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Cumberland County Council.

ANNUAL REPORT

OF THE

Medical Officer of Health,

F. H. MORISON, M.D., D.P.H.

WITH A

Summary of the Annual Reports of the District Medical Officers of Health.

FOR THE YEAR 1910.

Chas. Thurnam & Sons, Printers, 11 English Street Carlisle.

INDEX.

County Council of Cumberland.

To the Chairman and Members of the Health Committee.

My Lord and Gentlemen,

I have the honour to present to you my Third Annual Report on the Health of the Administrative County of Cumberland, together with a summary of the reports of the District Medical Officers of Health.

The delay, which I much regret, in issuing this report is due to the fact that I did not receive the last of the district reports till nearly the middle of August.

I take this opportunity of thanking your Committee and the district Sanitary Officials for the consideration and assistance I have always received.

I am,

Your obedient Servant,

F. H. MORISON.

September, 1911.

Memorandum as to Annual Reports of Medical Officers of Health.

Every Medical Officer of Health appointed under order of the Local Government Board is required to make an annual report with regard to each sanitary district, or division of a district, which is under his superintendence.

Article 18 (Section 14) of the Board's Order of March, 1891, specifies the information to be contained in the annual report. A copy of the Article is annexed.

The report should be chiefly concerned with the conditions affecting health in the district and with the means of improving those conditions. It should contain an account, brought up to the end of the year under review, of the sanitary circumstances of the district, and of any improvement or deterioration in these circumstances which may have occurred during the year. Care should be taken to report fully and explicitly on the influences affecting or threatening to affect injuriously the public health in the district, and on the action which has been taken, or which may still be needed, with a view to combat those influences. It is of especial importance that the Medical Officer of Health should record what action has been taken to remedy unhealthy conditions which have been reported by him in previous annual reports, or in special reports presented by him during the year under review, *and that attention should be called afresh, year by year, to such as remain unremedied.*

The following deserve to be specially borne in mind as subjects concerning which the Board desire to obtain, through annual reports of Medical Officers of Health, not only definite general information, but record also of

particular changes of condition that may have occurred incidentally or by action of the Local Authority:—

1. Physical features and general character of the district and general conditions of its population.

2. The chief occupations of the inhabitants, and the influence of any particular occupation on public health.

3. House accommodation, especially for the working classes, its adequateness and fitness for habitation, sufficiency of open space about houses, and cleanliness of surroundings, supervision over the erection of new houses.

4. Water supply of the district or of its several parts, its source (from public service or otherwise), nature (river water, well water, upland water, &c.), sufficiency, wholesomeness, and freedom (by special treatment or otherwise) from risks of pollution. In the case of waters liable to have plumbo-solvent action, any facts, either clinical or chemical, whether negative or positive, as to contamination of the water by lead should be stated, and whether administrative action has been taken during the year in respect of such contamination.

5. Milk supply, character and wholesomeness of milk produced within the district or imported, condition of dairies, cow-sheds, and milk-shops, administration in regard to milk, tuberculous milk.

6. Other foods, unsound food and food inspection, sanitary condition of premises where foods are prepared, stored or exposed for sale. Meat inspection, disease in meat, and condition of slaughter-houses. Action under Sale of Food and Drugs Acts taken or needed. Action under Section 117 of the Public Health Act, 1875.

Number of carcases and parts of carcases condemned for Tuberculosis. Information on this point should be given even when entirely negative.

7. Sewerage and drainage, its efficiency in all parts of the district, condition of sewers and house drains, method or methods of disposal of sewage, localities where improvements are needed.

8. Pollution of rivers and streams in the district, the sources and nature of such pollution, and any action taken to check it.

9. Excrement disposal, system in vogue, defects (if any).

10. Removal and disposal of house refuse, whether by public scavengers or occupiers, frequency, and method.

11. Nuisances, proceedings for their abatement, any remaining unabated.

12. Byelaws as to houses let in lodgings, offensive trades, &c. Details as to number of premises coming under each set of byelaws, and action taken. Any need of amendment or further byelaws.

13. Schools, especially public elementary schools, sanitary condition of, including water supply, action taken in relation to the health of the scholars and for preventing the spread of infectious disease. Arrangements for medical inspection of school children.

14. Methods of dealing with infectious diseases, notification, isolation, hospital accommodation, its sufficiency and efficiency, disinfection.

15. Methods of control of Tuberculosis, whether any system of notification of cases of

Pulmonary Tuberculosis, compulsory or voluntary, is in operation. Number of cases notified, what action is taken in respect of known cases and of deaths. Amount of hospital accommodation for cases of Pulmonary Tuberculosis in infirmaries and elsewhere for advanced and for early cases of the disease.

With regard to the preceding points it should be remembered that these reports are for the information of the Board and of the County Council, as well as for the Council of the District, and that a statement of the local circumstances and a history of local sanitary questions which may seem superfluous for the latter may often be needed by the former bodies.

It is expected that each of the preceding points will be mentioned in the annual reports, and the extent of action or the absence of action on each of them definitely stated.

The Memorandum then goes on to point out how the incidence of disease, infant mortality, medical inspection of school children, &c., should be dealt with.

I have given the above copy of the Memorandum in the hope that District Medical Officers will, in their annual reports, deal wth each item, and in the order laid down in the Memorandum; this will serve the double purpose of ensuring that no item is missed, and will greatly simplify reference to any desired section.

AREA AND POPULATION.

Cumberland is the only County in England and Wales of which it can be said that the ancient county is co-extensive with the Administrative and with the Registration County.

The Administrative County contains an area of 973,086 acres.

The estimated population for the year 1910, as compiled from the reports from the various districts, is 275,056, but the preliminary report on the census of 1911 shows the population to be 265,780.

The following table shows the estimated population for the year, the population at the census of 1901 and that at the census of 1911:—

	Estimated Population 1910.	Census Population 1901.	Census Population 1911.	Increase or Decrease of Population between 1901 & 1911.	
URBAN DISTRICTS.					
Carlisle (M.B.) ...	51,433	45,480	46,432	952	—
Workington (M.B.)	27,500	26,143	25,099	—	1,044
Whitehaven (M.B.)	19,320	19,324	19,048	—	276
Arlecdon & Frizington	5,200	5,341	5,184	—	157
Aspatria	3,331	2,885	3,339	454	—
Cleator Moor ...	8,000	8,120	8,302	182	—
Cockermouth ...	5,410	5,355	5,203	—	152
Egremont	6,300	5,761	6,305	544	—
Harrington ...	3,766	3,679	4,340	661	—
Holme Cultram ...	4,493	4,275	4,494	219	—
Keswick	4,500	4,451	4,403	—	48
Maryport	12,600	11,897	11,423	—	474
Millom	10,000	10,426	8,612	—	1,814
Penrith	9,395	9,182	8,973	—	209
Wigton	3,455	3 692	3,687	—	5
TOTAL	174,703	166,011	164,844	3,012	4,179

Rural Districts.	Estimated Population 1910.	Census Population 1901.	Census Population 1911.	Increase or Decrease of Population between 1901 & 1911.	
Alston	3,150	3,134	3,075	—	59
Bootle	5,050	5,823	5,664	—	159
Brampton	8,784	8,785	7,982	—	803
Carlisle	17,382	17,381	17,736	355	—
Cockermouth ...	22,250	21,690	22,233	543	—
Longtown	6,600	6,676	6,167	—	509
Penrith	12,485	13,023	12,549	—	474
Whitehaven ...	13,000	12,961	14,147	1,186	—
Wigton	11,652	11,449	11,383	—	66
Total	100,353	100,922	100,936	2,084	2,070

In the following table is shown the "Natural Increase" in population, *i.e.*, the excess of births over deaths during the 10 years, 1901 to 1910, or from one census to another, in the various Urban and Rural districts:—

	In 10 years, 1901–1910.		
	Births.	Deaths.	"Natural Increase."
Carlisle	12,181	7,618	4,563
Workington	8,540	4,365	4,175
Whitehaven	6,176	3,806	2,370
Arlecdon and Frizington ...	1,598	778	820
Aspatria	967	433	534
Cleator Moor	2,388	1,343	1,045
Cockermouth	1,268	851	417
Egremont	1,724	923	801
Harrington	1,300	596	704
Holme Cultram	964	627	337
Keswick	951	627	324
Maryport	3,595	1,925	1,670
Millom	2,726	1,341	1,385
Penrith	2,260	1,545	715
Wigton	906	655	251
	47,544	27,433	20,111

	In 10 years, 1901–1910.		
	Births.	Deaths.	"Natural Increase."
Alston	634	534	100
Bootle	1,137	758	379
Brampton	1,724	1,305	419
Carlisle	3,638	2,383	1,255
Cockermouth	6,460	3,144	3,316
Longtown	1,387	993	394
Penrith	2,789	1,622	1,167
Whitehaven	3,877	1,825	2,052
Wigton	2,714	1,675	1,039
	24,360	14,239	10,121

In the previous table it will be noticed that the population in the Urban districts has decreased 1,167, but the "natural increase" is 20,111, indicating that there has been a loss of population to the Urban districts through emigration during the 10 years of 21,278 persons.

In the Rural districts the actual increase in the population is 14 during the 10 years, but the "natural increase" is 10,121, so that the Rural districts have lost through emigration 10,107 persons.

BIRTHS.

The births in the County registered during 1910 numbered 6,650, giving a birth-rate of 24.1 per 1,000 of poulation, as compared with 6,912, and a rate of 25.0 per 1,000 in 1909.

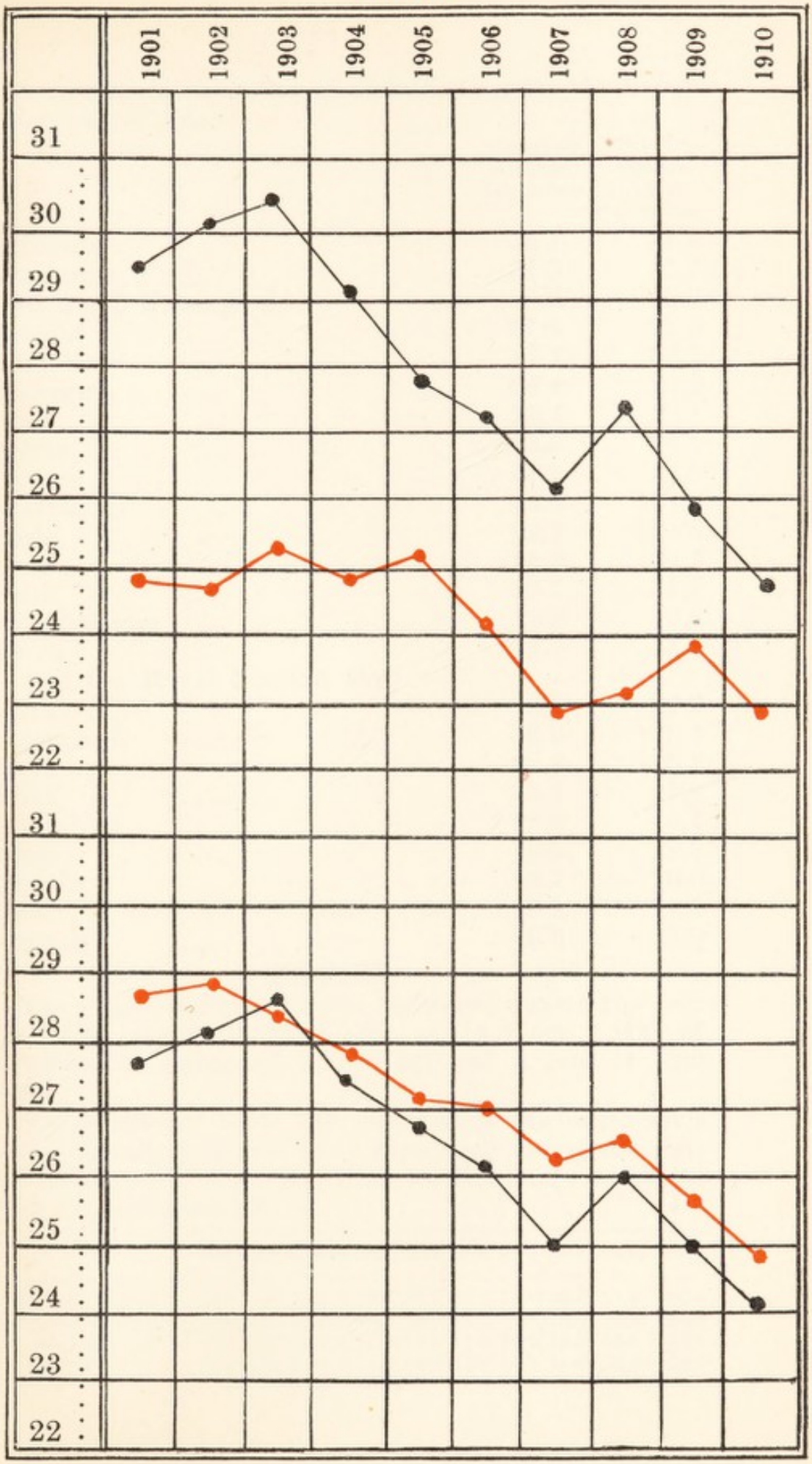
The following table and chart show for comparison the birth-rates for the County and for its Urban and Rural districts for the past 10 years with those for England and Wales:—

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
England and Wales ...	28.5	28.6	28.4	27.9	27.2	27.0	26.3	26.5	25.6	24.8
Administrative County	27.7	28.1	28.6	27.4	26.6	26.2	25.0	26.04	25.0	24.1
Urban Districts ...	29.5	30.2	30.5	29.1	27·6	27.3	26.3	27.5	25.8	24.8
Rural Districts ...	24.8	24.6	25.4	24.7	25·2	24.2	22.8	23.4	23.8	22.9

BIRTH RATES.

URBAN.
RURAL.

CHART I.



COUNTY OF CUMBERLAND.
ENGLAND AND WALES.

Arranged in the order of their birth-rates the Urban districts stand thus:—

	Based on estimated Population.	Based on Census (1911) Population.
Harrington	36.1	31.3
Whitehaven	31.2	31.7
Arlecdon and Frizington ...	28.2	28.3
Egremont	27.9	27.9
Cleator Moor	27.7	26.7
Workington	26.4	28.9
Wigton	25.7	24.1
Aspatria	25.5	25.5
Maryport	24.5	27.0
Cockermouth	24.0	24.9
Carlisle	22.2	24.6
Millom	21.5	24.9
Penrith	20.7	21.7
Holme Cultram	19.8	19.8
Keswick	17.7	18.1
And the Rural districts thus:—		
Whitehaven	29.6	27.2
Cockermouth	26.9	26.9
Wigton	22.8	23.2
Penrith	22.1	21.9
Bootle	21.6	19.2
Carlisle	19.7	19.3
Longtown	18.7	20.0
Alston	17.1	17.5
Brampton	16.3	18.0

DEATHS.

The total number of deaths registered during the year was 4,080, giving a death-rate of 14.8 per 1,000 of population, as compared with 4,141 and a rate of 15.0 in 1909.

The following table and chart show the death-rates for the County and for its Urban and Rural districts during the past 10 years and those for England and Wales during the same period:—

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
England and Wales ..	16.9	16.3	15.4	16.2	15.2	15.4	15.0	14.7	14.5	13.4
Administrative County	15.8	15.4	15.7	16.1	15.5	14.9	15.8	15.3	15.0	14.8
Urban Districts ..	16.5	16.3	16.6	17.2	16.2	15.6	16.5	15.8	15.6	15.2
Rural Districts .	14.8	14.0	14.3	14.3	14.3	13.7	14.5	14·6	14.03	14.0

In order of their *nett* death-rates the Urban districts stand thus:—

	Based on estimated Population	Based on Census (1911) Population
Whitehaven	25.9	26.1
Wigton	19.6	18.7
Arlecdon and Frizington	18.4	18.5
Harrington	17.2	14.9
Cockermouth	16.2	16.9
Cleator Moor	16.1	15.5
Holme Cultram	14.8	14.8
Keswick	14.8	15.2
Egremont	13.8	13.8
Millom	13.4	15.9
Maryport	13.2	14.3
Carlisle	12.6	13.9
Workington	12.5	13.7
Penrith	12.3	12.9
Aspatria	12.0	12.0

And the Rural districts thus:—

Longtown	16.3	17.5
Cockermouth	15.7	15.7
Bootle	15.6	13.9
Alston	15.5	15.9
Whitehaven	14.0	12.8
Wigton	13.8	14.1
Brampton	12.5	13.7
Penrith	11.8	11.7
Carlisle	11.5	11.2

Taking the figures from the district reports I find there were 4,080 deaths registered in the various districts; of these 255 were "non-residents" in the districts, but died in public institutions in the districts, and 175 died in public institutions beyond their own districts, thus we get 4,003 nett deaths, giving a rate of 14.2 per 1,000 of estimated population.

