued.*

<i>Rural.</i>	Report printed, typed or manuscript	Nature of Report.	Pages containing reference to Reports.
Halstead ...	Printed	Full	20, 22, 50, 52, 53, 56, 58.
Lexden & Winstree ...	Typed	Brief	10, 20, 32, 56, 58.
Maldon ...	Printed	Fairly full	19, 20, 21, 32, 50, 53, 56, 58.
Ongar ...	Typed	Brief	20, 21, 32, 45, 56, 58.
Orsett ...	Printed	Fairly full	19, 20, 45, 50, 56, 58.
Rochford ...	"	"	20, 32, 49, 55, 56, 58.
Romford ...	"	"	20, 33, 50, 52, 53, 56, 58.
Saffron Walden ...	"	"	10, 20, 21, 50, 53, 56, 58.
Stansted ...	Typed	Brief	10, 20, 21, 56, 58.
Tendring ..	"	"	20, 27, 56, 58.

SECTION I.

POPULATION OF THE ADMINISTRATIVE COUNTY.

The County of Essex now contains three County Boroughs, West Ham, Southend, and East Ham, and in the following statistics nothing is included relating to these Boroughs.

It is practically impossible to estimate the population of the Administrative County at the middle of 1915 as the military are excluded in the estimates. Fortunately the Registrar-General came to the rescue and submitted estimates for each district and these have been accepted.

POPULATION OF THE ADMINISTRATIVE COUNTY.

			1901.		1911.		1915.
Urban Districts	...	...	392,223	...	600,267	...	613,052
Rural Districts	...	...	237,140	...	265,384	...	254,342
Totals	...	...	<u>629,363</u>	...	<u>865,651</u>	...	<u>867,394</u>

After deducting the many thousands of men who had joined the Army by Midsummer, 1915, the Registrar-General thinks the population at that time exceeded the population at the 1911 census.

THE BIRTH-RATES.

The total number of births registered in the County was 17,602, against 18,705 in 1914, a decrease of over 1,000.

			1914.		1915.		Difference.
Urban Districts	...	...	13,495	...	12,821	...	— 674
Rural Districts	...	...	5,210	...	4,781	...	— 429
Totals	...	...	<u>18,705</u>	...	<u>17,602</u>	...	<u>—1,103</u>

There has been a much greater decrease in the Rural areas in proportion to the population than in the Urban areas. *Vide* Tables I. A. B. and C.

THE DEATH-RATES.

Whilst the birth-rate has decreased, the death-rate has increased and is now higher than for many years past. The causes of this will be referred to later.

The total number of deaths registered during 1915 was 11,358, of which 7,634 occurred in the Urban and 3,724 in the Rural districts.

			1914.		1915.		Difference.
Urban Districts...	..	...	6,698	...	7,634	...	+ 936
Rural Districts ...	...	...	3,277	...	3,724	...	+ 447
Totals...	...	...	<u>9,975</u>	...	<u>11,358</u>	...	<u>+1,383</u>

The decrease in the birth-rate and the increase in the death-rate means a loss to the County of 2,486 lives during 1915. The decreased birth-rate is probably due to the effect of the War. Urban and Rural districts are about equally affected so far as the increased death-rate is concerned. The following Tables give the birth-rates and death-rates for a series of years :—

TABLE I A.

VITAL STATISTICS OF WHOLE ADMINISTRATIVE COUNTY DURING 1915 AND PREVIOUS YEARS.

Year.	Population estimated to middle of each Year.	Nett Births.		Nett Deaths belonging to the County.			
		Number.	Rate.	Under 1 year of age.		At all ages.	
				Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1909	1,020,000	24,445	24.0	1,949	80	11,493	11.15
1910	1,041,280	24,077	23.1	1,815	75	10,776	10.35
1911	1,066,906	23,967	22.6	2,527	105	12,542	11.8
1912	1,086,340	23,562	21.7	1,660	70	11,384	10.5
1913	1,109,978	24,236	21.8	1,422	72	12,006	10.8
1914	1,043,446	22,141	21.2	1,680	76	11,503	11.0
1915	867,394	17,602	20.3	1,515	86	11,358	13.1

1915 Death-rate corrected for age and sex distribution, 12.7.

TABLE I B.

VITAL STATISTICS OF WHOLE OF URBAN DISTRICTS DURING 1915 AND PREVIOUS YEARS.

Year.	Population estimated to middle of each Year.	Nett Births.		Nett Deaths belonging to the District.			
		Number.	Rate.	Under 1 year of age.		At all ages.	
				Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1909	764,600	18,702	24.5	1,541	83	8,222	10.8
1910	777,490	18,428	23.7	1,421	77	7,773	10.0
1911	801,126	18,454	23.2	2,028	110	9,353	11.7
1912	825,535	18,301	22.2	1,318	72	8,286	10.0
1913	846,884	18,948	22.3	1,422	75	8,941	10.55
1914	778,447	16,931	21.75	1,229	78	8,226	10.6
1915	613,052	12,821	20.9	1,131	88	7,634	12.5

1915 Corrected for age and sex distribution, 13.0.

TABLE 1 C.

VITAL STATISTICS OF WHOLE OF RURAL DISTRICTS DURING 1915 AND
PREVIOUS YEARS.

Year.	Population estimated to middle of each Year.	Nett Births.		Nett Deaths belonging to the District.			
		Number.	Rate.	Under 1 year of age.		At all ages.	
				Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1909	255,400	5,746	22.5	408	71	3,272	12.8
1910	263,790	5,649	21.4	394	70	3,003	11.4
1911	265,780	5,513	20.7	499	90.5	3,189	12.0
1912	260,805	5,261	20.2	342	65	3,098	11.8
1913	263,094	5,288	20.1	337	64	3,065	11.6
1914	264,999	5,210	19.65	351	67	3,277	12.4
1915	254,342	4,781	18.8	384	80	3,724	14.6

1915 Death-rate corrected for age and sex distribution, 12.3.

A knowledge of the difference in the age and sex population permits of corrections being made which renders the results really comparable. When thus corrected the rates are :—

	1914.	1915.
In the Urban Districts ...	10.8	13.0
In the Rural Districts ...	10.5	12.3
In the Administrative County...	10.75	12.7

The difference between the Urban and Rural areas is therefore slight.

The nett death-rate for England and Wales, London, and a few English counties are given below for comparative purposes :—

	1915.
Administrative County of Essex ...	12.7
Essex ...	12.8
Middlesex ...	11.4
Surrey ...	13.3
Kent ..	14.8
Hertfordshire ...	13.9
Suffolk ...	15.0
Norfolk ...	14.9
London ...	13.9
England and Wales ...	15.1

DEATHS AT VARIOUS AGES.

INFANTILE MORTALITY.

The total number of births registered in the County was 17,602, and the deaths of children under one year of age 1,515, which gives 86 deaths per 1,000 children born. This is above the average of recent years, and the increase has been most marked in the Rural districts.

TABLE II.

INFANTILE MORTALITY.

Deaths of Infants under 1 year per 1,000 Births.

	1911.	1912.	1913.	1914.	1915.
Urban Districts	110	72	75	78	88
Rural Districts	90·5	65	64	67	80
Administrative County	105	70	72	76	86
England and Wales	130	95	109	105	110

The mortality amongst illegitimate children is always higher than amongst children born in wedlock. The number of illegitimate children born in Essex is much below the average for England and Wales. During 1915, there were 396 illegitimate births in the Urban districts and 207 in the Rural. The rate was higher in the country districts than in the towns, but so far as deaths are concerned the illegitimate child born in the country is far more likely to live than if born in a town. This is shown in the following Table:—

	Illegitimate birth-rate per 1,000 persons.	Infantile mortality per 1,000 births.
Urban Districts	·65	209
Rural „	·81	105
Administrative County	·7	171

The mortality amongst the illegitimate children is, therefore, more than double that of the legitimate.

In several districts the mortality has been very excessive.

URBAN.	Braintree	...	..	...	154
	Barking	...	...	...	115
	Harwich	...	...	...	108
	Clacton	...	..	...	108
	Chingford	...	...	...	105

RURAL:	Stansted	...	...	127
	Bumpstead	...	...	121
	Braintree	...	...	116
	Saffron Walden	...	...	103
	Lexden and Winstree	...	...	102

TABLE III.

DEATHS FROM DIFFERENT DISEASES AMONGST CHILDREN UNDER
1 YEAR OF AGE PER 1,000 BIRTHS.

	1915.		1914.		1913.	
	Urban Districts.	Rural Districts.	Urban Districts.	Rural Districts.	Urban Districts.	Rural Districts.
Prematurity of Birth ...	18·2	19·6	17·0	13·2	16·3	16·3
Congenital Defects	4·1	5·0	4·3	3·6	5·0	4·3
Convulsions ...	6·0	7·8	4·1	3·3	3·5	4·7
Diarrhoea and Enteritis ..	3·8	6·0	12·6	5·9	10·5	3·8
Debility, &c. ...	14·8	14·0	9·7	9·2	11·9	7·4
Tubercular Diseases ...	3·2	2·4	1·7	1·9	2·0	0·9
Injury at Birth ...	·9	2·1	·36	1·34	·6	·6
Whooping Cough ...	5·7	4·7	2·6	3·45	1·9	3·6
Pneumonia ...	13·9	13·0	7·7	5·4	7·2	6·2
Bronchitis ...	7·1	6·0	6·2	5·4	4·2	5·7

In both the Rural and Urban districts the deaths of infants from wasting diseases, and from pneumonia and bronchitis were much above the average.

Further details of the infantile mortality will be found in Table D in the Appendix.

TABLE IV.

DEATHS FROM VARIOUS CAUSES IN 1914 AND 1915 IN THE URBAN AND RURAL
DISTRICTS OF THE PRESENT ADMINISTRATIVE COUNTY,

The marked increase in the death-rate for 1915 renders it desirable that the various causes of death during that and the previous year should be compared so as to ascertain what diseases are responsible for the increase. This is done in the following Table :—

A study of which shows :—

1. That whatever caused the excessive mortality affected both the Urban and Rural districts and to approximately the same extent in proportion to the populations.
2. That very few causes of death showed a decrease, but amongst these are diarrhoeal disease, nephritis, alcoholism, and suicide.

3. That deaths due to diseases connected with pregnancy and child birth are not excessive.

4. That the causes of death responsible for the increased mortality are :—

Zymotic diseases including Influenza	...	371 increase over 1914.
Tuberculous diseases	..	173 " "
Bronchitis and Pneumonia	..	667 " "
Organic Heart Disease	...	111 " "
Total	...	1322

The above accounts for 1,322 out of the excess of 1,385.

Diseases.	Urban Districts.		Rural Districts.		Whole of present Administrative County.		Increase + or decrease — in 1915.
	1914.	1915.	1914.	1915.	1914.	1915.	
Small Pox, Enteric Fever, Measles, Whooping Cough, Scarlet Fever, Diphtheria	274	432	94	135	368	567	+ 199
Influenza	66	148	37	127	103	275	+ 172
Pulmonary Tuberculosis	506	580	193	205	699	785	+ 86
Tuberculous Meningitis	58	110	18	20	76	130	+ 54
Other Tuberculous diseases...	76	106	37	40	113	146	+ 33
Cancer	584	601	308	320	892	931	+ 39
Rheumatic Fever	19	35	10	2	29	37	+ 8
Meningitis	49	80	18	39	67	119	+ 52
Organic Heart Disease	704	788	369	396	1073	1184	+ 111
Bronchitis	520	709	236	379	756	1088	+ 332
Pneumonia	145	668	165	277	610	945	+ 335
Other Respiratory diseases...	90	86	34	34	124	120	— 4
Diarrhoea	222	182	55	64	277	246	— 31
Cirrhosis of Liver and Alcoholism	71	68	37	28	108	96	— 12
Nephritis	248	219	112	73	360	292	— 68
Accidents and Diseases of Pregnancy	43	50	23	25	66	75	+ 9
Premature Births, Congenital Debility	438	439	151	153	589	592	+ 3
Violent deaths...	185	218	86	88	271	306	+ 35
Suicides	46	29	15	12	61	41	— 20
Other causes	2051	2086	1279	1296	3330	3382	+ 52
Totals	6695	7634	3277	3723	9972	11357	+1385

Zymotic diseases and Influenza fluctuate greatly from year to year, therefore there is nothing surprising in the increased number of deaths from these causes.

The increase which requires accounting for is due almost entirely to diseases of the heart and lungs. It is not surprising that during such a year of stress and strain deaths from heart disease have increased in number, but at present it seems difficult to attribute the excessive number of deaths from Bronchitis and Pneumonia, and from tuberculous diseases to a similar cause. The only explanation which suggests itself is that the climatic conditions during 1915 were such as to cause an excessive prevalence of Influenza with resulting increased liability to bronchitis, pneumonia and phthisis.

During 1915 the roads did not receive as much attention as usual and the dust nuisance was unusually great and it is not beyond the bounds of possibility that the excessive amount of dust was responsible for some of the excessive mortality. Road dust not only contains irritating particles of mineral matter, but it is laden with microbes chiefly derived from horse manure. We placidly go on inhaling manurially contaminated dust, but we most strongly object to drink manurially polluted water, yet who can say that the one is less dangerous than the other. The time will come when we shall object as strongly to the one as to the other.

The increased mortality affected all ages, but children between 1 and 5 years of age and adults over 65 suffered most severely. No doubt the excessive mortality amongst children was due to the prevalence of Measles and Whooping Cough. These diseases caused 388 deaths in 1915 against 193 in 1914. As both these diseases often give rise to disease of the lungs, there is no doubt that some of the increased mortality from Bronchitis and Pneumonia was due to this cause.

The age distribution of the deaths during 1914 and 1915 is given in the following Table:—

	1914.		1915.		Increase in 1915.
Age under 1 year ...	1,413	...	1,515	...	102
Age between 1—5 years...	561	...	958	...	397
„ 5—15 „ ...	377	...	438	..	61
„ 15—25 „ ...	396	...	442	...	46
„ 25—45 „ ...	1,197	..	1,296	...	99
„ 45—65 „ ...	2,090	...	2,295	...	205
Ages 65 and upwards ...	3,938	...	4,413	...	475
	9,972		11,357		1,385

This Table confirms the results of the study of Table IV., indicating that the excessive mortality during 1915 was due to three distinct causes, one being the prevalence of Measles and Whooping Cough which directly and indirectly affected the mortality amongst children, another, the prevalence of Influenza and possibly some other cause, climatic or atmospheric, which affected the lungs of the community generally, and a third, probably the War, causing death from disease of the heart amongst the middle-aged and aged, but Influenza would be a contributory cause.

CANCER.

Table A in the Appendix records the deaths in each sanitary area classified according to diseases.

The number of deaths attributed to Cancer was 931, of which 601 occurred in the Urban districts and 330 in the Rural. The Cancer death-rate is the highest hitherto recorded.

CANCER DEATH-RATE PER 1,000 POPULATION.

	Administrative County.	England and Wales.
1871—80	... 48	... 47
1881—90	... 54	... 59
1891—1900	... 66	... 75
1901—1910	... 75	... 90
1911	... 91	... 97
1912	... 98	1.0
1913	... 1.0	1.05
1914	... 96	1.06
1915	... 1.07	

The average death-rate for the last five years is .99, a marked increase over the average for the preceding ten years.

The Table becomes more intelligible if fractions are avoided, and this can be done by comparing the death-rates per 100,000 population. On this basis during 1871-80 an average of 48 persons died from Cancer; from 1881 to 1890 the annual average was 54; from 1891 to 1900 it was 67; from 1901 to 1910 it had risen to 75, and during the past five years the average has been 98.

At the present time the mortality from Cancer is twice as high as it was in the decennial period 1871-80; in other words, it has doubled in about 40 years. No other single disease causes so many deaths save Tuberculosis.

TUBERCULOUS DISEASES.

(a) PULMONARY TUBERCULOSIS.

It has already been mentioned that the mortality during 1915 from all diseases of the lungs has been very excessive, and that Pulmonary Tuberculosis has participated in this increase.

Possibly it is a matter for congratulation that the increase in the number of deaths from Phthisis is not greater, but as it is a disease which is not nearly so rapidly fatal as Bronchitis and Pneumonia, it is probable that the influences which caused the excessive mortality from Bronchitis and Pneumonia will increase the death-rate from Phthisis for the next two or even three years.

The following Table shows the marked manner in which the death-rate has been affected by Tuberculosis of the Lungs, Bronchitis, Pneumonia, and other Respiratory diseases.

TABLE V.

DEATH-RATE FROM DISEASES OF THE LUNGS PER 100,000 POPULATION,
1910 TO 1915.

Year.	Pulmonary Tuberculosis.	Bronchitis.	Pneumonia.	Other Respira- tory Diseases.	Totals.
1910	75	83	57	9	224
1911	80	80	71	12	243
1912	73	78	56	12	219
1913	76	78	69	14	237
1914	80	87	72	14	253
Average for 5 years ...	77	81	65	12	235
1915	91	126	110	14	341

Deaths from Bronchitis exceeded the average by 55 per cent.

„ „ Pneumonia „ „ „ 69 „
 „ „ P. Tuberculosis „ „ „ 18 „

The next Table shows that until 1911 deaths from Pulmonary Tuberculosis were continually decreasing, but that since that date the tendency is obscured.

