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CITY OF CARLISLE.

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REPORT

ON THE

Sanitary Condition of the City of Carlisle,

FOR THE YEAR 1916,

BY

JOSEPH BEARD,

D.P.H. (Cantab.), F.R.S. (Edin.)

Of Gray's Inn, Barrister-at-Law ;

Fellow of the Royal College of Surgeons, Edinburgh ;

Member of the Royal College of Surgeons, England ;

Licentiate of the Royal College of Physicians, London.

Medical Officer of Health,

School Medical Officer,

Chief Tuberculosis Officer, etc.

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TO THE CHAIRMAN AND MEMBERS OF THE HEALTH  
COMMITTEE.

Gentlemen,

In accordance with the Regulations and Memoranda of the Local Government Board, I have the honour to submit my Annual Report upon the Health and Sanitary Condition of the City of Carlisle during 1916.

The report deals with the Birth, Mortality Statistics, and other work carried out during the year, including the measures adopted against the prevention of epidemic and other diseases.

Throughout the year the staff of the Department has been considerably depleted, owing to certain members having joined His Majesty's Forces or having left the service of the Corporation. I am however of opinion that the work of the Department has been performed efficiently.

I am, Gentlemen,

Your obedient Servant,

JOSEPH BEARD.

Public Health Department,

19 Fisher Street, Carlisle.

1st June, 1917.

## Statistical Summary for the Year, 1916.

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Area in Acres	...	...	...	...	4,488
Population (estimated by the usual methods 1916)	...				52,719
Population per acre (Density)	...	...	...		11.7
Civil Population estimated by Registrar-General for purposes of calculating Death-rates	...	...			49,721
Total Population estimated by Registrar-General for purposes of calculating the Birth-rate	...	...			54,097
Rateable Value	...	...	...	...	£266,924
Number of Inhabitants per House (Census 1911)	...				4.4
Birth-rate per 1,000 living, calculated upon the above figure of the Registrar-General	...	...			20.3
Nett Death-rate per 1,000 living, calculated upon the above figure of the Registrar-General	...	...			15.7
Standardised Death-rate per 1,000 living, calculated upon the above figure of the Registrar-General	...				16.0
Infant Mortality	...	...	...	...	101.5
Percentage of Uncertified Deaths	...	...			1.5
Total Deaths from Diarrhoea	...	...	...		27
Phthisis, Death-rate per 1,000 living	...	...			1.3
Infectious Diseases of all kinds notified	...	...			720
Infectious Cases Isolated at the Fever Hospital	...				239
Total Rainfall in inches	...	...			31.43



## BIRTHS.

The number of births registered during the year was 1,103, of which 546 related to males and 557 to females. This figure shows a decrease of 89 over the figure for 1915.

Calculations made upon the Registrar-General's estimate of the total population of the City, viz., 54,097, give a birth-rate of 20.3 per 1,000, which shows a decrease of 2.3 per 1,000 over the figures for the year 1915. The figure supplied by the Registrar-General is an estimate of the total population of the City for 1915, and is based upon the assumption that the ratio between the total population and the civilian population is the same in the City as in England and Wales as a whole.

Year.	Number of Births Registered.			Total.
	Males.	Females.	Per 1,000 of the population.	
1915	604	588	22.6	1192
1916	546	557	20.3	1103

The birth-rate for the whole of England and Wales during 1916, based upon a population of 36,250,000, was 21.6 per 1,000. The rates for the 96 great towns, in which classification Carlisle belongs, and for the 148 smaller towns respectively for England and Wales cannot however be stated.



## ILLEGITIMATE BIRTHS.

The number of illegitimate births registered during 1916 was 81, making a figure equal to 73.4 per 1,000 of the total births.

The distribution of the illegitimate births to the Registration Sub-Districts was as follows:—

St. Cuthbert's—36, equivalent to 75.7 per 1,000 of the total births in that district.

St. Mary's—43, equivalent to 74.6 per 1,000 of the total births in that district.

Stanwix—2, equivalent to 43.4 per 1,000 of the total births in that district.

Dalston—Nil.

Wetheral—Nil.

The number of illegitimate births registered shows an increase of 16 over the figure for 1915, and an increase of 5 over the figure for 1914.

Upon investigation I find that in 10 instances, which is equal to 12.3 per cent. of the total illegitimate births for the year, the mother was not a resident of the City.

Table showing details of the Births in the several  
Registration Sub-Districts, 1916.

QUARTER ENDING.	ST. MARY.		ST. CUTHBERT.		STANWIX.		DALSTON.		WETHERAL.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
March 31 .....	65	73	60	60	6	5	1	..	...	...
June 30.....	78	72	59	67	3	7	2	...	...	...
September 30	73	64	64	62	5	10	1	1	...	...
December 31...	75	76	50	53	4	6	...	1	...	...
Totals... ..	291	285	233	242	18	28	4	2	...	...

## DEATHS.

The total number of deaths registered during 1916 was 850, as compared with 1,027 in 1915. 24 deaths occurred of persons belonging to the City in institutions and other places outside, while the deaths of 93 persons not belonging to the City occurred in public institutions and other places within the City.

Excluding the 93 deaths of persons belonging to outside districts, and substituting the 24 deaths of Carlisle residents occurring in other districts, a nett figure of 781 remains. This gives a nett death-rate of 15.7 per 1,000, or a standardised death-rate of 16.0 per 1,000 of the civil population at all ages, based upon the estimated civil population supplied by the Registrar-General for this purpose, viz., 49,721.

The standardised death-rate for the whole of England and Wales for 1916, based upon a population of 36,250,000, was 14.0 per 1,000 living at all ages, for the 96 great towns, amongst which Carlisle figures, 14.4 per 1,000, and for the 148 smaller towns, 13.0 per 1,000.



# Death-rate and Analysis of Mortality during the Year 1916.

	ANNUAL DEATH-RATE PER 1,000 LIVING.*								RATE PER 1,000 BIRTHS.		PERCENTAGE OF TOTAL DEATHS.			
	All Causes.	Enteric Fever.	Smallpox.	Measles.	Scarlet Fever	Whooping Cough	Diphtheria.	Violence.	Diarrhoea and Enteritis (under 2 years).	Total Deaths under One Year.	Deaths in Public Institutions.	Certified Causes.	Inquest Cases.	Uncertified Causes of Death.
England and Wales ... ..	14.0	0.03	0.00	0.15	0.04	0.16	0.14	0.66	12.47	91	24.2	91.3	7.2	1.5
96 Great Towns, including London (Census Populations exceeding 50,000) ... ..	14.4	0.03	0.00	0.21	0.04	0.21	0.15	0.53	16.24	99	29.6	91.2	7.8	1.0
148 Smaller Towns (Census Populations 20,000—50,000) ... ..	13.0	0.03	0.00	0.14	0.04	0.14	0.15	0.46	10.79	90	16.4	92.5	6.7	1.8
London ... ..	14.3	0.02	...	0.19	0.03	0.18	0.14	0.56	15.80	89	45.6	90.1	9.8	6.1
Carlisle ... ..	16.0	...	...	0.20	0.12	...	0.56	0.63	19.94	112	30.0	98.4	6.2	1.5

\*The death-rates for England and Wales are based upon deaths in the whole population and upon an estimated total population of 36,250,000. The birth-rate similarly calculated is 21.6 per 1,000. The death-rates for the towns are based upon civil deaths and estimated civil populations. The birth-rates cannot be stated. In all cases the population used relates to the year 1915.



Table showing details of the Deaths in the several Registration Sub-Districts, 1916.

QUARTER ENDING.	ST. MARY.				ST. CUTHBERT.				STANWIX.				DALSTON.				WETHERAL.				TOTALS FOR CITY.	
	Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.		Males.		Females.			
	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years	Under 5 years	Over 5 years		
March 31	14	51	16	40	11	40	9	41	2	2	1	8	1	...	1	...	2	...	1	...	...	239
June 30	21	44	5	42	6	28	2	44	2	...	...	6	...	...	...	...	...	...	...	...	...	200
Sept. 30	6	42	10	41	5	24	4	25	..	5	2	3	...	1	...	1	...	...	...	...	...	169
Dec. 31	27	63	11	41	14	30	13	30	...	2	...	8	...	1	1	...	...	1	...	...	...	242
TOTALS	68	200	42	164	36	122	28	140	4	9	3	25	1	2	1	3	..	2	...	...	...	850

Table showing the number of Deaths at all Ages and at several Age periods.

No. of Deaths at all ages and at several age periods	All Ages.	Under 1 Year.	Under 1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and up- wards.	St. Mary's.	St. Cuthbert's.	Stanwix.	Dalston.	Wetheral.
	850	122	61	48	37	329	253	474	326	41	7	2

The following list shows the number of deaths of persons not belonging to the district occurring in public institutions and other places within the City:—

Cumberland Infirmary	...	...	...	57
Private Nursing Homes	...	...	...	12
Fusell Hospital	...	...	...	9
Private Houses	...	...	...	8
Citadel Station	...	...	...	3
Fever Hospital	...	...	...	2
Grounds adjoining Infirmary	...	...	...	1
Field adjoining the Cemetery	...	...	...	1
				—
				93
				—

The following table shows the Vital Statistics for the whole City during 1916 and previous years.

YEAR.	Population estimated to Middle of each Year	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.		Number.	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of age		AT ALL AGES.	
			Number.	Rate.					Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1911	46,420	1109	1106	23.8	776	16.7	60	17	161	145	733	15.7
1912	52,225	1149	1149	20.2	823	15.7	63	23	120	104.4	783	14.0
1913	52,497	1164	1164	22.1	821	15.6	76	24	148	127.1	769	14.6
1914	52,530	1209	1209	23.0	848	16.1	69	22	148	122.4	801	15.2
1915 {	52,625	1192	1192	22.6	994	18.8	72	31	172	144.3	953	18.1
	+50,036											
1916 {	52,719	1103	1103	20.3	850	17.0	93	24	112	101.3	781	15.7
	+54,097											

† Registrar-General's estimate of civil population.

The following public and other Institutions are within the City:—

The Union Workhouse and its Infirmary.  
 The Cumberland Infirmary.  
 Carlisle Non-Provident Dispensary.  
 The Crozier Lodge Isolation Hospital.  
 Strathclyde House (Home for Incurables).  
 St. Joseph's Home (aged and infirm persons).  
 Chadwick Memorial (Industrial School).  
 Corporation Dispensary and School Clinic.



The following table sets out the Cause and the Ages at Death of 781 persons belonging to the City.