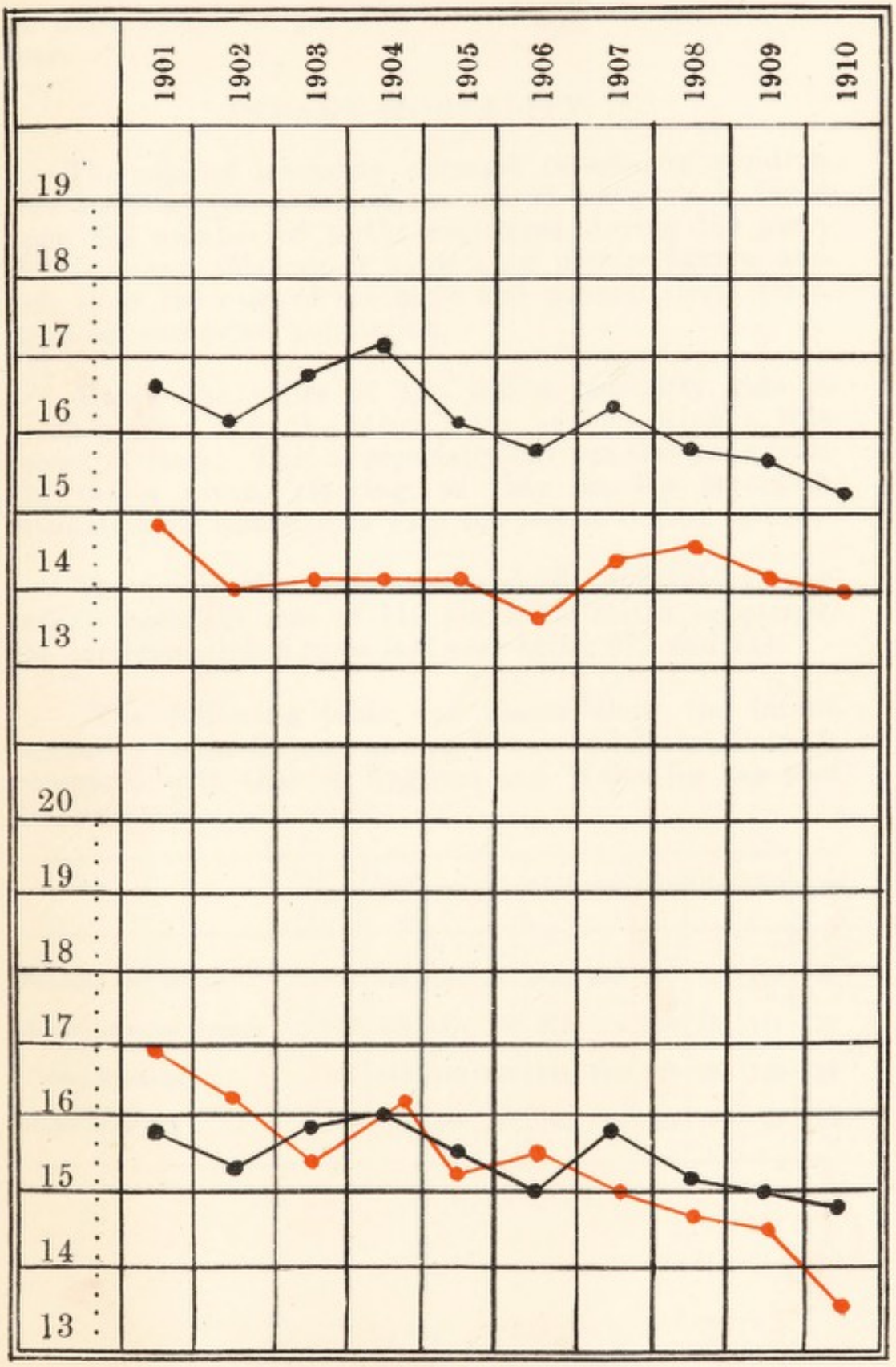
It must be remembered, however, that although many died in public institutions beyond their own district,

DEATH RATES.

CHART II.

URBAN.

RURAL.



COUNTY OF CUMBERLAND.

ENGLAND AND WALES.

nevertheless they probably belonged to the County, so that we must take 14.8 per 1,000 as the death-rate for the year.

INFANT MORTALITY.

The rate of mortality amongst infants, or children who have not yet attained the age of one year, is based upon the number of births registered during the year, that is to say, this rate is based upon precise figures, and not, as is the case of the birth and general death-rates, upon an estimated population.

Hence the value of the infant mortality rate is much greater than the latter rates, as indicating a true record of facts. This is especially obvious this year from the tables given, showing, as they do, the errors in estimation by comparison with the recent census returns.

The deaths of infants numbered 734, equivalent to an infant mortality rate of 110 per 1,000 births registered, the corresponding figures last year being 679 and 111.

The following table and charts show the infant mortality in the County and its Urban and Rural districts compared with that of England and Wales for the past 10 years:—

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
England and Wales ...	151	133	132	146	128	133	118	121	108	106
Administrative County ...	130	109	130	136	129	124	129	126	111	110
Urban Districts	137	113	143	149	141	139	128	134	123	119
Rural Districts	116	102	104	112	106	99	132	109	89	92

Arranged in the order of their infant mortality the Urban districts stand thus:—

Cockermouth	...	176	Wigton	...	112
Arlecdon and Frizington	...	156	Keswick	...	112
Millom	...	134	Carlisle	...	110
Workington	...	129	Maryport	...	110
Whitehaven	...	129	Egremont	...	107
Aspatria	...	129	Penrith	...	107
Cleator Moor	...	117	Harrington	...	103
			Holme Cultram	...	44

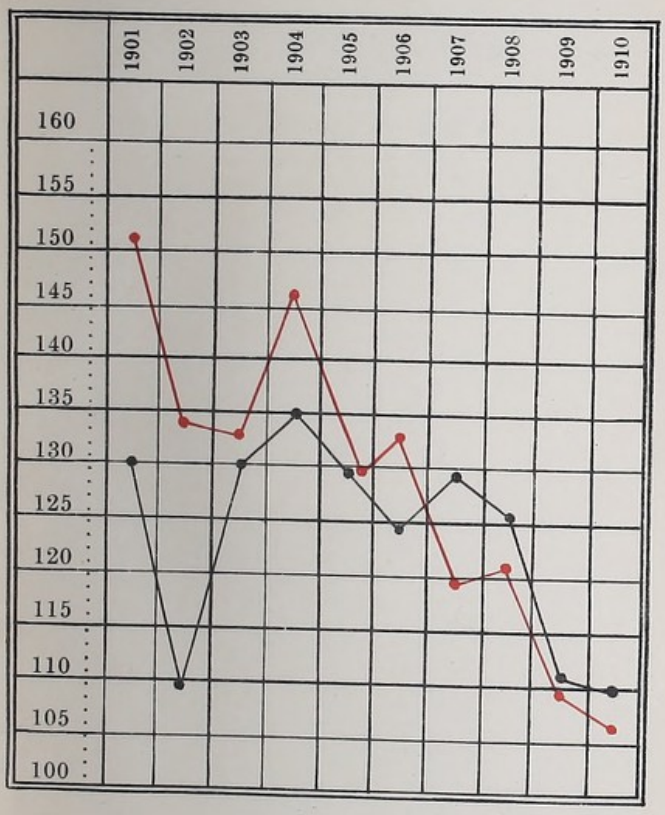
And the Rural districts thus:—

Longtown	...	161	Penrith	...	57
Whitehaven	...	116	Alston	...	55
Wigton	...	116	Carlisle	...	55
Cockermouth	...	110	Bootle	...	36
Brampton	...	62			

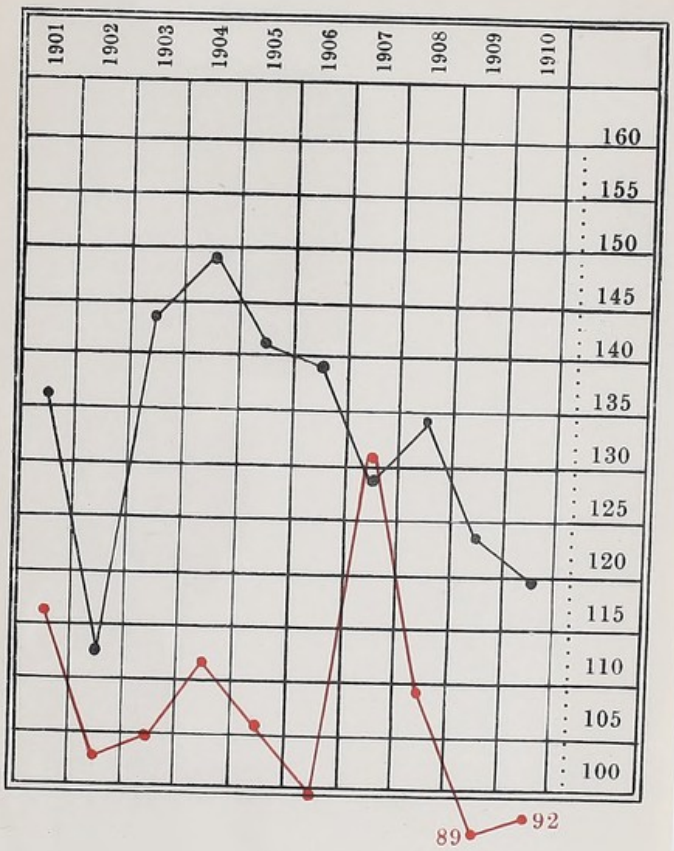
CHART III.

INFANTILE MORTALITY.

COUNTY OF CUMBERLAND.
ENGLAND AND WALES.



URBAN.
RURAL.



INFANTILE MORTALITY IN THE COUNTY DURING THE YEAR 1910.

Deaths from stated Causes in Weeks and Months under One Year of age.

CAUSE OF DEATH.	Under 1 Week	1–2 Weeks	2–3 Weeks	3–4 Weeks	Total under 1 Month	1–2 Months	2–3 Months	3–4 Months	4–5 Months	5–6 Months	6–7 Months	7–8 Months	8–9 Months	9–10 Months	10–11 Months	11–12 Months	Total Deaths under 1 Year
I. *Common Infectious Diseases.*																	
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chickenpox	...	...	..	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Measles	...	...	...	...	...	...	..	.	1	...	...	2	1	1	1	3	1	10
Scarlet Fever	...	...	...	...	...	...	...	..	..	...	..	...	...	.	...	...	...	...
Diphtheria (including Membranous Croup)	...	...	..	..	...	...	.	...	...	...	...	..	...	2	3	...	5
Whooping Cough	...	...	3	...	3	1	7	2	1	1	3	2	1	6	...	1	28
II. *Diarrhœal Diseases.*																	
Diarrhœa, all forms	..	1	1	1	3	6	2	3	2	2	2	1	2	...	5	1	29
Enteritis, Muco-enteritis, Gastro-enteritis	...	1	1	1	3	3	3	4	6	9	2	4	3	...	2	1	40
Gastritis, Gastro-intestinal Catarrh	1	...	3	..	4	7	7	2	3	4	2	1	.	1	1	...	32
III. *Wasting Diseases.*																	
Premature Birth	94	13	7	2	116	9	1	...	...	1	...	...	..	..	..	...	127
Congenital Defects	22	3	6	2	33	3	1	1	..	...	.	1	...	...	...		39
Injury at Birth	6	1	...	...	7	...	...	...	...	...	..	...	...	..	...	...	7
Want of Breast-milk, Starvation	...	2	...	...	2	...	1	1	...	..	...	...	.	...	...	...	4
Atrophy, Debility, Marasmus	23	8	7	4	42	16	12	10	4	2	5	1	..	1	...	2	95
IV. *Tuberculous Diseases*																	
Tuberculous Meningitis	...	...	...	...	...	1	3	...	2	...	2	7	1	1	...	1	18
Tuberculous Peritonitis: Tabes Mesenterica	...	...	1	...	1	1	...	1	2	..	...	1	2	2	1	2	13
Other Tuberculous Diseases	...	...	...	...	...	...	...	...	3	1	.	1	2	...	...	1	8
V. *Other Causes.*																	
Erysipelas	...	1	...	...	1	.	.	..	...	...	..	..	...	..	...	..	1
Syphilis	...	...	1	...	1	3	2	1	3	1	1	...	...	.	..	...	12
Rickets	...	...	...	...	...	.	...	...	...	...	..	...	1	1		...	2
Meningitis *(not Tuberculous)*	2	...	...	1	3	1	1	1	1	2	3	2	2	2	2	2	22
Convulsions	17	7	3	1	28	9	5	6	7	6	2	2	3	5	..	1	74
Bronchitis	...	1	2	...	3	12	9	7	3	10	11	3	3	5	...	4	70
Laryngitis	...	1		...	1	...	...	...	...	...	...	...	..	...	...	...	1
Pneumonia	..	2	...	.	2	...	3	2	6	2	5	8	3	9	2	2	44
Suffocation, overlying	...	...	...	...	..	4	..	...	1	..	..	...	..	...	..	...	5
Other Causes	10	7	3	2	22	5	6	1	1	3	2	2	2	...	2	1	47
	175	48	38	14	275	81	63	43	45	45	42	37	26	36	21	20	734

The above table shows that 175, equivalent to 23.8 per cent., of the deaths of infants occurred before they reached the age of one week, and 275, equivalent to 37.4 per cent., died before they reached the age of one month; moreover, the deaths of infants represent 18.3 per cent. of the total deaths in the County.

I have been unable to get a complete return of the number of legitimate and illegitimate births, and the number of deaths of these infants, but Table IV, at the end of the report, shows as many as I have received.

This shows the death-rate of legitimate infants to be 112 per 1,000 births, and the death-rate of illegitimate infants to be 178 per 1,000 births.

In the preceding table it will be noticed that the deaths of infants are classified under five different headings:—

1. Common Infectious Diseases, which caused 44 deaths.
2. Diarrhœal Disease, which caused 101 deaths.
3. Wasting Diseases, which caused 272 deaths.
4. Tuberculous Diseases, which caused 39 deaths.
5. Other causes, which caused 278 deaths.

In July an important report on "Infant and Child Mortality," by Dr. Newsholme, Chief Medical Officer, was issued by the Local Government Board, from which the following extracts are taken:—

"Infant Mortality as related to Mortality at higher ages.

"This comparison is important, because attempts to reduce infant mortality are regarded by many as an interference with natural selection, which must be inimical to the average health of those surviving. According to this school of thought, efforts to save infant life merely prevent the 'weeding out' of the unfit, and ensure the survival of an excessive proportion of weaklings.

"The statistics in the following pages do not support this view, for counties having a high infant mortality have also a high death-rate at ages 1—5, and this high death-rate will be seen shortly to continue to higher ages. The converse rule holds good for the counties having a low infant mortality.

"It will be borne in mind that Measles and Whooping Cough prevail to a very varying extent in different years and in different districts during the same year. In this respect they differ materially from Diarrhœa, which is always prevalent throughout the country in greater or less degree according to the character of the weather in the third quarter of the year. Measles differs also from Diarrhœa in the fact that it is more fatal to children who have passed their first birthday.

"A comparison between one district and another for the same year may therefore be vitiated by the greater or less prevalence of Measles and Whooping Cough. When allowance is made for this disturbing influence, the almost uniform coincidence between high or low infant death-rate and a corresponding high and low death-rate at ages 1—5 becomes even more significant.

"A high infant death-rate in a community implies in general a high death-rate in the next four years of life, while low death-rates at both-age periods are similarly associated.

"Attention may be drawn to the suggestive observations recorded by Dr. Kerr in his Annual Report to the Education Committee of the London County Council for the year ended 31st March, 1905. These observations tend to show that children born in years of high infant mortality are found, when examined at school in subsequent years, to have poorer physique than those of an equal age born in years of low infant mortality.

"All the evidence points to the conclusion that the general standard of health is higher in districts having a low mortality in early life.

"The Causes of Infant Mortality.

"Mortality in the first five years of life is very unequally distributed, the death-rate at these ages in some counties being twice as high as in others.

"Excessive mortality in infancy implies excessive mortality in later life. This is shown in the statistics of different counties and sub-divisons of counties in the year 1908 for the ages 0—1 and 1—5. It is also shown for each of the first five years of life in the experience of England and Wales over a long series of years. English statistics show that counties having excessive infant death-rates, also, on the whole, have excessive death-rates throughout the first twenty years of life, and that counties having low infant death-rates have low death-rates throughout the first twenty years of life, though the superiority is not so great at the later as at the earlier ages.

"In counties having insufficient arrangements for helping women in child-birth there will almost certainly be a high proportion of incompetent help; and it may be expected, therefore, that such counties will have an excessive death-rate from puerperal sepsis and the accidents of child-birth.

"General Summary.

"One out of three deaths at all ages occurs under five years of age, one out of five during infancy, and one out of nine total deaths at all ages occurs under three months of age.

"Infant mortality is the most sensitive index we possess of social welfare and of sanitary administration, especially under Urban conditions."

"A heavy infant mortality implies a heavier death-rate up to five years of age, and right up to adult life the districts suffering from a heavy child mortality have higher death-rates than the districts where infant mortality is low.

"It is strictly correct, therefore, to say that a high infant mortality implies a high prevalence of the conditions which determine national inferiority.