TABLE VI.

DEATHS PER 100,000 POPULATION FROM PHTHISIS.

Year.	Urban Areas.	Rural Areas.	Administrative County.
1891—1895	117	110	115
1896—1900	103	91	100
1901—1905	86	82	85
1906—1910	81	73	79
1911—1915	84	71	81

Of the 785 deaths from Phthisis, 46 occurred in the London Hospitals, over 80 occurred in the West Ham Poor Law Infirmary (Leyton), 26 in the Brentwood Asylum, 12 in the Colchester Asylums, and 17 in the Romford Workhouse Infirmary.

Altogether 464 deaths from Phthisis occurred in public institutions in the County, but many of these belonged to East Ham. The following is a Table corresponding with one prepared by the Chief Medical Officer of the Local Government Board.

TABLE VII.

PROPORTION OF TUBERCULOUS PATIENTS SENT TO RESIDENTIAL INSTITUTIONS
IN 1915.

	Essex, 1915.		England and Wales, 1914.	
	Pulmonary Tuberculosis.	Non-pulmonary Tuberculosis.	Pulmonary Tuberculosis.	Non-pulmonary Tuberculosis.
Per 100 deaths from Tuberculosis	62	8.5	51	8
Per 100 primary notifications	30	4.5	25	4
Per 100 new cases dealt with at Dispensaries	54	21	—	—

Apparently therefore a larger proportion of patients are sent to Residential Institutions in Essex than in the country as a whole.

On Jan. 1st, 1911, the Registrar-General commenced to notify to Medical Officers of Health all deaths which belonged to their districts which occurred in these Institutions whether inside or outside the County. Many of these would otherwise escape registration in their proper localities, and as they were always deducted from the returns of the Medical Officer of Health for the district in which the deaths actually occurred, they were not included in the County returns. How many such deaths occurred in 1911, 1912 and 1913 I cannot ascertain; but in 1914, 72 deaths, and in 1915, 82 such deaths occurred. Obviously this explains the apparent increase since 1911. These deaths average about 10 per cent. of the whole, and if Table VI. is corrected by adding 10 per cent. to the rates from 1891 to 1910 it is seen that there has been a marked fall since 1910.

CORRECTED DEATH-RATES PER 100,000 POPULATION FROM PHTHISIS.

1891—5	...	...	...	126
1896—1900	...	...	...	110
1901—1905	...	...	...	94
1906—1910	...	...	...	87
1911—1915	...	...	...	81

Of course, this does not account for the increase during the year 1915, but the cause of this has already been explained. It is one almost entirely beyond our control.

(b) NON-PULMONARY TUBERCULOSIS.

The death-rate from Non-pulmonary Tuberculosis is undoubtedly decreasing, and at so marked a rate as to be obvious even if no correction is made for the deaths which occur in the London and other Hospitals. Forty-two such deaths occurred in 1915; 36 in London Hospitals and 6 in the County Asylums. This is no less than 19 per cent. of the deaths which were registered locally. In the following Table the crude and the corrected death-rates are given. The rates for 1901-1910 are not included as the records are imperfect.

TABLE VIII.

DEATHS PER 100,000 POPULATION FROM NON-PULMONARY TUBERCULOSIS.

	Urban areas.	Rural areas.	Administrative County.	
			Crude.	Corrected.
1901-5	41	37	40	45
1906-10	37	31	36	40
1911-15	32	24	30	30

There was an increase in 1915 over the number for 1914, but the rate was lower than in 1913, so that there has not been such an exceptional increase of deaths from Non-pulmonary Tuberculosis as of deaths from the pulmonary form of the disease. The following Table is compiled from the Registrar's returns and not from the returns of the Medical Officers of Health, and shews that nearly half the deaths from non-pulmonary Tuberculosis are due to the attacks of the tubercle bacillus on the brain, and that this is true both in Urban and Rural districts. It also shews that two-thirds of the deaths occur amongst children under 15 years of age.

TABLE IX.

NUMBER OF DEATHS FROM NON-PULMONARY TUBERCULOSIS DURING
THE YEAR 1915.

	Urban districts.		Rural districts.		Administrative County.		Totals.
	M.	F.	M.	F.	M.	F.	
General Tuberculosis... ..	22	29	5	2	27	31	58
Cerebral „	58	40	11	9	69	49	118
Tub. of Lymphatic System	11	10	3	7	14	17	31
„ Alimentary Canal	12	9	2	0	14	9	23
„ Genito-urinary System	2	1	1	2	3	3	6
„ Bones and Joints	9	4	8	2	17	6	23
„ of other organs	3	3	1	1	4	4	8
	117	96	31	23	148	119	267
Deaths under 15 years of age	163		30		193		
„ over „	50		24		74		
Totals	213		54		267		

THE PRINCIPAL ZYMOTIC DISEASES.

TABLE X.

The deaths from the principal Zymotic diseases were as under:—

	Urban districts.	Rural districts.	Administrative County.
Small-pox	0	0	0
Scarlet Fever	28	9	37
Diphtheria	88	39	127
Enteric Fever	12	3	15
Puerperal Fever	12	3	15
Diarrhœa, Epidemic	182	64	246
Total	322	118	440

The numbers which occurred in each Sanitary District are given in Table B in the Appendix.

Measles caused 165 deaths in the Urban districts and 45 in the Rural. Total 210.

Whooping Cough caused 139 deaths „ 39 „ „ 178.

Influenza „ 145 „ „ 127 „ „ 272.

In 1914, Measles caused only 102 deaths, Whooping Cough only 121, and Influenza only 107, a total of 333 for the year against 660 in 1915.

There is a double significance in these figures. They show that there was an excessive mortality during the year from these diseases, and besides the deaths due to the immediate effect of these diseases, it is inevitable that a considerable number of survivors will as the result of the attack be more liable to contract Pulmonary Tuberculosis, hence the effect is one which will be felt for years to come. The immediate effect is reflected in the death returns for the year, the remote effect will be reflected in the future returns.

The importance of attempting to control one of these diseases (Measles) is referred to in a later section.

SECTION II.

PREVALENCE OF INFECTIOUS DISEASES.

TABLE XI.

The number of cases of disease notified during 1915 as compared with 1914, and excluding Tuberculosis, were as under :—

Year.	Small-pox	Scarlet Fever.	Diphtheria.	Enteric Fever.	Puerperal Fever.	Cerebro-spinal Fever.	Poliomyelitis.	Ophthalmia Neonatorum.	Totals.
1914	0	2,699	1,291	186	40	5	12	90	4,323
1915	1	2,927	1,173	74	25	95	11	69	4,375

There was a slight increase in the prevalence of Scarlet Fever, a marked increase of Cerebro-Spinal Fever, and a marked decrease of Typhoid Fever, Puerperal Fever and Ophthalmia Neonatorum.

The incidence in the various localities is shewn in Table C in the Appendix and in Table XII. from the Local Government Board's return for 1915.

SMALL-POX.

Only one case occurred. It was notified at Grays and was imported from abroad.

I was called in consultation to see six suspected cases of Small-pox amongst the Military. A negative diagnosis was given in each case, but in two cases the patients were isolated for a considerable period as the Medical Attendants regarded the cases with grave suspicion.

SCARLET FEVER.

The average attack rate for the whole population was 3·38 per 1,000, and this was markedly exceeded in the following districts:—

URBAN.

Walton-on-the-Naze ...	24·14	Maldon ...	8·02
Halstead ...	18·5	Colchester..	7·08
Frinton...	...	...	6·82.

RURAL.

Orsett ...	7·47	Maldon ...	6·85
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TABLE XII.

NOTIFICATIONS OF INFECTIOUS DISEASE AND ATTACK-RATES, 1915.

	Estimated Population in the middle of 1915.	Small-pox.		Scarlet Fever.		Diphtheria.		Enteric Fever.		Puerperal Fever.		Erysipelas.	
		Cases.	Rate.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.
ADMINISTRATIVE COUNTY ...	860,695	1	0.00	2,911	3.38	1,212	1.41	97	0.11	24	0.03	488	0.57
COUNTY BOROUGHs.													
East Ham ...	142,582	...	...	496	3.48	207	1.45	5	0.04	4	0.03	96	0.67
Southend-on-Sea ...	76,382	...	...	159	2.08	70	0.92	7	0.09	7	0.09	29	0.38
West Ham ...	294,396	...	...	733	2.49	475	1.62	54	0.18	8	0.03	228	0.77
AGGREGATE OF BOROUGHs AND URBAN DISTRICTs.	608,752	1	0.00	2,044	3.36	926	1.52	68	0.11	20	0.03	387	0.64
AGGREGATE OF RURAL DIS- TRICTs.	251,943	...	...	867	3.44	286	1.14	29	0.12	4	0.02	101	0.40
BOROUGHs AND URBAN DIS- TRICTs:—													
Barking Town ...	84,479	...	...	138	4.00	74	2.15	5	0.15	...	...	48	1.39
Braintree ...	6,375	...	...	23	3.61	11	1.73	1	0.16	1	0.16	1	0.16
Brentwood ...	6,255	...	...	3	0.48	21	3.36	...	...	...	...	3	0.48
Brightlingsea ...	4,370	...	...	9	2.06	...	...	4	0.92	...	...	3	0.69
Buckhurst Hill ...	4,770	...	...	2	0.42	2	0.42	...	...	...	...	...	...
Burnham-on-Crouch ...	3,183	...	...	...	...	...	...	...	...	...	...	...	...
Chelmsford ...	19,833	...	...	43	2.17	32	1.61	...	...	3	0.15	7	0.35
Chingford ...	9,078	...	...	32	3.52	8	0.88	5	0.55	...	...	3	0.33
Clacton ...	9,127	...	...	10	1.10	1	0.11	...	...	...	...	2	0.22
Colchester ...	38,699	...	...	274	7.08	43	1.11	10	0.26	1	0.03	43	1.11
Epping ...	4,120	...	...	5	1.21	2	0.49	...	...	1	0.24	1	0.24
Frinton-on-Sea ...	1,614	...	...	11	6.82	...	...	1	0.62	...	...	2	1.24
Grays Thurrock ...	16,083	1	0.06	45	2.80	24	1.49	2	0.12	2	0.12	1	0.06
Halstead ...	5,891	...	...	109	18.50	3	0.51	...	...	...	...	...	...
Harwich ...	11,984	...	...	37	3.09	10	0.83	4	0.33	...	...	4	0.33
Ilford ...	80,832	...	...	223	2.76	124	1.53	4	0.05	...	...	45	0.56
Leyton ...	124,497	...	...	465	3.74	168	1.35	8	0.06	6	0.05	79	0.63
Loughton ...	5,642	...	...	...	...	5	0.89	...	...	...	...	4	0.71
Maldon ...	5,736	...	...	46	8.02	3	0.52	...	...	...	...	1	0.17
Romford ...	17,985	...	...	55	3.06	60	3.34	3	0.17	1	0.06	19	1.06
Saffron Walden ...	5,544	...	...	12	2.16	...	...	...	...	...	...	5	0.90
Shoeburyness ...	4,590	...	...	7	1.53	4	0.87	1	0.22	1	0.22	6	1.31
Tilbury ...	6,330	...	...	31	4.90	14	2.21	...	...	1	0.16	8	1.26
Waltham Holy Cross ...	7,294	...	...	9	1.23	2	0.27	...	...	...	...	4	0.55
Walthamstow ...	131,718	...	...	316	2.40	266	2.02	11	0.08	3	0.02	73	0.55
Walton-on-the-Naze ...	2,030	...	...	49	24.14	...	...	...	...	...	...	2	0.99
Wanstead ...	15,635	...	...	15	0.96	14	0.90	1	0.06	...	...	5	0.32
Witham ...	3,327	...	...	1	0.30	11	3.31	6	1.80	...	...	8	2.40
Wivenhoe ...	2,303	...	...	6	2.61	13	5.64	1	0.43	...	...	...	...
Woodford ...	19,428	...	...	68	3.50	11	0.57	1	0.05	...	...	10	0.51
RURAL DISTRICTs:—													
Belchamp ...	4,252	...	...	1	0.24	...	...	...	...	...	...	1	0.24
Billericay ...	19,221	...	...	65	3.38	29	1.51	1	0.05	...	...	8	0.42
Braintree ...	17,764	...	...	68	3.83	22	1.24	1	0.06	...	...	7	0.39
Bumpstead ...	2,338	...	...	2	0.86	2	0.86	...	...	...	...	...	...
Chelmsford ...	22,661	...	...	50	2.21	25	1.10	...	...	...	...	9	0.40
Dunmow ...	14,944	...	...	41	2.74	23	1.54	...	...	...	...	8	0.54
Epping ...	13,828	...	...	54	3.91	7	0.51	1	0.07	...	...	4	0.29
Halstead ...	2,644	...	...	19	1.97	3	0.31	7	0.73	...	...	2	0.21
Lexden and Winstree ...	18,946	...	...	82	4.33	18	0.95	2	0.11	1	0.05	1	0.05
Maldon ...	15,339	...	...	105	6.85	11	0.72	2	0.13	1	0.07	5	0.33
Ongar ...	10,047	...	...	24	2.39	12	1.19	...	...	...	...	7	0.70
Orsett ...	19,948	...	...	149	7.47	31	1.55	5	0.25	1	0.05	2	0.10
Roehford ...	19,015	...	...	48	2.52	4	0.21	2	0.11	1	0.05	16	0.84
Romford ...	26,692	...	...	85	3.18	41	1.54	1	0.04	...	...	21	0.79
Saffron Walden ...	10,139	...	...	23	2.27	21	2.07	...	...	...	...	2	0.20
Stansted ...	6,956	...	...	9	1.29	26	3.74	...	...	...	...	...	...
Tendring ...	20,209	...	...	42	2.08	11	0.54	7	0.35	...	...	8	0.40

The outbreak at Walton was undoubtedly due to infected milk. That such was the case was speedily discovered, and when the supply of milk from the implicated farm was stopped, the epidemic rapidly subsided.

At Halstead the epidemic commenced in October, and Dr. Roberts (Acting M.O.H. during temporary absence of Dr. Smith), came to the conclusion that the disease was first spread by a Circus and later by the Cinema Entertainments.

"The first case notified was on October 6th, and on October 26th a lad of 14 was discovered peeling, who had been ill for a few days three weeks previously, and had since then been employed in sorting and distributing handbills round the town! The question of milk supply and school infection were both exhaustively investigated without result. Dr. Roberts states:—"A travelling Circus came to the town on October 27th, and a large number of the later cases had visited it. A good portion of the other cases are fairly regular Cinema visitors; and these must be reckoned subsidiary causes of the rapid spread, especially as the manager of one of the Cinemas in the town had three children ill and one lad going about peeling at the time of my first visit. It is interesting to note that in several houses there was certainly a dual infection, several persons having a strongly Septic Tonsillitis, whilst other members of the family had true Scarlet Fever."

MALDON. The outbreak is said to have been due to the spread of infection from the Rural district.

COLCHESTER. There was no definite epidemic at any time; there was a considerable number of cases in practically every month of the year. Besides the cases amongst the civil population, 103 soldiers were attacked.

FRINTON. No report received.

ORSETT R. Outbreaks occurred in West Thurrock, South Ockendon and Horndon. The spread was amongst the school children.

MALDON R. Seventy-four out of the 102 cases notified occurred in Great Totham, Tollesbury and Tolleshunt D'Arcy. It spread owing to mild cases not being recognized. "Owing to overcrowding of the Hospital and the presence of Septic cases an unusual number of return cases occurred."

DIPHTHERIA.

The attack rate for the whole Administrative County was 1.41 per 1,000 population, and this was greatly exceeded in the following districts:—

<i>Urban.</i>			<i>Rural.</i>		
Wivenhoe ...	...	5.64	Stansted ...	...	3.74
Brentwood ...	...	3.36	Saffron Walden ...	...	2.07
Romford ...	...	3.34			

WIVENHOE. Apparently a school outbreak.

BRENTWOOD. No reference in the Annual Report.

ROMFORD. The Medical Officer of Health says:—

"I attribute the unusually large number of cases to (1) personal infection by a prior case in the family, not recognized; and (2) to infection by an unrecognized case attending school. Twenty-four cases occurred in six families where a previous unrecognized case had existed, and in several instances children have been found attending school whilst suffering from

an unsuspected and mild attack of Diphtheria. I cannot but think that this danger is much increased by the fear of children losing a prize for regular attendance prompting parents to send their children to school whilst possibly suffering from an Infectious Disease, I have communicated with the Education Authority advising the discontinuance of awarding prizes for regular attendance."

STANSTED R. No Report.

SAFFRON WALDEN R. Fourteen occurred during the summer in Great Chesterford, and one in Little Chesterford. Six occurred in Newport in December.

ENTERIC FEVER.

The average rate was only .11 per 1,000 population, but this was greatly exceeded in the following areas:—

<i>Urban.</i>		<i>Rural.</i>	
Brightlingsea ...	.92	Chingford ...	.55
Frinton ...	.62	Halstead ...	.73
		Witham ...	1.80

BRIGHTLINGSEA. Four cases occurred here, but the Medical Officer of Health makes no reference to them.