CAUSES OF DEATH.		NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.									TOTAL DEATHS WHETHER "RESIDENTS" OR "NON- RESIDENTS" INSTITUTIONS IN THE DISTRICT
		All Ages.	Under 1 year.	1 and under 2.	2 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and up- wards	
1		2	3	4	5	6	7	8	9	10	11
All Causes	{ Certified ... Uncertified ..	768 12	109 3	21 ...	37 1	44 ...	29 1	117 ...	170 2	242 5	235
Enteric Fever	...	...	...	...	...	...	...	...	...	...	2
Smallpox	...	...	...	...	...	...	...	...	...	...	...
Measles	...	1	...	...	1	...	...	...	...	...	...
Scarlet Fever	...	6	...	...	4	2	...	...	...	...	6
Whooping Cough	...	1	...	...	...	1	...	...	...	...	...
Diphtheria and Croup	...	28	1	...	11	15	1	...	...	...	25
Influenza	...	26	3	1	1	1	...	3	7	10	1
Erysipelas	...	1	1	...	...	...	...	...	...	...	...
Phthisis (Pulmonary Tuberculosis)	...	66	...	...	...	3	10	40	10	3	7
Tuberculous Meningitis	...	16	3	4	4	2	1	1	1	...	1
Other Tuberculous Diseases	...	13	...	1	2	3	3	3	1	...	7
Cancer, Malignant Disease	...	74	...	...	...	...	1	8	38	27	24
Rheumatic Fever	...	1	...	...	...	...	1	...	...	...	...
Meningitis	...	7	...	1	...	3	...	2	1	...	5
Organic Heart Disease	...	97	1	...	...	...	4	10	29	53	17
Bronchitis	...	36	6	...	1	...	1	1	9	13	4
Pneumonia (all forms)	...	51	10	4	3	1	1	6	12	14	15
Other Diseases of Respiratory Organs	...	9	1	1	1	...	...	4	2	...	5
Diarrhoea and Enteritis	...	27	19	3	1	...	...	1	1	2	...
Appendicitis and Typhlitis	...	3	...	...	1	...	...	2	...	...	5
Cirrhosis of Liver	...	2	...	...	...	...	...	...	1	1	2
Alcoholism	...	1	...	...	...	...	...	...	1	...	...
Nephritis and Bright's Disease	...	21	...	...	1	2	...	5	9	4	4
Puerperal Fever	...	...	...	...	...	...	...	...	...	...	...
Other Accidents and Diseases of Preg- nancy and Parturition	...	3	1	...	...	...	...	2	...	...	1
Congenital Debility & Malformation, including Premature Birth	...	49	48	1	...	...	...	...	...	...	6
Violent Deaths, excluding Suicide	...	29	...	3	3	4	4	6	5	4	23
Suicide	...	4	...	...	...	...	...	3	1	...	1
Other Defined Diseases	...	208	18	2	4	7	3	20	43	111	69
Diseases ill-defined or unknown	...	1	...	...	...	...	...	...	1	...	5
Totals		781	112	21	38	44	30	117	172	247	235
Sub- Entries included, in above figures	Cerebro-spinal Meningitis	...	...	...	...	...	...	...	...	...	...
	Poliomyelitis	1	...	...	...	1	...	...	...	...	...
	Typhus	1	...	...	...	...	...	...	1	...	...
	Lobar Pneumonia	9	...	...	...	...	1	2	3	3	5
	Pneumonia not defined	29	7	3	3	1	...	3	8	4	10



Table showing the estimated population (unless otherwise shown), births, birth-rate, and infant mortality rates for the past thirty years.

Year.	Population.	No. of Births.	Rate per 1000.	Infant Death-Rate per 1000 births.
1887	38,793	1214	31.3	141
1888	39,027	1307	33.5	129
1889	39,944	1224	30.6	142
1890	40,500	1215	30.0	150
*1891	39,200	1207	30.8	137.
1892	39,750	1213	30.5	123
1893	40,150	1389	34.5	178
1894	41,022	1315	32.0	133
1895	41,658	1311	31.4	142
1896	42,294	1246	29.6	137
1897	42,930	1324	30.8	134
1898	43,566	1311	30.0	183
1899	44,202	1300	29.4	145
1900	44,838	1354	30.1	134
*1901	45,478	1246	27.3	129
1902	46,078	1245	27.0	117
1903	46,500	1322	28.4	118
1904	47,350	1278	26.7	152
1905	47,920	1168	24.3	139
1906	48,425	1227	25.3	132
1907	49,400	1178	23.8	143
1908	50,047	1223	24.4	129
1909	50,675	1149	22.6	123.6
1910	51,433	1145	22.2	110.0
*1911	46,432	1109	23.8	145.0
1912	46,420	1142	24.6	102.4
1913	52,497	1164	22.1	127.1
1914	52,530	1209	23.0	122.4
1915	52,625	1192	22.6	144.3
1916	52,719	1103	†20.3	101.5

\* Census Population.

† Calculated upon the figures supplied by the Registrar-General—54,097.

The following table shows the gross Death-rate from 1881 to 1916 inclusive :—

Year.	Deaths from all causes.		Deaths from Principal Zymotic Diseases.	
	No. Registered.	Rate per 1000 of Population.	No. Registered.	Rate per 1000 of Population.
*1881	717	20.0	67	1.8
1882	852	23.6	189	5.0
1883	779	21.0	67	1.8
1884	783	21.0	38	1.0
1885	769	20.3	66	1.7
1886	745	19.4	62	1.6
1887	772	19.9	75	1.9
1888	722	18.5	59	1.5
1889	723	18.1	69	1.7
1890	792	19.5	65	1.6
*1891	789	20.1	63	1.6
1892	805	20.2	55	1.3
1893	868	21.6	145	3.6
1894	780	19.2	44	1.1
1895	794	19.4	33	0.8
1896	753	18.2	30	0.7
1897	811	19.4	54	1.3
1898	935	22.2	103	2.4
1899	818	19.2	42	0.9
1900	807	18.8	60	1.4
*1901	810	17.8	64	1.4
1902	856	18.5	82	1.7
1903	813	17.4	58	1.2
1904	933	19.7	63	1.3
1905	783	16.3	66	1.3
1906	811	16.7	34	0.7
1907	848	17.1	77	1.5
1908	713	14.2	42	0.8
1909	735	14.5	30	0.5
1910	683	13.2	21	0.4
*1911	776	16.7	96	2.06
†1912	813	17.5	81	1.7
1913	821	15.6	44	0.8
1914	848	16.1	53	1.0
1915	1027	19.5	109	2.07
1916	850	17.0	64	1.2

\*Census Years.

†Old City.



The following table shows the diseases causing the largest number of Deaths during 1916, and a comparison with those of 1915.

DISEASE.	1915.	1916.	Increase or Decrease
Pulmonary Tuberculosis & Phthisis ...	80	66	—14
Pneumonia ... ..	84	51	—33
Other Diseases of Respiratory System ...	73	45	—28
Measles ... ..	35	1	—34
Influenza ... ..	27	26	— 1
Whooping Cough ... ..	23	...	—23
Diphtheria, Membranous Croup ...	12	28	+16
Disease of Heart and Blood Vessels ...	165	160	— 5
Rheumatic Fever, Chronic Rheumatism, Rheumatoid Arthritis .. ...	10	3	— 7
Cancer and Malignant Disease ...	58	74	+16
Kidney and Bladder Disease... ..	31	33	+ 2
Diseases of Digestive System ...	51	47	— 4
Diseases of Urinary System ... ..	31	33	+ 2
Diseases of Nervous System ... ..	52	40	—12
Prematurity and Injury at Birth ...	38	31	— 7
Accidents due to Negligence ..	26	29	+ 3
Diarrhoea and Enteritis ... ..	29	27	— 2
Scarlet Fever ... ..	10	6	— 4

+ Shows an increase in the number of deaths.

— Shows a decrease in the number of deaths.



Table showing details of the Number and Nature of all Deaths of Persons belonging to the City during the year.

CAUSE OF DEATH.	AGES.										Totals.
	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	
I.—GENERAL DISEASES.											
Measles (Morbilli) ..	...	...	1	...	...	...	...	...	...	...	...
Scarlet Fever ..	...	...	4	2	...	...	...	...	...	...	...
Typhus ..	...	...	...	...	...	...	...	1	...	...	...
Influenza ..	3	1	1	1	1	2	3	4	6	2	26
Mumps ..	...	...	...	1	...	...	...	...	...	...	...
Diphtheria, Membranous Croup	1	...	11	15	1	...	...	...	...	...	...
Diarrhœa (not otherwise defined)	2	...	...	...	...	1	...	...	...	...	...
Syphilis ...	7	...	...	...	...	1	...	...	...	...	...
Pneumonia { Lobar ..	...	...	...	...	1	2	3	...	1	2	...
{ Broncho ..	3	1	...	...	1	...	...	...	3	4	...
{ Not Defined ..	7	3	3	1	...	1	2	6	2	2	...
Erysipelas ..	1	...	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis	...	...	...	...	...	...	...	...	...	...	...
(Tuberculous Phthisis)	...	...	...	1	10	15	18	5	2	1	...
Phthisis ...	...	...	...	2	...	6	1	2	1	1	...
Tuberculous Meningitis	3	4	4	2	1	...	1	...	1	...	...
Tuberculous Peritonitis	...	...	...	1	...	1	...	...	...	...	...
Lupus ...	...	...	...	...	...	1	...	...	1	...	...
Tubercle of other Organs	...	1	...	2	...	1	1	...	...	...	...
General Tuberculosis	...	...	...	...	...	...	...	...	...	...	...
Alcoholism—Delirium Tremens	...	...	2	...	3	...	...	...	...	...	...
Rheumatic Fever, Acute Rheumatism	...	...	...	...	1	...	...	...	...	...	...
Chronic Rheumatism ..	...	...	...	...	...	1	...	...	1	...	...
Carcinoma ..	...	...	...	...	...	1	5	10	6	6	...
Sarcoma ...	...	...	...	...	1	...	...	...	1	...	...
Cancer (Malignant Disease) not otherwise defined	...	...	...	...	...	...	...	...	...	...	...
Rickets ..	2	...	...	...	2	5	12	11	11	8	...





Table showing details of the Number and Nature of all Deaths of Persons belonging to the City during the year—*continued*.