"A study of the causes of death which act in excess during infancy shows that this influence of the chief manufacturing and mining counties in lowering the standard of national efficiency need not continue.

"There is no essential casual relation between a high birth-rate and a high rate of infant mortality.

"The counties which have a high death-rate during the second half of infancy usually have also a high death-rate in the first month of life.

"*There are strong reasons for concluding that much of this mortality in the first year of life is preventible if appropriate action is taken.*

"Early motherhood is associated to a minor extent with a relatively high infant mortality.

"Infant mortality is higher among the poor than among the well-to-do, although natural feeding of infants is probably more general among the former.

"The statistics hitherto available for the counties considered in this report do not enable a definite statement to be made, and the basis of statistics as to the influence on infant mortality of the non-domestic employment of mothers. Such employment must, however, tend on balance to increase infant mortality and to lower the standard of health of older children in the same family. Even when the mother's earnings are necessary for the bread-winning of the family, such earnings are secured by some sacrifice of the interests of the next generation. The industrial employment of married women, so far as can be judged from the statistics for counties, under present conditions weighs less heavily as a cause of excessive infant mortality than the influences next to be summarised.

"Infant mortality is always highest in crowded centres of population; but a high infant mortality can, subject to the conditions stated at the foot of page 62, be avoided even under conditions of dense aggregation of population.

"The chief means for a low infant mortality are efficient domestic and municipal sanitation, good housing, and intelligent, painstaking 'mothering.'

"*Infant mortality is highest in those counties where, under Urban conditions of life, filthy privies are permitted, where scavenging is neglected, and where streets and yards are to a large extent not 'made up' or paved.*

"*Thus local sanitary authorities are largely responsible for the continuance of excessive infant mortality, and until they fulfil satisfactorily their elementary tasks, efforts in the direction of domestic hygiene can only be partially successful.*

"Diarrhœa is most prevalent when municipal sanitation is bad. It cannot be entirely removed unless infants' food is prepared under absolutely clean conditions.

"Breast feeding is the greatest natural protection against infant mortality. It is not a complete protection, in part because breast-fed infants are often exposed to excessive changes of temperature in air-polluted rooms, and in part because mothers frequently give their breast-fed infants other food of an unsuitable character.

"RECOMMENDATIONS.

i. "The statistics given in this report emphasise the importance of more detailed investigation of all deaths occurring in infancy as a guide to administrative action. This is already done in some districts; in other districts such deaths are ignored unless due to infectious diseases.

ii. "In each district an effort should be made to ascertain the number of still-births, and to investigate, where practicable, the circumstances connected with them, and with the deaths of infants in the first month of life. The administration of the Midwives Act and of the Notification of Births Act offers many opportunities for inquiry, the results of which may be made of immediate value in public health administration.

iii. "Inquiries under the last head will throw light on the character of the attendance available for women during child-birth, and on the availability of additional help when required. So far no exact information is obtainable as to the probable relation between the conditions under which the child-birth occurs and the number of deaths in the first week of life.

iv. "The evidence already available points to the conclusion that infant mortality can be lowered by giving adequate training and help to Midwives. This especially applies to the saving of infant life at and soon after birth. It has also to be remembered that the Midwife's influence with the mother, whom she has helped in her need, is very great, and it is her advice as to the management, and particularly as to the feeding of the infant, which is most likely to be followed.

v. "*Although this is so, experience is already showing the value of the work being done by health visitors, who under present conditions form an almost indispensible aid in influencing mothers in the management of their infants.*

vi. "*The adoption of the Notification of Births Act is a necessary preliminary to the giving of such aid promptly*; and I hope that ere long this Act will be generally adopted in the country districts as well as in large towns.

vii. "The efficient administration of the Midwives Act, the adoption of the Notification of Births Act, and of additional arrangements for giving instruction in infant hygiene are urgently called for in counties in which infant mortality is excessive.

viii. "The measures indicated above furnish an incomplete remedy in the counties in which insanitary conditions are rife. Sanitary authorities in compactly populated districts should decide to remove all dry closets if a water-carriage system is practicable, and to provide for the satisfactory paving of streets and yards where required. Doubtless these measures will be expensive, but they are much more economical than the sickness and impaired efficiency of the population, which are their alternative, and no Sanitary Authority can justify neglect in undertaking these elementary tasks.

ix. "Sanitary Authorities, in the words of Sir John Simon, the first Medical Officer of this Board, are the appointed guardians of masses of human beings, whose lives are at stake in the business."

CANCER.

Under this heading are included deaths registered as being due to Cancer, Carcinoma, Malignant Diseases, Scirrhus, Epithelioma, Sarcoma, &c.

The following table gives in order the death-rates from Cancer in the Urban and Rural districts:—

Urban.		Rural.	
Keswick	2.7	Alston	3.2
Maryport	1.5	Brampton	1.5
Aspatria	1.4	Wigton	1.5
Penrith	1.3	Penrith	1.3
Carlisle	1.1	Carlisle	1.1
Holme Cultram ...	1.1	Longtown	1.1
Whitehaven ...	0.7	Bootle	1.0
Cleator Moor ...	0.7	Cockermouth ...	0.8
Cockermouth ...	0.7	Whitehaven ...	0.7
Wigton	0.5		
Workington ...	0.3		
Arlecdon and Frizington ...	0.3		
Millom	0.3		
Egremont	nil.		
Harrington ...	nil.		

The Cancer death-rate is in the Urban districts 0.8, in the Rural districts 1.6, and in the whole County 0.9 per 1,000 of population.

The corresponding figures last year were 0.9, 1.04, and 0.9 per 1,000 respectively.

These results are based on the population as enumerated at the census of 1911, and as the population was much over estimated in 1909, although the results appear much the same, the figures for the present year are more favourable.

ZYMOTIC DISEASES.

The diseases usually included under this heading are Smallpox, Scarlet Fever, Diphtheria, and Membranous Croup, Fevers (Enteric, Continued, &c.), Measles, Whooping Cough, and Diarrhœa.

1882 cases were notified during the year, 1132 in Urban and 750 in Rural districts, compared with 1,425 cases, 900 in Urban and 525 in Rural districts, in the previous year.

This increase is entirely due to the prevalence of Scarlet Fever in almost every district.

SMALLPOX.

No case of Smallpox occurred in this County during the year, although there were outbreaks in several parts of the country.

There is every reason to fear that when Smallpox does appear, as under existing circumstances it must sooner or later, it will be one of the worst epidemics recorded for many years.

The following figures were recently given by the President of the Local Government Board in answer to the question:—"Would he state the number of births registered for the years 1903 to 1906, the number recorded as successfully vaccinated, and the number of certificates of exemption received in respect of such births; also the number of births registered for the years 1907 to 1910, the number recorded as successfully vaccinated, and the number of certificates of exemption received in respect of such births."

The following table supplies the answer, the figures for 1910 not being available:—

Year.	Births.	Vaccinations.	Exemptions.
1903	948,271	714,637	37,695
1904	945,389	711,504	40,461
1905	929,293	705,040	44,369
1906	935,081	686,992	53,828
1907	918,042	651,050	76,709
1908	940,383	594,792	160,350
1909	914,547	*547,251	*197,326

* These figures are approximate and liable to correction.

Of course these figures do not take into account the number of children who, for one cause and another, apart

from legal exemption, have escaped vaccination, and they must be a considerable number.

The figures quoted show that the exemptions have risen from 3.9 per cent. of births in 1903 to 21.5 per cent. in 1909.

There seems no reason to conclude that this County is any better protected against Smallpox than any other part of the kingdom.

During the examination of school children opportunity has been taken to note the condition as to vaccination. I may here add, however, that nothing has ever been said to any parent or any child on the subject of vaccination.

I now have records of 14,124 children, and of these 2,901, or 20.5 per cent., are totally unvaccinated.

Public vaccinators are compelled to put four marks on a child's arm, and many mothers, thinking that fewer marks are quite as efficient, go to their own medical man and persuade him to put less; after all, however, it is the superficial area covered by the vaccination which is the crucial point, and not the number of marks. There seems to be no legal definition of what is "successful vaccination."

Of the 14,124 school children examined

9.5	per cent.	had	one mark,
22.9	,,	,,	two marks,
14.7	,,	,,	three marks,
32.1	,,	,,	four or more marks,

and all of these would probably be returned as successfully vaccinated.

I think, taking into consideration the smallness of the marks, that at any rate the vast majority of those with only one or two marks are certainly not efficiently protected against an attack of Smallpox, and it is this very fact that gives opponents of vaccination reasonable ground for saying that vaccination does not protect

against Smallpox. Vaccination as at present carried out does not protect, but efficient vaccination most certainly protects not only from death, but from attack.

This subject is dealt with in some of the district reports:—

Dr. Highett says:—"Beyond reiterating my opinion I do not intend here to go into detail with regard to the protective power of vaccination and re-vaccination over Smallpox. Improved modern sanitation has served to provide us with a class of modern sanitarians, almost entirely recruited from the laity, which, despising the lessons to be derived from a country such as Germany, where, thanks to vaccination, Smallpox Hospitals are no longer found to be necessary, prefers to lay the flattering unction to its soul that by improved sanitation alone the matter has not only been scotched but killed. . . . I am not, as I have before said, labouring this matter of vaccination or dealing with it in a more than general way, but for the benefit of the so-called 'sanitary school' I have, through the kindness of the vaccination officer, supplied myself with (1) the total number of births registered during the years 1909, 1910; (2) the numbers vaccinated; and (3) those unvaccinated, and for whom exemption orders have been obtained:—

	1909.	1910.
Total number of births	933	893
Vaccinated	266	266
Exemption orders	485	573
Postponed	48	—
Dead (unvaccinated)	82	54
Removed from district	52	
Total	933	893

This result shows a more parlous position than even I had anticipated. . . . ."

Dr. Fisher says:—"I consider it most unfortunate that parents have the fact so prominently brought to their notice that they can obtain exemption certificates by

simply declaring to a magistrate that they have conscientious objections. I know that parents who formerly had their children vaccinated, and made no sort of objection, now get these certificates merely to escape the little trouble involved in having their child having a sore arm and being rendered 'cross' thereby. Such parents know nothing of the horrors of Smallpox or the protective power of vaccination. They think it less trouble to get an exemption certificate than to have a baby with a sore arm, that is all. However, such is the case. Vaccination is not now so universal, the rising generation is less protected, and when Smallpox breaks out again, as it certainly will, it will be much more difficult to control, and without hospital isolation it will not be controlled."

Dr. Briggs also draws attention to want of vaccination.

Dr. Crerar says:—"Although the administration of the vaccination laws does not rest with the Sanitary Authority they would have to deal with an epidemic of Smallpox, and so the position of the district as to vaccination is a question of interest for them, and it is not a reassuring position. Of 89 children born in 1910, there were at the end of the year, successfully vaccinated, 48; exemptions, 16—that is for every three vaccinated there is one unvaccinated. . . . I think it will be found that the number of exemptions increases year by year."

Dr. Stoney says:—"So far we have been exempt from this loathsome disease, but when it does come, as come it certainly will, it will be very deadly, especially among young children, many of whom now escape even inefficient vaccination, to whom this disease is almost always fatal. I believe I am within the mark when I say that of all the children in Millom under five years of age, half are inefficiently vaccinated, or not at all."

SCARLET FEVER.

With few exceptions this disease has been very prevalent in most districts of the County. 1,356 cases were notified, 776 in Urban and 580 in Rural districts, the figures for 1909 being 903, 565, and 338 respectively.

2.6 per cent. of the cases proved fatal. Although the mortality rate is not high it is slightly higher than in 1909, when it was 2.1.

The popular fallacy, amounting almost to fatalism, that every child must have all the so-called diseases of childhood, is proved in this, as in other diseases, since there is a double gain in preventing young children from getting it; the longer they escape the less likely are they to have it, and if they do take it, the less danger there is to life the greater the age at which the attack comes on.

Comment is made in some of the district reports on the difficulty of stopping the spread of this disease owing to its mildness in many cases, and to the fact that it is not recognised until possibly three or four cases have occurred.

DIPHTHERIA AND MEMBRANOUS CROUP.

247 cases of this disease were notified, 150 in Urban and 97 in Rural districts, compared with 252, 144, and 108 respectively in 1909.

The case mortality was this year somewhat higher than the previous year, being 13.7 against 12.3.

The free supply of antitoxin is now, I believe, general in every district, but in many cases its use is delayed until too late. To be of real service antitoxin must be used in the earliest stages of the disease.

TYPHUS FEVER.

No case is recorded this year.

ENTERIC FEVER.

45 cases were notified, 17 in the Borough of Workington, but nowhere else were there more than two or three isolated cases.

PUERPERAL FEVER.

Eight cases were notified, six in the City of Carlisle, one in Whitehaven, and one in the Bootle Rural district.

Three deaths are recorded, one in Carlisle, one in Whitehaven, and one in the Millom Urban district, which was evidently not notified.

MEASLES.

34 deaths were registered as due to Measles, against 119 in the previous year, thus showing the biennial prevalence of this disease.

The recorded death-rate from Measles is the only method we have of judging of its prevalence, but it must not be forgotten that the number of deaths registered is very little guide to the ravages of this disease, for many deaths occur from, and are registered as caused by, respiratory diseases primarily set up by Measles.

Measles is a disease the effective control of which offers very great difficulties.

The fact that the disease is highly infectious early in the illness and before the characteristic rash appears mainly accounts for this.

During the period, usually three or four days before the rash appears, the patient has all the signs of a bad cold in the head, and for which it is likely to be mistaken, so that the early symptoms are nearly always disregarded and no precaution taken to prevent infection, or in many cases even no treatment adopted.

Under these circumstances the entry of a child into school with the early symptoms is almost impossible to prevent, with the result that many children have become infected before anything has been heard of it.

Usually a child does not cease to attend school until the rash has appeared, so that it has been at school whilst infectious for three or four days, and has probably infected many others, who in turn will fall ill during the next 13 or 14 days from the first exposure to infection.

Thus it will be seen that if a school or a department is closed for a short period, covering those 14 days, those exposed to infection will fall ill during the closure, and not whilst mixing with children in school.

It is difficult to take action in this way, but if early information is obtained it is a very effectual method, as I have proved on several occasions, of dealing with an outbreak.

Infection is very often spread by parents sending other children away to stay with relatives as soon as one starts with an infectious disease. This is often the means of spreading infection from one district to another. It is true of all infectious diseases, but more particularly true of Measles, for it is quite likely the disease is incubating when the child leaves home, although at the time showing no signs of illness.

By some it is considered quite useless to close a school once an epidemic of Measles has started. Whilst agreeing that school closure during the later stages may be futile as far as stopping spread is concerned, I still think one is justified in closing a school on public health grounds, for, if a school is kept open there are children who will attend even when not feeling well, and there are parents who send their children to school under any conditions, therefore, if these children attend school in the early catarrhal stages of Measles they are more liable to contract respiratory diseases as a sequel than if they were well attended to at the commencement, and thus they often go to swell the mortality tables.

The following valuable memorandum has recently been issued by the Local Government Board:—

1. *Preliminary.*

The present Memorandum is intended to summarise for purposes of sanitary administration our knowledge of this disease, to state briefly the difficulties in controlling its spread, and to indicate some of the more promising methods of control which are available under present circumstances of administration. For fuller details on some of the points raised in this Memorandum, reference should be made to the special report by Dr. Theodore Thomson as to Means for Obtaining Control of Measles, which was published in the Annual Report of the Medical Officer of the Board for 1894–5; and to the Joint Memorandum of the Medical Officers of the Local Government Board and of the Board of Education on Closure of and Exclusion from Schools.

2. *Heavy Mortality from Measles.*

Measles chiefly occurs in childhood, and, so far from being a mild and negligible disease, causes a very high proportion of the total deaths in the first five years of life.*

Its total death-toll in the Metropolis is heavier than that caused by the aggregate of all the acute infectious diseases, which, being compulsorily notifiable, are in greater or less degree under administrative control. In the five years 1905--09 Measles caused in London 9,301 deaths, while all the infectious diseases at present compulsorily notifiable (including Small-pox, Scarlet Fever, Diphtheria, Enteric Fever, &c.) caused 8,585 deaths.

The mortality from Measles, is not, moreover, a complete index of the mischief wrought by it. Measles is a frequent cause of retarded growth and development and of ill-health; it often lights up latent Tuberculosis; and deafness and defects of eyesight are in many instances attributable to it.

In large centres of population, epidemics of Measles occur about every second year with almost automatic regularity; and at longer intervals, for reasons which are obscure, these epidemics are more serious and fatal in character, as during the first quarter of 1911.†

The efforts hitherto made to control Measles, so far as can be seen, have not in most instances greatly influenced the course of events.

3. *Essential Difficulties in Controlling Measles.*

This lack of success is due in the main to the special characteristics of the disease, though the failure to secure complete interchange of information and help between parents, school officers, and medical officers of health, has also contributed to the result.