CHINGFORD. Five cases here but not referred to.

FRINTON. No report to hand.

WITHAM. The Medical Officer of Health says:—

"The cases all arose in one outbreak, the most probable cause of which was the eating of sewage polluted watercress. . . . The friends of the first case refused to let her be removed to hospital at once, and some of the others were infected while nursing her."

HALSTEAD R. Five of the seven cases which were notified here arose in Castle Heddingham, where an outbreak occurred in 1914. The attention now being given to the water supply will, it is hoped, prevent any recurrence of the disease.

CEREBRO-SPINAL FEVER.

Sixty-one cases of this disease were notified in the Urban District and 34 in the Rural. This return refers to the civil population only. In 11 Urban and 7 Rural Districts no case occurred; in 5 Urban Districts only a single case was notified. In proportion to the population far more cases occurred in Chelmsford Borough and in Stansted Rural District than elsewhere in the County,

CHELMSFORD. There was an epidemic outburst amongst both the civil and military population, the first case occurring at the end of January and the last at the end of March. The Medical Officer of Health notified the Local Government Board and the County Council, and arranged a conference of Sanitary and Military officials. The Joint Hospital Board converted a private house into a special hospital,

and the energetic action of the sanitary authorities was apparently successful, as the outbreak soon came to an end. Dr. Newton observes: "It is an interesting fact, so far as the Borough is concerned, how extremely non-infectious and non-contagious this epidemic proved to be. In no instance did two cases occur in the same house, even if the house was in the least degree overcrowded."

As an Epidemic threatened in the County generally, the County Council arranged for the taking of specimens of cerebro-spinal fluid for diagnostic purposes, and for the free examination thereof. Special sprays with appropriate antiseptic solutions were supplied for the use of contacts, and bacteriological examinations were made of the mucus from the naso-pharynx in many cases.

The appended notice was sent to every medical man in the County through the District Medical Officers of Health:—

"CEREBRO-SPINAL MENINGITIS.

"This rapidly fatal disease is showing a tendency to become widespread in the County, and I am desired by the County Council to inform you that if you have any case which you suspect may be this disease, and desire a lumbar puncture to be made to clear up the diagnosis, I am empowered to send over a competent person to do this and to take swabs from close contacts. The results of the examination would be communicated at the earliest possible moment."

MEASLES.

At length an organized effort is to be made to control this disease, the Local Government Board having issued an Order rendering it compulsorily notifiable. The Order came in force on Jan. 1st, 1916. Dr. Smith, the Medical Officer of Health for the Braintree and surrounding districts, has dealt with this subject so concisely and lucidly in his annual reports that I offer no apology for reproducing his report here, especially as his remarks apply to all districts, Urban or Rural:—

"Under the new Order the cost is much diminished, and any action to be taken is to be more practical than has previously been possible. The notification fees are only to be paid for the first case occurring in each house, and then only if it has not been notified by the parent or an officer (such as a nurse) of the Council. It follows, therefore, that the more efficient is the following up and investigation of an outbreak by the Council's officers, the larger the proportion that will be discovered by them, and the less will be the cost of notification fees.

"Some of the hindrances to success in dealing with measles under the old procedure have been that:—

- (i.) The disease is very infectious in its very early stages before its nature is evident, so that by the time a case is heard of it is too late to stop the spread of infection.

- (ii.) The carelessness of parents in regarding measles as an unimportant illness and in not obtaining medical advice.
- (iii.) The idea that it is best for all the children of a family to have it at an early age and get it over.

"(I.) Under the new procedure it is recognised that the main attempts must *in the first instance* be directed to reducing the number of cases that die or are permanently injured, rather than the number of cases that occur. It is not intended that the majority of cases should be treated in hospital, but that sanitary authorities should be prepared when necessary to appoint nurses to visit and supervise the treatment and isolation of cases in their own homes.

"(II.) The fact that the duty is now thrown upon the parents of notifying will in time impress upon them the importance of the disease, especially if administrative action follows.

"It is, I think, entirely due to the fact that it is notifiable and followed by administrative action that so much more attention is paid to scarlet fever by parents than to measles, while scarlet fever causes 2,000 deaths a year to 11,000 from measles in England and Wales.

"When cases can be visited, the importance of the disease can be explained to the parents and the necessity of taking precautions and obtaining medical advice.

"(III.) The number dying of measles out of a given number attacked decreases very rapidly with advancing age of attack, and after five years of age is almost negligible as a cause of death. This can be more clearly shown from the following table:—

Of every 100 children who develop measles at age:	{	up to 1 year	...	15 die.
		1 to 2 years	...	10 „
		2 to 3 „	...	3 „
		3 to 4 „	...	2 „
		4 to 5 „	...	1 „

"The risk of death is therefore fifteen times as great in a child under twelve months as in a child of five years, and yet parents still say, 'let them all have it while they are young and get it over.' Nothing could be more disastrous.

"Coming to the question of the necessity for any action in our own district, the number of deaths certified as having occurred from measles in the past ten years has only been the two referred to above.

"It is quite probable that this disease has in reality occasioned more deaths than that, as it is the fore-runner of many fatal conditions (such as bronchitis, pneumonia, general tuberculosis), in which the real cause,

measles, does not appear upon the death-certificate; and it must not be forgotten that the above figures do not take into consideration the amount of permanent injury to physical fitness from running ears, deafness, adenoids, defective eyesight, etc., which Measles leaves in its trail.

He next refers to the action to be taken, and this applies to small Urban and to Rural areas more particularly.

"In making any suggestions under this heading one immediately meets a practical difficulty in the way, viz.: the irregularity in the amount of work to be done, as Measles is frequently entirely absent from the district for considerable periods and then recurs in almost explosive outbreaks. The Council should, I think, be prepared to authorise the Medical Officer of Health to engage temporarily a suitable nurse or lady visitor *if an outbreak of serious nature should arise* in any part of the district, or make some arrangements with the District Nursing Association for supervising the home nursing of the younger children attacked, especially with the shortage of medical men at the present time. I think that at other times circulars should be sent to parents in cases where notification is made by them and not by the doctor; and that enquiries should be made for the discovery of cases which the parents have omitted to notify, in conjunction with the Head Teachers of the Schools and the School Attendance Officer, who might be asked if they will kindly point out the penalty for not notifying, thus gradually educating the more careless of the parents into a knowledge of their responsibilities."

INFANT WELFARE.

On September 14th, 1915, a Conference of Representatives of Sanitary Authorities was held in the Shire Hall, Chelmsford, and presided over by Mr. W. S. Chisenhale-Marsh, who at that time was Chairman of the County Public Health Committee and who is now the Chairman of the County Council.

The following report on the Conference is from the "East Anglian Daily Times," of September 15th, and gives an excellent account of the meeting.

"The Chairman said they were met to ascertain the wishes of the Authorities as to the carrying out of the Act; whether the various Authorities should do it themselves, or whether the County Council should work it. Personally he felt that where big Urban Authorities had started it would be a great pity if they should not continue to look after their own affairs, for the County Council had plenty of work to do and were not anxious for any further work.

"Dr. Thresh explained that under the Act the birth of a child must be notified within 36 hours. Recent events would, he thought, have convinced everyone that success in any domain could only be achieved when their efforts were scientifically directed. When he said "scientifically" he meant systematically, for science signified system and commonsense, as contrasted with "happy-go-lucky, unsystematic, rule-of-thumb" methods, which were unscientific. In dealing with

poverty, crime, and disease, the latter methods had been in vogue too long in this country. Prevention had been left in a great measure to erratic voluntary effort, whilst the State had directed its attention chiefly to punishment and cure. Comparatively little effort had been directed towards preventing children becoming mental, moral, or physical derelicts, and when they had become such they had not blamed themselves, but they had blamed and punished the victims. He hoped and believed it was not now too late to start afresh, and on scientific lines. Parliament had put into their hands a powerful weapon, which, if properly used, would relieve them of enormous burdens in the future, and enable them to rear up a more virile race to uphold our civilisation and the best and most honourable traditions of this great Empire. By giving attention to the prospective mother to the mother and infant at, and after, birth, and following up the child during its period of development, they would save many lives, and secure a higher average of health, and be able to combat mental and moral defects in their earliest stages, and thus, in the future, decrease expenditure for the detection of crime, the provision of prisons, hospitals, sanatoria, asylums, and Poor-law institutions. At this meeting they could only discuss the first steps to be taken, but this was of the utmost importance, since future developments would depend greatly upon the decisions arrived at that day. Most of the Authorities in the County had already provided addressed postcards for the notification of births, but obviously these notifications must be utilised in some way, or notification became a farce and a waste of time and money. What should be done would be better understood if they considered the real objects of the Act. From the public health point of view the object of the Act was to reduce the mortality amongst infants, and the excessive mortality which now prevailed depended upon two groups of causes:—(1) Those which acted upon the child before birth; (2) those which acted after birth. In Essex, out of every 100 deaths of infants under one year over 30 were infants who died before they attained the age of one week, and they might conclude that the cause in nearly all the cases acted upon the child before birth. The care of the mother before birth might result in a large increase in the number of children born and who would survive. The notification of births alone would not help them in this direction, but gradually the machinery which should be set in motion to prevent the deaths of children born could be utilised so as to assist in securing the birth of healthy infants. Of all children actually born alive, one out of every thirteen died before it attained one year of age in Essex (in the whole of England and Wales one out of every nine or ten died), but in others only one out of every eighteen or nineteen died. It was obvious that in certain areas there was an excessive mortality, and it was equally certain that in all areas the mortality was capable of reduction.

“After dealing with causes of excessive mortality, Dr. Thresh went on to say that to combat these advice and assistance were required. The former could be given by properly qualified female health visitors and the latter by the Authorities who administered the Act. It followed, therefore, that when the Sanitary Authority received notice of the birth of a child the Medical Officer should have at his disposal a Nurse or Health Visitor, who could visit the home, if deemed desirable, and give instructions to the mother, if this were found necessary. The very fact of such a visit being made would impress parents with the necessity for taking care, and young

mothers would be most likely to give heed to any advice tendered to them. He suggested that in the first instance Health Visitors be appointed, but by whom it was for the Conference to decide. Each Authority could appoint its own, and the Health Visitor might be capable of proving a valuable assistant to the Sanitary Inspector and the Medical Officer, but in most districts there would not be enough work for whole-time visitors. He was inclined to think that the County Council should undertake the work in all the Rural districts and in small Urban districts, say, under 10,000 population, and appoint Health Visitors for the different areas. In subsequent developments, the provision of midwives, maternity centres, provision of hospital beds for cases of difficult or obstructed labour, &c., the County Council should be able to do this more efficiently and economically than could thirty or forty different Authorities. Some arrangement with the Education Authority would be absolutely necessary, and this must be done through the County Council. Midwives inspection, visiting tuberculosis patients, visiting of mothers and infants, and the visiting of school children, all wanted linking up together, both to minimise cost and to reduce the number of officials required, and to secure uniformity, continuity, and maximum efficiency. It was better to begin now on such systematic lines than for a number of departments and separate Authorities to develop the work on haphazard lines, which at a later date would have to be co-ordinated. (Applause.)

" Dr. Atkinson, of Saffron Walden, said they must bear in mind this was not a period in which they should embark upon very great expense. (Hear, hear.) Still these were times when they should attempt to save lives, and limit the waste of life in all directions.

" Miss Bondfield, of the Women's Co-operative Guild, said that she represented a body of working class mothers, who had really been agitating for this help for the last five years. They had become conscious of the need for some expert guidance and expert help during the period of motherhood. No voluntary help could take the place and give that feeling of confidence which would come from a trained Health Visitor.

" The Rev. R. B. Tollinton (Tendring District Council), expressed the view that in the smaller districts centralisation was more desirable, but he hoped that a centralised system would work through local agents.

" Dr. Clark, of Walthamstow, said that his district would prefer to administer the Act, but he would like to know if they would have to contribute towards any county rate made for the purpose of administering the Act.

" The Clerk (Mr. J. H. Goold) said that if the Act was adopted for only half the County the expenses would be treated as " special " expenses.

" The Chairman : And that would not charge the Authorities which stood out.

" Mr. G. W. Taylor, Mayor of Chelmsford, said that personally he was rather surprised the Local Government Board should push this matter forward at the present moment—(hear, hear)—as there was plenty of occupation for medical men,

and also in view of the Treasury circular as to keeping down expenditure. It was a very inopportune time to bring this matter forward.

" Dr. Thresh, in reply to a question, said that he was not certain from a study of the Act that they were bound to do anything, but obviously the Act was passed for a purpose.

" Dr. Laver, of Colchester, said they had adopted the Act, and would very much prefer to conduct their own business, as they thought they could do it quite as well as the County.

" Mr. E. J. Seear, C.C., said he was rather sorry to hear the view expressed that this was an inopportune time to bring forward this matter. Personally he thought it was the right time, considering the great wastage of life that was going on. (Hear, hear.)

" Mr. Taylor said that he based his remarks on what the Medical Officer of Health for Chelmsford said as regarded that Borough. The Medical Officer of Health considered that owing to its size, the small birth-rate, and absence of overcrowding, the Act was unnecessary for Chelmsford.

" Mr. G. Melvin, Town Clerk of Chelmsford, pointed out that if a Health Visitor was appointed by any Authority she would have no power to enter a house except with the permission of the occupier.

" After further brief discussion the Chairman said that the Public Health Committee would send a circular to each Authority in the County, asking whether they would like the County Council to administer the Act, or whether the Local Authority would administer it. Judging from the views expressed, it appeared that the big areas were quite confident they could carry out the Act, certainly as well, if not better, than the County, and he was inclined to agree with them. The difficulty, of course, would be in the scattered areas.

After the meeting the Clerk communicated with all the Sanitary Authorities in the County asking if they wished the County Council to administer the Act or would prefer to administer it themselves. On November 25th the Clerk reported that he had received replies from all the Authorities concerned with the exception of one or two and that an overwhelming majority were in favour of retaining in their own hands the powers and duties under the Act. It was then

Resolved—That the County Council be recommended not to adopt the Act for the County or any part thereof.

Further the Clerk was instructed to communicate the decision of the Council to the Local Authorities in the County.

The decision, however, is probably not final as since my resignation was tendered I have advocated that my successor should be responsible not only for the Public Health and Tuberculosis administration, but also for the Medical Inspection of School Children, and the Supervision of Midwives, and that a staff of nurses should be

employed who would undertake with their other duties the visiting of mothers, infants, &c. This suggestion is being considered by the Public Health and Education Committees. All the advice I have given to the Rural and small Urban Authorities has been based on the assumption that sooner or later the County Council will supervise the Infant Welfare work in all but the largest centres.

It is a curious fact that the subject of Infant Welfare is referred to in comparatively few reports. The explanation probably is that the infantile mortality in many parts of Essex is very low, and taking the County as a whole the rate is low compared with England and Wales. In many districts the members of the medical profession have expressed the opinion that no action on the part of the Sanitary Authority is needed, and that it would be a waste of money to appoint Health Visitors. Naturally the opinion is reflected in the action of the District Councils. In some areas the infantile mortality rate, taking an average of several years, is only between 50 and 60 per 1,000 births, and it is obvious that if proper action were taken it should be possible to reduce it to this figure in practically all districts. Even 50 to 60 is too high. Efficient supervision of expectant mothers would also prevent many still-births and many of the accidents of child-birth and so increase the birth rate and lower the mortality rate.

The following quotations from the Annual Reports shew the diverse views of the Medical Officers of Health.

BRAINTREE U. The infantile mortality during the year was very high indeed, 154 per 1,000 births. "No less than 12 of the 17 deaths occurred above the age of one month, largely from diseases of the respiratory organs. It is just these deaths during the later months, and from these diseases which do not occur among the children of people in better circumstances, which must be looked upon as preventable.

"I think it probable that part of the increase in the infant death-rate may have been due to the crowding into private houses of so many troops last winter, but this is a statement which it is difficult to prove or disprove.

"Arrangements should be made if possible with the existing Nursing Association in the town to visit and advise parents, and supervise the health of the babies until they are a year old.

"By this means a great deal of useful information could be obtained as to the proportion of confinements actually attended by medical men and midwives, and the facilities which exist for the nursing of the babies during the lying-in period and afterwards."

CLACTON. "The Notification of Births Act has been operative here since 1911, and our kind Health Visitor does all she can for the mothers and children. We ought to do something for expectant mothers . . . the infantile mortality has gone up . . . Births are generally attended by medical men, only 3 of the 148 were attended by a midwife."

HALSTEAD U. The birth-rate here is very low 15·9, and the mortality amongst infants was only 53 per 1,000 births. The Medical Officer of Health, says—"It does not follow however that there are not likely to be infant lives that can be saved in future, and I think the Council should consider whether arrangements could be come to with one of the existing nurses in the town for the regular visiting of infants up to 1 year of age The number of births has dropped so seriously that the greatest care is necessary to see that there is no wastage of child life."

ROMFORD U. "The Urban and Rural Councils have conjointly appointed a Lady Health Visitor for the two districts combined. I am sanguine that her work will be highly beneficial." I believe that a local voluntary association has been formed, more especially to look after expectant mothers and young mothers.