CAUSE OF DEATH.	AGES.											TOTALS.	
	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85		85 and upwards
II.—LOCAL DISEASES— <i>continued</i> .													
<i>Diseases of Blood Vessels—continued.</i>													
Senile Gangrene ...	...	...	...	...	...	...	...	...	...	...	5	1	6
Embolism, Thrombosis (not Cerebral)	...	...	...	...	...	...	...	...	...	...	...	1	1
Blood Vessels, other Diseases ...	...	...	...	...	...	...	...	...	...	1	1	...	2
<i>Diseases of Respiratory Organs.</i>													
Laryngitis ...	...	...	1	...	...	...	...	...	...	...	...	...	1
Bronchitis ...	6	...	1	...	1	1	2	7	...	9	7	2	36
Emphysema, Asthma ...	...	...	...	...	...	...	1	...	...	...	...	...	1
Pleurisy ...	1	1	...	...	...	1	2	1	...	...	...	...	6
Respiratory Diseases, other ...	...	...	...	...	...	...	1	...	...	...	...	...	1
<i>Diseases of Digestive System.</i>													
Tonsillitis, Quinsy ...	...	...	...	1	...	...	...	...	...	...	...	...	1
Gastric Ulcer ...	...	...	...	...	...	1	1	1	...	...	...	...	3
Gastritis, Gastric Catarrh ...	...	...	...	...	...	...	...	2	...	1	...	...	1
Stomach, other Diseases(not Malignant)	...	...	...	1	1	...	...	...	...	...	...	...	4
Enteritis (not Epidemic)	13	2	1	...	...	...	...	...	1	1	...	...	18
Gastro-Enteritis ...	4	1	...	...	...	...	...	...	...	1	...	...	6
Appendicitis, Perityphlitis	...	...	1	...	...	2	...	...	...	...	...	...	3
Intestinal Obstruction ...	...	...	...	...	...	...	...	...	...	1	...	...	1
Peritonitis (not Puerperal)	...	...	1	1	...	...	...	...	...	...	...	...	2
Cirrhosis of Liver ...	...	...	...	...	...	...	...	...	1	1	...	...	2
Liver and Gall Bladder, other Diseases	...	...	...	...	...	1	...	...	1	2	...	...	4
Digestive System, other Diseases	...	...	...	1	...	...	...	...	...	1	...	...	2





## INFANT MORTALITY.

The number of deaths of infants under one year during 1916 was 112, giving an Infant Mortality rate of 101.5 per 1,000, as against 172, or 144.3 per 1,000 in 1915.

The Infant Mortality rate for the whole of England and Wales during 1916 was 91 per 1,000 born; for the 96 great towns (of which Carlisle is one) 99 per 1,000; for the 148 smaller towns 90 per 1,000.

The death-rate of legitimate infants under one year of age was 95.8 per 1,000 legitimate births registered.

The death-rate of illegitimate infants under one year of age was 172.8 per 1,000 illegitimate births registered.

### Distribution of Deaths of Infants under one year in the several Registration Sub-Districts.

Whole District	...	...	...	<div> <div>Legitimate</div> <div>98</div> </div> <div> <div>Illegitimate</div> <div>14</div> </div>	112
St. Mary's Registration Sub-District	...	...	...	<div> <div>Legitimate</div> <div>52</div> </div> <div> <div>Illegitimate</div> <div>6</div> </div>	58
St. Cuthbert's Registration Sub-District	...	...	...	<div> <div>Legitimate</div> <div>42</div> </div> <div> <div>Illegitimate</div> <div>7</div> </div>	49
Stanwix Registration Sub-District	...	...	...	<div> <div>Legitimate</div> <div>3</div> </div> <div> <div>Illegitimate</div> <div>1</div> </div>	4
Dalston Registration Sub-District	...	...	...	<div> <div>Legitimate</div> <div>1</div> </div> <div> <div>Illegitimate</div> <div>0</div> </div>	1
Wetheral Registration Sub-District	...	...	...	Nil.	...

## INFANT MORTALITY.

Net Deaths from stated causes at various ages  
under One Year of Age.

CAUSE OF DEATH.				Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks & under 3 Months.	3 Months and under 6 Months.	6 Months and under 9 Months.	9 Months and under 12 Months.	Total Deaths under One Year.
All Causes.	Certified ... ..	...	...	36	8	4	4	52	14	16	17	10	109
	Uncertified ... ..	...	...	...	...	...	...	...	1	2	...	...	3
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Chickenpox ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria and Croup ... ..	...	...	...	...	...	...	...	...	...	...	...	1	1
Erysipelas ... ..	...	...	...	...	1	...	1	...	...	...	...	...	1
Tuberculous Meningitis ... ..	...	...	...	...	...	...	...	...	...	...	2	1	3
Abdominal Tuberculosis ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Tuberculous Diseases ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Meningitis (not Tuberculous) ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Convulsions ... ..	...	...	...	...	...	...	...	1	3	3	...	...	7
Laryngitis... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis ... ..	...	...	...	...	...	1	1	2	1	1	1	1	6
Pneumonia (all forms) ... ..	...	...	...	...	...	...	...	...	3	3	4	...	10
Diarrhœa ... ..	...	...	...	...	...	...	...	1	1	...	...	...	2
Enteritis ... ..	...	...	...	...	...	...	...	4	5	7	1	...	17
Gastritis ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis ... ..	...	...	...	...	1	1	3	2	1	1	...	...	7
Rickets ... ..	...	...	...	...	...	...	...	...	...	...	...	2	2
Suffocation, overlying ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Injury at Birth ... ..	...	...	...	...	1	...	...	1	...	...	...	...	1
Atelectasis ... ..	...	...	...	...	3	...	...	3	...	...	...	...	3
Congenital Malformations ... ..	...	...	...	...	4	1	...	5	1	...	...	...	6
Premature Birth .. ..	...	...	...	...	23	5	1	29	1	...	...	...	30
Atrophy, Debility & Marasmus... ..	...	...	...	...	2	2	...	5	2	1	...	...	8
Other Causes ... ..	...	...	...	...	2	1	...	4	1	3	...	...	8
Totals ... ..				36	8	4	4	52	15	18	17	10	112

Nett Births in the	{ Legitimate, 1022.	Nett Deaths in the	{ Legitimate Infants, 98.
year.	{ Illegitimate, 81.	year of	{ Illegitimate „ 14.



Details of the number of Deaths of Infants under One Year of Age for the years 1915 and 1916 respectively.

Cause of Death.	1915	1916
Premature Birth ... ..	36	30
Diarrhœa ... ..	19	19
Atrophy, Debility, Inanition, Marasmus ...	15	8
Bronchitis ... ..	10	6
Pneumonia ... ..	14	10
Convulsions ... ..	12	7
Tuberculous Meningitis ... ..	6	3
Meningitis (not Tuberculous) ... ..	6	...
Tuberculous Peritonitis ... ..	1	...
Atelectasis ... ..	3	3
Whooping Cough ... ..	12	...
Congenital Defects ... ..	4	6
Gastritis ... ..	4	...
Erysipelas ... ..	...	1
Syphilis ... ..	5	7
Injury at Birth ... ..	2	1
Suffocation ... ..	1	...
Influenza ... ..	2	3
Rickets ... ..	1	2
Want of Breast Milk ... ..	2	...
Measles ... ..	9	...
Tabes Mesenterica ... ..	1	..
Otitis, Mastoid Disease ... ..	2	...
Cerebral Hæmorrhage ... ..	1	...
Laryngitis ... ..	1	...
Membranous Croup ... ..	...	1
Other Causes ... ..	3	5
Totals ... ..	172	112

## INFANT WELFARE, &c.

### Summary of the Work carried out by the Corporation Health Visitor in connection therewith.

Number of live births notified by official letter card ...	1038
Number of still births notified by official letter card ...	40
Number of births notified otherwise than by official letter card (all of which were live births) ...	38
Number of births in which the first notification was the Sub-Registrar's return ...	10
Total ...	1126
Number of Infant deaths under one year ...	112
Number of deaths from Diarrhœa under one year ...	19
Total number of primary visits made by the Health Visitor to houses ...	1053
Total number of revisits ...	3764

### PARTICULARS OF ENQUIRIES WITH RESPECT TO FEEDING.

Number of children fed entirely on the breast ...	880
"    "    "    "    by means of hygienic (boat-shaped) bottle ...	82
"    "    "    "    by means of long-tubed bottle ...	2
"    "    "    "    partly breast and partly bottle ...	30
"    "    "    "    by other means—Spoon (all premature) ...	6
"    "    "    "    dying soon after birth and not fed ...	19
No information obtained ...	67

### PARTICULARS SHOWING THE RELATION OF DEATHS TO FEEDING.

Number of deaths of breast-fed infants	39 or 4.4%	of breast-fed infants
"    "    bottle "    "	36 or 42.8%	of bottle-fed infants
"    "    infants fed by spoon	10	
Number of deaths of infants partly fed on breast and partly bottle ...	4	
No information ...	4	

29 primary visits and 29 revisits were made to children who were being nursed and maintained apart from their parents.



Each Monday afternoon the Corporation Health Visitor visited one of the three Welcomes established by the Carlisle Babies' Welcome and School for Mothers, situate in the Caldewgate, Botchergate, and central parts of the town respectively.

The following particulars, supplied to me by Mrs. Victor Marshall, relate to the number of visits paid by mothers and children to the three Welcomes during the year:—

No. of individual attendances (1st Visit) at Centres.		Total number of attendances at Centres.		Average attendance at Centres.	
Expectant Mothers.	Children.	Expectant Mothers.	Children.	Expectant Mothers.	Children.
38	143	248	1211	6.5	9.8

## INFECTIOUS DISEASES.

(Syn. Zymotic Diseases.)

The total number of cases of infectious disease (excluding tuberculosis) notified during the year was 524.

The term zymotic death-rate is applied to the aggregate death-rate from smallpox, measles, scarlet fever, diphtheria, whooping cough, fever (typhus, simple continued, and enteric), and diarrhœa.

The number of deaths from zymotic disease registered was 64, which, calculated upon the estimated population (49,721), gives a death-rate of 1.2 per 1,000.

The causes of death were registered as follows:—

Diphtheria	...	...	...	28
Diarrhœa	...	...	...	27
Scarlet Fever	...	...	...	6
Measles	...	...	...	1
Typhus Fever	...	...	...	1
Erysipelas	...	...	...	1
				—
				64
				—

The number of deaths from zymotic disease in 1914 and 1915 was 53 and 109 respectively. During 1915 measles and whooping cough were responsible for 57 deaths.

Table showing the number and nature of Infectious disease at the several age groups notified in the several Registration Sub-Districts.

NOTIFIABLE DISEASE	Number of Cases Notified.								Total Cases Notified in each Locality.				TOTAL CASES REMOVED TO HOSPITAL.
	At all ages.	At Ages—Years.							St. Mary's Sub- District.	St. Cuthbert's Sub-District.	Stanwix Sub- District.	Dalston Sub- District.	
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upwards.					
Measles .. ...	60	6	26	21	3	4	...	...	34	16	10	...	...
German Measles ... ..	22	...	2	11	5	4	...	...	11	6	5	...	1
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera, Plague ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (in- cluding Mem- branous Croup) } ... ..	153	3	44	91	10	4	1	...	84	58	10	1	118
Erysipelas ... ..	45	1	1	2	9	15	12	5	26	19	...	...	1
Scarlet Fever ... ..	225	3	61	148	11	2	...	...	125	79	20	1	117
Typhus Fever ... ..	1	...	...	...	...	...	1	...	..	1	...	...	...
Enteric Fever ... ..	3	...	...	...	1	1	1	...	3	..	...	..	2
Relapsing Fever, Continued Fever ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever ... ..	4	...	...	...	...	4	...	...	1	3	...	...	..
Cerebro-spinal Meningitis ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Poliomyelitis ... ..	3	...	...	2	1	...	...	...	2	1	...	...	...
Ophthalmia Neonatorum ... ..	8	8	...	...	...	...	...	...	6	2	...	...	..
Pulmonary Tuberculosis ... ..	167	...	5	62	29	53	15	3	93	69	4	1	...
Other forms of Tuberculosis ... ..	49	3	13	26	5	1	1	...	29	16	4	...	...
Totals ... ..	740	24	152	363	74	88	31	8	414	270	53	3	239

Isolation Hospital or Hospitals, Sanatoria, &c.