Measles starts with the symptoms of a "severe cold," and the characteristic rash appears only on or about the fourth day of the illness. Infection is spread chiefly during this catarrhal stage and in the earliest days of the rash; it is disseminated probably as spray when the patient coughs or sneezes.

Experience shows that most persons not protected by a previous attack are susceptible to Measles, § and acquire the disease when they come within range of infection.

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* Thus, in London during the five years 1905-09, measles caused 2·7 per cent. of the total deaths from all causes in the first year of life, 18·0 per cent. in the second year, 17·9 per cent. in the third year, 15·5 per cent. in the fourth year, and 13·8 per cent. of deaths from all causes in the fifth year of life. At ages 5—10, it only caused 4·9 per cent. of the deaths from all causes, and very few deaths at higher ages.

† This is illustrated by the following comparative figures for London (only weeks in which more than 80 deaths from Measles occurred are given).

Number of Deaths in weeks of highest mortality from Measles in London.

Year.		
1911	...	95, 86, 103, 132, 136, 175, 197, 132‡.
1910	...	85, 94, 113, 83, 90, 83.
1909	...	82, 93, 94, 92, 105, 129, 118, 94.
1904	...	86. 81, 86, 83,
1893	...	130, 134, 130, 80, 87, 100, 106, 115, 141, 134, 143, 115, 109, 117, 131, 107, 99, 82.
1897	...	87, 120, 108, 122, 134, 112, 166.

‡ Up to the week ending March 25th, 1911.

§ In one epidemic in which this point was accurately investigated, only one out of every eight children in invaded houses, who had not previously had Measles, escaped attack.

The course of events in a school class is usually as follows:—A child attends school suffering from the preliminary catarrh of measles. Twelve days later the first crop of cases occurs among the children in this class, and in twelve days more the majority of the unprotected children will have been attacked.

If the first child's attack were known of at an early date it would be practicable, by arranging for closure of the class from the tenth day (two days before the appearance of the first crop), until the first crop of cases appeared, to prevent, for the time being, further spread in the particular class.

The preceding outline of the course usually pursued by a school outbreak shows how difficult is the problem. Under present circumstances, the first case is rarely known to the medical officer of health, and may not be known to the school officers until the crop of cases commencing twelve days later has occurred and been recognised.

It is generally agreed that Measles is spread on the largest scale by the attendance at public elementary infant schools of children in the catarrhal stage of the disease. The occurrence of similar spread in the boys' and girls' departments of the same schools is prevented by the fact that most of the scholars in these departments are already protected by previous attack.

It must also be realised that if by any means at present available the amount of Measles occurring in large towns among children who attend infants' schools were to be reduced, a somewhat corresponding increase would be likely subsequently to occur in the number of cases in the boys' and girls' departments. This consideration does not, however, justify the failure to adopt every practicable means for reducing the incidence of Measles in younger children; inasmuch as the postponement of epidemics, so that a larger proportion of individual attacks occur at a higher age, implies the saving of many lives.*

Measles is commonly introduced into a family by school children, and the less frequently this introduction occurs, the less the danger that children under three, among whom most of the deaths from Measles occur, will be attacked.†

The problem clearly consists of two parts—means for preventing the spread of Measles, and means for preventing deaths from Measles. One of the means of preventing death from Measles, as already indicated, is postponement of attack. Other means are considered in paragraphs 8—10

4. *The Frequent Absence of Medical Attendance.*

The Sanitary Authority and its officers are unable to take action for preventing the spread of Measles until they possess information as to its occurrence and incidence. This can only be obtained by a system of notification of cases of Measles, which implies a diagnosis of the disease. Unless a doctor is in attendance, it is difficult to ascertain whether the disease has been recognised, and from information based on inquiries made respecting cases of supposed Measles intimated to medical officers of health

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* Thus the fatality (case mortality) at the age period 5—10 in actual outbreaks has been found to be only one-ninth of the fatality in the third year of life. In the fifth year of life it is only one-seventh, and in the fourth year of life it is less than one-half of that holding good for the third year of life (*see* table on p. 138 of Dr. Thomson's Report).

† During the five years 1905—09 measles caused 9,301 deaths in London. Of this number, 7,601 occurred in the first three years of life, viz., 2,040 in the first, 3,988 in the second, and 1,573 in the third year of life.

by school teachers and school attendance officers, it appears that a very high proportion of cases of Measles occurring among school children have not had medical attendance.

5. *Notification by Parents.*

Experience having shown that compulsory notification of the notifiable infectious diseases (Smallpox, Scarlet Fever, Diphtheria, &c.) is only effective when a doctor is in attendance on the patient, although a like duty is imposed on the parent, it does not appear likely that attempts to enforce the notification of cases of Measles by parents would be more successful than in the case of other acute infectious diseases.

6. *Notification by School Officers.*

Although there is little prospect of enforcing compulsory notification of cases of Measles by parents to the medical officer of health, the knowledge they possess can be utilised indirectly through the school officers. Many parents inform teachers of Measles when it is the cause of absence of their children from school; and the regulations made by the London Education Committee impose the duty on head teachers of forwarding each day to the local medical officer of health information possessed by them as to cases of Measles among their scholars. School attendance officers also obtain information in the course of their duties, which is of value to the medical officer of health, and the Local Government Board and the Board of Education have recently been in communication with the London Education Committee, with a view to having the fullest and most prompt use possible made of the information so secured during the epidemic prevalence of Measles. No doubt any assistance that can thus be given by the school attendance officers will be readily accorded.

Some of the information thus supplied to the medical officer of health may prove to be erroneous. This is inevitable when no medical practitioner is in attendance; but if, as is hoped, medical officers of health are supplied with the necessary assistance for visiting suspected cases of illness, this can be partially overcome, and much disease may be detected and its further spread prevented.

The detection of undiagnosed infectious disease forms one of the necessary public health developments of the future; and the provision of a medical staff to aid in this work will repay the expenditure incurred; for the information obtained will enable the term of exclusion from school to be defined; will prevent the indiscreet or unwitting exposure of infectious children; and may be trusted materially to lessen the loss of health, life, and money now caused by neglected and multiplied disease.

7. *The Objects of Notification.*

Notification of cases of Measles by itself has a mere statistical value. Its value, apart from this, must be judged by the extent and promptitude with which notifications can be followed by administrative action.

Among the most important measures rendered possible by notification of cases are improvement in domestic management and treatment of the patients, removal to a hospital of patients who cannot be efficiently treated at home, arrangements as to exclusions from school, and as to cleansing and disinfection of rooms when required.

8. *Domestic Isolation and Treatment of Patients.*

Much of the mortality caused by Measles owes its origin to the common impression that this disease may be safely treated by the mother alone. The facts as to the high fatality of attacks of Measles show how erroneous is this impression.*

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* See footnote on page 31.

It is important to note that the disease is often fatal, apart from exposure or neglect during convalescence, to which greater importance is commonly attached. Thus, in one town, in which 419 deaths from Measles were investigated, it was found that one-fourth of the deaths occurred in the first six days of the illness, *i.e.*, within about three or four days from the appearance of the rash, while another third of the total deaths occurred between the seventh and the end of the twelfth day of disease.

9. *"Following up" of Notified Cases of Measles.*

The fatality of home-treated Measles can be diminished, and the spread to other families can be partially prevented if notified cases of Measles are efficiently "followed up" by officers of the Sanitary Authority. There are serious difficulties in securing this. Outbreaks of Measles are explosive in character, and a considerably increased staff may be required during a few weeks. But the work is very promising. There is reason to hope for much saving of life and prevention of spread of infection if the staff suffices to enable frequent visits to be made to the invaded households.

So far as prevention of infection is concerned, a distinction may be drawn between spread in the same family, which is usually inevitable, and spread from family to family which, given prompt notification of the case, and continued supervision, may be avoided.

In some boroughs it may be practicable to divert sanitary inspectors from their usual duties to visit cases of Measles and instruct parents as to isolation. It is likely that female sanitary inspectors and health visitors will be best adapted for this work. In view of the great importance of giving advice as to means for avoiding death from, as well as means for preventing infection by, Measles, the temporary employment of additional health visitors, who should be trained nurses, should be considered, to visit notified cases of Measles and to give skilled advice as to the nursing of the patient and the domestic hygiene of the sickroom. Measles, as is well known, is a much more fatal disease in the homes of the poor than among those well circumstanced. The causes of this are complex; but defects of domestic sanitation, especially over-crowding and uncleanliness of rooms and of their contents, as well as of the occupants, have great influence in determining the result. Some unexpected mischief has probably been done by the teaching as to the danger of "draughts" in Measles, insufficient stress having been placed on the fact that free perflation of air in the sickroom can be secured without draughts. The result has been that the sickroom is commonly stuffy. Commonly, also, the patient's skin is not sponged daily with warm water; and owing to these unhygienic conditions the secondary infections producing pneumonia may be favoured. A skilful and sympathetic nurse can effect much good in improving the conditions under which Measles patients are nursed at home, and in diminishing the likelihood of chest complications.

10. *Hospital Treatment of Cases of Measles*

Even if it were not the fact that a very large proportion of the fatal cases of Measles occur in infancy, epidemics of this disease are so explosive in character as to make it unlikely that it will be practicable to treat the majority of cases in hospitals. The Metropolitan Asylums Board have arranged for the admission of a considerable number of cases of Measles to their hospitals under orders from a relieving officer or other officer of the Board of Guardians. Further, hospital beds for Measles for children outside the poor law specially requiring hospital treatment will, it is hoped, be shortly available.

There are numerous cases of Measles, the hospital treatment of which will increase the prospect of recovery. For most cases, however, it appears probable that domestic treatment will continue to be necessary, and that the greatest scope for saving of life lies in more complete medical attendance, and in skilled nursing and supervision of patients treated at home.

11. *School Closure and Exclusion.*

The general lines of action recommended by the Medical Officers of the Local Government Board and of the Board of Education are set out in the "Memorandum on Closure of and Exclusion from School," to which reference may be made.

In that memorandum the serious mortality from Measles as well as from Diphtheria and from Whooping Cough among children under five years of age is pointed out, and for this reason it is there recommended that "when cases of this disease occur in an infant school, there should be no hesitation in excluding children from attendance who are below the age of compulsory school attendance."

Older children are usually permitted to attend the boys' or girls' departments of schools from families in which there is at the time a case of Measles. There is no evidence that this practice leads to a spread of infection, whether this result be due to the fact that the infective material is seldom carried in clothes, or to the fact that most of the children in these departments of schools are already protected.

12. *Disinfection.*

Much difference of opinion exists as to the degree of value of disinfection of houses after cases of Measles. No clear evidence of diminished prevalence of the disease is forthcoming from districts in which such disinfection is practised as compared with others in which it has never been practised or has fallen into desuetude. This is not surprising in view of the supremely important influence of direct personal infection in spreading the disease, and in the light of the fact that, as in influenza, the infective material of measles quickly dies out.

On the other hand, disinfection of sickrooms is a means of securing increased cleanliness, and if cleanliness cannot easily be obtained without disinfection, this should be done.

13. *Educational means for diminishing Measles.*

The value of means for controlling Measles may be measured by their immediate efficiency during an epidemic, or by their value in preparing the way for permanent improvement, which must in the end depend on the willing and intelligent co-operation of the public. It is from the latter point of view that disinfection after every case of Measles is thought by some to be advisable, even though its utility in preventing spread of infection may be limited or absent.

From an educational standpoint, the most important preventive measure is that of "following up" the cases coming to the knowledge of the sanitary authority. A tactful inspector, health visitor, or nurse will be able to secure increased and more intelligent care, and an improved prospect of recovery for the patient, as well as the diminution in the occasions for spread of infection. Gradually it will become realised that Measles for children under five years of age is a deadly disease; and the co-operation of all concerned in the work of prevention and treatment will ensure that in connection with each patient adequate precautions

are taken to prevent the spread of infection, and to obtain for each patient the best possible treatment.*

When Measles has appeared in a class, arrangements are already made by the Local Education Authority for a circular to be sent to the parent of each child in the class, giving a warning as to the importance of keeping any child who has a severe "cold" away from other children until it is certain that the case is not one of Measles.

Sanitary authorities evidently cannot carry out the system of visitation and supervision recommended in the preceding paragraphs without incurring considerable added expenditure. If carried out efficiently, the expenditure will be well incurred; and it is hoped that there will be manifested a desire to organise the staff required for controlling the spread and especially for diminishing the mortality from Measles.

ARTHUR NEWSHOLME,
Medical Officer.

Local Government Board,
March, 1911.

WHOOPING COUGH.

This disease has been more prevalent this year, judging from the number of deaths registered—55, against 39 the previous year.

The prevalence of both Measles and Whooping Cough is in great part due to the culpable neglect arising from the popular belief that all children must contract them sometimes, and that there is very little use, therefore, in endeavouring to take any protective steps when either disease is prevalent. The consequence is that the epidemic continues to spread so long as any susceptible victims are to be found in the community, and only dies out for a time when all these have been attacked.

DIARRHŒA.

The deaths from Diarrhœa, including those registered as due to enteritis, muco-enteritis, gastro-enteritis, gastritis, and gastro-intestinal catarrh, numbered 149.

With a view to the more accurate registration of deaths, I would again draw the attention of Medical Officers of Health to the following Memorandum, and

* Some use may be made of Section 12 of the Children Act, 1908, in inducing parents to provide medical aid. In London the local authorities for this Act are the London County Council and the Boards of Guardians.

would suggest that they draw the attention of medical practitioners in their districts to it:—

MEMORANDUM ON CERTIFICATION OF DIARRHŒA DEATHS.

Much confusion having arisen from the numerous synonyms, unauthorised by the Royal College of Physicians, which for some years have been increasingly used in the certification of deaths from "diarrhœa," the "epidemic diarrhœa" of the nomenclature of diseases, the Incorporated Society of Medical Officers of Health is desirous of calling the attention of all medical practitioners to a decision which has been arrived at by that College, authorising the use of the term "Epidemic Enteritis" (or if prefered by the practitioner "Zymotic Enteritis") as a synonym for epidemic Diarrhœa, and urging the entire disuse as synonymous of epidemic Diarrhœa in medical certificates of death, of such terms as "gartro-enteritis," "muco-enteritis," gastric catarrh," &c.

The comparison arising from the present practice in certification so seriously vitiates the accuracy of all statistics with regard to this disease, which is recognised by the Royal College of Physicians to be a general disease of specific character in the same sense as enteric and other fevers, that this Society desires to strongly urge medical men to strictly adhere to those authorised decisions which the College has now published.

In future the only names to be authorised in certifying deaths from this disease are:—Epidemic Enteritis, Zymotic Enteritis, or Epidemic Diarrhœa, and all other synonyms are to be discarded.

The late Dr. Ballard showed that this *specific disease* occurs in persons of all ages, and that it may happen in other than epidemic seasons, under which circumstances the Society would suggest the advisability of the employment of the alternative term Zymotic Enteritis."

Although the deaths from this disease have been few in number, in many districts conditions favourable to the spread of this disease exist, and given favourable weather conditions, such as we have had during the present

summer, I do not hesitate to say that owing to want of sanitary precautions many districts will suffer severely, and as this disease affects principally infants, the insanitary conditions will be reflected in a huge infant mortality.

Manure heaps close to houses, ashpits, surface soil polluted by drainage and slops, choked drains, dirty houses, and the like are always more liable to make this disease more prevalent.

The close relationship between the presence of flies and the prevalence of diarrhœal diseases has been amply proved, and it remains for us therefore to use every endeavour to limit the number of flies. They breed most freely in places where dirt of all kinds collects, and to get rid of them the most scrupulous cleanliness of houses, premises, and person are necessary.

ERYSIPELAS.

224 cases were notified and 5 deaths registered.

PHTHISIS AND TUBERCULOSIS.

264 deaths were registered as due to Phthisis, 169 in Urban and 95 in Rural districts, compared with 242 deaths, 169 in Urban and 73 in Rural districts, in 1909.

This gives a death-rate (based on the census population) for the Administrative County from Phthisis of 0.99 per 1,000 of population, for the Urban districts of 1.02, and for the Rural districts of 0.94.

Seeing that the figures for the previous year were based on the estimated population for that year, and that the population was much over-estimated, it is hardly fair to compare one year with another.

The figures, however, for 1909 were Administrative County 0.87, Urban districts 0.96, and Rural districts 0.72.

In addition to the 264 deaths from Phthisis Pulmonalis (Consumption) there were 134 registered as due to other forms of Tuberculosis, 114 in Urban and 20 in Rural districts, compared with the previous year, the figures for which were County 158, Urban districts 120, and Rural districts 38.

Thus it will be seen that the total number of deaths from all forms of Tuberculosis are practically the same in the last two years.