TILBURY. The Council here is to be commended for its zeal. The Medical Officer of Health, says :—

"The appointment of a Health Visitor: this took place on November 1st, 1915, and on December 1st, 1915, we started an Infant Welfare Centre, where babies are examined and advice is given every Wednesday by the Health Visitor, and on the last Wednesday of the month, by the Medical Officer of Health. One month's working does not enable us to say how the scheme will work, but present indications seem to shew that the parents will take increasing advantage of it; and we also hope, in the year 1916, to open an Ante-Natal Clinic for mothers. The Health Visitor also visits mothers and babies after confinement, where desired. The Health Visitor also acts as Female Sanitary Inspector, and visits cases of measles, mumps, chicken-pox, and cases of children's diseases, such as impetigo, ophthalmia neonatorum, &c."

Dr. Fowler remarking on the excessive infantile mortality, 109, for the year is inclined to think that it was due to influences affecting pregnant women "caused by alarms due to war air-craft at night."

WALTHAMSTOW. "The Notification of Births (Extension) Act, 1915, became operative in September, and the scheme for Maternity and Child Welfare, subsequently approved by the Local Government Board, was agreed to in July.

"Dr. Rachael McKenzie was appointed in November to take charge of the Ante-Natal Clinics, and Nurse Taylor was engaged subsequently and commenced work in February. Her duties are to attend at the Ante-Natal Clinics, and to visit and re-visit all the children born in certain Wards with known high infantile death-rates.

"Selected births in other Wards are supervised by the Health Visitor.

"The transference of the powers of the County Council under the Midwives Act, 1902, to the District Council did not take place until April, 1916, and the record of the work as now carried out will be given in next year's Report.

"The Walthamstow Child Welfare Society, a voluntary association, working in conjunction with your authority, has continued its weekly infant consultations at

"Brookscroft," and after a very successful year's working has now (April) another fully equipped centre in the High Street Ward, supplemented by two branch stations supervised by a fully qualified Nurse.

"It is now possible on two days weekly—Wednesdays in the High Street area and Thursdays in the Central—for mothers to have for their children advice by skilled Physicians; and on Mondays in the Northern and on Tuesdays in the St. James Street areas, opportunities are given them to take their babies for preliminary weighings, and to get advice from the whole-time Nurse employed by the Society.

"Up to May the number of children coming under the care of the Physicians of the Society was 554, made up as to—75 from St. James Street Ward, 83 from High Street Ward, 83 from Hoe Street Ward, 116 from Wood Street Ward, 50 from Hale End Ward, 136 from Higham Hill Ward, and 11 from outside the district.

"Subsequent years will show that the agencies now at work largely influence for good the health and well-being of the rising generation."

WOODFORD. An infant consultation Centre has been started by voluntary effort, the meetings being held at the Church Room of Holy Trinity Church, every Friday afternoon. An experienced Health Visitor has been engaged for one day a week, and valuable assistance has been given by voluntary workers. The average attendance has been 15 and is increasing.

BRAINTREE R. The infantile mortality here was very high (116). The Medical Officer of Health thinks steps should be taken by the Rural District Council, though "the work could be more efficiently and economically carried out by the County Council." He continues: "I think the Council should endeavour to take some action to reduce the infantile mortality, and the most pressing need seems to me the provision of skilled nursing for women in their confinements and for supervising the health of the babies until they are a year old, throughout the district."

"One of the effects of the Midwives' Act in country districts has been to abolish the old type of midwife and monthly nurse, and their replacement by the trained nurse has not been brought about. The reason for this is that the amount of training necessitated by the Act requires that the new type shall be of a very different class, which can only make a living in the more populous districts; and in parishes where there is no district nurse, this want is now becoming very acute.

"Although naturally for the whole year the deaths of infants are in greater proportion in towns than in the country, the death-rate is higher in the country than in the town during the first week of life. And I cannot see any other cause for this than the lesser facilities for *prompt* skilled attention at birth in the country districts. By arranging for the utilisation of the existing district nurses this should not prove a very difficult matter in the majority of parishes; and if by the action of the Council in giving financial aid, district nurses could be provided in those parishes or groups of parishes where no trained advice is available, not only would the infantile but the general mortality be reduced. This, I think, is a strong point against the

alternative proposal of a whole-time health visitor confining her attention to infants. At the same time arrangements should be made for utilising the services of these nurses for reducing the death-rate from measles as suggested above, also possibly for whooping-cough which, I think, is more fatal than measles in country districts."

The question of utilizing the services of local Nurses and Midwives advocated by Dr. Smith is worthy of serious consideration. There are many objections to it, and it is doubtful whether the advantages, which are numerous, more than counter-balance the objections.

DUNMOW R. In this report Dr. Smith returns to the subject and further discusses the question, and gives the following reasons for preferring local nurses to Health Visitors in rural areas :—

"An alternative suggestion which finds more favour in many quarters is that of a whole-time health visitor. Though more satisfactory for large Urban Districts, I am quite convinced that this is less suited to the needs of a Rural District—where trained midwives or monthly nurses are so very few. For what we require in the first instance are trained persons who will be available at the time of birth, rather than someone who would only be able to visit after the interval occupied by notification had elapsed. Not till these are provided need we consider the provision of some further supervision by a whole-time officer."

EPHING R. The Medical Officer of Health expresses no opinion upon what steps the Council should take with reference to child welfare, but he says: "I sought as far as possible the advice of all doctors practising in the district. Those whom I communicated with were unanimously of opinion that such a Health Visitor would not materially contribute to the reduction of the infantile mortality rate (average 64). It was the general experience amongst practitioners in this district that mothers, both before and after the birth of their infants, readily seek the advice of their doctor, and carry it out to the best of their ability and the means at their disposal. No steps therefore were taken to appoint such a Visitor."

LEXDEN AND WINSTREE R. "As no action is taken on the Notification of Births, this Act is useless. . . . Steps ought to be taken at once to arrange for Health Visitors; at first one would be sufficient, and another could be got when the work got too hard."

ONGAR R. As the County Council has not adopted any scheme the Medical Officer of Health thinks "the appropriate action in this district is the appointment of a Health Visitor, who should be a trained nurse to visit and supervise the welfare of infants. By this means a reduction of infantile mortality may be expected."

ROCHFORD R., CHELMSFORD R., and MALDON R. The Medical Officer of Health for these areas does not refer to the subject in his Reports, but I know that he is urging each Council to appoint Health Visitors. After giving the matter much consideration he has, I believe, come to the conclusion that it would be impossible, with advantage, to utilise the services of local midwives and district nurses

ROMFORD R. (Referred to under Romford U).

During the year Representatives of the "National Association for the Prevention of Infantile Mortality" and the "Women's Co-operative Guild" visited me, and afterwards addressed meetings in various parts of the county, and I believe that in time they will find the results of their labours were more satisfactory than could have been anticipated. Thanks are due to them for the stimulus they have provided to voluntary enterprise.

MIDWIVES ACT, 1902.

The names of 277 midwives were entered on the Essex register during 1915, but 73 left the County or ceased to practice, leaving only 204 names on the register at the end of the year. Of the 73 women who left our jurisdiction 35 were in East Ham and East Ham became a County Borough in April, 1915, three married and ceased to practice, 17 left the County, 2 died, 2 retired and asked to be taken off the Central Midwives Board Roll, and the remainder are not practising for the present owing to ill-health or other circumstances.

With East Ham leaving the Administrative County we lose the Nurses Home and Training School of Burges Road, East Ham, which is a branch of the Plaistow Maternity Charity and employed many midwives. The only large training school for midwives now left in the Administrative County is the Essex County Cottage Nursing Association Home at Leytonstone, which employs at the present time about 25 midwives, including the smaller branch house at Walthamstow. It also trains many pupils. Three midwives in the County had the permission of the Central Midwives Board to train pupils, but in one case this permission has been withdrawn, so that the great majority of midwives trained in Essex County get their training at the Leytonstone Home. A small branch house of the Plaistow Maternity Charity exists at Barking and a few midwives are trained there.

As regards the proportions of trained and untrained women working at present in the County 154 or 76 per cent. are now trained women and 50 or 24 per cent. only of the *bonâ fide* midwives remain.

The total number of births attended by midwives in the Administrative County was 5,339 and the total number of births was 17,583 (excluding Frinton—not yet received), giving a percentage of 30.3 attended by midwives. The average number attended by each practising midwife works out at 22, but there were

13	midwives	who	took	no	case	at	all	during	the	year,
35	who	only	averaged	3	cases,					
34	who	averaged	8	cases,						
30	"	15	"							
26	"	33	"							
15	"	73	"							
13	midwives	and	one	home	averaged	139	cases.			
2	homes	who	took	respectively	335	and	262	cases.		

It will be seen that only 13 midwives have large practices, 15 moderate ones, and the rest cannot make a living by midwifery alone. Many of them also work under the doctors and 67 are acting as district nurses and midwives in the Rural districts of the County. Of the untrained women about a dozen have fairly good practices, but the majority are old ladies who just attend a few cases in the immediate vicinity of their homes.

NOTICES FOR THE YEAR.—

Medical help records received	...	...	328
Still-births	...	...	85
Deaths of child	...	...	10
Death of mother	...	...	1
Total	...	...	424

These are considerably lower than last year. The number of births attended by midwives is also much lower than in 1914, but both these differences are to some extent due to the loss of East Ham from the Administrative County. As regards the calls for medical help we find that, excluding the three Nurses' Homes, 113 trained midwives had help 176 times in 3,324 cases and 42 untrained midwives had help 41 times in 1,272 cases, or that the trained women called in help in one case out of every nineteen attended and the untrained women only in one case out of every 31 cases attended. In the three Nurses' Homes we find that they called in help respectively to

- 1 out of every six cases (Walthamstow).
- 1 out of every twelve cases (Barking).
- 1 out of every eight cases (Leyton).

much more frequently in fact than the midwives in private practice. For the whole County (including Homes) we find that help was called for one case in every 16 cases or in 6.2 per cent. It is interesting to note the fewer numbers of calls for help from the untrained midwives. This might be due to their not recognising cases in which danger exists, but if this were so they would have bad results and as a matter of fact most of the *bona fide* midwives have extraordinarily good records as regards not losing either mothers or infants and their cases appear to do well. It may be due to the fact that they are, at all events those who have good sized practices, very experienced midwives. The trained midwives are often young and inexperienced and they call for medical help, doubtless in many cases, where the experienced woman would wait. This seems to be borne out by the fact that the older trained midwives call for help less often than the younger district nurses and the more experienced the midwife gets the less frequently she requires medical help.

PUERPERAL FEVER. Twenty-five cases of Puerperal Fever were notified during 1915 in the Administrative County and eight of these or 32 per cent. occurred in the practices of midwives. There were 34 notices of medical help sent for for rise of temperature. The cases of Puerperal Fever were all investigated (*Vide* penal cases).

OPHTHALMIA NEONATORUM. Ninety-five cases of this disease were notified during the year on the Weekly Notification cards, but the total got from the Tables of the Medical Officers of Health reports is only 68. How this discrepancy arises it is difficult to say unless the Medical Officers of Health have only taken the cases which they regarded as Ophthalmia and not all the cases notified, or unless many of the cases have been withdrawn. Midwives sent us 31 forms for medical help for eye trouble, but very few of these cases developed seriously. The great majority recovered entirely in a day or two under treatment and only five cases required special investigation.

UNCERTIFIED WOMEN PRACTISING. There are not many of these women in practice in this County now, but in certain areas there are "handy women" who work more or less under the protection of some of the medical men and who often take deliveries before the doctor's arrival, but always say in excuse "the doctor was engaged." During these days of stress on the medical men they are, doubtless, glad to get long and tiresome cases done for them, but they should remember that the certified midwives are trying to make an honest living by midwifery and cannot do so if the doctors encourage and protect the "handy woman" who is untrained and uncertified and often leaves much to be desired in her methods.

PENAL CASES. Three women were summoned to appear before the Central Midwives Board, one for employing uncertified nurses as midwives and the two others at the wish of the Coroner who attached blame to them for the death of patients from Puerperal Fever. Two of these women were censured for failure to keep the rules of the Central Midwives Board with sufficient care and were put under special supervision for six months. At the end of that period as our report on them was satisfactory their certificates were returned to them. The third woman was cautioned. All three were trained midwives with large practices.

INSPECTIONS. The midwives of the County are now inspected systematically twice a year and the less reliable ones are seen as much oftener as possible. Many were found to require special instruction in asepsis, the taking of temperature and pulses, the keeping of records, &c. These lessons are being given as often as possible and many of the midwives are improving greatly and making great efforts to learn and to keep the rules of the Central Midwives Board. Each midwife is now supplied by the County Council, free of charge, with a Daily Visit Book, and with the forms necessary for notifications.

TUBERCULOSIS.

According to the returns of the Medical Officers of Health in their Annual Reports, 1,178 notifications of Pulmonary Tuberculosis and 356 of other forms of Tuberculosis have been made in the Urban Districts, and 257 and 87 respectively in the Rural Districts. A total of 1,435 Pulmonary and 453 Non-Pulmonary. The notification forms received by me weekly give totals of 1,352 and 469 respectively. The errors are not very serious, and perhaps the returns are as close as could be expected, though not so close as could be desired. The annual returns for Epping

TABLE XIII.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912.

• *Summary of Notifications during the Year 1915, in the County of Essex.*

Age periods	Notification on Form "A."													Notifications on Form "B."					No. of Notifications on Form "C."		
	Number of Primary Notifications.													No. of Primary Notifications.					Total Notifications on Form "B."	Poor Law Institutions	Sanatoria.
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 & upwards.	Total Primary Notifications.	Total Notifications on Form "A."	Under 5.	5 to 10.	10 to 15.	Total Primary Notifications.				
Pulmonary Males ...	2	20	48	47	44	82	156	143	79	46	13	680	752	1	15	11	27	28	54	133	
" Females ...	2	10	27	49	64	78	143	80	54	27	13	547	600	—	9	12	21	21	29	72	
Non-pulmonary Males ...	10	45	61	39	23	7	17	6	5	7	3	223	233	—	10	2	12	13	3	6	
" Females ..	8	53	45	38	26	15	15	12.	9	3	—	224	236	—	8	6	14	14	—	6	
Col. I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

January 31st, 1916.

JOHN C. THRESH,

Medical Officer of Health.

and Wanstead show no notification, yet 29 in all were received according to the weekly returns sent to the County Medical Officer of Health.*

The Weekly Returns are used for Table XIII., which contains the summary required by the Local Government Board.

As all cases of Tuberculosis were not required to be notified until 1913—and it is doubtful yet whether all the cases which existed then have been notified—the notifications cannot as yet be usefully employed for statistical purposes, but from this year onward they should be comparable.

	1914.	1915.
Cases of Pulmonary Tuberculosis notified in the present Administrative County	1,424	1,227
Cases of Non-Pulmonary	624	447

The number of cases notified in each Sanitary area is given in Table C in the Appendix.

During the years 1912-1915, I have records of 617 persons who had applied for Sanatorium benefit and have since died, and I have divided these roughly into six groups according to their working capacity.

TABLE XIV.

DEATHS FROM PULMONARY TUBERCULOSIS DURING THE YEARS 1912-3-4-5,
Amongst patients who had applied to the Insurance Commissioners or County
Council for treatment.

Table showing 1. Stage of disease when application was made.
2. Number dying each year.

Areas.	Stage of Disease.						Total Cases.	No. dying in			
Dispensaries.	i.	ii.	iii.	iv.	v.	vi.		1912.	1913.	1914.	1915.
Walthamstow	5	19	10	57	16	9	116	1	10	45	60
Leyton	3	11	8	48	15	4	89	—	16	33	40
Ilford	2	7	5	22	5	5	46	—	13	15	18
Barking	2	8	4	15	7	2	38	—	4	16	18
Romford	1	7	12	20	7	2	49	—	4	18	27
Grays	9	10	8	26	6	3	62	1	9	19	33
Rochford	1	0	0	4	2	2	9	—	5	3	1
Colchester	4	11	6	42	26	12	101	4	18	42	37
Chelmsford	1	3	1	18	9	4	36	—	6	14	16
N. W. Essex	3	5	7	21	9	6	51	—	12	16	23
Woodford	0	3	6	10	1	0	20	—	4	6	10
	31	84	67	283	103	49	617	6	101	227	283

* The return for Epping has since been corrected.

	Percentage in each Group.	The Condition of Patients applying for San. Benefit in 1915.
1. Very early cases. Working capacity unimpaired ...	5	14
2. Early cases with working capacity showing signs of diminution	14	12
3. Patients remaining at work, but who had to under- take lighter duties, or shorten their hours of labour	11	42
4. Patients working occasionally, but unfit for work ...	45	19
5. Advanced cases, incapable of work but still getting about	17	13
6. Patients with a very short time to live ...	8	0

Twenty-five per cent. (Groups 5 and 6) were practically hopeless at the time they applied for treatment; 45 per cent. were in a stage too advanced for there to be reasonable hope of perfect recovery; 11 per cent. might hope at least for a restoration of working capacity, and 19 per cent. only applied at the stages when a cure might be reasonably anticipated.

Until notification and application for treatment can be secured in the very early stage of the disease, our efforts to cure it must largely result in disappointment.