Crozier Lodge, Newtown, Carlisle—Total available Beds 50

Smallpox Hospital, Belle Vue " " " 12

Number of Diseases which can be concurrently treated, 5



Table showing the number of notifications of Infectious Diseases during each of the quarters of the year.

Notifiable Disease.	Number of Notifications sent in during				Totals.
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	
Scarlet Fever...	72	60	46	47	225
Diphtheria (including Membranous Croup)	39	46	25	43	153
Erysipelas...	15	13	8	9	45
Enteric (or Typhoid) Fever	2	...	1	...	3
Typhus Fever...	1	...	...	...	1
Smallpox...	...	...	...	...	...
Puerperal Fever...	...	...	1	3	4
Acute Poliomyelitis...	...	...	3	...	3
Ophthalmia Neonatorum	...	4	2	2	8
Measles...	27	17	4	12	60
German Measles...	6	7	5	4	22
Totals...	162	147	95	120	524

Table showing the several Wards of the City where Deaths from the principal Zymotic Diseases occurred.

WARD.	Erysipelas.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria	Typhus Fever.	Enteric (or Typhoid) Fever.	Diarrhoea.	Totals.
Stanwix and Etterby	...	...	...	...	...	...	...	...	...	...
Rickergate	...	...	...	...	...	...	...	...	1	1
Aglionby	...	...	...	...	...	...	...	...	4	4
Greystone	...	...	...	...	...	1	...	...	5	6
St. Nicholas	1	...	...	...	...	...	...	...	...	1
Currock	...	...	...	...	...	1	...	...	4	5
Denton Holme	...	...	...	...	...	...	...	...	3	3
St. Cuthbert's	...	...	...	...	...	1	1	...	2	4
Caldewgate	...	...	1	...	...	...	...	...	5	6
Newtown and Belle Vue	...	...	...	6	...	25	...	...	3	34
Totals	1	1	1	6	...	28	1	...	27	64

Table showing the total number of Deaths from the principal Infectious Diseases, including Diarrhoea and Dysentery, 1910-1916, inclusive.

Year	1910	1911	1912	1913	1914	1915	1916
Total number of deaths	21	96	81	44	53	109	64

Table showing the Number and Nature of the Deaths from the principal Zymotic Diseases, 1903 to 1916 inclusive.

NOTIFIABLE DISEASE.	1903	1904	1905	1906	1907	1908	1909	1910	1911	*1912	1913	1914	1915	1916
Erysipelas.....	...	...	...	...	...	...	...	..	...	...	...	...	...	1
Smallpox .....	4	...	...	...	...	...	...	..	...	..	...	...	...	...
Measles.....	3	7	17	1	54	...	11	3	13	38	3	2	35	1
Scarlet Fever .....	5	3	5	9	6	1	6	2	2	2	...	9	10	6
Diphtheria .....	20	14	6	5	3	4	4	2	4	6	9	3	12	28
Whooping Cough.....	20	20	11	5	11	23	8	11	21	18	7	9	23	..
Typhus { Enteric or Typhoid fevers { Simple continued	...	...	5	...	...	...	1	...	...	2	...	...	...	1
	3	3	3	1	...	...	..	...	...	1	...	...	...	...
	..	...	...	...	...	...	...	...	..	..	...	...	...	...
Diarrhoea .....	3	16	19	13	3	14	...	3	56	14	25	30	29	27
Totals .....	58	63	66	34	77	42	30	21	96	81	44	53	109	64
Rate per 1,000 of population .....	1.2	1.3	1.3	0.7	1.5	0.84	0.5	.40	2.06	1.7	0.8	1.0	2.07	+1.2

\* Old City.

+ Based on the figures supplied by the Registrar-General, viz., 49,721.



## SCARLET FEVER.

(Syn. Scarlatina.)

The number of cases of scarlet fever notified or brought to my notice by other means during 1916 was 225, being a decrease of 345 on the figure for 1915.

Of the 225 cases thus recorded, 117, or 52.0 per cent., were isolated in hospital.

6 deaths were registered from this disease during the year.

Out of the 225 cases notified as scarlet fever, 3 were found not to be suffering from the disease.

In 6 instances two cases, and in 1 instance three cases occurred simultaneously in the same house.

In 10 instances one case, in 4 instances two cases, and in 1 instance three cases occurred subsequent to the removal of the primary case from a house.

### RETURN CASES.

6 cases of scarlet fever occurred in 3 houses to which patients recently isolated in hospital had returned.

Table showing number of notifications, number of cases isolated, number and percentage of deaths, 1909-1916.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	No. of deaths.	Deaths per 100 cases.
1909	119	87	6	5.0
1910	248	171	2	0.7
1911	139	104	2	1.4
1912	110	101	2	1.8
1913	164	131	0	0.0
1914	251	196	9	3.6
1915	562	273	10	1.7
1916	225	117	6	2.6

## DIPHTHERIA.

(Including Membranous Croup.)

The number of cases of diphtheria notified during 1916 was 153, as against 73 during 1915 and 52 during 1914.

Of this number, 84 occurred in St. Mary's, 58 in St. Cuthbert's, 10 in Stanwix, and 1 in Dalston Registration Sub-Districts respectively.

Of the 153 cases notified, 17 were found to be suffering from a disease other than diphtheria, viz. :—

Septic Gums due to bad teeth	...	...	...	1
Scarlet Fever	...	...	...	3
Bronchial Catarrh	...	...	...	1
Tracheitis	...	...	...	1
Pyogenic Membrane on Tonsil	...	...	...	1
Tonsilitis	...	...	...	10
				—
				17
				—

The seasonal incidence of this disease was as follows :—

January	...	14	September	...	11
February	...	12	October	...	14
March	...	13	November	...	20
April	...	19	December	...	9
May	...	16			
June	...	11			
July	...	3			
August	...	11			
				Total	153
				—	

During 1916, 28 deaths were registered as due to diphtheria, the death-rate being equal to .56 per 1,000 of the estimated population, or 18.3 per cent. of the cases notified.

Of the 153 cases notified, 118, or 77.1 per cent., were removed to the Isolation Hospital.

No return case occurred during the year.



Table shewing number of notifications, number of cases isolated, number and percentage of deaths, 1901-16.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	No. of deaths.	Deaths per 100 cases.
1901	87	32	17	19.5
1902	156	81	41	26.2
1903	68	46	20	29.4
1904	39	25	14	35.8
1905	25	14	6	24.0
1906	20	8	5	25.0
1907	12	6	3	25.0
1908	31	20	4	12.7
1909	36	18	4	11.1
1910	37	27	2	5.4
1911	44	33	4	9.1
1912	47	33	6	12.8
1913	57	42	9	15.8
1914	52	31	3	5.8
1915	73	51	12	16.4
1916	153	118	28	18.3

### ANTI-DIPHThERIC SERUM.

(Antitoxin.)

9 applications by medical practitioners were made during the year for the free supply of anti-diphtheric serum, 36,000 units being supplied.

### SMALLPOX.

The district was free from smallpox during the year.

### PUERPERAL FEVER.

During the year 4 cases were notified, in 2 of which the disease was fatal. The fatal cases were not residents of the City.

On receipt of the notification in 3 instances, investigations were made and all the necessary steps taken in respect thereof. The fourth notification related to a patient at Fusehill Hospital.

## MEASLES AND GERMAN MEASLES.

During the year 60 cases of measles and 22 cases of German measles were notified. 1 death was registered as due to measles in the first month of the year.

### Particulars of cases of Measles and German Measles.

	Measles		German Measles		Measles and German Measles	
	Civil	Military	Civil	Military	Civil	Military
Notified by Medical Practitioners ..	36	...	18	1	54	1
Notified by Parents, Guardians, and other persons ...	19	..	2	...	21	...
Unnotified ... ..	5	..	1	...	6	...
Total ...	60	...	21	1	81	1

Table showing the annual mortality from Measles for 30 years, 1887 to 1916 inclusive.

Year.	No. of Deaths.	Year.	No. of Deaths.
1887	16	1902	10
1888	3	1903	3
1889	44	1904	7
1890	1	1905	17
1891	22	1906	1
1892	3	1907	54
1893	77	1908	0
1894	20	1909	11
1895	5	1910	3
1896	1	1911	13
1897	1	1912	39
1898	59	1913	3
1899	5	1914	2
1900	13	1915	35
1901	5	1916	1



## SCHOOL CLOSURE.

No school was closed during the year.

## ENTERIC FEVER.

(Syn. Typhoid Fever.)

During the year 3 cases were notified, and in 2 of the instances the disease was fatal.

The first case, notified in January by the Resident Medical Officer of the Cumberland Infirmary, was a gardener, who resided at Moorville. This case was fatal.

The second case, notified in February by the Medical Officer of H.M. Prison, had recently been admitted from Whitehaven. This case was fatal.

The third case, notified in August by a private practitioner, was a workman at the Gretna Works and a lodger in Carlisle. A bacteriological examination of his blood gave a positive reaction to the Widal test. This case recovered.

Table showing the annual number of cases of Enteric Fever notified from 1890 to 1916 inclusive.

Annual No. of Cases			Annual No. of Cases		
Cases of Enteric (Typhoid) Fever notified during 27 years of compulsory notification.	1890	21	Cases of Enteric (Typhoid) Fever notified during 27 years of compulsory notification.	1905	7
	1891	18		1906	5
	1892	32		1907	1
	1893	20		1908	2
	1894	15		1909	1
	1895	20		1910	6
	1896	13		1911	3
	1897	19		1912	3
	1898	22		1913	5
	1899	19		1914	2
	1900	7		1915	2
	1901	19		1916	3
	1902	16			
	1903	6			
	1904	15			
Average of 5 years 21.2			Average of 5 years 3.2		
Average of 5 years 18.6			Average of 5 years 3.8		

## TYPHUS FEVER.

1 case of typhus fever was notified, but as the notification was posted after the last collection on the Friday evening, owing to the restricted postal facilities the information was not received before Monday morning, when the patient was dead. I have therefore no further comment to make upon the case.

## POLIOMYELITIS.

During the year 3 cases of poliomyelitis were notified.