The death-rates from all forms of Tuberculosis for the year 1909 and 1910 are:—

	1909.	1910.
Urban districts	1.6	1.7
Rural districts	1.1	1.1
Administrative County	1.4	1.4

Arranged in the order of their Phthisis mortality the Urban districts stand thus:—

Cockermouth ...	2.4	Arlecdon and Frizington	0.9
Holme Cultram ...	1.5	Wigton	0.8
Cleator Moor ...	1.4	Penrith	0.7
Whitehaven ...	1.4	Aspatria ...	0.6
Carlisle	1.1	Workington ...	0.4
Keswick	1.1	Harrington ...	0.2
Maryport ...	1.1	Egremont ...	0.1
Millom	1.04		

And the Rural districts thus:—

Bootle	1.5	Cockermouth ...	1.03
Whitehaven ...	1.4	Carlisle	0.7
Alston	1.3	Penrith	0.4
Brampton ...	1.2	Wigton	0.2
Longtown ...	1.1		

Arranged in the order of their death-rate from all forms of Tuberculosis (including Phthisis) the Urban districts stand thus:—

Cockermouth ...	3.4	Keswick	1.3
Whitehaven ...	3.0	Workington ...	1.1
Holme Cultram ...	2.2	Arlecdon and Frizington	1.1
Carlisle	1.7	Harrington ...	1.1
Millom	1.7	Maryport ...	1.1
Cleator Moor ...	1.6	Aspatria	0.9
Penrith	1.4	Egremont ...	0.6
Wigton	1.3		

And the Rural districts thus:—

Bootle	1.7	Longtown ...	1.2
Whitehaven ...	1.6	Carlisle	0.9
Alston	1.3	Penrith	0.6
Cockermouth ...	1.3	Wigton	0.4
Brampton ...	1.2		

Voluntary notification of cases of Phthisis with the consent of the patient is in force in some districts, but so few cases are notified that it is practically useless.

At the commencement of 1909 regulations issued by the Local Government Board, the Public Health (Tuberculosis) Regulations, came into force, making it compulsory for Poor Law officials to notify cases of this disease amongst poor persons as well as any changes in their address. If these regulations are carried out information is furnished to Sanitary Authorities of those cases which are most in need of the advice and assistance which can be given by a public authority.

The working of these regulations do not appear to be altogether satisfactory; at the best they only bring Poor Law cases to the notice of the Medical Officer of Health.

The following observations are made in the district reports:—

CARLISLE.—33 notifications. Dr. Beard remarks:—"In one instant the same patient was notified on three separate occasions, and in three other instances the same patient was notified on two occasions during the year.

"This multiplicity of notification is difficult to avoid, partly owing to the unsatisfactory and easy method by which a patient may take his discharge from a Poor Law Institution after a few hours' residence, and the facility with which re-admission may be gained so shortly after discharge.

"In some of the cases death had taken place in the interval between the receipt of the notification and the

visit to the house, and it is to be regretted that many of this class of people affected by the notification do not obtain medical advice until the disease is in an advanced stage, even when the advice and medicine can be obtained free; others would appear to obtain advice at an earlier period, but are either unwilling or unable to carry out the treatment, and are not again heard of until just before death, when the disquietening reflection of a possible Coroner's inquiry causes the friends to seek advice in order to secure a medical certificate."

WHITEHAVEN.—No notifications.

ARLECDON AND FRIZINGTON.—The Medical Officer of Health remarks:—"The Public Health (Tuberculosis) Regulations of 1908 have not been adopted by the Council."

ASPATRIA.—No notifications.

CLEATOR MOOR.—"The Council have not considered it necessary up to the present to adopt the Public Health (Tuberculosis) Regulations of 1908."

COCKERMOUTH.—Three cases notified.

HOLME CULTRAM.—No notifications.

KESWICK.—Voluntarily notifiable, no cases; Poor Law cases, one notification.

MILLOM.—Nine notifications.

WIGTON.—Four notifications.

ALSTON.—No notifications.

CARLISLE.—One case notified. Dr. Macdonald points out that:—"A notable project has recently been set forth by the Guardians of the Carlisle Union to provide suitable accommodation at Fusehill for the reception of patients suffering in the advanced stages of Consumption. The intention in the first instance is to isolate those cases which cannot be treated in their own homes with safety

to the other inmates. It is the advanced cases as a rule which are brought to the knowledge of the Guardians by their own officials. It would follow, therefore, that this class of patient has a special claim upon their consideration. Apart from the influence of hospital treatment as an educational measure, the advantages to the patient are plain and obvious. Skilled nursing, careful feeding, and healthy surroundings will ameliorate the condition of the consumptive patient, and help to prolong his life. From every point of view isolation of advanced cases will do good. It is a factor of the first importance in any effective plan for the control of Tuberculosis. The matter is a pressing one, and it is hoped that the Guardians will proceed at once with their scheme and bring it to a practical issue."

COCKERMOUTH.—One notification.

WHITEHAVEN.—No notifications.

WIGTON.—No notifications.

The general fault found with this system of notification is that the cases are not seen early enough.

The essential point in any system of notification is that such notification be made early, and it seems to me that in the medical inspection of school children we have opportunity, if properly used, for doing a large amount of good work in the process of stamping out Consumption. A large number of early cases of Phthisis are found quite unsuspected in the school children, and in the Millom district the Medical Officer of Health gets the names and addresses of all children found to be suffering or suspected to be suffering from Tuberculosis, both he and the Health Visitor visit these cases, and many of them, I understand, are treated and advised at the small dispensary which has been recently started in that district.

This system of notification is capable of doing much good, and I would be glad to extend the notification of such cases to any district whose Medical Officer cares to have the information.

RESPIRATORY DISEASES.

During the year 613 deaths were registered as due to Respiratory Diseases (excluding Phthisis), compared with 636 in 1909.

Of these, 420 occurred in Urban districts, and 193 in Rural districts; these give respective rates per 1,000 of population of 2.5 and 1.9, compared with 2.4 and 2.0 the previous year.

The rate for the Administrative County was 2.3, the same as the previous year.

Arranged in the order of their death-rates from Respiratory Diseases the Urban districts stand thus:—

Wigton	4.8	Cleator Moor ...	2.5
Harrington ...	4.3	Millom	1.9
Egremont ...	4.1	Cockermouth ...	1.7
Whitehaven ...	3.6	Holme Cultram ...	1.7
Keswick	3.1	Carlisle	1.6
Workington ...	2.9	Maryport ...	1.5
Arlecdon and Frizington	2.8	Penrith	1.5
		Aspatria	nil.

And the Rural districts thus:—

Wigton	2.5	Bootle	1.5
Cockermouth ...	2.3	Brampton ...	1.5
Alston	2.2	Carlisle	1.4
Longtown ...	2.2	Penrith	1.2
Whitehaven ...	2.0		

ISOLATION HOSPITAL ACCOMMODATION.

(*a*) For Ordinary Infectious Diseases.

The hospital accommodation in the County is totally inadequate for its requirements.

The Urban districts of Aspatria, Cockermouth, Holme Cultram, and Wigton, and the Rural districts of Alston, Brampton, Longtown, and Wigton have no accommodation whatever.

Longtown Rural district has an arrangement with the Crozier Lodge Hospital in Carlisle, whereby they can

send private patients to the Hospital on payment, but, should there be any likelihood of scarcity of beds, such patients can be refused.

The Urban districts of Arlecdon and Frizington, Cleator Moor, Egremont, and Harrington, and the Rural district of Whitehaven, together covering an area of 87,832 acres, and with a combined population of 38,278, are all served by the Galemire Hospital, Hensingham, in the Whitehaven Rural district.

This Hospital contains 14 to 20 beds and has accommodation for treating two diseases concurrently.

(*b*) Smallpox Hospitals.

The conditions with regard to Smallpox Isolation Hospitals is infinitely worse even than that for ordinary infectious disease.

The only districts in the County having provision for Smallpox are the Urban and Rural districts of Carlisle (12 beds), the Urban and Rural districts of Penrith (10 beds), the Urban district of Keswick (4 beds), and the Urban district of Millom (8 beds).

Workington and Cockermouth districts now have a joint hospital in process of erection.

Otherwise the County is totally unprepared to grapple with an outbreak of Smallpox.

Sooner or later we will have an epidemic of Smallpox, and in an unvaccinated community, such as this County contains, a Smallpox hospital for each district, or two or more districts in combination, is an absolute necessity, if we hope to check an outbreak in its early stages.

The following references are taken from the district reports:—

WHITEHAVEN.—Dr. Fisher says:—"I do not advocate the erection by every Local Authority of an elaborate hospital for Smallpox, but if adjoining authorities were to combine, a suitable hospital might be provided to serve for several districts. A very moderate provision would suffice in the way of a permanent building

to receive the first cases, if the site were such that light and quickly erected buildings could be added as occasion required."

ASPATRIA.—Dr. Briggs says:—"Before leaving the subject of Infectious Diseases I would bring before your notice the desirability of providing accommodation for patients suffering from Smallpox. The neglect of vaccination by the present generation must sooner or later result in the re-appearance of this loathsome disease which, in an unvaccinated population, would quickly assume the proportions of an epidemic unless the first cases could be satisfactorily segregated."

WIGTON.—Dr. Blacklock says:—"Measures to secure the isolation of patients suffering from infectious diseases are carried out as far as possible in the absence of an isolation hospital, which I trust we are to have in the near future."

CARLISLE (Rural).—Dr. Macdonald gives an interesting comparison between cases treated at home and cases treated in hospital. "A comparison of the results of hospital and home-treated cases in Scarlet Fever throws a light on the influence of hospital isolation in controlling the spread of this disease. The total number of families in which Scarlet Fever occurred during the year was 77. In the case of 36 families removal to hospital was carried out; in 41 families the patient remained at home. In 18 of these 41 families, or 44 per cent., there was a further spread of the disease to other members of the household. On the other hand, in the case of 36 families where isolation at the House of Recovery was effected, in only one instance, or two per cent. of the cases, did an extension of the disease follow the patient's discharge from that institution. In the 13 Diphtheria cases 11 families were involved. In seven of these families removal to hospital was practised, in four the patients were treated at home. In the latter group there was a further spread in one family. There was no extension from the hospital cases."

COCKERMOUTH (Rural).—Dr. Penny remarks:—"The incidence of infectious diseases has been of a very

unsatisfactory character, especially as regards Scarlet Fever, which is largely due to inadequate hospital accommodation."

DISINFECTION.

Few of the districts appear to be provided with satisfactory means of disinfection, and in many of the reports nothing is mentioned on the subject beyond the statement "disinfection is carried out."

So far as I am aware there is no steam disinfector in any district, Penrith excepted, so that disinfection of heavy articles, such as mattresses, &c., cannot be satisfactorily done. Almost all Local Authorities distribute disinfectants free in cases of infectious diseases.

NOTIFICATION OF BIRTHS ACT.

This Act has only been adopted in two districts in the County, viz., the Borough of Workington and the Urban district of Penrith.

In view of the high rate of Infantile Mortality, and the undoubted influence for good that Health Visitors have had in the many districts all over the country where the Act has been in operation for some time, there cannot be any doubt as to its efficacy in lowering the Infant Mortality, and improving the conditions under which many infants have to live.

Not the least important part of the work of Health Visitors consists in teaching young mothers how properly to feed their children.

The following extracts from the district reports in which the Notification of Births Act is in force show the opinions of the Medical Officers of Health in the working of the Act:—

WORKINGTON.—"I submit the report for the year of Nurse Ellwood, the Health Visitor. It represents great amount of work honestly and conscientiously performed, and intelligently summarises many important conclusions arrived at.

"In a new departure such as this is, some little time is required before things can be made to run smoothly. The public, to begin with, are slow to recognise the *obligations* of the Notification of Births Act, as is to be found in the fact that some 111 births have not been notified at all. There is a remedy for this, and your Authority has already intimated its intention to put the same into force if occasion requires. It is, however, to be hoped that after this and similar warnings previously given, a more strict regard will be paid to the requirements of the Act, and that there may be no necessity to resort to prosecution. Still, if good results are to follow, and anything like systematic observation to be aimed at, those interested must carry out their obligations so far as notification is concerned.

"Added to this, failure in the matter of notification as operating against an immediate result, must be taken into consideration the fact that the Health Visitor up to the present has only been able to devote part of her time to the large task we are undertaking, and although Nurse Ellwood has worked hard and done her work very well, still it has to be borne in mind that apart from routine matters, from the first, a great amount of so-called educational work has to be undertaken which only bears fruit slowly, requiring as it does an infinite amount of tact and patience.

"In deciding, for the future, to appoint a whole-time Health Visitor, your Authority have, in my opinion, acted most wisely. It is to my mind true economy to support a movement which has for its aim and object the improvement of the race of boys and girls going to fill the Board Schools, in too many cases representing a type of delicate, ill-nourished, weakly, narrow-chested, sometimes physically deformed little 'mites,' a type which has made medical inspection a necessity, and which, as regards medical treatment, has wellnigh brought those responsible to a state of despair, for they now recognise that they have begun at the wrong end. . . . . .

"In considering the report of the Health Visitor for the year, it is to be noted that, taking the total of infant deaths as 95, only 54 of these have been notified when born, and that, consequently, 41 would not come under

observation at all, which makes the rate of infantile mortality as low as 80 per 1,000 registered births, a fact full of hope for the future when the whole machinery has been got into proper working order.

"Another point quite evident from the report, but one that need occasion no surprise, is the position occupied by St. Michael's Ward with regard to infantile mortality. It is mainly in this ward that we hope to be able to render assistance to those who may require it. Not that the other wards will be neglected, but they will be less likely to need it. I mention this, because there seems to be an impression, even in quarters that should be better informed, that this scheme for the reduction of infant mortality is an interference, so to speak, with the liberty of the subject, and that the Health Visitor and her lady helpers are going to force their services on all and sundry, and on every household which shelters a new-born baby. Nothing of the kind is or ever was intended. There will be no interference between medical men and their patients. If, in any case, the former wish to avail themselves of the services of the Health Visitor it will only be by application. For those less favourably situated every effort will be made to acquaint them with the fact that sympathetic and intelligent assistance is at their doors ready to be used, and there will be no excuse for those who in future plead ignorance either with regard to the principles of infant feeding or any other matter affecting the conditions of infant life. . . . "

PENRITH.—"The Notification of Births Act was adopted and put into use at the beginning of the year, and a Health Visitor appointed who should see the babies in their own homes at convenient intervals. It has worked well. . . . . .

"The Visitor has been well received, and in only one instance was she refused admission to the house, which, on subsequent inspection, was found dirty, and in such a state as to give the mother a good reason for objecting to any one seeing it.

"The houses were reported dirty in three cases, and in each of these visits were made by me, and cleanliness insisted on; in two cases the babies themselves were dirty,

and the Health Visitor took the matter in hand with good results.

"It is satisfactory to notice that the large proportion of babies are breast-fed, and it is only when the mothers cannot manage this for physical reasons that bottle-feeding is resorted to. In two cases children were fed with unsatisfactory long-tube bottles, and the parents were warned of the undesirability, and promised to get another and better form of apparatus. This was done in one case. Some unsatisfactory food-feeding goes on, however. . . .

"One marked feature comes out from this inspection, and that is the few mothers who will put their children into cots. . . . . The general excuse is the expense; this is unfounded as any orange box would do, with suitable bedding and padding, and I am afraid it is more the convenience of the mother which is considered than the welfare of the child. . . . . ."

MIDWIVES' ACT.

The duty of inspecting Midwives has been carried out hitherto by the district Medical Officers. After the 31st March, 1911, it is proposed to appoint Miss Marsh, the Superintendent of the Cumberland Nursing Association, to be the Inspector of Midwives.

The work under the Midwives' Act during the year is as follows:—

NOTIFICATION OF INTENTION TO PRACTICE. At the end of each year forms are sent out to every Midwife registered during the year, reminding them of the necessity of notifying the County Council of their intention to practice during the following year.

107 Midwives so notified their intention to practice during 1910, this being an increase of 36 on the number practising in the previous year.

Of the 107, 39 were *bona-fide* Midwives, having practised before the Act came into force, and 68 obtained certificates.

On April 1st, 1910, Section 1 (2) of the Midwives' Act came into force. This enacts that no woman unless

registered shall "habitually and for gain" attend women in confinement, except under the direction of a medical practitioner.

During the year three prosecutions under this Act have taken place, one of the women being prosecuted twice; in each case a fine was imposed.

I have reason to suppose that a large amount of unqualified practice goes on, and although in most cases I have received information of fees being accepted, owing to the words in Section 1 (2) "habitually and for gain," it is difficult to get sufficient evidence for a prosecution.

In June, 1910, the County Council received a circular letter from the Central Midwives' Board, stating that a woman who had "failed to claim to be certified under the Midwives Act within the time limited by Section 2 of the Act, and who satisfied the Central Midwives Board that, but for her failure so to claim, she would have been entitled to a certificate under the Act, may be admitted by the Central Midwives' Board to the Roll of Midwives upon such conditions as the Central Midwives Board shall think fit, and shall receive a certificate in the form set out in the schedule, and her name shall be entered by the Secretary on the Roll of Midwives (Schedule, Form II, B.). Provided, always, that no such candidate shall be admitted to the Roll of Midwives after September 30th, 1910."

Several women applied to the Board to be certified under this rule, and after enquiry in the district in which they resided and a report by me to the Central Midwives Board they were admitted to the Roll.

1,930 births have been attended by Midwives practising in the County during the year, 1,274 in Urban and 656 in Rural districts.