To impress upon the people the absolute necessity for early treatment is the most urgent need in the crusade against Consumption.

Some improvement can be recorded, and is shown in the second column of the above Table. During 1915, 26 per cent. of the applicants for treatment were in a fairly early stage of the disease, against 17 per cent. in the fatal cases, 42 per cent. were in stage 3 against 11 per cent. in the fatal cases. Assuming Stages 1, 2 and 3 to afford a fair chance of arrest of the disease, only 30 per cent. of those who died applied whilst in these stages; whereas during 1915, 68 per cent. of the patients who applied for treatment were in these stages.

Of the 617 persons that died under treatment between 1912-1915 inclusive, the duration of the treatment was as under:—

279	or 45 per cent.	died within 12 months.
261	„ 41 „	survived 12 months, but died during the second year.
71	„ 12 „	„ 2 years, but died within the third year.
6	„ 1 „	„ 3 years, but died in the fourth year.

During 1915 the average number of patients being dealt with by our Tuberculosis Officers was 1,602, made up as under:—

	Insured Persons.	Uninsured Persons.
Average number under Treatment...	323 = 20 per cent.	618 = 39 per cent.
„ „ „ Observation	258 = 16 „	200 = 12 „
„ „ „ Domiciliary Observation }	179 = 11 „	24 = 1·5 „
	47·4	52·6

The County is therefore dealing with more Uninsured persons than Insured.

From the Reports of the Tuberculosis Officers with reference to 1,682 cases dealt with during the year :—

407	or 25 per cent.	had their working capacity restored.
683	„ 40 „	remain under treatment or observation being little better or worse than at first.
107	„ 6 „	became worse and had to be treated at home.
283	„ 17 „	died.
81	„ 5 „	left the County.
121	„ 7 „	withdrew for non-medical causes.

Of the cases with working capacity restored, 21 per cent. had been under treatment for less than 12 months, 50 per cent. between 12 and 24 months, 24 per cent. between 24 and 36 months, and 5 per cent. over 36 months.

The death-rate amongst those attending at the Dispensaries is 17 per 100; the death-rate amongst the sick patients generally cannot be less than 25 per 100, and may be as high as 33. In either case the beneficial effect of treatment is apparent.

Most of the patients who appeared to recover, having had their working capacity restored, had been sent to Sanatoria for an average period of 84 days. The following Table gives the admissions and discharges during the year, including and excluding East Ham :—

	Including East Ham.				Excluding East Ham.	
	Patients Admitted during 1915.		Patients discharged during 1915.		Admitted.	Discharged.
Insured persons ...	475	...	487	...	345	364
Uninsured persons	118	...	105	...	95	69
Total ...	593		592		440	433

The Annual Returns of the Medical Officer of Health, Table C., only shows 156 cases of Tuberculosis as having been sent to Sanatoria. This is a serious error and indicates that the Medical Officers of Health do not receive systematic notification of patients admitted to Sanatoria or discharged therefrom as is required by the Notification and Treatment of Tuberculosis Order, December, 1912.

Amongst the patients sent to Sanatoria are included 20 Non-Pulmonary cases, 16 of whom suffer from Tuberculosis of the Joints or Bones, 3 from Tuberculosis of Glands, and 1 from Tuberculosis of the Bowels. From the Registers of the Tuberculosis Officers there were 812 names on the Treatment Register on Jan. 1st, 1915, 872 names were added during the year and 800 removed. At the end of the year, therefore, 884 remained on the Treatment Register, and of these 773 suffered from Tuberculosis of the Lungs, and 111 from Non-Pulmonary Tuberculosis.

Besides the cases under treatment, 564 persons who had been treated remained under observation, and 180 persons were receiving Domiciliary treatment under the advice of the Tuberculosis Officers.

Besides the above, 577 persons were attending the Dispensaries occasionally (nearly all in the extra-metropolitan area). These persons have not been definitely diagnosed as suffering from Tuberculosis, and acting upon my instructions the names of such persons are not entered on the official registers. If later, signs of Tuberculosis become definite they will be registered. Most of them attend for a few months only, and then are quite well. By admitting such persons to the Register as suffering from Tuberculosis the percentage of "cures" could be enormously increased. It is quite

**Summary of Reports of Tuberculosis Officers for the Year ending
December 31st, 1915.**

**TABLE XV.
Patients attending Dispensaries for Treatment.**

	Walthamstow.	Leyton.	Ilford.	Barking.	Romford.	Epping and Waltham.	Grays.	Rochford Dist.	Obelmsford.	Colchester.	Maldon, Clacton & Harwich.	Braintree Dist.	Total.
1 No. of Patients on Register, January 1st, 1915.													
(a) Insured	61	54	16	21	22	8	21	4	12	18	10	17	181
(b) Uninsured	176	93	23	37	75	8	62	4	23	32	5	10	426
Total	237	147	39	58	97	16	83	8	35	50	15	27	607
2 No. of Patients added to Register during the year—													
(a) Insured	85	96	39	24	26	18	51	3	24	14	5	22	308
(b) Uninsured	145	70	23	44	49	8	67	5	10	16	10	18	396
Total	230	166	62	68	75	26	118	8	34	30	15	40	704
3 No. of Patients removed from Register during the year—													
(a) Insured	79	82	28	18	28	19	42	5	10	11	5	25	234
(b) Uninsured	181	77	12	33	50	7	41	5	4	20	1	17	358
Total	260	159	40	51	78	26	83	10	14	31	6	42	592
4 No. of Patients on Register, December 31st, 1915.													
(a) Insured	67	68	27	27	20	7	30	2	26	21	10	14	182
(b) Uninsured	140	86	34	48	74	9	88	4	29	28	14	11	433
Total	207	154	61	75	94	16	118	6	55	49	24	25	615
5 No. of Patients suffering from Tuberculosis of Lungs, Dec. 31, 1915	170	142	57	70	65	13	109	6	51	65		25	538
Other Forms of Tuberculosis	37	12	4	5	29	3	9	—	4	8		—	95

TABLE XVI.

**Patients attending Dispensary for Observation, and No.
of Domiciliary Patients.**

	Walthamstow.	Leyton.	Ilford.	Barking.	Romford.	Epping and Waltham.	Grays.	Rochford Dst.	Chelmsford.	Colchester, Maldon and Harwich.	Braintree Dst.	TOTALS.
Observation following Treatment—												
6 No. on Register, December 31st, 1915.												
(a) Insured	59	46	13	14	27	17	48	9	10	43	23	309
(b) Uninsured—Adults ..	4	4	3	3	14	4	21	3	2	26	3	87
Children	51	16	10	8	30	1	24	—	7	15	6	168
Total	114	66	26	25	71	22	93	12	19	84	32	564
7 Persons under observation, doubtful cases	357	92	44	62	2	1	1	6	9	—	3	577
Domiciliary—												
8 No. on Register, December 31st, 1915.												
(a) Insured	32	10	12	6	9	3	11	13	9	21	20	146
(b) Uninsured	8	4	2	—	4	—	3	2	3	—	8	34
Total	40	14	14	6	13	3	14	15	12	21	28	180
Total under Treatment & Observation, including Domiciliary	718	326	149	168	180	41	227	39	95	178	88	2209

TABLE XVII.

**Shewing cause of Treatment ceasing at Dispensaries and the
number of Patients sent to Institutions for Treatment.**

Dispensary.	Insured.	Uninsured.	Total.	Why active Treatment at Dispensary ceased.						Sanatorium or Hospital.			
				Working Capacity restored.	Transferred to Domiciliary.	Transferred to another Dispensary.	Left District.	Died.	Other Causes.	Admitted.		Discharged.	
										I.	C.C.	I.	C.C.
Walthamstow ..	79	181	260	136	35	2	27	18	42	80	15	80	8
Leyton ..	82	77	159	61	14	2	20	13	49	67	13	71	9
Ilford ..	28	12	40	13	13	1	6	4	4	21	8	20	2
Barking ..	18	33	51	32	7	1	2	6	2	11	7	15	6
Romford District ..	47	57	104	54	13	6	11	8	12	36	12	40	7
Grays ..	42	41	83	57	8	3	4	10	1	43	15	50	10
Shoeburyness U. and Rochford R. only ..	5	5	10	7	—	—	3	—	—	6	1	9	1
Chelmsford ..	10	4	14	5	3	—	3	2	1	17	8	15	7
Colchester District ..	16	21	37	21	5	—	2	3	6	42	11	47	9
Braintree District ..	25	17	42	21	9	1	3	4	4	22	10	17	10
Totals ..	352	448	800	407	107	16	81	68	121	345	95	364	69

TABLE XVIII.

Summary of Work done in each Dispensary Area.

	Walthamstow	Leyton	Ilford	Barking	Romford	Grays	Rochford	Chelmsford	Colchester	N.W. Essex	Total.
No. of Contacts and Suspects examined :—	382	275	118	132	62	44	20	30	195	28	1286
No. found suffering from Pulmonary Tuberculosis	69	36	45	45	8	6	2	6	62	12	291
„ „ Non-Pulmonary Tuberculosis	26	30	11	14	5	0	7	1	8	0	102
No. of doubtful cases ..	59	24	22	31	10	4	6	6	49	9	220
No. not suffering from Tuberculosis ..	228	185	40	42	39	34	5	17	76	7	673
Total ..	382	275	118	132	62	44	20	30	195	28	1286
Per cent. suffering from some form of Tuberculosis	25	24	48	45	21	14	45	23	36	43	31

SUMMARY OF TABLES.

	Cases under treatment.	Observation after Treatment.	Totals.	Total Attendances at Dispensaries
Jan. 1st, 1915 ..	829	767	1,696	20,095 (1914)
Dec. 31st, 1915 ..	888	564	1,452	22,339 (1915)
Increase or Decrease ..	— 41	— 203	— 244	+ 2,244

JOHN C. THRESH,

Chief Tuberculosis Officer.

possible, if not certain, that many of these persons are in the very early stage of consumption; certainly many have the tubercular diathesis, and without proper attention are likely to develop the disease, hence the necessity for keeping them under observation, and, in many cases, of affording some kind of treatment. The great majority are children, whose parents refuse to place them in charge of the family or panel doctor; hence, if not attended to at the Dispensary, they might develop Tuberculosis and come under medical supervision too late.

During the year, 1,286 persons were examined by our Tuberculosis Officers, either because they were contacts or were sent to the Dispensary for examination. No less than 31 per cent. of these were definitely diagnosed as suffering from some form of Tuberculosis. There can be no question that a large proportion of these would have escaped observation and treatment had there not been available a competent medical man to examine the patients and make a diagnosis.

THE COUNTY TUBERCULOSIS SCHEME.

The County scheme deals with both Insured and Uninsured persons, and with all forms of Tuberculosis.

Patients are treated at the various Dispensaries and Consulting Stations, at Sanatoria, and at their homes, the latter under their own medical attendant,

Further changes had to be made during the year in consequence of a third Tuberculosis Officer being called up (Dr. Bruce), and the death of Dr. Roberts in Gallipoli. Dr. Roberts was shot whilst attending a wounded soldier, and his death was a great loss to the County. He had worked hard in the N. W. Essex area and had charge of the Black Notley Sanatorium. He had gained the confidence of practitioners and patients, and was becoming invaluable; but as an officer in the Territorial Force he was called up at the beginning of the War, and later was sent to Gallipoli, where he was killed. For a time local medical men undertook his duties, and the help they kindly rendered us was greatly appreciated by the County Council, but a few months ago a whole-time Tuberculosis Officer was appointed to take his place. The Sanatorium at Galleywood was given up in the summer, the Hospital Board having given us notice to vacate. It was the Small-pox Hospital of the Chelmsford Joint Hospital Board, and was utilized for a time for six phthisical patients. The patients were transferred to the Small-pox Hospital for the districts in N. W. Essex. This had just been completed, and was in every way so suitable for a small temporary Sanatorium that the County Council arranged to take it over and utilise it as such for a time. At the end of the year the shelters which had been used at the Maldon Joint Hospital as a temporary Sanatoria should have been removed to Black Notley to enlarge the Sanatorium there, but difficulty in obtaining labour, etc., postponed the removal for a time, but they now form part of the Black Notley Sanatorium, and Tuberculosis patients are no longer sent to the Maldon Hospital.

At Ilford the Urban District Council erected a pavilion for Tuberculosis patients, and this is now utilized instead of the Wards and Shelters previously occupied by the patients.

At Colchester, also, the Town Council erected a proper pavilion at the Isolation Hospital, which accommodates 12 patients. This, however, was not occupied until February of this year.

The County scheme cannot be completed or carried further until after the conclusion of the War. It is at present incomplete, because—

- (1) Advanced cases cannot be dealt with.
- (2) Better provision is required for children and especially for cases requiring surgical treatment.

At present a large number of advanced cases are sent to the Workhouse Infirmarys and die there. Many are retained at their homes until a late period, and are a source of danger to their families. About 50 per cent. of the persons who die from Consumption die in Institutions, generally the Workhouse Infirmary.

One hundred and ninety-two deaths occurred in the West Ham Union Infirmary, of whom 75 belonged to the Administrative County, and 20 such deaths occurred in the Romford Union Infirmary. Smaller numbers occurred in other Workhouses. It is probable that over 40 per cent. of the deaths from Consumption occur in these institutions. Others occur in the various Asylums, but these are causes with which the County scheme could not deal.

At the end of 1915 the County scheme had been developed to the following extent:—

Dispensaries.

WALTHAMSTOW. A fair sized house here is taken on lease. A double-room downstairs is used as a waiting-room. Two rooms upstairs are used by the Tuberculosis Officer and Nurses respectively. There is a spare room not at present used. The kitchen and bedrooms are used by the caretaker

LEYTON. A good house has been leased here, and three rooms on the ground floor are used by patients, nurses, and doctor respectively. A fourth is a store-room, and the fifth contains the hot-water apparatus. One room upstairs is used as a Committee Room. The remainder of the house is used by the Caretaker, and one of the Nurses lodges here.

ILFORD. A small house here is used as a Dispensary, and the caretaker resides on the premises. The patients and nurses use the same room.

BARKING. A roomy house is leased here. The kitchen has been made into a waiting-room. The front room is used by the Doctor and a back room by the Nurse. The caretaker has all the rooms upstairs.

WOODFORD. The County Committee decided to give up the house here, as with the establishment of Dispensaries at Walthamstow and Leyton it was found unnecessary.

ROMFORD. A villa is leased here, and two rooms used for Dispensary purposes. The Nurse lives in the house and has the kitchen and upstairs rooms. In connection with this area there are consulting rooms at Epping and Waltham Holy Cross at which the Tuberculosis Officer attends weekly.

GRAYS. A house was taken here, and a large double room on the ground floor converted into a waiting-room, and two other rooms utilised for the Nurse and Tuberculosis Officer. The Caretaker has the kitchen and all the upstairs rooms.

CHELMSFORD. A suite of offices over the Gas Company's shop are leased. These three rooms are utilised by patients, nurses, and doctor respectively.

COLCHESTER. A lock-up shop was taken here and divided into three rooms for use as a Dispensary. From the position of the doors the largest room has to be used by the Tuberculosis Officer, but the other accommodation suffices. In connection with this district there are consulting rooms at Clacton, Harwich and Maldon visited weekly. A local nurse attends at each place.

BRAINTREE. The furniture, etc. at the Woodford Dispensary was moved to Braintree (early this year, 1916), a suite of rooms having been secured for use as a Dispensary.