The notifications were received on the 24th and 29th August and 11th September respectively for the following localities:—

Locality.		Sex.	Age.
Cumberland Infirmary	...	Male	15 years
Blackfriars Street	... ..	Male	9 years
Trafalgar Street	... ..	Male	8 years

The first case related to a person who was a resident in the Longtown Rural District, who had been taken to the Infirmary for diagnosis and treatment.

The second was not a case of poliomyelitis.

The third patient was dead before receipt of the notification.

## OPHTHALMIA NEONATORUM.

During the year 8 cases of purulent discharge from the eyes of newly born infants were notified.

In 5 instances both eyes were infected, and in the 3 remaining instances one eye only was infected





# Annual Mortality from Diarrhoea and Enteric (Typhoid) Fever since 1874.

DEATHS FROM DIARRHOEA.																Deaths from Enteric (Typhoid) Fever.
Autumn Quarter.	No. Regis- tered.	Rate per 1000 of population	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for Year.	No. Registered.
74	35	1.50	2	2	...	...	1	1	6	20	9	6	...	3	50	23
75	27	1.30	2	...	4	1	2	4	5	12	10	2	...	2	44	24
76	12	1.10	3	1	3	3	1	...	2	5	5	1	6	7	37	10
77	10	.84	2	1	2	1	2	2	2	6	2	1	3	4	28	5
78	26	1.06	1	2	1	1	3	3	9	8	9	1	1	1	40	11
79	...	.34	2	1	1	1	...	2	2	2	...	...	1	...	12	11
80	3	1.20	...	...	5	...	...	...	3	7	21	5	1	...	42	15
81	...	.50	...	2	...	2	...	2	2	2	3	3	...	2	18	7
82	1	.55	...	1	...	...	...	1	5	7	5	1	...	...	20	9
83	8	.45	...	2	...	...	...	...	...	3	5	6	1	...	17	8
84	14	.61	2	...	...	1	1	1	7	3	4	3	1	...	23	7
85	4	.26	1	1	1	...	...	1	2	2	...	...	1	1	10	1
86	8	.60	1	2	...	...	...	2	1	1	6	7	1	2	23	6
87	7	.36	1	...	1	2	...	2	...	5	2	1	...	...	14	17
88	8	.23	1	...	1	1	...	...	...	3	5	1	...	1	13	8
89	6	.27	2	1	...	...	...	...	...	5	1	1	...	1	11	1
90	16	.54	...	...	2	...	1	...	1	7	8	1	1	1	22	2
91	5	.22	1	...	...	...	...	1	1	2	2	2	...	...	9	2
92	2	.10	1	...	...	...	...	...	...	...	2	1	...	...	4	3
93	9	.49	...	2	2	2	...	2	...	2	7	1	2	...	20	5
94	1	.09	...	...	...	...	...	...	...	...	1	1	2	...	4	2
95	3	.24	2	1	...	1	...	...	1	...	2	3	...	...	10	4
96	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
97	4	.21	...	...	2	1	...	...	1	...	3	2	...	...	9	3
98	16	.57	...	...	2	...	1	1	1	4	11	2	1	1	24	2
99	10	.25	...	...	...	...	...	...	...	3	7	1	...	...	11	1
00	7	.53	...	...	...	1	...	4	1	3	3	8	3	...	23	2
01	11	.43	2	3	...	...	...	1	1	5	5	3	...	...	20	5
02	1	.04	...	...	...	...	...	...	1	...	...	...	1	...	2	7
03	1	.06	...	...	1	...	...	1	...	...	1	...	...	...	3	3
04	7	.33	...	...	...	...	...	1	...	4	3	2	3	3	16	3
05	10	.39	3	...	...	1	2	...	...	5	5	2	1	...	19	3
06	7	.26	2	...	1	1	...	...	...	2	5	...	2	...	13	1
07	...	.05	...	...	...	...	1	2	...	...	...	...	...	...	3	...
08	12	.28	...	...	...	1	...	...	2	3	7	...	...	1	14	...
09	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	2	.05	...	...	...	...	...	...	...	...	2	...	1	...	3	...
11	45	1.20	2	1	1	3	...	1	1	30	14	2	1	...	56	...
12	2	.30	1	2	...	2	2	1	...	1	1	2	2	...	14	1
13	10	.47	1	1	1	1	2	2	1	1	8	3	...	4	25	...
14	16	.59	4	2	1	2	...	2	2	3	12	1	...	1	30	...
15	7	.55	1	2	3	4	2	2	2	...	5	4	1	3	29	...
16	4	.54	5	1	2	1	2	4	...	...	3	1	3	5	27	...



## ISOLATION HOSPITAL.

Table showing number of cases removed to Hospital—

Diseases.	No. of cases admitted	Recovered.	Died.
Scarlet Fever ... ..	117	112	5
Diphtheria ... ..	118	92	26
Enteric (Typhoid) Fever ...	2	1	1
Erysipelas ... ..	1	1	...
German Measles ... ..	1	1	...
Totals ... ..	239	207	32

Table showing case mortality of Scarlet Fever and Diphtheria isolated in Hospital compared with Home Cases.

Year.	SCARLET FEVER.				DIPHTHERIA.			
	Hospital Cases.		Home Cases.		Hospital Cases.		Home Cases.	
	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100	No. of Cases Isolated.	Death Rate per 100
1912	101	1.8	9	0.0	33	6.0	14	28.5
1913	131	0.0	33	0.0	42	11.9	15	26.6
1914	196	4.6	55	0.0	31	9.6	21	0.0
1915	273	2.2	297	1.3	51	15.6	22	18.1
1916	117	4.2	108	0.9	118	22.0	35	5.7

## NOTIFICATION FEES.

The total amount paid in fees for notifications of all notifiable diseases during 1916 was £94 15s. 0d.

## TUBERCULOSIS.

### ADMINISTRATIVE CONTROL.

The work in connection with the treatment of tuberculosis after receipt of the notification by the Medical Officer of Health was carried out by the Assistant Medical Officer and Nursing Staff up to the time of his departure on active service, and since by myself and the Nursing Staff. The employment of a single staff for these duties and those connected with medical inspection insures co-ordination, resulting in a saving of time and the unnecessary duplication of enquiries.

The home of a notified person is visited by the nurse as soon as possible after the receipt of the notification, for the purpose of making a preliminary investigation into the home conditions and surroundings of the patient. Advice as to general and personal hygiene is given, emphasis being laid on the necessity of good food, an adequate amount of fresh air, and general cleanliness of the room occupied by the patient. If the patient is able to visit the Tuberculosis Dispensary an appointment is made for him to attend for examination by the Tuberculosis Officer, if not, the Tuberculosis Officer visits the home.

At the Dispensary further information is obtained from the patient, who is examined, the result of the examination recorded, and where necessary his doctor written to, and such suggestions as to treatment and supervision are offered as may be considered desirable. Instructions as to the proper method of living, the hygiene of the home, and the prevention of spread of infection and other matters are given to the patient. In the case of pulmonary tuberculosis, if the patient expectorates, a bottle is handed to him, or if bedridden taken to him, and he is requested to send a specimen of sputum to the Dispensary for bacteriological examination; spitting cups are provided in the case of bedridden patients, and pocket flasks in certain instances where the patient is fit to walk about.



Where a record of the temperature is desirable, a thermometer is provided, and the patient instructed by a Nurse how to take and record his temperature on a chart provided.

In many cases of the disease, particularly early cases which are the most favourable for arrest of the disease, arrangements are made, when the patient is willing to undergo the treatment, for his admission to the sanatorium.

Lack of hospital accommodation for advanced cases hampers the steps taken to control the spread of disease, as advanced and highly infectious cases which should be isolated have to remain in overcrowded and otherwise unsuitable dwellings.

All cases of tuberculosis, pulmonary and otherwise, are kept under continuous supervision so long as it is considered necessary.

As a result of the correlation and co-ordination between the school and tuberculosis work, opportunities which would not otherwise occur are afforded for dealing with cases in the early stages of the disease. Unfortunately the routine examination of contacts cannot be carried out at the present time, but particular attention is paid during the inspection of school children, and the examination of special cases at the School Clinic, to the lungs of children belonging to families in which a case of tuberculosis is known to have existed.

Researches conducted both in this country and on the continent show that a large amount of tuberculosis exists among children of school age. Undoubtedly all children in the first few years of their life are exposed to tubercular infection, either of bovine or more probably human origin.

It is now recognised that if the treatment of tuberculosis is to be successful it must be commenced while the disease is in the earliest stages, but it is the unfortunate experience that a large number of cases are only brought to notice when the disease has advanced so far that the



best result that can be hoped for is a temporary improvement of the condition, and in many cases even a temporary improvement is impossible.

In many cases where the disease is in a comparatively early stage, difficulty is experienced in bringing home to the patient the gravity of the condition, and the necessity for prompt and energetic treatment. Many patients in such a condition refuse to be persuaded that they are suffering from tuberculosis, and a few weeks' rest at home appears to produce a temporary improvement, and the patient is able to resume his occupation, but unhappily the disease makes steady progress, and within a short time the patient is again compelled to rest from work on account of a return of the symptoms, by which time the disease has made such progress that anything more than a temporary arrest of the trouble is out of the question.

In order to eradicate tuberculosis, therefore, it is not only necessary to treat patients suffering from the disease in an active state, but it is more important to search out the children who have been in close contact with the disease and exposed to infection, and to isolate advanced and acutely infectious cases so as to prevent the spread of infection to healthy members of the family.

The work in the city is being developed on these lines, and it is hoped that as soon as local authorities are permitted to borrow money, important units in the scheme for dealing with tuberculosis, viz., an open-air school and a tuberculosis hospital, will, I hope, be proceeded with.

A gross total of 244 notifications of tuberculosis were received during the year, of which 28 were duplicates. Of the 216 primary notifications, 151 were received from medical practitioners, while 65 were sent in by the School Medical Officers, 167 notifications related to pulmonary tuberculosis, while 49 were in respect of other forms of the disease.

55 notifications on Form C were received, 49 of which related to the admission of tuberculous patients into a sanatorium, and 6 to Poor Law Institutions.



# Summary of Notifications of Tuberculosis from Jan. 1st, 1916, to Dec. 31st, 1916. NOTIFICATIONS ON FORM A.

Ages.	Number of Primary Notifications.											Total Prim-ary Noti-fications on Form A.
	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65 & up-wards.	
Pulmonary Males	...	3	4	3	5	3	19	10	3	3	2	55
" Females	...	1	2	3	11	10	12	12	5	4	1	61
Non-pulmonary Males	...	1	8	7	...	2	...	...	...	...	...	20
" Females	...	2	5	2	1	2	...	1	1	...	...	15
Totals	...	3	17	15	9	17	31	23	9	7	3	151
												174

## NOTIFICATIONS ON FORM B.

Ages.	Number of Primary Notifications.				Total Noti-fications on Form B.
	Under 5.	5-10	10-15	Total Prim-ary Noti-fications.	
Pulmonary Males	...	...	...	...	22
" Females	...	...	...	...	33
Non-pulmonary Males	...	...	...	...	11
" Females	...	...	...	...	4
Totals	...	...	...	...	70

## NOTIFICATIONS ON FORM C.

Poor Law Institutions.		Sanatoria.	
Pulmonary Males	...	...	25
" Females	...	...	24
Non-pulmonary Males	...	...	...