Under the rules of the Central Midwives Board, the Midwives are required to notify to the Supervising Authority, in this case the County Council:—

(1) When they advise the calling in of medical assistance to any of their patients.

(2) When a child is still-born and a doctor was not in attendance.

(3) When a death occurs of mother or child and a medical man is not present.

The notices received were as follows:—

Notification of death	1
Notification of still-birth	14
Notification of sending for Medical help	60

In January, 1910, a circular drawn up by the Chairman of the Central Midwives Board was sent to each Midwife in the County, drawing their attention to the seriousness of Ophthalmia Neonatorum—inflammation of the eyes of the new-born—giving direction what to do to prevent, and cure when present, this serious condition.

HOUSING ACCOMMODATION.

In December, 1909, a meeting was held, at which all the Medical Officers in the County were asked to be present, to discuss the Housing and Town Planning Act, and make arrangements for carrying out the requirements of the Act as uniformly as possible in each district.

Under Section 17 (1) of this Act it is obligatory on all Local Authorities:—

(a) To cause periodical inspection of houses in their districts to be made, and

(b) To comply with such regulations and to keep such records as may be prescribed by the Local Government Board.

In September, 1910, regulations were issued by the Local Government Board to all District Councils.

The requirements of these regulations briefly stated are as follows:—

Art. I. The Local Authority is, as soon as possible, to determine on the procedure to be adopted for inspection, and is to make provision for a thorough inspection being carried out periodically.

The Local Authority is also required to have made out from time to time by the Medical Officer of Health, or by an officer under his direction, lists of dwelling houses needing early inspection.

ART. II. Requires that inspection be made by the Medical Officer of Health, or an officer acting under his direction and supervision, and lays down in detail the various conditions which are to be noted and reported on.

ART. III. Requires detailed record to be kept of the inspections. These are to be prepared under the supervision of the Medical Officer of Health, and the information obtained is to be set out according to a list of items given in the regulations.

ART. IV. The Local Authority must at each of their ordinary meetings consider the records and give directions and take the necessary action and add to the records a note of the action taken.

ART. V. Requires the Medical Officer of Health to give in tabular statement in his Annual Report all information with regard to inspections and action taken as an outcome of the inspections.

From statements made in the reports of the District Medical Officers of Health, it appears that in most districts the Inspector of Nuisances has been appointed the "designated officer" to carry out the work under the direction of the Medical Officer of Health, and that all arrangements are made in at any rate most of the districts for the carrying out of the requirements of the Act.

That systematic inspection of many of the districts is required is undoubted, and many improvements in housing conditions are urgently needed, but as is pointed out in some of the reports it is only adding to overcrowding of the remaining houses if a closing order is obtained for those unfit for habitation.

Housing schemes are, however, in contemplation in two at least of the districts.

In preparing lists of houses for inspection in order to carry out the regulations, the Medical Officer of Health will take into consideration any undue prevalence of sickness, a high death-rate, or particularly a high infant death-rate will draw his attention to certain areas in his district, and information gathered at the medical inspection of school children is always to be obtained from the School Medical Officer by those who wish it.

The excellent suggestion—on which I am quite willing to act—is thrown out by Dr. Briggs in his report to the Wigton Rural District Council . . . . . "and I think it would be of great value in the prevention of the spread of school infection, and would moreover furnish your Authority with a new source of information as to houses which require sanitary supervision, if the names and addresses of all children requiring cleansing were forwarded to the Medical Officer of Health. The cleansing of the bodies and clothing of children will be but little lasting value unless the condition of their environment be dealt with at the same time. The care and control of the sanitary condition of the homes of school children is one of the most important duties of a Sanitary Authority, but hitherto there has been a practical difficulty in obtaining information, except through the costly and necessarily inefficient system of house-to-house inspection. If the system of the Education Authority, which is still in its infancy, works satisfactorily, it will serve as one more link in the chain of sanitary efficiency."

WATER SUPPLY.

The important question of water supply could with advantage be more fully dealt with in many of the district reports.

In many districts much attention has clearly been given to supplying wholesome water to many of the more out-lying villages, but in some nothing has been done, and many people have to obtain their water supply from shallow wells, which in the great majority of instances are grossly polluted.

The water supply of each district is dealt with in the summary of the reports of the Medical Officers of Health later on in this report. From these it will be noticed that some of the District Councils are utterly ignoring the recommendations of their Medical Officer repeated year after year. Most noticeable in this respect is the Cockermouth Rural district. Their attention has been called to the supply of several villages for, at any rate, the past three years, and yet no steps have been taken to remedy the conditions reported on.

MILK SUPPLY.

In view of the very definite opinion expressed in the recently issued final report of the Royal Commission appointed to enquire into the relations of human and animal Tuberculosis, the purity of the milk supply now assumes an importance which it has not hitherto possessed, or at any rate an importance which has not hitherto, by many Authorities at least, been given to it.

The report states:—"Of young children dying from primary Abdominal Tuberculosis the fatal lesions could in nearly one-half of the cases be referred to the bovine bacillus, and to that type alone. In children, too, and often also in adolescents suffering from Cervical Gland Tuberculosis, a large proportion of the cases examined by us could be referred to the bovine bacillus," and it goes on . . . . . "that the evidence which we have accumulated goes to demonstrate that a considerable amount of the Tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type, transmitted to children in meals consisting largely of the milk of the cow," and again . . . . . "Meanwhile we, in view of the evidence adduced by us, regard ourselves as called upon to pronounce on administrative measures required in the present for obtaining security against transmission of bovine tubercle bacilli by means of food. In the interests, therefore, of infants and children, the members of the population whom we have proved to be especially endangered, and for the reasonable safeguarding of the public health generally, we would urge that existing regulations and supervision of milk production and meat preparation be not relaxed; that, on the contrary, the Government should cause to be enforced throughout the kingdom food regulations planned to afford better security against the infection of human beings through the medium of articles of diet derived from tuberculous animals.

More particularly, we would urge action in this sense in order to avert or minimise the present danger arising from the consumption of infected milk. And in this connection it may be convenient for us to repeat certain facts observed by us in reference to the conditions tending to the elimination by the cow of bovine tubercle bacilli in her milk, facts, in our opinion, of such import-

ance that they formed the subject of our Third Interim Report.

Bovine tubercle bacilli are apt to be abundantly present in milk as sold to the public when there is tuberculous disease of the udder of the cow from which it was obtained. This fact is, we believe, generally recognised though not adequately guarded against. But these bacilli may also be present in the milk of tuberculous cows presenting no evidence whatever of disease of the udder, even when examined post-mortem. Further, the milk of tuberculous cows not containing bacilli as it leaves the udder may, and frequently does, become infected by being contaminated with the fæces or uterine discharges of such diseased animal. We are convinced that measures for securing the prevention of ingestion of living bovine tubercle bacilli with milk would greatly reduce the number of cases of Abdominal and Cervical Gland Tuberculosis in children, and that such measures should include the exclusion from the food supply of the milk of the recognisably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs."

Provision for the inspection of milk cows by a Veterinary Surgeon is only made in Carlisle, Whitehaven, Keswick, and Penrith. The District Council of Wigton has such an appointment under consideration at the present time.

Possibly some of the Councils are not aware of the fact that they have power to make such appointments.

The question of milk supply is very inadequately dealt with in some of the district reports.

It is hoped that before long a Milk Bill will be passed, making strigent precautions compulsory, and giving definite powers to the Authorities for dealing with such an important article of diet.

OTHER FOODS.

The following is a summary of the conditions regarding slaughter-houses, meat and food inspection, tuberculuos meat condemned, &c., in the districts of the County.

CARLISLE.—Public abattoir. No private slaughter-houses.

83 whole and 19 parts of carcases condemned, 67 carcases condemned on account of Tuberculosis.

Regular inspection of premises where food is stored, special inspection of ice-cream and fish and potato shops.

WORKINGTON.—Public abattoir, 1 private slaughter-house, both reported as being in good order.

Inspection of food stuffs at weekly markets.

Attention given to ice-cream and fried fish shops.

No mention of tuberculous meat.

WHITEHAVEN.—11 private slaughter-houses, 3 whole carcases, and parts of 4 others condemned for Tuberculosis.

15 boxes of kippers condemned and 2 hampers of pears.

A public slaughter-house recommended.

ARLECDON AND FRIZINGTON.—5 private slaughter-houses.

No mention of tuberculous meat or other food inspection.

ASPATRIA.—5 private slaughter-houses. No Tuberculosis found.

Public abattoir advocated.

CLEATOR MOOR.—Markets inspected weekly.

7 private slaughter-houses.

No mention of tuberculous meat.

COCKERMOUTH.—5 public and 5 private slaughter-houses, only 2 of the former used. One of the latter reported as unsuitable as regards situation and structure.

1 carcase seized and destroyed. 7 boxes of kippers destroyed.

No mention of tuberculous meat.

EGREMONT.—No reference made in this report either to slaughter-houses or other foods.

HARRINGTON.—3 private slaughter-houses (1 unoccupied). Visited shortly after slaughtering time.

No carcases or parts condemned.

No unsound food reported.

No action under "Sale of Food and Drugs Act" was needed.

HOLME CULTRAM. — Private slaughter-houses (number not stated).

3 carcases condemned.

KESWICK.—Private slaughter-houses (number not mentioned). 1 carcase condemned for disease of internal organs.

No Tuberculosis found.

Abattoir recommended, and is under consideration.

MARYPORT.—Public and private slaughter-houses (number of latter not stated).

Considerable amount of tuberculous meat destroyed.

18 boxes of fish destroyed.

MILLOM.—Slaughter-houses not mentioned. No unsound meat or other foods found.

PENRITH.—Private slaughter-houses (number not mentioned). Tuberculous meat not mentioned.

Portion of 1 carcase condemned.

Ice-cream shops inspected.

WIGTON.—6 private slaughter-houses.

Abattoir recommended.

No tuberculous meat found.

Fish supply inspected, none destroyed.

ALSTON (Rural).—6 private slaughter-houses.

Tuberculous meat not mentioned.

BOOTLE.—No mention in this report of meat or other foods.

BRAMPTON.—3 private slaughter-houses, situation not good. Public slaughter-house recommended.

Tuberculous meat not mentioned.

CARLISLE.—14 private slaughter-houses, 5 carcases examined by request, 1 and a portion of 1 condemned.

No mention of tuberculous meat.

COCKERMOUTH.—25 private slaughter-houses. Inspection impossible on account of scattered situations.

No unsound meat found.

LONGTOWN.—4 private slaughter-houses.

No mention of diseased meat or other foods.

PENRITH.—Private slaughter-houses (number not mentioned).

Tuberculous meat not mentioned.

WHITEHAVEN.—7 private slaughter-houses. No tuberculous meat found.

WIGTON.—20 private slaughter-houses. No unsound meat found.

The above summary shows how inadequate the provision is for efficient meat inspection. In nearly all the reports reference is made to the impossibility of inspection whilst slaughtering is going on.

The fact that so small an amount of tuberculous meat is discovered is no proof that it is not being sold, but, on the contrary, I think goes to show that a large amount is sold for human food.

Experience shows that Tuberculosis in cattle is much more common than the amount seized in the various districts would lead one to suppose.

It is then the duty of the various Councils to follow the recommendations given by so many of their Medical Officers to build public abattoirs where at all possible, and in more scattered districts to appoint specially qualified men to inspect *all* the meat before being sold.

SALE OF FOOD AND DRUGS ACT.

This Act is carried out by the Police, the following report being given by the County Analyst:—

Laboratory and Assay Offices,
40 Lowther Street,
Whitehaven,
2nd January 1911.

Gentlemen,

Sale of Food and Drugs Act.

During the year 1910 I analysed 311 samples under the Sale of Food and Drugs Acts. All these samples were taken by the Police acting as Food Inspectors, no Sanitary Authorities or private individuals having availed themselves of the privilege of submitting samples for analysis under these Acts.

Of these 311 samples, 30 were found to be adulterated, that is to say 9.6 per cent. This is a much higher rate of adulteration than that of 1909, which was 6.3 per cent.

The adulterated samples were 28 of milk, one of whisky, and one of coffee.

Milk.—Since 211 samples of milk were examined, and 28 were adulterated, the percentage of adulteration in milk is 13.3, which compares very unfavourably with the 8.5 per cent. of 1909.

The composition of several of these samples of milk which are classed as adulterated fell only very slightly below the Board of Agriculture's limits, and in these cases the vendors were not prosecuted, but were cautioned, and advised to give the cows a more nutritious diet.

Whenever the deficiency in milk-fat or non-fatty solids was found to be below the limits fixed by the Board of Agriculture, the farmer from whom the sample had been purchased was notified of the fact, and asked to permit an "appeal to the cow," and if the sample milked in the presence of the Police showed that the cows were not producing milk equal in quality to the minimum requirements of the Board of Agriculture, no legal proceedings were taken. Thanks to this use of the "appeal

to the cow" four milk-sellers were saved from the loss of reputation and the unpleasantness of having to appear in the Police Court to attempt the difficult task of proving that the suspiciously poor milk which they had sold was really genuine.

The average composition of the 211 samples of milk analysed during the year is:—

Milk-fat	3.55
Non-fatty solids	8.84
Water	87.61
	100.00

The quality of the milk sold in Cumberland during 1910 has differed therefore very slightly from that of 1909 . . . . . .

Articles examined under the Sale of Food and Drugs Acts during the year 1910:—

	Samples.		*Samples.*
Milk	211	Baking Powder ...	2
Butter	14	Vinegar	2
Whisky	13	Oatmeal	2
Lard	9	Cocoa	1
Jam	6	Wine	1
Pepper	6	Cream of Tartar ...	1
Coffee	5	Carbonate of Soda ...	1
Sugar	5	Nut Lard	1
Rum	5	Sago	1
Rice	4	Arrowroot	1
Cheese	3	Tapioca	1
Margarine	3	Semolina	1
Bread	3	Golden Syrup ...	1
Flour	3	Cream	1
Tea	3	Cornflour	1
			311

SEWERAGE AND DRAINAGE.

A summary of the remarks in the district reports on sewerage and drainage is given at the end of this report.

A new drainage scheme is under the consideration of the Aspatria Urban district for Aspatria.

Neither Cleator Moor nor Maryport appear to be entirely satisfactory in this respect.

In the Rural districts of Cockermouth, Longtown, and Whitehaven many villages appear to have no drainage system at all.

In the Wigton Rural district several schemes are now under consideration.

In the Cockermouth Rural district the Medical Officer has repeatedly recorded the insufficient or entire absence of drainage of many villages, but apparantly no notice is taken and nothing done.

POLLUTION OF RIVERS AND STREAMS.

COCKERMOUTH.—The Rivers Cocker and Derwent are polluted by slop drainage, &c.

KESWICK.—River Greta polluted from pig styes and from privies. Draining the property from whence the pollution comes is under consideration.

PENRITH.—Drains discharge into the stream running through the town.

BRAMPTON (Rural).—Streams are polluted wherever hamlets or farms are near them.

COCKERMOUTH (Rural).—Most of the rivers and streams in this Rural district appear to be polluted by drainage from villages.

LONGTOWN (Rural).—Both the Esk and Lyne are polluted by drainage.

WHITEHAVEN (Rural).—Considerable pollution must take place here, many of the villages having drains running direct into streams.

EXCREMENT DISPOSAL.

The system of excrement disposal is not mentioned in 10 of the district reports, but in those Urban districts in which it is dealt with the water-carriage system is mostly in vogue, dry pail closets being used in the outlying parts of the district.

In most of the Rural districts privy middens appear to be still every commonly used, with the exceptions of the towns of Alston and Brampton, and those parts of the Carlisle Rural district in which sewage schemes have been carried out, where water-closets are general

REMOVAL AND DISPOSAL OF HOUSE REFUSE.

Every means of disposal of house refuse seems to be used, with the exception of the most satisfactory, viz., by means of fire, for from the district reports it would appear that the City of Carlisle is the only district in which there is a destructor, and even here only a part of the refuse is destroyed.

In the Borough of Whitehaven the refuse is collected two or three times a week by Corporation workmen, and is taken out to sea in hoppers.

With these two exceptions all the other districts get rid of their refuse by "tipping," the tip generally being some distance away.

The nuisance and danger to health arising from these tips is serious enough even when composed only of house refuse, but when in addition to this is the contents of many midden privies, the seriousness of the danger cannot be overstated.

In many villages I have visited and enquired into the method of excrement and house refuse disposal where midden privies are common.

The almost invariable reply to my question "How often are the middens emptied?" is "Just when they are full"; and to the question "How often is that?" the reply is "Oh! once, or may be twice a year."

It is no exaggeration to say that the dry earth-closet is as great an advance on the ordinary midden privy as the water-closet is on the earth-closet, and for isolated houses and small villages the dry earth-closet is to be much preferred to the insanitary cesspool, with open sides, and which overflows freely over the surrounding ground, which one so commonly sees.

The dry earth-closet, when well constructed and properly managed, is a very satisfactory substitute for the water-closet. The mistake nearly always made is to have the receptacle too large, and in consequence difficult to remove and empty, and as a consequence not emptied often enough. The disposal of the contents of these pails is not a difficult matter if proper methods are employed.