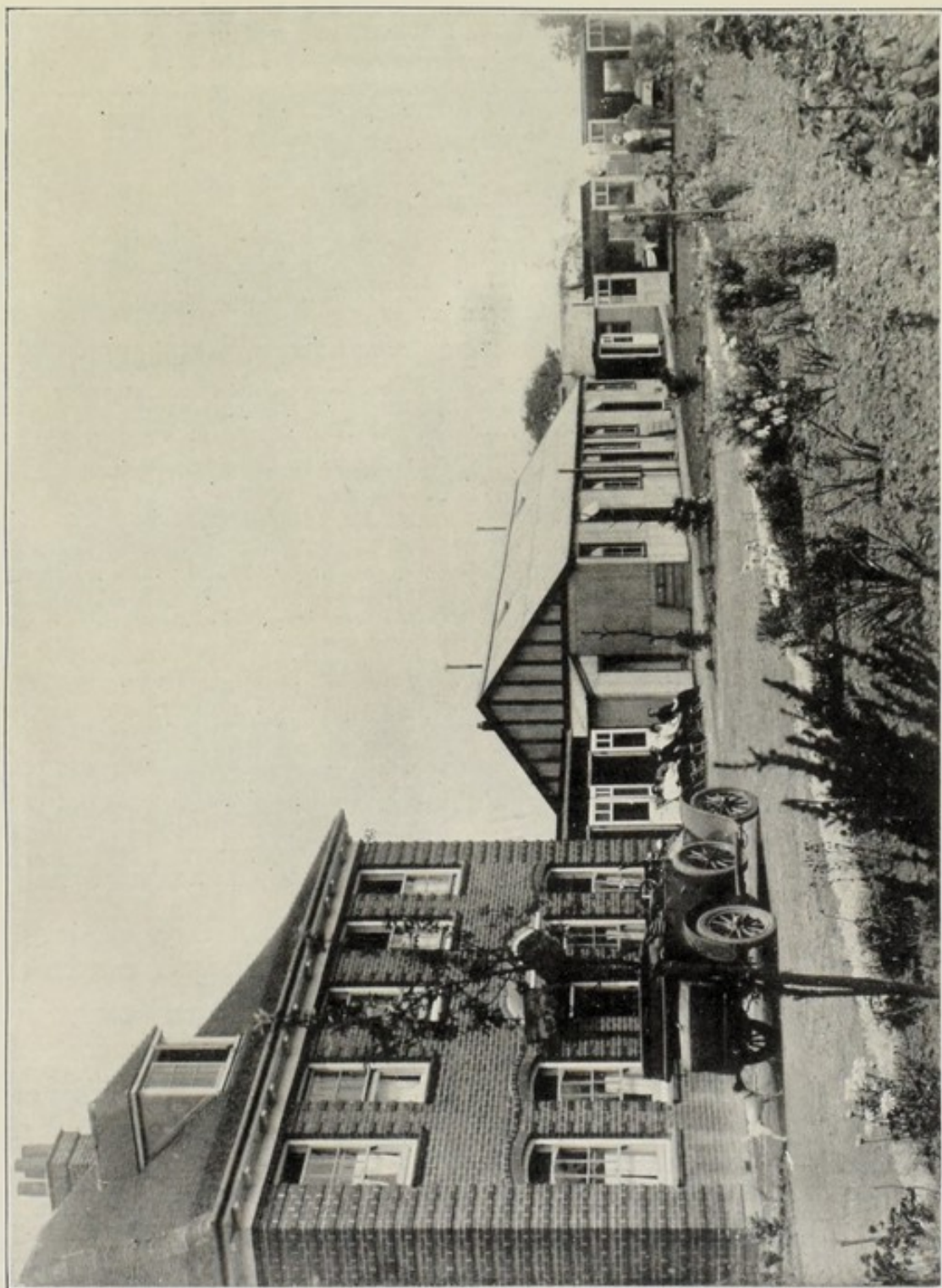


FIG. 1—THE SANATORIUM, SIBLE HEDINGHAM.

There is an arrangement between the County Council and the Southend Corporation whereby Tuberculosis patients resident in Shoeburyness and in the parishes in the Rochford Rural District adjacent to Southend attend the Southend Dispensary and are visited by the Tuberculosis Officer for the Borough.

The whole county is now covered, and the only changes likely to be effected will be in connection with visiting stations, and are therefore of very minor importance.

SANATORIA. At the end of 1915 there were 128 beds in use. Of these 85 were taken by the Insurance Committee, 6 by the Southend Corporation, and the remaining 37 were used by the County Council for Uninsured persons.

The list of beds in use on December 31st is as follows:—

	Males.	Females.
Chingford	14	8
Romford	—	8
Orsett	13	—
Ilford	12	—
Colchester	4	—
Black Notley	13	—
Victoria Park	5	5
Nayland	—	5
Sible Hedingham	—	12
Maldon	8	—
Halstead	—	6
Various Children's Institutions outside the County	7	8
	76	52
	—	— Total 128

Since the above date it may be mentioned that—

1. The eight beds for females at Chingford have been given up and the patients transferred to Black Notley.
2. At Orsett 16 beds are available; but usually there is not a sufficient number of male uninsured adults to keep them full. The Insurance Committee only take ten beds, thus leaving six available for other males. The County Council only pays for the beds actually occupied.
3. The new Pavilion at Colchester for twelve beds is now occupied by twelve male insured persons.
4. Black Notley has been enlarged and can now take 24 patients.
5. The beds for five female patients at Victoria Park have been given up.
6. The female patients have been removed from Nayland to Black Notley, and four beds have been taken at Nayland for children.
7. The Maldon beds have been given up, and the male patients transferred to Colchester.

It is proposed to give up certain of the beds for children in outside institutions, chiefly on account of the trouble and expense of sending and removing the patients, and in future it is intended to accommodate twelve of them at Sible Hedingham. This can be effected since the Southend Corporation has given up the six beds previously retained by them.

SHELTERS. The County Council owns 85 shelters. These are of three sizes, 12ft. by 10ft., 10ft. by 8ft., and 7ft. by 6ft. The largest are all in use at the various Sanatoria. The smallest were specially made for use in the small yards or gardens at East Ham, where the separate parts had to be carried through the cottages, there being no secondary means of access to the yards or gardens. The intermediate size is in general use at patients' homes. Should more be required, which is unlikely for some time, I should prefer them 9ft. by 7ft. as one of these, specially made by a local carpenter, seems to answer the purpose perfectly and naturally the cost would be a little less than the 10ft. by 8ft. The smallest size is not generally useful, as during a driving rain the bed cannot be kept dry unless the place is closed up.

The Tuberculosis Officers now employed are—

WALTHAMSTOW AND LEYTON AREA. H. C. Ross, M.R.C.S., etc., Macfadyen Research Scholar (temporary in place of Dr. Bruce). Four Nurses.

ILFORD AND BARKING AREA. Ilford: G. E. Oates, M.D., M.R.C.P., D.P.H., etc., Medical Officer of Health (temporary). Barking: J. W. Ewart, M.D., F.R.C.S., D.P.H., etc., Medical Officer of Health (temporary.) One whole time Nurse for both Dispensaries.

ROMFORD AND GRAYS AREA. E. S. Goodbody, B.A., M.D., D.H.P. One whole time and one part time nurse employed.

CHELMSFORD AREA. H. Platts, M.R.C.S., L.R.C.P. One part time nurse.

COLCHESTER AREA. J. D. Macfie, M.B., B.Ch., and four part time Nurses. (Dr. Macfie having recently joined the Army, Dr. Charlotte Brown, L.R.C.P., etc., is acting as temporary Assistant Tuberculosis Officer under Dr. Platts.)

N.W. ESSEX AREA. A. Lewthwaite, M.B., M.R.C.S., etc., has been appointed to take the place of Dr. Roberts, deceased. He has also charge of the Black Notley and Sible Hedingham Sanatoria.

For the guidance of those entrusted with Tuberculosis Administration the following remarks are appended to correct some erroneous views which are frequently expressed.

It is probable that there are three factors concerned in the spread of Tuberculosis:

1. Hereditary predisposition to the disease.
2. Lowered vitality.
3. Exposure to infection.



FIG. 2—THE ADMINISTRATION BLOCK, BLACK NOTLEY..



FIG. 3—THE PAVILION, BLACK NOTLEY.



The relative importance of these is a matter of much dispute. If exposure to infection by the tubercle bacillus through air or food could be prevented, no doubt the disease would disappear, therefore it is the factor of prime importance; but every person is exposed to infection almost daily. Very many persons become infected and recover without any recognition of the infection, the fact only being known as the result of post-mortem examinations. Exposure to infection would therefore be of much less importance if there were no hereditary predisposition to the disease, and if the persons exposed were strong and healthy. Lowered vitality is a predisposing cause for nearly all diseases, and in itself is an important factor in the spread of tuberculosis; but associated with hereditary predisposition, exposure to infection will almost certainly have disastrous consequences.

The following extract from Schuster's "Eugenics" is so lucid and cogent that I hope no apology is required for reproducing it:—

"Of the many diseases in the causation of which heredity has been regarded as an important factor, there is none more common or more deadly than Tuberculosis. No one disputes the fact that pulmonary phthisis or consumption . . . has a strong tendency to run in families, and up till the end of the Nineteenth Century the medical profession attributed this to inheritance. When the tubercle bacillus was discovered, it became obvious that the disease itself was not inherited, and in consequence the opinions of physicians swung over to the opposite extreme, and now many, if not the majority, declare that infection is the only cause, that heredity plays no part whatever, and that consumption runs in families, because if one member catches it the others get infected. The latter view has been widely accepted, because belief in it makes the prospect of entirely preventing the disease appear more hopeful, and the human mind is always ready to believe what it wants to believe. . . . It has even been asserted that it is useless to build Sanatoria durable enough to last more than ten years, because in ten year's time the Insurance Act will have abolished consumption.

"It is possible to take up an intermediate position between the old opinions and the new. One cannot maintain that there can be Tuberculosis without infection, but various considerations may still be urged to support the view that different individuals have the power to resist it in different degrees, and that in consumptive families a lack of resisting power is transmitted from parents to children.

"That the tubercle bacillus is everywhere about us, and that comparatively few people entirely escape its attacks are facts most generally admitted. But the disease may occur in so slight a form that the person attacked recovers from it without being aware that anything has been wrong.

"Social conditions provide data for determining the relative share of heredity and infection in the production of consumptive families which are almost as easy to interpret as the result of a single experiment. If it is

argued that parents live with their children, and are therefore likely, if tubercular, to impart the disease to them, it must also be admitted that husbands live in as intimate association with their wives, and are just as likely to infect them or be infected by them. The environmental conditions, such as housing and ventilation are the same in each case, and can therefore be disregarded; so that if heredity is a negligible factor, the correlation between husband and wife with regard to the presence or absence of consumption should be as high as that between parents and children. *This is very far from being the case.* . . . So the conclusion seems to follow inevitably that the correlation must be largely due to the inheritance of the tuberculous diathesis—that is to say, the special liability to be infected with a serious form of the disease."

Hereditary predisposition is a most important factor, and no one can say how many generations must elapse before it is eliminated, even if elimination is possible. Hence, all idea of extirpating Tuberculosis in one or two generations must be abandoned, though it may reasonably be hoped that a great diminution may occur.

The excessive mortality during the past year is attributable entirely to the second factor, lowered vitality due to conditions over which probably we can exercise little control, affecting the respiratory organs and either causing death from Pneumonia and Bronchitis, or so enfeebling the lungs and the natural resistance of the system that the tubercle bacillus is enabled to multiply with the gravest consequences. The experiences of the past year shows the great difficulties with which we have to contend in battling against Tuberculosis, and should be an incentive, not of despair, but for greater and better organised effort in the future.

FIG. 1 is a photograph of the Sible Hedingham Sanatorium, showing from left to right the Administrative Block, dining and recreation room, the pavilion for 12 beds, and shelters used for nurse, isolation, &c. The laundry is behind the shelters.

FIGS. 2, 3 and 4 are photographs of Black Notley Sanatorium showing the Administrative Block, the pavilion and the connected shelters, &c.

The treatment adopted at our Sanatoria includes :—

Regular hours, regular meals, adequate rest and judicious exercise.

Plain wholesome food as much as can be fully digested, not more.

Being in the open air as much as possible, but screened from excessive heat and rain.

Bright surroundings and attention from cheerful nurses and matrons.

FIG. 5 is a sketch by a friend of a grateful patient, showing her depressed and emaciated condition upon entering the Sanatorium and her cheerful, vigorous condition three months later.



FIG. 4—THE "SHELTER" BLOCK, BLACK NOTLEY.



FIG. 5.



ISOLATION HOSPITALS AND NUMBER OF CASES OF INFECTIOUS DISEASES TREATED THEREIN.

Every Sanitary District in the County save one has some more or less satisfactory arrangement for segregating cases of Infectious Disease.

Brightlingsea sends cases to Colchester, but the agreement terminates shortly.

Burnham. The Hospital here is merely an adapted cottage.

Belchamp R. has no arrangement of any kind.

Ongar R. sends cases to various hospitals, Romford and Waltham Abbey generally.

During the year Halstead Urban and Halstead Rural have combined and formed a Joint Hospital Board. The new Board is now engaged in enlarging the Hospital taken over from the Urban District. The Corporation of Colchester has considerably enlarged the Isolation Hospital and the Administrative Block, and has made an arrangement to receive all cases from Lexden and Winstree and Tendring Rural Districts, and from Wyvenhoe, Frinton, and Walton Urban Districts. They are willing to include Brightlingsea, but the latter refuses the reasonable offer.

Leyton still remains without any accommodation for Small-pox cases. Two or three schemes have been considered by the County Council and by representatives of most of the districts in and near the extra-Metropolitan area for providing a Joint Hospital, but the War caused their further consideration to be postponed.

The Small-pox Hospital at Colchester has been rendered available, by arrangement, to all the Urban and Rural areas around, except Brightlingsea.

The Urban and Rural Districts in S.W. Essex combined and erected a Small-pox Hospital at Sible Hedingham, and this was promptly taken over by the County Council for Sanatorium purposes, an arrangement being made that it should be vacated if an outbreak of Small-pox occurred in the district.

The Hospital Grants made to Hospitals approved by the Local Government Board and built from plans sanctioned by them are given in Table XIX.

The Colchester and Saffron Walden Hospitals having just been enlarged will be eligible for an increased grant next year.

The enlargement of the Rochford Hospital has been agreed upon, but will not be attempted until after the conclusion of the War.

The number of cases of Infectious Diseases removed to Isolation Hospitals from each district is given in Table C in the Appendix.

Of 1,173 cases of Diphtheria, 943 were removed	= 80 per cent.
„ 2,927 „ Scarlet Fever, 1,985 were removed	= 67 „
„ 95 „ Enteric Fever, 68 were removed	= 72 „

TABLE XIX.

GRANTS MADE TO ISOLATION HOSPITALS FOR THE YEAR 1915-6.

Name of Hospital	No. of Beds available for Grant.	Grant per Bed.			Grant.		
		£	s.	d.	£	s.	d.
Billericay ...	22	5	0	0	110	0	0
Braintree Joint	8	5	0	0	40	0	0
Chelmsford Joint	21	5	0	0	105	0	0
Clacton ..	17	5	0	0	85	0	0
Colchester ...	31	5	0	0	155	0	0
Dunmow ...	8	5	0	0	40	0	0
Grays and Orsett Joint	20	5	0	0	100	0	0
Halstead Joint	6	5	0	0	30	0	0
Ilford ...	80	5	0	0	400	0	0
Maldon Joint	10	4	15	0	47	10	0
Rochford Joint	12	4	15	0	57	0	0
Romford Joint	42	5	0	0	210	0	0
Saffron Walden Joint ...	6	5	0	0	30	0	0
Walthamstow	84	5	0	0	420	0	0
Waltham Joint	42	5	0	0	210	0	0
Total...	409				£2,039	10	0

The danger arising from overcrowding an Isolation Hospital was exemplified by the experience at the Maldon Joint Hospital. An unusual number of cases of Scarlet Fever occurred in the district served, and so many patients were taken into the small hospital that many became septic and a number of "secondary" cases occurred. The Medical Officer of Health for the Maldon Rural District gives the Hospital Authority the following sound advice: "When Scarlet Fever becomes prevalent and the hospital accommodation proves insufficient, the Hospital Authority should limit the admissions rather than overcrowd the wards, otherwise the advantage of hospital isolation is minimised." In fact, under such circumstances, he might justly have observed, that the Hospital may do more harm than good.

SECTION III.

SANITARY ADMINISTRATION.

SANITARY STAFFS AND BYE-LAWS.

The war has caused such changes and has so reduced the available staffs that I have not attempted to revise my lists. Most Medical Officers of Health now give a list of Bye-laws in force in their district, so that it will not be much trouble after the War to complete the Tables.

WATER SUPPLIES.

The military occupation of the County has been followed by repeated enquiries about the water available in various districts. Most of this information could have been obtained from the Report on the Water Supplies of Essex, prepared by Mr. Whitaker, F.R.S., and myself; but the War Office has refused to allow the book to be distributed until the War is over. No doubt the information would be useful to the enemy in their bombing expeditions, and also in case of a landing in the County, hence doubtless the prohibition of its publication. However, I have been able in most cases to give the military authorities the information they required, and the investigations made for them have certainly increased my knowledge of the springs in the County. Most trouble has arisen during the year in the area supplied by the Tendring Hundred Water Company. The Company possesses wells yielding an abundance of exceedingly pure water, yet in certain localities the water as it comes from the mains has a nauseating odour, and often is very turbid. The complaints have been numerous, but only certain limited areas are affected, hence the fault must lie in the mains. This is confirmed by the fact that in one district which I examined, the water supplied from a 4 in. main gave rise to no complaint whatever; but as soon as enquiries were made along a 3 in. branch complaints were received from nearly every consumer, the water getting gradually worse as it traversed the main. The water took up more and more iron, ultimately becoming discoloured and very ferruginous. I am inclined to think that some of the mains are imperfectly coated, and that there is a growth of a low form of vegetable life acting on the iron and causing its solution and the production of the objectionable odour. So far I have been unable to obtain all the information required to express a definite opinion, nor have I succeeded in getting all the authorities concerned to have a conference and thoroughly investigate the matter. More, however, will be heard of this in the near future. A recent decision in the High Courts bears upon this subject. It has been held that not only must a Water Company supply their mains with a pure and wholesome water, but it must be supplied to the consumer in the same condition.

The question of the wholesomeness of waters containing appreciable amounts of zinc has also received a good deal of attention during the year. Many Essex waters act upon galvanised iron pipes dissolving the zinc, and one small public supply which has been in use for over ten years contains on an average about one grain of zinc per gallon. When first examined (ten years ago) it contained two grains per

gallon, and I reported that though this was a very excessive quantity, it would probably rapidly decrease, and was not likely to be injurious to health. The amount of zinc dissolved has not decreased nearly so rapidly as I anticipated, but neither the Medical Officer of Health nor the medical man practising in the locality has any reason to think the water in any way deleterious. I also questioned the inhabitants and came to the same conclusion. Anyone interested in the matter can refer to an article by me on the subject in the "Lancet" of Nov. 13, 1915. The idea that zinc is a most dangerous constituent in drinking water is, I believe, finally refuted.