The total number of deaths registered from all forms of tuberculosis during 1916 was 95, equal to a death-rate of 1.9 per 1,000 of the estimated population. Of this number 66 (69.4 per cent.) were due to pulmonary tuberculosis, giving a death-rate of 1.3 per 1,000 of the estimated population at all ages.

During 1915 106 deaths were registered as due to tuberculosis, of which 80 were due to the pulmonary type of the disease, giving a death-rate of 1.5 per 1,000 from pulmonary tuberculosis. It will thus be seen that the deaths from all forms of tuberculosis were less by 11, and in the pulmonary form by 14 in 1916 than in 1915.

The age and sex distribution of the deaths from tuberculosis is shown in the following table: —

Ages.	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65 and over.	Totals.
<b>Pulmonary—</b>												
Male	...	...	...	1	2	...	11	9	5	1	...	29
Female	...	...	...	2	6	2	10	10	2	2	3	37
<b>Non-Pulmonary—</b>												
Male	1	9	2	1	...	2	...	1	...	...	...	16
Female	2	2	...	2	1	1	2	1	...	2	...	13
<b>Totals</b>	3	11	2	6	9	5	23	21	7	5	3	95

The distribution of the deaths during 1916 was as follows:—

	Pul-monary.	Non-Pul-monary.	Total.
St. Mary's Registration Sub-District	30	18	48
St. Cuthbert's Registration Sub-District	34	7	41
Stanwix Registration Sub-District	1	4	5
Wetheral Registration Sub-District	1	—	1
	66	29	95

On December 31st, 1915, 92 patients were in attendance at the Tuberculosis Dispensary. During the year 144 new cases have come under the observation of the Tuberculosis Officer, making a total of 236 cases attended during the year.



724 visits have been paid by patients to the Dispensary for examination and supervision, while 33 visits to the homes of patients unable to attend the Dispensary have been made by the Tuberculosis Officers. 1100 visits have been made to the homes by the Nurses for the purpose of advising upon and supervising the home life of the patients. 13 spit cups and pocket flasks have been given to patients, and 22 thermometers have been supplied to patients for recording their temperature.

46 injections of tuberculin have been administered to patients attending the Dispensary, and in certain cases cod liver oil and malt extract have been provided free of charge.

The sputum of 54 patients have been examined for the purpose of assisting in diagnosis or ascertaining whether or not the patients were liable to spread infection. In 20 cases tubercle bacilli were present in the sputum.

17 patients were receiving sanatorium treatment on January 1st, while 48 were admitted during the year, making a total of 65 who received sanatorium treatment. 47 patients were discharged, leaving 18 in the sanatorium on December 31st last. The average duration of residence of the 47 patients in the sanatorium was 115.7 days.

#### CONDITION OF PATIENTS ON DISCHARGE FROM SANATORIUM.

						Blencathra.
Disease Arrested—						
„	Much Improved	...	...	...	...	26
„	Improved	...	...	...	...	17
„	Unchanged	...	...	...	...	3
„	Worse	...	...	..	..	1
Total						47

## MIDWIVES ACT, 1902.

During the year 1916, 16 certified midwives registered for the practice of midwifery in the city.

At the end of each quarter of the year (and at other times when necessary) the midwives have been visited at their homes, the necessary inspections of their books, bags, appliances, &c., being made.

On the 4th February, 1916, two women were prosecuted for carrying on the practice of midwifery (during the year 1915) contrary to the provisions of the Act. Both were convicted, and a penalty of 30s. and 15s. 6d. costs imposed in each instance.

During the year 644 women in labour were attended by certified midwives. In 42 cases complications, either during or after labour, were recorded, while medical assistance was obtained in 85 instances.

The following notices upon the prescribed forms were sent to me by midwives:—

Notice relating to sending for Medical help	...	85
Notification of Stillbirth	... ..	29
Notification of Death	... ..	4
		<hr/> 118 <hr/>

## INQUESTS.

During the year the City Coroner held 57 inquests.

Of this number 39 were held upon the bodies of persons who had been resident within the City, and 18 upon the bodies of persons who resided in other districts but who died within the City.

6 related to children under 5 years of age, but not in any instance to an infant under 1 year.



The verdict of the Jury and the ages in the 6 cases respectively were:—

Cause.	Age.
Shock, burns accidentally received ... ..	1 year
Accidentally run over by cart ... ..	4 years
Shock, scalds accidentally received ... ..	3 years
Accidentally drowned ... ..	2 years
Shock, burns accidentally received .. ...	1½ years
Shock, burns accidentally received ... ..	1 year

### MORTUARY.

During 1916 17 bodies were removed to the Public Mortuary, a post-mortem examination being performed in 6 instances.

### UNCERTIFIED DEATHS.

During the year 12 deaths were registered of persons belonging to the City in which no certificate was given by a medical man, and in which no inquest was held.

During 1915, 33 such deaths were registered.

The 12 deaths in question were registered as being due to the following causes:—

No.	Sex.	Age.	Cause of Death as Registered.
1	Male	*4 months	Convulsions
2	Female	57 years	Heart Failure
3	Female	*1 month	Convulsions
4	Female	72 years	Heart Failure
5	Female	49 years	Apoplexy
6	Male	2 years	Convulsions
7	Male	22 years	Tumour of Brain
8	Female	68 years	Cerebral Hæmorrhage
9	Female	92 years	Apoplexy
10	Male	65 years	Cerebral Hæmorrhage
11	Female	82 years	Heart Failure
12	Male	*5 months	Convulsions

\*It will be observed that three of the deaths were infants under one year of age.

## CANCER.

The following figures include all deaths from causes coming within the general term cancer. The number of deaths registered during 1916 was 74, as against 58 in the year 1915.

Calculating the 74 cases upon the estimated population, a mortality rate of 1.4 per 1,000 at all ages is obtained.

Table of Deaths from Cancer, 1910 to 1916.

Age.	Numbers.						
	1910	1911	1912	1913	1914	1915	1916
1 to 5 years ...	...	1	...	1	...	...	...
5 to 15 years ...	...	2	...	1	...	...	...
15 to 25 years ...	1	2	3	...	...	1	1
25 to 35 years ...	...	5	2	1	2	...	2
35 to 45 years ...	7	5	6	5	10	3	6
45 to 55 years .	11	6	18	11	10	7	17
55 to 65 years ...	11	11	18	25	20	21	21
65 to 75 years ...	11	7	10	14	16	20	18
75 and upwards ...	6	6	5	5	10	6	9
Totals ...	47	45	62	63	68	58	74



## MILK SUPPLIES.

(DAIRIES, COWSHEDS, MILKSHOPS, &c.)

There are 41 cow byres in existence within the City, accommodating at the present time 301 milk cows.

The byres, dairy buildings, and other places from which milk is sold within the City have been regularly inspected and the milk cows kept under supervision and frequent examination by the City Veterinary Surgeon.

During the past year 29 samples of milk were purchased for the purpose of bacteriological observation from the carts of persons selling milk within the City whose dairies are situate in the county area. These samples were submitted to Professor Delépine for the purpose of inoculation experiments upon guinea pigs, in order to ascertain the presence or absence of the tubercle bacillus in the milk sample. Of the 29 samples of milk thus experimented upon, one contained the tubercle bacillus. The farm from which the milk was brought into Carlisle was visited, and all the cows examined by the City Veterinary Surgeon, whose report contains further remarks upon the case.

## Report of Veterinary Inspector.

---

During the year 226 newly-purchased cows were examined in the several byres of the City, amongst which the following conditions were found:—

Septic Poisoning	...	...	...	4
Disease of the Udder	...	...	...	3
Milk Secretion containing large quantity of Blood				1
				<hr/> 8 <hr/>

These eight animals were returned to the sellers.

All the bovine animals exposed for sale at the Sands Cattle Market, and also at the Auction Marts, were examined, a total of 68,768 such examinations being made.

The Auction Marts were visited each Monday in the year and 9,459 pigs were examined.

18 carcasses of beef, 3 carcasses of veal, and 1 carcase of mutton were examined at the Public Abattoir, all of which, with the exception of 2 forequarters and 1 hind-quarter of beef, I found to be unfit for human food.

In company with the Medical Officer of Health I visited a farm outside the City boundary and examined 16 cows. Samples of milk were taken from animals suspected of tubercular disease of the udder, and were submitted to Professor Delépine for bacteriological examination. One of the samples was found to contain tubercle bacilli. The animal in whose milk the organism was found was slaughtered at the Public Abattoir, the post-mortem examination revealing old standing tuberculosis of the udder and generalised tuberculosis of practically all the internal organs and pleura.

6,647 examinations of milk cows in the byres of the City were made during the year, in order to ascertain the



presence or absence of diseases likely to affect the milk supply, in the course of which the following conditions were found:—

Milk Fever	...	...	...	...	7
Septicæmia	...	...	...	...	3
Double Pneumonia and Pleurisy	...	...	...	...	1
Chill	...	...	...	...	4
Gastric Derangement	...	...	...	...	9
Inflammation of Udder	...	...	...	...	9
Meningitis	...	...	...	...	2
Staggers	...	...	...	...	3
Paralysis	...	...	...	...	3
Inflammation of Bowels	...	...	...	...	1
					—
					42
					—

Two of the animals suffering from septicæmia, one from paralysis, and the one from double pneumonia and pleurisy, died.

The animals suffering from meningitis being incurable, I advised the owner to have them destroyed, to which course he agreed. The milk of the other 36 was in each instance destroyed until convalescence was established.

The Corporation stud, consisting of 21 horses (including one used by the Committee of the Burial Board), which were kept under constant observation, I am pleased to report, were free from serious illness during the year.

I made a special examination of two horses suffering from skin disease. The samples of hair and scrapings from the skin which were subjected to microscopical examination revealed the presence of the parasitic mange organism in both instances. All the necessary precautions were taken in order to insure that the disease did not spread.

On Monday, October 16th, a pig died suddenly in one of the Auction Marts. The carcass was removed to the Public Abattoir, where I made a post-mortem examination and found that the cause of death was due to acute inflammation of the stomach and bowels.

## HOUSING OF THE WORKING CLASSES.

HOUSING OF THE WORKING CLASSES ACT, 1890.

HOUSING, TOWN-PLANNING, &amp;C., ACT, 1909.

The subjoined table gives particulars of the proceedings taken in connection with certain houses dealt with in 1916, and also in respect of certain houses during the immediately preceding years.