As a rule a hole is dug a foot or two deep, into which the pails are emptied, and then the hole is filled in. If this is again dug up at the end of several weeks, or even several months, it is found in pretty much the same condition as when buried, but if the contents of the pails are only covered with a light layer of soil an inch or two deep, after three or four days it is impossible to distinguish between the contents of the pail and the earth.

I do not wish it to be supposed, however, that I am advocating the dry closet in preference to the water-closet. The former is only to be recommended when it is impossible to make satisfactory arrangements for the latter.

One pleasing feature of the reports is the unanimity with which the midden privy is condemned.

Apart from the nuisance arising from "tips" and middens they are a serious menace to health, because, as has recently been shown in a report on "Flies as Carriers of Infection," issued by the Local Government Board, they act as breeding places for flies, and it has been clearly proved that flies are great carriers of germs of various kinds. Moreover, they breed at an enormous

rate in suitable places, and are without doubt one of the main causes of food contamination, more especially of milk, and thus contribute largely to the infant mortality.

SCHOOLS.

The Medical Officer of Health of the County is also the School Medical Officer, and the schools and medical inspection of school children are fully dealt with in his report to the Education Committee.

In some cases doubt has been expressed as to whose duty it is to deal with outbreaks of infectious disease. In order that this may be perfectly clear in the future I quote paragraph V of the Memorandum on Closure of and Exclusion from Schools:—

v. " It must, however be borne in mind that the Medical Officer of Health, acting under the Sanitary Authority, is responsible for dealing with outbreaks of infectious disease, including such outbreaks in schools: and the action of the School Medical Officer, where he is not also the Medical Officer of Health, must be consistent with this general consideration. The importance of this consideration is indicated by the fact that the statutory powers as to isolation of patients and the cleansing and disinfection of houses are possessed by Sanitary Authorities alone. *'The new requirements of the Code in no way diminish the responsibility of the Medical Officer of Health for taking all such steps as are demanded in the public interest to prevent the spread of infection . . . .'* "

Shortly after the issue of this Memorandum a conference was held wth the Medical Officers of the County, and it was then agreed that—

(1) School closure should generally be effected by the Medical Officer of Health issuing a certificate, which is forwarded to the School Medical Officer for his approval, rather than by obtaining the signature of members of the Sanitary Authority, or in other words effecting closure under Article 45 (b), instead of under Article 57.

(2) That in any case when the Medical Officer of Health considers an outbreak requires investigation, the School Medical Officer will be pleased to confer and act with him.

(3) That forms be provided for the efficient working of the suggestions contained in the Memorandum.

The following forms are now in use:—

Form I.—An intimation to the Head Teacher, from the Medical Officer of Health, of an infectious disease in a house from which children are attending school.

Form II.—An intimation from the Head Teacher to both the Medical Officer of Health and the School Medical Officer, of absence owing to suspected infectious disease.

Form III.—Similar to Form II, but is from the Attendance Officer.

Form IV.—A notice of exclusion of a child, with the grounds for such exclusion, and is sent by the Head Teacher to the School Medical Officer.

Form V.—For the closure of a school, is signed by the Medical Officer of Health and forwarded to the School Medical Officer for his signature.

These forms have now been in use for some time, and, I believe, have served a useful purpose. I regret to find, however, that in some districts no action is taken, and no notice given to the forms sent out either by the Teachers or the Attendance Officers.

Dr. Crerar, commenting on the present arrangement, says:—" With the prevailing arrangement between School Teachers, School Medical Officer, and District Medical Officer of Health, a very much earlier discovery of cases should be possible. If the School Teachers continue to watch for possible suspicious signs and notify the Medical Officer of Health, an extension of the Notification Act to Non-Notifiable Diseases in School Children is practically in force, and many early cases are discovered and potential epidemics possibly prevented."

METHODS OF CONTROL OF TUBERCULOSIS.

Procedure in the matter of control of Tuberculosis in this County seems to be a dead letter.

Voluntary notification of cases of Phthisis Pulmonalis (Consumption) is adopted only in one district, viz., Keswick, but no case was notified during the year.

Under the provision of the Public Health (Tuberculosis) Regulations, 1908, 39 cases were notified, 33 in the Borough of Carlisle, 3 in the Urban district of Cockermouth, and 1 each in the Urban district of Keswick, the Rural districts of Carlisle and Cockermouth.

Printed and verbal instructions are given to known cases in most districts, and disinfection of premises is stated to be carried out after death in most cases.

Beyond this nothing appears to be done.

FACTORIES AND WORKSHOPS.

In only a few reports is any detailed reference made to the sanitary circumstances of these places, but in most districts they appear to have been visited on one or more occasions.

In some cases the statistical table issued by the Secretary of State for inclusion in the annual reports is not included in the report.

CARLISLE (BOROUGH).

J. BEARD, F.R.C.S., Ed., D.P.H., &c.,

Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	51,433		
Birth-rate	22·2	Total notifications	357
Death-rate	12·6	Smallpox	Nil
Zymotic death-rate	0·4	Scarlet Fever	248
Phthisis death-rate	1·01	Diphtheria	37
Total Tuberculosis death-rate	1·5	Fevers (Enteric &c.)	6
		Puerperal Fever	6
Respiratory diseases death-rate	1·9	Cases treated in Hospital	202
		Measles	(3)
Infant mortality rate per 1,000 births	110	Whooping Cough	(11)
		Diarrhœa	(3)

Housing Accommodation—

A great amount of work has been done under the various Housing Acts. A block of property, situated at the corner of Jane Street and Willow Holme, consisting of six two-roomed tenements has been converted into three self-contained four-roomed houses.

Closing orders have been made dealing with a large number of houses in Duke Street and Back Duke Street. These orders are still operative.

The whole of this property, which is of the single and two-roomed tenement class, situated in the Caldewgate district of the City, some years ago became extremely dilapidated and ceased to be inhabited.

Dr. Beard reports that there is still a considerable amount of the same type of property in many parts of the City, and which he describes as "worn out," which will have to be considered by the Health Committee.

Some of this property would be better demolished, but some, which has a fair amount of open space about it, would be greatly improved by re-modelling.

Water Supply—

Numbers of samples have been taken and submitted to both chemical and bacteriological examination; the quality of the water has been uniformly good.

The plumbo-solvent action of the water has also been tested, and it is shown to be incapable of taking up lead under even the most stringent experimental conditions.

Milk Supply—

The byres are reported on as being on the whole in a more satisfactory condition than in 1909. Some of them are, however, of a flimsy and temporary character, but there was less overcrowding.

The milk supply comes partly from cows byred within the City, and partly from the surrounding rural districts.

Cows in the City are regularly inspected by the Veterinary Surgeon.

Other Foods—

Fried Fish and Potato shops and Ice-cream shops are dealt with in this report, all being inspected at intervals.

Dr. Beard draws attention to the danger of Enteric Fever infection from the Ice-cream.

Special examinations were made of 102 carcases, 63 beasts and 4 pigs being affected with Tuberculosis.

A large number of examinations are made by the Veterinary Inspector specially appointed for the purpose; he also regularly visits the auction marts in the City.

There are no private slaughter-houses.

Sewerage and Drainage—

The Sewage Disposal Works continue to work satisfactorily, and apparently give rise to no nuisance.

The number of house drains tested appears to have increased.

Excrement Disposal—

No midden privies are in existence.

Removal and Disposal of House Refuse—

The refuse is collected by Corporation men and carts, and is taken some to the Sheepmounds, St. Nicholas, Botcherby Brickyard, and some to the Destructor Boustead's Grassing.

Nuisances—

705 nuisances have been dealt with during the year, and the Chief Sanitary Inspector reports that in no case has it been necessary to institute proceedings for their abatement.

Schools—

The Medical Officer of Health is also the School Medical Officer. His report to the Education Committee deals with the sanitary condition of the schools and medical inspection.

Methods of Dealing with Infectious Diseases—

The number of cases notified showed a considerable increase, due chiefly to a prolonged outbreak of Scarlet Fever.

202 cases were admitted to the Isolation Hospital, where ample accommodation is provided.

No disinfecting apparatus is yet supplied, but the Isolation Hospital Committee have the matter under consideration, and it is suggested that when one is provided here it may be utilised for the work of the Health Department.

All houses in which infectious diseases occur are sprayed with Formaldehyde, under the supervision of the Sanitary Inspectors.

Methods of Control of Tuberculosis—

33 notifications under the Public Health (Tuberculosis) 1908 Regulations were received, and 4 voluntary notifications, 3 of Pulmonary Tuberculosis and 1 of Tabes Mesenterica.

All these cases are visited, verbal and printed advice as to cleanliness, mode of living, and general hygiene given.

WORKINGTON.

JOHN HIGHET, M.D., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	27,500	Total notifications ..	144
Birth-rate	26·4	Smallpox	Nil
Death-rate	12·5	Scarlet Fever	38
Zymotic death-rate ...	0·65	Diphtheria	44
Phthisis death-rate ...	0·4	Fevers (Enteric, &c.)	17
Total tuberculosis death-rate	1·05	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	2·65	Cases treated in Hospital	49
Infant mortality rate per 1,000 births ...	129	Measles	(1)
		Whooping Cough ...	(5)
		Diarrhœa	(9)

Housing Accommodation—

It is pointed out that Part III of the Housing of the Working Classes Act, 1890, was adopted many years ago, and that advantage has been taken of its provisions in dealing with insanitary property.

The question of expense seems to have deterred this Council from carrying out several improvement schemes suggested by the Medical Officer of Health.

The report is favourable to the erection of dwellings for the working classes, provided the movement is at first, at any rate, confined to those whose wage-earning power is limited.

Water Supply—

Milk Supply—

21 cow-keepers and 18 purveyors of milk in the Borough, and 17 cow-keepers outside, who send milk into the Borough.

Inspection of these premises has been made.

Other Foods—

Slaughter-houses.—Both the public abattoir and the private slaughter-house in Elizabeth Street are reported by the Inspector of Nuisances to be satisfactory.

Sewerage and Drainage—

Pollution of Rivers and Streams—

Excrement Disposal—

Nuisances—

The Inspector of Nuisances reports that 921 nuisances have been dealt with, including defective water-closets, repairs to houses, overcrowding, offensive and defective gullies, re-construction of drains, &c.

Factories, Workshops, and Bakehouses—

117 in number have all been inspected, and but two defects found, viz., unsuitably placed sanitary accommodation, and insufficient light and ventilation; both these were remedied.

Byelaws—

Schools—

Method of Dealing with Infectious Diseases—

Methods of Control of Tuberculosis—

WHITEHAVEN (BOROUGH).

J. B. FISHER, M.D., D.P.H., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	19,320	Total notifications ...	201
Birth-rate	31·26	Smallpox	Nil
Death-rate	25·94	Scarlet Fever	172
Zymotic death-rate ...	1·6	Diphtheria	9
Phthisis death-rate ...	1·3	Fevers (Enteric, &c.)	1
Total tuberculosis death-rate	3·0	Puerperal Fever ...	1
Respiratory diseases death-rate ...	3·6	Cases treated in Hospital	129
Infant mortality rate per 1,000 births ...	129	Measles	(1)
		Whooping Cough ...	(11)
		Diarrhœa	(12)

Housing Accommodation—

No general overcrowding of houses, but, as is pointed out, the great fault is overcrowding of houses on area,

arising out of cottages being built on gardens and open spaces when demand for such houses arose.

A Sub-Committee has been appointed to consider the Housing (Inspection of District) Regulations, 1910, but no officer has yet been appointed as required to carry out the regulations.

WATER SUPPLY—

The whole Borough, with the exception of three houses supplied from springs, is supplied with water from Ennerdale Lake, nine miles from the town, and is described as being of the best.

MILK SUPPLY—

23 registered cowsheds, in which are housed 213 cows in the Borough.

All have been regularly inspected and the cows examined by a veterinary surgeon. No cows have been found suffering from tuberculosis.

The milk is sold direct to consumers, and some is also supplied from places outside the Borough.

OTHER FOODS—

11 registered slaughter-houses all regularly visited by the Inspector of Nuisances.

Animals sold in the auction mart are examined by the Veterinary Inspector previous to sale, and any animal passed by him and sold for £8 or upwards is guaranteed, and if found to be tuberculous when slaughtered the butcher is compensated for any loss.

Three whole carcases and portions of four others have been condemned as unfit for human food, being affected with tuberculosis. These were removed to the refuse hopper under supervision of the Inspector.

Other articles of food are inspected as occasion requires. 15 boxes of kippers and two hampers of pears were condemned as unfit for food.

Sewerage and Drainage—

The main sewers are of good construction and in good condition. The main sewer outlet is on the rocky shore near low water mark.

House drains where faulty have been remedied, and house drains are tested free of cost by the Corporation.

Excrement Disposal—

Water-closets are almost universal, dry closets are used in only some outlying and isolated parts.

Removal and Disposal of House Refuse—

By carts belonging to the Corporation, in the central parts of the town daily and in the outlying parts two or three times a week. The carts take the refuse to hoppers, which are emptied out at sea.

Nuisances—

448 written notices for abatement of nuisances were given. In 32 these notices were not complied with and statutory notices were then served; all but two were complied with, and in these two nothing has yet been done.

Byelaws—

Schools—

Methods of Dealing with Infectious Diseases—

On receipt of notification the house is visited, and, if necessary, the patient is removed to hospital If the patient remains at home printed instructions are left, and the house is visited from time to time.

Source of infection, milk supply, and children attending school are enquired into, and necessary steps taken.

Methods of Control of Tuberculosis—

Notification is not compulsory, and no new cases were notified under the Public Health (Tuberculosis) Regulations, 1908.

ARLECDON AND FRIZINGTON.

JOHN CLARK, M.D., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	5,200	Total notifications ...	15
Birth-rate	28·27	Smallpox	Nil
Death-rate	18·4	Scarlet Fever	12
Zymotic death-rate ...	Nil	Diphtheria	Nil
Phthisis death-rate ...	0·95	Fevers (Enteric, &c.) ...	Nil
Total tuberculosis death-rate	1·15	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	2·8	Cases treated in Hospital	5
		Measles	(Nil)
Infant mortality rate per 1,000 births ...	156	Whooping Cough ...	(Nil)
		Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

Fairly satisfactory. One new house built. A few better class workmen's houses might be desirable.

Water Supply—

From an upland area among the fells, uninhabited and uncultivated. Constant supply of excellent quality.

Milk Supply—

No milk shops in the district. Milk is carried direct from farms to the consumer. The supply is abundant and wholesome.

Other Foods—

Sewerage and Drainage—

Reported as being satisfactory. Disposal by means of settling tanks and broad irrigation, for which purpose about 50 acres are used.

Pollution of Rivers and Streams—

None.

Excrement Disposal—

Approximately 130 water-closets and about 45 earth-closets.

Removal and Disposal of House Refuse—

Carried out by the Council, and deposited at refuse tip, some distance from the towns.

Nuisances—

Methods of Dealing with Infectious Diseases—

After notification infected houses are visited and inspected, disinfectants supplied, any nuisance or unsatisfactory condition remedied, and disinfection carried out.

Methods of Control of Tuberculosis—

ASPATRIA.

W. P. BRIGGS, L.R.C.P., &c., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	3,331		
Birth-rate	25·5	Total notifications ...	123
Death-rate	12·08	Smallpox	Nil
Zymotic death-rate ...	1·8	Scarlet Fever ...	112
Phthisis death-rate ...	0·6	Diphtheria	4
Total tuberculosis death-rate	0·9	Fevers (Enteric, &c.)	Nil
		Puerperal Fever ...	Nil
Respiratory diseases death-rate	Nil	Cases treated in Hospital	Nil
		Measles	(2)
Infant Mortality, rate per 1,000 births ...	129	Whooping Cough ...	(Nil)
		Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

No cases of overcrowding have been reported, and the housing generally is described as excellent.

Water Supply—

Derived from the Overwater gravitation main, and remains pure.

Milk Supply—

Five registered cowsheds in the district. Ventilation and lighting both very defective.

Other Foods—

Five registered slaughter-houses, all private. Good water supply, but unsatisfactory drainage. No tuberculous meat has been discovered, but as the Medical Officer points out, supervision cannot be efficient, and the only way to prevent diseased meat being sold is to erect a public slaughter-house.

Sewerage and Drainage—

Has been unsatisfactory for several years, and a satisfactory scheme is now under consideration.

Excrement Disposal—

Removal and Disposal of House Refuse—

By means of contractors' carts twice weekly and tipped into a disused quarry outside the town. Galvanised iron bins, with covers, are advocated.

Nuisances—

Twenty-two notices have been served to abate nuisances; all have been attended to.

Byelaws—

Methods of Dealing with Infectious Diseases—

Disinfection is carried out, and parents are instructed by leaflets.

Methods of Control of Tuberculosis—

Notification is not compulsory, and none is done voluntarily. All cases brought to the knowledge of the Medical Officer are visited and instructed in precautionary measures to safeguard others. In case of death the premises are disinfected.