The Billericay and Romford Rural Councils have been negotiating with the South Essex Water Company with reference to supplies of water to Ingrave and East Horndon, and to Havering. I prepared reports for both Authorities and examined many samples of water from existing wells. The War is responsible for the delay in carrying out schemes which had practically been agreed upon.

At Castle Hedingham two outbreaks of Enteric Fever—one in 1914 and the other during the year under consideration—lead to all the water from public and private wells being examined. With one exception (a public well) all the supplies were more or less seriously contaminated. The parishioners, doubting my conclusions, submitted them to some analyst who condemned them all, including the one well which yields a good water. The Halstead Rural District Council consulted an engineer, who prepared a simple scheme for supplying the village, but the Local Government Board refused to consider it at the present time, and the inhabitants must either go to the one good source, or use the water from these contaminated wells. By public notice they have been informed of the necessity for boiling the water from these wells before using it for drinking purposes.

The Chelmsford Corporation having completed a new bore and obtained a good supply of excellent water, applied to the Local Government Board for permission to borrow the sum of £2,500 to render this water available for the use of the town, in which some thousands of troops were billeted. Finally after personal visits and strong representations the Borough was allowed to borrow a smaller sum for temporary provision of the water. The work was at once put in hand and completed.

In the Chelmsford Rural District the advent of troops into the village of Writtle and the provision of baths, &c., in the camps overtaxed the resources of the local water supply. Fortunately water from springs was available, an oil engine and pumps were installed and for £120 (half paid by military) plenty of water could be pumped into the mains.

The hardness of the water from a certain public supply has caused complaints. When the deep well was sunk the first water met with was very soft, the water ultimately obtained was hard. The upper spring was apparently kept out when the well was completed and the chalk water supplied is now very hard. It is perfectly wholesome however, and if the hardness is strongly objected to there is the example of Saffron Walden to follow, where the water is softened by a simple and inexpensive process.

In the Maldon Rural District the new waterworks at Tollesbury have been completed and the inhabitants are having it laid on and have entirely got over their objection to it. When water was reached in the trial bore it was found to contain an unusual amount of salt. I expressed the opinion that it was perfectly wholesome, palatable, and would not be likely to become more saline by pumping. I am glad to find that the inhabitants are satisfied with it and that the scheme is a success. The whole scheme was carried out by the Rural District Council's Surveyor and he is to be congratulated on the result of his labours.

In the Braintree Rural District the water mains have been considerably extended at Kelvedon, and at Terling a duplicate engine has been installed. A service reservoir is wanted to make the latter scheme complete.

In the Dunmow district the question of supplying Thaxted with water is held over on account of the War.

MAP OF ESSEX WATER MAINS. For some time I have been engaged upon the production of a map of the County (1 in. to the mile) showing practically all the water mains of the public supplies. The various Water Companies and Sanitary Authorities very kindly revised the portions relating to their areas and the County Architect is having the map mounted and, doubtless, it will be hung so as to be generally available for future reference. My duplicate is retained in loose sheets so that any one or more can be sent to have extensions placed thereon and these can then be added to the mounted map.

SEWAGE AND SEWAGE DISPOSAL, EXCREMENT AND HOUSE REFUSE DISPOSAL.

WANSTEAD. The Wanstead new sewerage works were opened during the year and are proving most successful. The septic tank effluent is sprinkled over the bacteria beds by electrically driven distributors. The works are the most up-to-date in the County and well worth a visit by anyone interested in sewage disposal schemes.

ROCHFORD. The Rochford sewerage works are nearing completion. They have progressed very slowly, apparently on account of the scarcity of labour.

ROMFORD. At Romford trouble has arisen from the discharge of oily matter into the sewers. This fat adheres to the surface of the soil and of the material of the filter beds and greatly retards purification. The source was discovered and steps taken to keep the offending material out of the sewers.

BRAINTREE U. Some water closets still exist here which are flushed direct from a tap on the main, a most objectionable system, endangering the purity of the water supply and most inefficient for flushing. Where possible the sewers are being extended to allow of privies being converted into w.c's. Fixed ashpits interfere greatly with the facilities for scavenging. These should be abolished.

BUCKHURST HILL. The filth dredged from the Forest pond is being removed, and to prevent the breeding of mosquitoes the Council has purchased an improved sprayer.

HARWICH. The storage of house refuse is a matter which urgently requires the attention of the Council. The present receptacles permit of paper, ashes, and refuse being blown and scattered over the roads. They breed flies with all the attendant evils. The dump used by the Borough is "a constant and ever present menace to the health of the Borough. The heaps form a breeding place for rats and flies, and the constant smell of decomposition can be nothing but bad."

HALSTEAD. Both the sewers and the sewage works have given trouble during the year. There are still 200 fixed ashpits in the town and the carts used for removing house refuse are not provided with covers.

WALTHAM HOLY CROSS. A special plant for emptying cesspools has been purchased.

WITHAM. There are still a number of open ashpits. These are not periodically scavenged as are the sanitary bins. The result is that large accumulations of offensive matters remain for a considerable time in the proximity of dwellings.

BRAINTREE R. 1,000 yards of new sewer have been laid in Bocking. This has been done in such a manner that it can form part of the new system when the place is properly sewered. The old sewers are constantly falling in and after the War the Council should again consider the question of properly sewerage the parish and of providing proper purification works to prevent the pollution of the river which now takes place. A cart has been purchased for removing the contents of pail closets at Kelvedon. Scavenging is now undertaken at Bocking, but up to the present has been chiefly devoted towards removing the accumulation of years.

DUNMOW R. The Council having decided to make all house connections with the new sewers, the Local Government Board sanctioned a loan of £950 for the purpose. The total cost of the sewerage and sewage works is about £9,500. Improvements in closets, ashpits, &c., are required. An agreement for the purchase of land at Thaxted for sewage disposal purposes has been arrived at. Land for this purpose has not yet been obtained at Hatfield Broad Oak. The sewage of the normal population and of a large military camp flows into the Brook after very crude treatment. The Lee Conservancy who obtained a conviction against the Council when the normal sewage only entered, ignores the much greater pollution now occurring.

HALSTEAD R. £250 has been spent on sewers and a septic tank at Sible Hedingham. The question of sewerage Castle Hedingham is in abeyance. There is a large number of cesspit privies in this district and a crusade should be started for their early abolition.

SAFFRON WALDEN R. The sewerage arrangements at Great Chesterford are so unsatisfactory that an Engineer has been requested to prepare plans for their improvement.

ROCHFORD R. An attempt is being made to arrange with Southend Borough for the reception of the sewage of Hadleigh into their sewers. Great Wakering and Rayleigh require sewerage.

During the year about 100 samples of sewage effluent and of river water have been examined. The Roding Valley receives most attention since the sewage works are very close together, and the river used to be little more than a sewage ditch. Matters are now greatly improved. No complaint is ever received about the condition of the river and the sewage works' managers vie with each other to produce the most satisfactory effluent. All the works now are under intelligent supervision and it is rare to visit and find an unsatisfactory effluent entering the river.

HOUSING OF THE WORKING CLASSES.

This subject is only referred to in the reports in a few instances. The War has practically put a stop to all building operations, but this must not cause us to overlook the importance of the subject. There are many districts in which more and better houses are urgently required, yet it is extraordinary how many men could be billeted in such areas and apparently without any detrimental effect upon their health. It must be remembered, however, that the billetees were young and vigorous adults, out in the open air the greater portion of the day. Their presence required the very greatest vigilance to prevent and remove nuisances, and especially to prevent the spread of infectious disease. Any carelessness might easily have resulted in a catastrophe. Overcrowding frequently occurred and wherever found was promptly dealt with. Notwithstanding the War the provision of cottages is being proceeded with at Tilbury. Sixteen have been completed and several more were approaching completion at the end of the year.

The information required by the Local Government Board is summarised below :—

TABLE XX.

Urban Districts.

	No. of houses inspected under Sec. 15 of 1909 Act.	No. found unfit for habitation.	No. of repre- sentations made with a view to a Closing Order.	No. of Closing Orders made.	No. in which defects were remedied without Clos- ing Order.	No. of houses made fit after making Closing Order.
Barking ...	379	?	21	?	?	?
				(14 repaired & 6 closed)		
Braintree ...	90	0	0	0	14	0
Brentwood ...	15	0	0	0	18	0
Brightlingsea ...	0	0	0	0	0	0
Buckhurst Hill ...	5	0	0	0	9	0
Burnham ...	No return.					
Clacton ...	167	1	1	1	166	1
Colchester ...	1270	603 (?)	0	0	603	0
Epping ...	268	5	3	3	196	0
Frinton ...	No return.					
Grays ...	"					

TABLE XX—continued.

	No. of houses inspected under Sec. 15 of 1909 Act.	No. found unfit for habitation.	No. of repre- sentations made with a view to a Closing Order.	No. of Closing Orders made.	No. in which defects were remedied without Clos- ing Order.	No. of houses made fit after making Closing Order.
Harwich ...	0	0	0	0	0	0
Chelmsford ...	112	17	0	0	17	0
Halstead ...	285	6	6	6	181	0
Ilford ...	338	4	4	4	284	109 (?)
Leyton ...	1561	2	0	0	1264	0
Loughton ...	2	0	0	0	5	0
Maldon ...	37	2	2	2	0	2
Romford ...	551	0	0	0	474	0
Shoeburyness ...	0	0	0	0	0	0
Saffron Walden ...	11	1	0	0	2	0
Tilbury ...	162	0	0	0	78	1
Wanstead ...	47	40	1	1	48	9
Waltham Holy Cross	3	3	3	3	26	0
Walthamstow ...	878	0	0	0	75	—
Walton-on-the-Naze	0	0	0	0	0	0
Witham ...	0	0	0	0	0	0
Wivenhoe ...	No return.					
Woodford ...	425	0	0	0	124	0
Total ...	6606	?	41	20	3584	?

Rural Districts.

Belchamp ...	38	53 (?)	19	9	29	5
Billericay ...	82	2	2	2	79	0
Braintree ...	18	6	6	6	91	2
Bumpstead ..	47	7	8	8	44	—
Chelmsford ...	27	8	7	7	1	—
Dunmow ...	24	1	1	1	48	2
Epping ...	0	0	0	0	0	0
Halstead ...	201	3	3	3	182	0
Lexden & Winstree	129	24	20	0	18	2
Maldon ...	0	0	0	0	0	0
Ongar ...	0	0	0	0	0	0
Orsett ...	No return.					
Rochford ...	46	4	4	4	0	0
Romford ...	145	52	1	1	99	0
Stansted ...	No return.					
Saffron Walden ...	9	0	0	0	0	0
Tendring ...	0	0	0	0	0	0
Total ...	766	?	81	41	591	11

REPORTS OF INSPECTORS OF NUISANCES.

These present no unusual features, and as several have not been received, a summary only is here given of the return actually required by the Local Government Board:—

TABLE XXI.

Urban Districts.

		No. of inspections made during the year.	No. of notices served.		Nuisances abated.
			Informal.	Statutory.	
Barking ...	...	2955	...	708 ... 110 ...	1520
Braintree ...	...	92 (nuisances discovered)...	— ...	0 ...	112
Brentwood ...	...	429 „	— ...	37 ...	418
Brightlingsea .	...	7 „	— ..	7 ...	7
Buckhurst Hill ...	...	27 „	...	14 ... 1 ...	27
Burnham ...	...	Not received.			
Chingford...	...	„			
Clacton ...	...	„			
Colchester ...	...	806 (nuisances discovered)...	— ...	86 ...	895
Frinton ...	...	Not received.			
Epping ...	...	„			
Grays ...	...	„			
Harwich ...	...	„			
Chelmsford ...	...	2638 (nuisances discovered)...	— ...	11 ...	2738
Halstead ...	...	425 „	— ...	40 ...	309
Ilford ...	...	3585	...	309 ... 41 ...	43
Leyton ...	...	Not received.			
Loughton...	...	30 (nuisances discovered)...	15 ...	2 ...	30
Maldon ...	...	Not received.			
Romford ...	...	634 (nuisances discovered)...	— ...	565 ...	513
Shoeburyness ...	...	Not received.			
Saffron Walden ...	...	555 (nuisances discovered)...	— ...	15 ...	568
Tilbury ...	...	349 „	— ...	13 ...	341
Wanstead...	...	252 „	— ...	10 ...	200
Waltham Holy Cross	...	464 „	— ...	0 ...	593
Walthamstow ...	...	3930 „	— ...	35 ...	3840
Walton-on-Naze ...	...	38 „	— ...	0 ...	46
Witham ..	...	13 „	— ...	0 ...	13
Wivenhoe...	...	58 „	— ...	10 ...	38
Woodford...	...	534 „	— ...	215 ...	413

Rural Districts.

Belchamp...	...	116 (nuisances discovered)...	— ...	23 ...	70
Billericay ...	...	Not received.			

TABLE XXI—continued.

	No. of inspection made during the year.	No. of notices served.		Nuisances abated.
		Informal.	Statutory.	
Braintree	577 (nuisances discovered)...	— ...	43 ...	217
Bumpstead	52 "	— ...	49 ...	49
Chelmsford	385 "	— ...	247 ...	320
Dunmow	165 "	101 ...	20 ...	180
Epping	1115 (includes re-inspection)	— ...	9 ...	336
Halstead	179 (nuisances discovered)...	— ...	39 ...	262
Lexden & Winstree	170 "	— ...	65 ...	160
Maldon	74 "	— ...	3 ...	80
Ongar	37 "	— ...	2 ..	36
Orsett	Not received.			
Rochford	584 (nuisances discovered)...	— ...	140 ...	460
Romford	474 "	— ...	359 ...	467
Stansted	Not received.			
Saffron Walden	96 "	— ...	96 ...	96
Tendring	475 (primary inspections) ...	7 ...	21 ...	26

Because a comparatively small number of nuisances were detected in certain areas it must not be taken for granted that these districts are in a much better sanitary condition than the others. There are other and more probable explanations.

THE PUBLIC HEALTH (MILK AND CREAM) REGULATIONS, 1912.

The four reports kindly furnished me by Dr. B. Dyer, the Public Analyst for the County, can be briefly summarised as under :—

For Quarter ending February 28th, 1915.

340 samples of milk examined. No preservatives detected.

For Quarter ending May 31st, 1915.

369 samples of milk, 1 of separated milk, and 3 of skim milk. No preservatives discovered.

For Three months ending August 31st, 1915.

355 samples examined. No preservatives found.

For Three months ending December 31st, 1915.

338 samples examined. No preservatives found. 3 samples of preserved cream contained .4, .5, and .5 per cent. boric acid respectively. The creams were in each case labelled as containing not more than 0.5 per cent. of boric acid.

THE COUNTY PUBLIC HEALTH LABORATORY.

TABLE XXII.

Number of Examinations made for the County of Essex, 1915.

I. BACTERIOLOGICAL EXAMINATIONS.

Nature of Specimens.	No. examined.	Percentage results.		Remarks.
		Positive.	Negative.	
Sputa for Tubercle bacilli	1937	32	68	Chiefly from Dispensaries.
Sputa for other bacteria	5	—	—	
Blood for Vidal Re-action	51	21·5	78·5	Diagnosis of Typhoid Fever.
Swabs for Diphtheria bacillus	1185	21·8	78·2	Chiefly for local Authorities, 3
Swabs for Meningococcus	98	1·2	98·8	per cent. Hoffman's bacillus
Spinal fluid for Meningococcus	63	38·1	61·9	} Cerebro-spinal Fever.
Feces for Typhoid bacillus	4	—	100	Search for "carrier."
Urine for Tubercle or Colon bacilli	12	16·6	83·4	
Pus for Gonococci	3	—	100	A Venereal Disease.
Hairs for Ringworm fungus	140	36·4	63·6	All from Local Authorities.
Potable waters	184	74 good	26 bad	or doubtful.
Oysters	3	—	—	Two contaminated.
Various	20	—	—	
Total	3705			

II. CHEMICAL EXAMINATIONS.

Nature of specimens.	No. examined.	
Potable waters	180	65 per cent. were good, 35 per cent. bad or doubtful.
River waters	25	
Sewage effluents	59	Over 80 per cent. were quite satisfactory.
Sewage	13	
Water for action on metals	28	Action on galvanised iron and iron pipes.
Various	12	
Total	317	

Grand Total 4022

METEOROLOGICAL DATA.

The meteorological data are particularly interesting since there can be little doubt that weather conditions are to some extent responsible for the excessive mortality from lung diseases during the year.

In comparing the data with those for 1914, a healthy year, certain differences are very marked :—

1. The mean daily temperature was lower in 1915 than in 1914, every month except December. The months of June, July, August, September, October and November averaged nearly 5° below the corresponding months of 1914. For the whole year the difference averaged 3·5°.

2. The number of rainy days in 1915 was lower than in 1914, yet the rainfall was far heavier. In 1914 the average rainfall throughout the County would be about 23·4 ins., whereas in 1915 it was 26·8 ins.