Place and Situation.	Date represented to Committee.	Date of Closing Order served under Housing, Town Planning, &c., Act, 1909.	Date of Demolition Order served under Housing, Town Planning, &c., Act, 1909.	Remarks.
5 Rickergate, and 2 Swifts Rickergate	28th Feb., 1913	8th April, 1913	28th Oct., 1913	Houses demolished
4, 5, 6, 7, Barley Stack	21st Nov., 1913	9th Dec., 1913	10th June, 1914	Part of the property demolished, the other part still standing
6, 18, 22, 26, Chapel Street	19th June, 1914	15th July, 1914	14th Sept., 1915	<i>In statu quo</i>
3 in Donald's Street, Willow	19th June, 1914	15th July, 1914	14th Sept., 1915	Site forms part of proposed site for new housing scheme
5, Willow	19th June, 1914	15th July, 1914	14th Sept., 1915	
House, Wood Street, Botcherby	28th Jan., 1916	9th Feb., 1916	...	House made habitable
Wood Street, Botcherby	28th Jan., 1916	9th Feb., 1916	...	Nothing yet done. Owner abroad



Table showing number of dwelling houses erected in the City from 1891 to 1916 inclusive.

Year.	No. of Houses erected.	Year.	No. of Houses erected.
1891	149	1904	269
1892	81	1905	181
1893	148	1906	183
1894	184	1907	42
1895	176	1908	27
1896	198	1909	7
1897	217	1910	23
1898	208	1911	11
1899	226	1912	11
1900	262	1913	18
1901	181	1914	38
1902	178	1915	9
1903	170	1916	1

### WATER SUPPLY.

During the year samples of water were regularly taken from a domestic tap and submitted to chemical and bacteriological examination, the quality of the water, as in previous years, being uniformly good.

The chemical and bacteriological results of quarterly samples are given in the following pages, together with the results of a special examination as to the action of the water upon lead.

Total annual distribution of Water from Cumwhinton covered reservoir during the years 1912 to 1916.

Year.	Number of Gallons.	No. of Gallons per head, per day.
1912	645,080,000	31.47
1913	665,410,000	32.53
1914	690,410,000	33.34
1915	710,974,000	34.03
1916	758,483,000	35.80

# Reports on Samples of Water from Domestic Tap.

CHEMICAL ANALYSIS BY DR. HELLON, WHITEHAVEN.

Result shown in grains per gallon.

1916.

CHEMICAL.	APRIL.	JULY.	OCT.
Total Solid Matter in solution dried at 212° F ... ..	8.120	7.840	7.280
Chlorine existing as Chlorides .	.595	.560	.525
Ammonia .. ...	traces	traces	traces
Albuminoid Ammonia ...	.004	.002	.003
Nitrogen existing as Nitrates...	traces	traces	traces
Oxygen absorbed in 15 minutes at 80° F ... ..	.029	.037	.072
Nitrogen absorbed in 4 hours at 80° F ... ..	.053	.066	.117
Lead and other Poisonous Metals	None	None	None
Hardness before boiling ...	6 $\frac{1}{4}$ °	6 $\frac{1}{2}$ °	5 $\frac{1}{2}$ °
Hardness after boiling ...	1°	1°	1°
Appearance in two-foot tube ...	Clear yellowish- green	Clear yellowish- green	Clear blue
Smell when heated to 100° F...	None	None	None
Microscopical Examination ...	Heavy deposit of Vegetable debris	Vegetable debris	Vegetable debris. A few mineral particles.



A determination of the plumbo-solvent action of the water was made according to the method of the Local Government Board in all samples taken during the year, with the following results :—

Lead dissolved at 9° C—

	1st	2nd	3rd	4th	5th	Average.
APRIL	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.03	.03	.03	.03	.03

Lead dissolved at 13.5° C—

	1st	2nd	3rd	4th	5th	Average.
JULY	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.02	.02	.03	.03	.03	.03

Lead dissolved at 13° C—

	1st	2nd	3rd	4th	5th	Average.
OCT.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.03	.03	.03	.03	.03

### BACTERIOLOGICAL EXAMINATION BY PROF. DELÉPINE, MANCHESTER.

QUANTITATIVE ANALYSIS.		1916.							
A Aerobic micro-organisms growing for 3 days in nutrient gelatine at 20° C to 21° C.		Number of colonies in one gramme of water.				No. of kinds clearly recognisable.			
		APRIL.	JULY.	OCT.	DEC.	APR.	JULY.	OCT.	DEC.
Non-Liquefying Bacteria ...		6 } 8	8 } 9	52 } 59	151 } 206	4 } 6	3 } 4	6 } 9	4 } 8
Liquefying Bacteria ...		2 } 8	1 } 9	7 } 59	55 } 206	2 } 6	1 } 4	3 } 9	4 } 8
Other Micro-Organisms ...		...	...	...	...	...	...	...	...
B Anærobic Micro-Organisms ...		...	...	...	...	...	...	...	...
QUALITATIVE ANALYSIS.		1916.							
		APRIL.	JULY.	OCT.	DEC.				
A Bacteria associated with sewage or faecal pollution ...		B. Coli communis found in 100 C. C.	B. Coli communis occasionally found in 100 C. C.	B. Coli communis found in 15 C. C., not found in 10 C. C.	B. Coli communis not found in 100 C. C.				
B Bacteria associated with disease		Not found	Not found	Not found	Not found				

## PUBLIC SLAUGHTER-HOUSES.

The following table gives particulars of Animals killed, Carcasses examined, and also diseased Carcasses condemned.

Animal	Total number of animals slaughtered and examined	Number of carcasses specially examined for disease	Number of cases in which the whole carcass was pronounced unfit for food	Number of cases in which portions of a carcass were pronounced unfit for food	Number of condemned carcasses affected with Tuberculosis
Oxen ...	4,167	61	55	6	24
Sheep ...	17,602	12	10	2	...
Calves ...	306	1	1	...	1
Pigs ...	3,956	3	3	...	2
Totals ...	26,031	77	69	8	27

During the year 77 diseased carcasses were thus specially referred by the Superintendent for further examination, and in 69 instances the whole carcass was certified as unfit for food, while in 8 instances part or parts of the carcass only were considered to be unfit for food.

A glance at the above table shows that out of a total of 77 diseased bovine animals examined, in 27 instances the whole carcass was affected with tuberculosis, which means that the whole carcass was so badly affected with disease that it was destroyed.

All carcasses and parts of carcasses condemned as unfit for food are destroyed by burning at the Corporation destructor.



## PUBLIC BATHS.

## NUMBER OF BATHERS DURING 1916.

The total number of bathers was 74,081, as compared with 73,698 in 1915, and 68,625 in 1914.

SWIMMING BATHS.				1st Class.	2nd Class.	Total.
Adults (both sexes)	...	...	...	6,217	16,524	22,741
Elementary School Children (Free)	...	...	...	...	13,068	13,068
Boys' Brigade, &c. (swimmers charged 1d. each)	...	...	...	...	2,436	2,436
Club and Contract Bathes (1st and 2nd Class)	...	...	...	...	...	2,335
Recruits, Border Regiment (free)	...	...	...	...	...	...
PRIVATE BATHS.						
Adults (both sexes)	...	...	...	12,546	18,723	31,269
Vapour	...	...	...	...	...	88
Salt	...	...	...	5	6	11
TURKISH BATHS.						
Males	...	...	...	461	1,195	1,656
Females	...	...	...	77	400	477
Total				...	...	74,081

# RAINFALL.

Observations taken at the Carlisle Cemetery by J. T. Charlton, Esq.

MONTHS.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916.		Average for 10 years 1906-1915.
											Rainfall. days on which Rain fell.	Number of Rain fall.	
January	in. 4.02	in. 1.16	in. 2.92	in. 1.69	in. 2.73	in. 1.04	in. 1.45	in. 2.17	in. 2.64	in. 3.17	in. 3.55	28	in. 2.29
February	1.70	1.74	2.68	1.50	4.04	3.62	1.35	1.27	2.59	3.56	3.31	23	2.40
March	2.00	2.65	3.68	3.14	1.25	1.33	3.81	3.37	2.67	1.88	2.14	17	2.57
April	.94	2.06	2.08	2.52	1.69	2.75	.42	2.77	1.36	1.91	2.44	15	1.85
May	3.80	3.30	3.28	.81	2.07	2.32	1.81	1.78	1.73	2.04	2.98	20	2.29
June	1.46	4.64	1.70	2.95	1.53	3.79	4.13	2.40	1.06	1.15	3.30	15	2.48
July	2.04	2.38	3.50	4.44	3.76	.69	1.83	1.12	3.04	3.80	4.61	18	2.66
August	4.72	3.32	3.18	3.68	4.28	2.20	4.47	2.17	2.73	3.27	2.39	14	3.40
September	1.30	6.70	3.88	2.50	.38	2.16	2.22	2.11	1.28	1.03	2.06	13	2.35
October	4.40	6.22	1.98	5.22	1.68	2.23	2.10	2.51	1.11	1.25	5.10	24	2.87
November	3.02	2.68	2.56	.86	3.61	3.34	2.65	3.40	4.52	.58	4.34	21	2.72
December	2.48	5.64	1.86	3.82	2.62	4.73	3.73	2.46	3.58	4.64	2.75	20	3.55
Totals	31.88	36.49	33.30	33.13	29.64	30.20	30.01	27.17	28.31	28.28	38.97	228	31.43
Total number of days on which Rain fell	194	211	201	162	197	181	217	194	201	183	...	...	...

Observations by W. Eggleston, Esq., upon the rainfall at Denton Holme Allotment Gardens, taken weekly with a gauge of 5 inches, 2 feet above the ground level, and 57 feet above sea level, show that during the year 33.51 inches of rain fell, giving a weekly average of 0.644 inches. In one week during April and also one week during August no rain fell. The driest month of the year was May, with a rainfall of 1.95 inches, the wettest being July, with a fall of 5.06 inches.

Evaporation gauged from an open vessel 2 feet above the ground level during the year was 27.44 inches, the greatest evaporation taking place during the month of August, viz., 5.04 inches; the lowest during the month of December, viz., 0.20 inches.



# Chief Inspector's Annual Report.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH  
COMMITTEE.

Gentlemen,

I have the honour of presenting my Annual Report for the year 1916.

The continued depletion of the inspectorial staff has made it impossible to carry out the detailed inspection as in previous years, but the general inspection of the district has been maintained, and, having regard to the scarcity of labour and material, and the difficulty of getting work done, I am pleased to say that the sanitary condition of the City may be regarded as satisfactory.

Refuse removal from all dwellings and other buildings has been carried out as in previous years without any serious difficulty.

The staff of gully cleansers has disappeared.

The work of cleansing the public street gullies has been done by the street sweepers, and the duty of cleansing the yard, court, and lane gullies has been put upon the occupiers of those premises.

Considerable time has been taken up in visiting houses to prevent overcrowding by the influx of munition workers.

The inspection of the food supply has been well maintained.

Attention has been given to recovering from the town refuse articles of a commercial value. 33 tons of paper, 45 tons of scrap tin, and a considerable quantity of bottles and jam jars have been collected and disposed of, and upwards of £100 has been realised by the sale of these articles.

I am, Gentlemen,

Your obedient Servant,

C. W. HILL.

## BAKEHOUSES.

There are 49 bakehouses upon the register, 4 of which are underground bakehouses.

These premises have been carefully supervised.

## DAIRIES, COWSHEDS, AND MILKSHOPS.

There are 46 registered cow-keepers and milk-sellers upon the register. Their premises have been inspected, and the provisions of the Dairies, Cowsheds, and Milkshops Order as to air space and ventilation, cleansing of milk vessels, &c., have been enforced.

## COMMON LODGING-HOUSES.

There are 2 licensed common lodging-houses within the City. Several visits have been paid to these houses and the conditions found were generally satisfactory.

## FRIED FISH AND POTATO SHOPS.

There are 28 fried fish and potato shops on the register. These places have been frequently inspected.

## ICE-CREAM SHOPS.

There are 6 ice-cream shops in the City. They have been frequently inspected for the purpose of ascertaining their sanitary condition, and attention has also been paid to the articles used in the manufacture of this commodity.

## OFFENSIVE TRADES.

The premises whereon offensive trades are carried on have received attention, and in each case the business was found to be conducted in a proper manner.



## VANS USED AS DWELLINGS.

All the vans entering the City to attend fairs, &c., have been inspected, in order to ascertain their sanitary condition. On the whole they were found to be satisfactory.

## PUBLIC MARKETS.

The Public Markets and premises where food is prepared or exposed for sale have been inspected, and the necessity of the observance of hygienic measures being taken have been constantly pointed out.

## DISEASED AND UNSOUND FOOD.

The following table shows the amount of food seized or surrendered as being unfit for human consumption :—

Nature of Food Condemned.					Quantity.
Beef ...	...	...	...	...	28,848 lbs.
Mutton	...	...	...	...	461 „
Pork	...	...	...	...	366 „
Veal	...	...	...	...	64 „
Nuts	...	...	...	...	1 bag

## PUBLIC ABATTOIR AND RAILWAY SLAUGHTER-HOUSES.

Frequent visits have been paid to the Public Abattoir, and also to the Railway Slaughter-houses.

The following tables give the number of animals killed during the years 1907—1916:—

PUBLIC SLAUGHTER-HOUSES.

Year.	Beasts.	Sheep and Lambs.	Calves.	Pigs.	Total.
1907	4,020	14,745	962	4,419	24,146
1908	3,772	14,911	760	4,064	23,507
1909	3,713	16,799	690	3,744	24,946
1910	3,562	16,491	716	3,444	24,213
1911	3,462	15,711	808	4,018	24,000
1912	3,294	15,499	& 1 goat 653	3,993	23,439
1913	3,441	15,424	654	3,412	22,931
1914	3,668	15,320	616	3,687	23,291
1915	3,510	14,529	440	4,113	22,592
1916	4,167	17,602	306	3,956	26,031

M. R. COY.'S SLAUGHTER-HOUSE.

Year.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1914	...	17,856	...	...	...	17,856
1915	...	66,451	20 (2 goats)	...	...	66,473
1916	...	48,745	...	...	...	48,745

FOOD AND DRUGS.

During the year the articles set out in the following table have been purchased and submitted to the Public Analyst for analysis:—



The following table shows the number of articles purchased, result of analysis and action taken.

Article.	No. of Samples taken.	Genuine.	Adulterated.	Extent and Form of Adulteration.	Remarks.
Butter	32	32	...	...	...
Margarine	5	5	...	...	...
Rice	2	1	1	Sample contained insoluble mineral matter 0.5 per cent.	Vendor cautioned
Pineapple	3	3	...	...	...
Tea	3	3	...	...	...
Cheese	3	3	...	...	...
Coffee	3	3	...	...	...
Self-raising Flour	8	6	2	Both samples contained 0.01 grains Arsenic per lb.	Vendors cautioned and stock withdrawn from sale
Baking Powder	9	8	1	Sample contained 0.02 grains Arsenic per lb.	"
Egg Powder	8	8	...	Deficient in non-fatty solids to the extent of—	...
Milk	19	14	5	(a) 0.8 per cent. (b) 0.5 per cent. (c) 0.5 per cent. (d) 0.3 per cent. (e) 0.2 per cent.	Vendors cautioned
Number of Samples taken	95				
Genuine	...	86			
Adulterated	...		9		

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

Analytical Report for the year ended 31st December, 1916:—

## 1. Milk; and cream not sold as preserved cream.

	(a) Number of samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk ... ..	19	...
Cream ... ..	...	...

Nature of preservative in each case in column (b) and action taken under the Regulations in regard to it.

## 2. Cream sold as preserved cream.

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.

(i) Correct statements made	...	...	} nil.
(ii) Statements incorrect	...	...	

(b) Determinations made of milk fat in cream sold as preserved cream.

(i) About 35 per cent.	...	...	} nil.
(ii) Below 35 per cent.	...	...	

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V (1) and the proviso in Article V (2) of the Regulations have not been observed ... .. Nil



## FACTORY AND WORKSHOP ACTS.

There are 205 workshops upon the register, excluding bakehouses.

1 complaint was received from H.M. Inspector of Factories relating to sanitary defects in factories and workshops.

The complaint was investigated and the defect remedied, viz., choked drains.

## OUT-WORKERS.

5 lists of out-workers have been received, as required by the home-work provisions of the Factory and Workshop Act, 1901.

In each instance the premises were visited and found to be in a satisfactory condition.

## FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK.

### 1.—Inspection of Factories, Workshops, and Workplaces.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF NUISANCES.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
FACTORIES . . . . . (Including Factory Laundries)	1	...	...
WORKSHOPS ... .. (Including Workshop Laundries)	5	...	...
WORKPLACES ... .. (Other than Outworkers' premises included in Part 3 of this Report)	...	...	...
TOTAL .. ..	6	...	...

## 2.—Defects found in Factories, Workshops, and Workplaces.

Particulars.	Number of Defects.			Number of Pro- secutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :—</i>				
Want of cleanliness ... ..	...	...	...	...
Want of ventilation ... ..	...	...	...	...
Overcrowding... ..	...	...	...	...
Want of drainage of floors ...	...	...	...	...
Other nuisances ... ..	..	..	...	...
Sanitary accommodation :—				
{ Insufficient ... ..	...	...	...	...
{ Unsuitable or defective	1	1	...	...
{ Not separate for sexes	...	...	...	...
<i>Offences under the Factory and Workshop Acts :—</i>				
Illegal occupation of under- ground bakehouse (s. 101)...	...	..	...	..
Breach of special sanitary re- quirements for bakehouses (ss. 97 to 100) ... ..	...	...	...	...
Other offences ... .. (Excluding offences relating to outwork, which are in- cluded in Part 3 of this report)	...	...	...	...
Total ... ..	1	1	...	...



## 3.—Home Work.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.					
	Lists received from Employers.					
	Sending twice in the year.			Sending once in the year.		
	Lists.	Outworkers.		Lists.	Outworkers.	
		Con-tractors.	Work-men.		Con-tractors.	Work-men.
Wearing apparel—						
Making, &c. ...	3	...	3	2	...	2
Cleaning and						
Washing ...	...	...	...	...	...	..
Total ...	3	...	3	2	...	2

## 4.—Registered Workshops.

Workshops on the Register (s. 131) at the end of the year				Number.
Important classes of work-shops, such as workshop bakehouses, may be enumerated here.	Workshops ...	...	...	205
	Domestic Workshops ...			21
	Bakehouses ...	...	...	44
	Total number of workshops on Register ...			270

## 5.—Other Matters.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Work-shop Acts (s. 133, 1901) ...	...
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory & Workshop Acts (s. 5, 1901) :	
Notified by H.M. Inspector ...	1
Reports (of action taken) sent to H.M. Inspector ...	...
Other ...	...
Underground Bakehouses (s. 101) :—	
In use at the end of the year ...	4

## SHOPS.

Frequent inspections have been made under the provisions of the Shops Act, 1912, both during the day and at night time.

## HOUSE REFUSE REMOVAL.

15,021 loads of refuse have been collected and removed to the refuse tips and destructor, this being an increase of 29 loads as compared with 1915.

## GARBAGE.

221 loads of garbage have been removed by the Corporation carters from the Public Slaughter-houses, as compared with 175 in 1915.

## INFECTIOUS DISEASES.

496 cases of infectious diseases, excluding tuberculous diseases and ophthalmia neonatorum were notified, as compared with 707 in 1915.

All the cases were investigated and reported upon to the Medical Officer of Health, and 239 cases were removed to the hospital for isolation.

## DISINFECTION.

All the houses from which cases of infectious disease were removed to hospital, and rooms in which cases were isolated at home, were either sprayed with formaldehyde or cleansed under the supervision of your inspectors.

The bedding, clothing, &c., used, or which had been in contact with the infected person, was also disinfected by steam.

The following is a list of articles disinfected:—

Mattresses	...	...	...	...	202
Beds	...	...	...	...	335
Bolsters and Pillows	...	...	...	...	1,035
Blankets	...	...	...	...	1,242
Quilts	...	...	...	...	501
Sheets	...	...	...	...	195
Carpets and Rugs	...	...	...	...	218
Wearing Apparel	...	...	...	...	1,067
Miscellaneous Articles	...	...	...	...	476
Total	...	...	...	...	5,271



## HORSES.

The number of horses under my charge at the Dépôt, Boustead's Grassing, is 20. 11 of these are engaged in house refuse removal, 8 are used for street cleansing purposes, and 1 is kept as a relief horse.

**Summary of Sanitary Work performed in connection with Inspection of District.**

Inspections.	Number of visits paid.
<b>HOUSES—</b>	
Houses inspected in routine H. & T. P. Act, 1909	7
"          "      on complaint ...	Numerous
"          "      for special enquiry ...	"
Visits <i>re</i> Infectious Diseases ...	1571
Common Lodging-houses inspected ...	26
Common Yards, Courts, & Alleys inspected ...	3527
<b>TRADE PREMISES—</b>	
Bakehouses ...	53
Laundries ...	
Stables ...	41
Cowsheds { ...	...
Milkshops { ...	62
Ice-Cream Shops ...	27
Fried Fish Shops ...	39
Food Manufacturers ...	23
Slaughter-houses ...	74
Markets ...	90
Other Factories ...	1
" Workshops and Workplaces ...	5
Chimneys observed (smoke nuisances) ...	2
Visits after serving notices to supervise works in progress ...	1374
Refuse Tips ...	88
Shops Act Inspections ...	244
Inspections of Munition Workers' Lodgings ...	Numerous
Notices served to abate Nuisances ...	272
" complied with ...	233
" not complied with ...	39