3. In 1914, the month's rainfall only exceeded 3 inches in March and December, whereas in 1915 it exceeded 3 inches in February, July, August, November, and December.

4. The temperature in December was higher than usual. There was a green Christmas which, the proverb says, makes a fat churchyard.

All these differences may have had an effect upon health, but, to my mind, only one thing is certain, namely, that the comparatively cold and wet summer was responsible for the small number of deaths amongst children from diarrhoeal disease. Whether such a summer affects health prejudicially in other ways is at present difficult to prove.

SALE OF FOOD AND DRUGS ACT.

*Summary Report on Samples analysed during the twelve months ending
30th November, 1915.*

(Kindly supplied by Dr. Bernard Dyer, Public Analyst).

During the twelve months ending on the 30th November, 1915, 2,895 samples were submitted to the Public Analyst for the County under the Sale of Food and Drugs Act. Of these, 198 or just over 6¾ per cent., were adulterated or deficient as compared with legal requirements.

The samples are summarised in the following tables :—

	Samples Analysed.	Samples Unsatisfactory.	Percentage of Adulteration, (1914-1915).
Northern District of the County ...	651	13	2·0
Southern District of the County ...	738	53	7·2
Metropolitan Police District of the County...	1393	125	9·0

TABLE XXIII.

METEOROLOGICAL DATA, 1915.

CHELMSFORD.

With rainfall statistics from various parts of the County.

Month.	Mean Daily Temperature.	Mean Daily Range.	Maximum Temperature.	Minimum Temperature.	No. of Rainy Days.	Barking.	Leyton.	Epping.	Chelmsford.	Pattiswick, Braintree.	Halstead.	Clacton.	Pritton.	Walton.	Southend.	S. Walden.
January ..	38.7	9.3	55.0	15.0	19	3.37	3.80	3.20	3.12	2.46	2.66	2.85	2.83	2.84	2.0	3.01
February ..	39.7	12.5	51.0	25.0	18	2.36	2.74	3.53	2.73	2.20	3.77	1.79	2.02	1.68	1.51	3.25
March ..	40.0	13.9	58.0	23.0	12	0.69	0.76	0.83	1.33	1.26	1.40	1.00	1.02	1.20	0.98	1.56
April ..	45.4	19.9	66.0	25.0	9	0.99	1.06	0.85	0.71	0.78	0.66	0.90	0.83	1.09	0.75	0.90
May ..	53.2	20.7	76.0	31.0	5	2.21	3.11	2.49	2.22	2.03	2.17	0.85	2.22	2.32	2.62	1.87
June ..	57.4	22.8	86.0	33.0	7	0.51	0.80	0.60	0.78	1.06	0.33	0.39	0.54	0.70	0.52	2.22
July ..	60.0	18.9	77.0	43.0	13	4.55	1.63	4.49	4.00	3.81	3.77	3.92	3.50	3.74	2.70	3.30
August ..	60.5	18.6	76.0	40.0	13	3.14	2.13	2.94	2.85	2.93	3.33	2.75	1.69	3.28	2.37	3.92
September ..	56.6	19.9	78.0	33.0	5	1.50	1.75	2.26	2.14	.59	1.50	2.96	1.83	1.88	1.92	1.59
October ..	48.4	15.7	67.0	50.0	5	1.6	1.21	.97	1.59	1.43	1.68	1.19	1.47	1.35	1.76	1.53
November ..	38.0	12.9	52.0	21.0	8	1.38	1.94	2.78	2.87	2.73	2.47	2.06	1.68	1.96	3.45	3.17
December ..	42.8	12.0	56.0	27.0	22	4.50	4.18	4.64	4.90	4.17	4.48	4.78	4.63	4.25	3.97	4.44
Means etc.	48.4	16.4	Mx. 86°	Min. 15°	136	26.80	25.11	29.58	29.24	25.45	28.22	24.54	24.26	26.29	24.55	30.81

	Samples Analysed.	Samples Unsatisfactory.	Percentage of Adulteration, (1914-1915).
Chingford Urban District Council ...	13	...	6.2
County Asylum, Brentwood ...	1	...	
Romford Union Guardians ...	7	...	
Walthamstow Urban District Council	80	...	
West Ham Union Guardians ...	6	...	
Woodford Urban District Council ...	6	...	
	<u>2895</u>	<u>198</u>	<u>6.8</u>

	Samples Analysed.	Samples Unsatisfactory.
Bread ...	3	...
Butter ...	979	30
Cheese ...	55	...
Cocoa ...	16	...
Coffee ...	13	...
Coffee Mixture ...	4	...
Cream (Preserved) ...	3	...
Custard Powder ...	1	...
Dripping... ..	8	...
Drugs :—		
Boracic Powder ...	3	...
Camphorated Oil ...	28	1
Epsom Salts ...	13	...
Paregorio ...	10	...
Flour, Self-raising ...	1	...
Golden Syrup ...	1	...
Jam ...	14	...
Lard ...	151	...
Lard Substitute ...	1	...
Margarine ...	139	1
Marmalade ...	6	...
Milk ...	1394	160
Milk, Skimmed or Separated ...	12	3
Milk, " Synthetic " ...	1	...
Milk and Water ...	1	1
Mustard ...	5	...
Mustard Mixture ...	3	...
Olive Oil ...	1	...
Pepper ...	7	...
Rice, Ground ...	7	...
Spirits :—		
Whisky ...	8	2
Sugar ...	6	...
Tea ...	1	...
	<u>2,895</u>	<u>198</u>

Details of Unsatisfactory Samples.

MILK.

77 samples contained added water in the proportion of :—

In 48 cases	from 3 to 10 per cent.
In 21 ,,	11 to 19 per cent.
In 2 cases	21 per cent.
In 2 ,,	25 ,,
In 2 ,,	27 ,,
In 1 case	32 per cent.
In 1 ,,	50 ,,

Four of these samples (containing respectively 5, 5, 10 and 19 per cent. of added water) were also partially skimmed.

One of the samples which contained 27 per cent. of added water was described by the Vendor as "White Liquid," having been admittedly diluted with water.

83 other samples were deficient in fat to the extent of :—

In 39 cases	from 5 to 10 per cent.
In 26 ,,	11 to 20 ,,
In 8 ,,	23 to 30 ,,
In 2 cases	33 per cent.
In 1 ,,	35 ,,
In 2 ,,	36 ,,
In 1 ,,	46 ,,
In 1 ,,	48 ,,
In 2 ,,	50 ,,
In 1 ,,	51 ,,

of the minimum normal quantity as indicated in the statutory regulations of the Board of Agriculture.

SAMPLES SUPPLIED AS SKIMMED OR SEPARATED MILK.

Two consisted of skimmed or separated milk adulterated with added water in the proportion of 4 per cent. and 17 per cent. respectively.

One consisted of whole or unskimmed milk with 42 per cent. of added water.

SAMPLE DESCRIBED BY VENDOR AS "MILK AND WATER."

This consisted of milk adulterated with 11 per cent. of added water.

BUTTER.

20 consisted of margarine.

7 were mixtures of butter and margarine, containing in one case 10 per cent., in one case 15 per cent., in three cases 20 per cent., in one case 30 per cent., and in one case 70 per cent. of fat foreign to butter.

2 contained excessive quantities of water, namely, 18 and 21 per cent. respectively, the legal limit being 16 per cent.

1 contained an excessive quantity of boracic preservative, namely, 1 per cent.

A number of the other samples of butter contained boracic preservative, but with the exception just mentioned the quantity did not in any case materially exceed the limit of 0.5 per cent. suggested by the Departmental Committee of the Local Government Board on Food Preservatives in its Report issued in 1901.

MARGARINE.

One sample contained an excessive quantity of water, namely, 20 per cent.

CAMPHORATED OIL.

One sample was deficient in camphor, of which it contained only $4\frac{1}{2}$ per cent., whereas camphorated oil made as directed in the British Pharmacopœia contains 20 per cent. of camphor.

SPIRITS.

Two samples of Whisky were deficient in strength to the extent respectively of 8 degrees and 14 degrees below the legal limit.

TABLE B.
DEATHS IN EACH DISTRICT CLASSIFIED ACCORDING TO AGES.
AREA. POPULATIONS 1901 CENSUS, 1911 CENSUS, & 1915 MID-YEAR, & NO. OF BIRTHS.

NAME OF LOCALITY.	Area in acres, land and inland water.	Population, Census 1901.	Population, Census 1911.	Increase per cent. during decennium.	Decrease per cent. during decennium.	Persons per acre 1911.	Population, middle of 1915, (estimated to mid-year).	No. of Births.	Birth-rate.	No. of Deaths Net.	Death-rate.	DEATHS FROM ALL CAUSES AT REPORTED AGES.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
												Under 1 year.	1 and under 2.	2 and under 4.	5 and under 15.	15 and under 35.	35 and under 45.	45 and under 65.	65 and upwards.	Deaths under 1 year per 1,000 births.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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TABLE C.
(Corresponding to Table II, of the Local Government Board.)
**NUMBER OF CASES OF DISEASE NOTIFIED IN EACH DISTRICT AND
NUMBER REMOVED TO HOSPITAL.**
1915.

NAMES OF LOCALITIES.	CASES NOTIFIED IN EACH LOCALITY.														NUMBER OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.															
	Small-pox.	Diphtheria and Membranous Group.	Erysipela.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Ophthalmia Neonatorum.	Pulmonary Tuberculosis.	Other forms of Tuberculosis.	TOTALS.	Small-pox.	Diphtheria Membranous Group.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Cerebro-Spinal Fever	Poliomyelitis.	Ophthalmia Neonatorum.	Pulmonary Tuberculosis.	Other forms of Tuberculosis.	TOTALS.		
URBAN.																														
ARKING	80	41	134	1					1	1		19	238	14	532	66		121		4						5	18	11	225	
BAINTREE	9	1	25					1	1				5	4	47	8		19		1						3			31	
BENTWOOD	21	4	4										4	3	37	21	1	4		1									27	
BIGHTLINGSEA		5	10							1			9	3	31			3		1			1						4	
DOCKHURST HILL	2		3						1	1			8	1	11	2		1											4	
URNHAM												1	19	4	126	30		40					3	4			9	2	88	
HELMSPFORD	33	7	44					3	11			5	9	5	64	5		20		5							1	31		
HINGFORD	9	3	33		5							1	9	2	26	1		10		1									12	
LACTON	1	2	10						7			4	51	22	464	44		191		11			3						249	
OLCHESTER	45	44	279					1	1				11*	21		2		5											7	
OFFING	2	2	5										2		14			3		1									4	
RINTON		3	9					3	4	1	1	24	10	125	1	19		28		2			1	1		18			70	
RAY	1	27	9									11	2	122		1		36											45	
ALSTEAD			105									21	3	83		8		39											50	
ARWICH	10	3	42									6	114	54	583	101	1	182		3			2	2	1				290	
LFORD	128	46	224						4	3	6	15	235	70	1060	128	13	325		6			6	2	3	51	17	553		
ETTON	170	78	471					8					2																6	
UGHTON	6	3								2			4	6	64			42											45	
ALDON	2	1	49									2	7	164		58		47		3			3						111	
OMFORD	62	15	49					3		1	3	1	22	7	25			11					2						13	
APFON WALDEN		5	12						2	4		3	9	14	48		1		1		1		1						38	
ROEBURNNESS	3	6	7					1		1	2	2	28	5	86		13		22										15	
ILBURY	13	7	28						3				12	4	34		2		10										434	
ALHAM HOLY CROSS	2	3	10						3				298	115	1025		190	9	217		9		2	7					11	
ALHAMSTOWN	199	72	320						3		3		1	1	56			9											17	
ALTON-ON-THE-NAZE		1	50												44			13								1			16	
ANSTAD	16	4	20					6		1	1		1	2	23		6		6										1	
VITHAM	6	6	2										1	1	22														1	
VIVENHOE	13		6					1					30	12	136		7												43	
WOODFORD	12	11	70					1										36												
TOTAL	1	875	381	2064	1	71		21	61	10	58	1189	366	5098	1	725	24	1437		58		14	34	2	9	108	31	2443		
RURAL.																														
ELCHAMP		1	1								1	6	2	11				59									1		1	
ELLERBAY	34	8	71					1		2		17	4	137		27										6			86	
BAINTREE	26	7	69					1				12	8	123		13		32											51	
UMPSTEAD		2										2		7																
HELMSPFORD	25	9	50					1	3			32	3	123		19		43								5	2		65	
UMMOW	23	8	42									19	9	103		17		26											50	
OFFING	6	4	54									11	7	88		6		46											52	
ALSTEAD	2	2	21									6	4	42		2		8		4						3	1		16	
EXDEN & WINSTREE	23	1	62									31	8	126		11		11											22	
ALDON	11	8	102					2	1		1	16	5	160		5		62		1									70	
NGAR	13	7	27									7	3	62		13		19		1									34	
OBETT	30	3	145					3		4		2	16	3	207		20		89		1		1						115	
ROCHFORD	4	16	48					1				27	6	105		2		42											45	
ROCHFORD	41	20	97					3				30	21	214		25		83								3			121	
APFON WALDEN	21	2	23						3			4		53		14		14								4			31	
ANSTAD	26		9						5			6	1	47		23		6											33	
ENDRING	11	6	40					3				1	15	81		11		7		2									20	
TOTAL	298	102	863			24		4	34	1	11	257	87	1681		218		548		10		1	20			14	3	814		

* According to the returns sent each week, 15 cases of Pulmonary and 5 of Non-Pulmonary Tuberculosis were notified in Wanstead.
† These returns are quite erroneous in nearly every case. Vide Section on "Tuberculosis."

TABLE D.
INFANT MORTALITY.
Net Deaths from stated causes at various Ages under One Year of Age.
1915.

CAUSE OF DEATH.	URBAN DISTRICTS.												RURAL DISTRICTS.											
	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks.	Total under 4 weeks.	4 weeks and under 3 months.	3 months and under 6 months.	6 months and under 9 months.	9 months and under 12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks.	Total under 4 weeks.	4 weeks and under 3 months.	3 months and under 6 months.	6 months and under 9 months.	9 months and under 12 months.	Total deaths under 1 year.	Percentage of total deaths due to each cause.	Mortality rate per 1,000 Births.
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Small-pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Chicken-pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Measles ...	1	1	...	...	2	...	5	7	24	38	3.4	...	...	...	...	...	...	1	...	1	...	2	5	...
Scarlet Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Whooping Cough ...	...	...	...	3	3	16	10	14	21	64	5.7	...	...	...	...	1	1	4	4	5	4	18	4.7	...
Diphtheria and Croup ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Erysipelas ...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
Tuberculous Meningitis ...	...	...	...	...	...	1	4	4	8	17	...	...	...	...	...	...	...	...	...	3	1	5	...	
Abdominal Tuberculosis ...	...	...	...	...	...	2	3	1	2	8	3.2	...	...	...	...	...	...	...	...	...	...	...	...	
Other Tuberculous Diseases ...	...	...	...	...	...	3	5	8	3	19	1.7	...	...	...	...	...	...	...	...	2	1	3	...	
Meningitis (not Tuberculous) ...	...	...	...	...	...	3	5	8	3	19	1.7	...	...	...	...	...	...	...	...	2	1	3	...	
Convulsions ...	13	5	3	2	23	13	13	12	6	67	5.9	...	3	2	2	...	7	3	5	9	6	30	8.0	...
Laryngitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Bronchitis ...	2	4	7	4	17	20	21	11	11	80	7.1	...	1	...	...	2	3	10	10	6	11	40	10.5	...
Pneumonia (all forms) ...	3	2	1	2	8	35	30	38	46	157	13.3	...	...	...	...	...	...	7	12	22	9	50	13.0	...
Diarrhoea ...	...	1	2	...	3	9	16	9	6	43	...	...	...	1	...	...	1	5	7	6	4	23	...	...
Enteritis ...	1	2	4	2	9	21	18	16	8	72	10.2	...	...	...	...	...	...	6	4	2	1	13	...	...
Gastritis ...	...	...	...	...	...	2	1	...	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	
Syphilis ...	...	...	...	1	2	4	1	1	...	8	...	...	...	...	...	...	...	...	...	...	1	...	...	
Rickets ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Suffocation, overlying ...	1	...	3	3	7	6	2	...	...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	
Injury at Birth ...	8	1	...	1	10	...	...	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	
Atelectasis ...	21	...	1	...	22	...	...	...	1	23	...	...	...	...	...	...	...	...	...	...	...	...	...	
Congenital Malformations ...	17	5	1	4	27	11	3	3	2	46	...	...	...	...	...	...	...	...	...	...	...	...	...	
Premature Birth ...	144	20	13	4	181	23	1	1	...	206	37.1	...	...	...	...	...	...	...	...	...	...	...	...	
Atrophy, Debility & Marasmus ...	29	11	14	5	59	34	12	7	...	167	...	...	...	...	...	...	...	...	...	...	...	...	...	
Other causes ...	20	6	1	2	29	11	9	13	6	68	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total ...	260	58	51	33	402	226	180	155	166	1129	100	88	102	23	14	9	148	63	61	57	54	383	100	80