CLEATOR MOOR.

JOHN CLARK, M.D., MEDICAL OFFICER OF HEALTH.

Vital Statistics.	
Estimated population	8,000
Birth-rate	27·75
Death-rate	16·12
Zymotic death-rate ...	0·75
Phthisis death-rate ...	1·5
Total tuberculosis death-rate	1·7
Respiratory diseases death-rate	2·6
Infant Mortality, rate per 1,000 births ...	117

Infectious Diseases Cases (and deaths).	
Total notifications ...	22
Smallpox	Nil
Scarlet Fever ...	11
Diphtheria	8
Fevers (Enteric, &c.)	Nil
Puerperal Fever ...	Nil
Cases treated in Hospital	7
Measles	(Nil)
Whooping Cough ...	(3)
Diarrhœa	(1)

HOUSING ACCOMMODATION—

The number of inhabited houses at last Census was 1,592. The accommodation is stated to be fairly good, but a few good workmen's houses are probably desirable.

A special report was made in July on houses in Wyndham Street, Duke Street, Riley Terrace, Crossfield Road and Croft Terrace, Cleator.

Recommendations were made (1) to convert some windows into sash windows, (2) to make back doors into those houses where they are absent, (3) certain houses to have a window put in on landing at top of stairs to improve light and ventilation, (4) certain back-to-back houses were reported on, but no recommendation made.

Some of these recommendations have been carried out, and some are being dealt with.

A systematic house to house inspection is being carried out.

WATER SUPPLY—

Stated to be abundant in quantity and of excellent quality, and a constant supply, derived from springs in an upland district. Contamination is almost impossible.

Milk Supply—

With one exception the dairies and cowsheds were found satisfactory, being well lighted, well ventilated, with an abundant supply of good water, lime-washing and cleanliness being strictly observed.

No milkshops in the district, milk being conveyed direct from the farms to the consumer.

The Medical Officer remarks:—"From my own observations the cows are healthy and well groomed."

Other Foods—

Seven private slaughter-houses, reported on as generally in a satisfactory condition, well lighted and ventilated, and plentifully supplied with cold water.

The Inspector of Nuisances visits and inspects the market weekly with a view to preventing the sale of any articles of food found unsatisfactory or unfit for human consumption.

Sewerage and Drainage—

Fairly satisfactory, the system of sewage disposal being one of settling tanks and treatment with lime.

Pollution of Rivers, &c.—

None apparent.

Excrement Disposal—

About 1,400 water-closets, about 25 earth-closets, the latter chiefly at farm buildings and outlying cottages.

Removal and Disposal of House Refuse—

No ashpits in the town area. Buckets are emptied daily and refuse removed by Council's carts.

Nuisances—

198 nuisances (109 defective and choked water-closets, 52 insanitary yards, and 36 defective and choked sewers, and 1 escape of sewer gas) have, with the exception of some of the yards, been remedied.

Byelaws—

Only one common lodging-house.

Methods of Dealing with Infectious Diseases—

When a notification is received the house is visited, disinfectant supplied, any nuisance or unsatisfactory condition remedied, and the premises finally disinfected.

Methods of Control of Tuberculosis—

The Medical Officer remarks:—"The Council have not considered it necessary up to the present to adopt the Public Health (Tuberculosis) Regulations of 1908."

COCKERMOUTH.

JOHN PENNY, D.Sc., M.B., Medical Officer of Health.

Vital Statistics.	
Estimated population	5,410
Birth-rate	24·02
Death rate	16·2
Zymotic death-rate ...	0·55
Phthisis death-rate ...	2·4
Total tuberculosis death-rate	3 3
Respiratory diseases death-rate	1·6
Infant Mortality, rate per 1,000 births ...	176

Infectious Diseases Cases (and deaths).	
Total notifications ...	4
Smallpox	Nil
Scarlet Fever ...	1
Diphtheria	Nil
Fevers (Enteric, &c.)	Nil
Puerperal Fever ...	Nil
Cases treated in hospital	Nil
Measles	(1)
Whooping Cough ...	(Nil)
Diarrhœa	(2)

Physical Features—

The geological formation of the larger part of the district is gravel, with Skiddaw slate and limestone on the boundary, covered in part with glacial drifts, boulder clay and waterbourne sediment, sand, and gravel.

Chief Occupations of Inhabitants—

The inhabitants consist of retired tradespeople, persons in various forms of business, including a thread mill, brewery, timber yard, and iron foundry, but the majority are either directly or indirectly dependent upon

agriculture, although a certain percentage work at quarries or coal mines.

HOUSING ACCOMMODATION—

Under the Housing, Town Planning, &c., Act, 1909, the Inspector of Nuisances has been appointed the designated officer. No cases of overcrowding are reported.

WATER SUPPLY—

Both for domestic and trade purposes comes from Crummock Water.

Complaints have been received of oxidation of the service pipes.

MILK SUPPLY—

Ten cow-keepers and sixteen milk sellers registered in the district. The quarterly reports of the Veterinary Surgeon have been most satisfactory.

The dairies are fairly well ventilated and moderately clean. All have a water supply laid on.

There is a great difficulty in getting some of the owners to keep the houses free from accumulation of manure.

Cows recently calved are brought to the Auction Marts on Mondays for sale and milked in the town. This milk is frequently blood stained and is not fit for human consumption.

OTHER FOODS—

There are five public slaughter-houses in Market Place, but only two are used by the butchers. There are also five private slaughter-houses in the district.

One of these is not suitable either as regards situation or structure.

One carcase of a cow and seven boxes of kippers were seized and destroyed as being unfit for human food.

SEWERAGE AND DRAINAGE—

The public sewers have been inspected, and defects remedied here and at the outfall works.

Pollution of Rivers and Streams—

The rivers Cocker and Derwent are both polluted by slop drainage, &c.

In 1907 a printed handbill was left at every house calling attention to Section 47 (1) of the Public Health Acts Amendment Act, 1890, *re* the throwing of ashes, rubbish, &c., into the streams.

Excrement Disposal—

Removal and Disposal of House Refuse—

Bi-weekly collection of domestic and weekly collection of trade refuse is made and conveyed to a refuse tip outside the town by public scavengers. The receptacles for house refuse appear to be unsatisfactory.

Nuisances—

135 Nuisances have been reported, and 133 have been remedied. The keeping of pigs too near dwelling houses appears to have given rise to complaints.

Byelaws as to Houses let in Lodgings, Offensive Trades, &c.—

Two common lodging-houses are in the district. As regards cleanliness they generally comply with the bye-laws.

Proceedings were taken for carrying on the business of a bone boiler in unlicensed premises.

Schools—

The school premises were inspected during the year.

Methods of Dealing with Infectious Diseases—

No hospital accommodation is provided.

On receipt of notification the house is visited as soon as possible. Particulars as to source of infection, milk supply, school attended, drainage, &c., are obtained.

Instructions are given as to prevention of spread of infection.

The room, bedding, &c., are fumigated and the walls sprayed with formalin.

There is no steam disinfector, but a hot air disinfector is provided in a field about a mile away, and is of little use.

METHODS OF CONTROL OF TUBERCULOSIS—

No system of notification is carried out, and only three cases were reported under the Public Health (Tuberculosis) Regulations, 1908.

Where a death occurs from tuberculosis the premises are disinfected.

EGREMONT.

GEORGE CALDERWOOD, M.D., MEDICAL OFFICER OF HEALTH.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	6,300	Total notifications ...	74
Birth-rate	27·9	Smallpox	Nil
Death-rate	13·8	Scarlet Fever ...	66
Zymotic death-rate ...	0·79	Diphtheria	2
Phthisis death-rate ...	0 15	Fevers (Enteric, &c.)	1
Total tuberculosis death-rate	0·63	Puerperal Fever ...	Nil
Respiratory diseases death-rate	4·12	Cases treated in Hospital	16
Infant Mortality, rate per 1,000 births ...	108	Measles	(Nil)
		Whooping Cough ...	(Nil)
		Diarrhœa	(1)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

HOUSING ACCOMMODATION—

Is inadequate and hence overcrowding exists. Smaller and poorer houses, though unsuitable, are occupied by working men with families. Many working in the district are compelled to live out of it owing to lack of accommodation.

WATER SUPPLY—

Is good in quality but deficient in quantity.

Milk Supply—

Ventilation and lighting of cowsheds has been improved, but in many cases is still insufficient.

Other Foods—

Sewerage and Drainage—

The sewers continue to act efficiently.

Pollution of Rivers and Streams—

Excrement Disposal—

Privies have been practically abolished and water-closets substituted.

Removal and Disposal of House Refuse—

Nuisances—

76 verbal and 39 printed notices have been served, all of which have received attention.

Byelaws—

Methods of Dealing with Infectious Diseases—

Methods of Control of Tuberculosis—

HARRINGTON.

GEORGE R. CULLIN, L.R.C.S. & P., &c., Medical Officer of Health.

Vital Statistics.	
Estimated population	3,766
Birth-rate	36·1
Death-rate	17·2
Zymotic death-rate ...	1·06
Phthisis death-rate ...	0 26
Total tuberculosis death-rate... ...	1·06
Respiratory diseases death-rate	5·04
Infant Mortality, rate per 1,000 births ...	103

Infectious Diseases Cases (and deaths).	
Total notifications ...	7
Smallpox	Nil
Scarlet Fever ...	2
Diphtheria	2
Fevers (Enteric, &c.)	1
Puerperal Fever ...	Nil
Cases treated in Hospital	Nil
Measles	(4)
Whooping Cough ...	(Nil)
Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

The supply exceeds the demand.

Water Supply—

Is derived from Crummock Lake and is abundant and good.

In Lowca difficulty has been experienced, but a stand pipe has overcome the difficulty. The Medical Officer, however, says the present system is supplying its maximum, and if more houses are built in Lowca a new main will be required.

The supply at times has been very dirty with the erosin from the pipes.

Milk Supply—

Eleven persons registered. Many of the byres are unsatisfactory and cannot be kept clean owing to their construction.

Other Foods—

Three private slaughter-houses, one unoccupied. In good repair and kept satisfactory. They have not been visited at the time of slaughtering, but shortly after. No special appointment made with regard to meat inspection.

No carcases or parts condemned, and no cases of unsound food reported.

Sewerage and Drainage—

Satisfactory. The precipitation tank at Lowca has received special attention.

Pollution of Rivers and Streams—

Excrement Disposal—

Removal and Disposal of House Refuse—

Done three times weekly by public scavengers. Is satisfactorily done.

Is now similarly done in Lowca with good results.

NUISANCES—

115 (including 35 defective and damp houses, and 35 defective earth closets) found and dealt with.

BYELAWS AS TO HOUSES LET IN LODGINGS &C.—

No lodging-houses and no offensive trades.

SCHOOLS—

Kept in a sanitary condition, and have a plentiful supply of water.

METHODS OF DEALING WITH INFECTIOUS DISEASES—

Premises are disinfected by Inspector of Nuisances.

No means of dealing with smallpox should it break out.

METHODS OF CONTROL OF TUBERCULOSIS—

HOLME CULTRAM.

CHARLES CRERAR, M.B., C.M., MEDICAL OFFICER OF HEALTH.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	4,493	Total notifications ...	5
Birth-rate	19·8	Smallpox	Nil
Death-rate	14·8	Scarlet Fever ...	2
Zymotic death-rate ...	Nil	Diphtheria	Nil
Phthisis death-rate ...	1·55	Fevers (Enteric, &c.)	2
Total tuberculosis death-rate	2·22	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	1·7	Cases treated in Hospital	2
Infant mortality rate per 1,000 births ...	45	Measles	(Nil)
		Whooping Cough ...	(Nil)
		Diarrhœa	(Nil)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

HOUSING ACCOMMODATION—

Appears to be ample. The Inspector of Nuisances has been appointed to carry out the duties under the regulations of the Housing and Town Planning Act.

Water Supply—

Part of the district is supplied from a gravitation supply, and part from wells. Complaints from the latter, of the bad quality of water, have been frequent. An extention of the gravitation scheme is contemplated.

Milk Supply—

No dairies in the district. The regulations under the 1885 order are to be printed and copies given to the milksellers; by this means it is hoped to effect some improvement in the sanitary condition of the cowsheds.

Other Foods—

No public slaughter-house; the private ones have been inspected, and in nearly all cases are satisfactory. Inspection cannot be systematic with so many private slaughter-houses.

Three carcases brought by boat were condemned.

Sewerage and Drainage—

No extension of the sewerage system in the vicinity of Silloth has yet been carried out. The village of Edderside has been greatly improved.

Excrement Disposal—

Removal and Disposal of House Refuse—

Bins are used in Silloth and refuse is satisfactorily removed by contractors.

The pail system works satisfactorily at West Silloth.

Nuisances—

Many have been dealt with, principally defects in buildings, water supply, and middens.

Methods of Dealing with Infectious Diseases—

Investigation by the Medical Officer of Health. Insufficient hospital accommodation.

Methods of Control of Tuberculosis—

An endeavour has been made to teach the nature of Phthisis and what means ought to be taken to lessen the risk of infection. Deaths are notified to the Medical Officer of Health, and disinfection of house, bedding, &c., offered; opportunity is then taken to point out where the essential danger lies.

KESWICK.

J. R. BURNETT, M.D., &c., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	4,500		
Birth-rate	17·7	Total notifications ...	14
Death-rate	14·8	Smallpox	Nil
Zymotic death-rate	0·44	Scarlet Fever ...	7
Phthisis death-rate ...	1·11	Diphtheria	3
Total tuberculosis death-rate	1·33	Fevers (Enteric, &c.)	Nil
		Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	3·33	Cases treated in Hospital	8
		Measles	(Nil)
Infant mortality rate per 1,000 births ...	112	Whooping Cough ...	(Nil)
		Diarrhœa	(1)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

The Inspector of Nuisances has been appointed under the Regulations (inspection of district) 1910, to inspect and report to the Medical Officer of Health.

Water Supply—

Derived from artificial reservoirs on the slopes of Skiddaw. Is ample in quantity, and the County Analyst reports as being "the purest natural water I have ever analysed."

Its plumbo-solvent action is practically nil.

Milk Supply—

Supplied from dairies. The Veterinary Inspector reports that the cattle are an exceptionally good stock, and that no case of tuberculosis had been detected.

The dairies and cowsheds are regularly inspected. In one case where the air-space, ventilation, and lighting were insufficient, the owner erected a new byre and improved the old one.

Other Foods—

Slaughter-houses are systematically inspected and found well kept. No carcase condemned on account of tuberculosis.

The difficulties of supervising a number of private slaughter-houses is pointed out, and a Committee has under consideration the construction of a public abattoir.

It is also pointed out that meat slaughtered outside is brought into the district and sold, and that there is no supervision.

Sewerage and Drainage—

The Derwentwater tenants' estate and houses in Greta Bridge and Greta Lodge have been connected.

Pollution of Rivers and Streams—

Pollution of the River Greta from pig-styes and from a few privies is reported; sewering these parts, however, is under consideration.

Excrement Disposal—

Privies are practically extinct except in the most outlying parts, and these are attended to by the servants of the Council.

Removal and Disposal of House Refuse—

Ashpits have been abolished. Ashes, &c., are collected twice a week or oftener where required.

Byelaws—

One of the two common lodging-houses has been closed as unfit for human habitation. The other, which does not comply with all the bye-laws, is open on sufferance.

Hope is expressed that a new one, on model lines, will be built before the end of another year.

Methods of Dealing with Infectious Diseases—

The Whinlatter Hospital is reported on satisfactorily; but the Medical Officer points out that owing to its inaccessibility and want of telephone, medical assistance might be difficult to obtain in an emergency.

The kitchen is separated from the main building by an open space across which food is carried.

Methods of Control of Tuberculosis—

Voluntary notification is in vogue, but no case was notified, and only one pauper case.

Free examination of sputum, instruction by various methods is given on the nature, cure, and prevention, disinfectants are supplied free on application, and premises are disinfected after removal or death, and a bed is kept up at the Sanatorium.

MARYPORT.

FRED PROUD, M.D., Medical Officer of Health.

Vital Statistics.	
Estimated population	12,600
Birth-rate	24·5
Death-rate	13·2
Zymotic death-rate ...	1·1
Phthisis death-rate ...	1·03
Total tuberculosis death-rate	1·03
Respiratory diseases death-rate	1·4
Infant Mortality, rate per 1,000 births ...	110

Infections Diseases Cases (and deaths).	
Total notifications ...	97
Smallpox	Nil
Scarlet Fever ...	72
Diphtheria	14
Fevers (Enteric, &c.)	3
Puerperal Fever ...	Nil
Cases treated in Hospital	Nil
Measles	(2)
Whooping Cough ...	(Nil)
Diarrhœa	(1)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

HOUSING ACCOMMODATION—

Two houses have been condemned as unfit for habitation, but no further mention is made of housing conditions.

WATER SUPPLY—

The supply is said to be sufficient, and the hope expressed that filtration will be efficient.

MILK SUPPLY—

78 visits have been paid to the premises of the 10 cowkeepers and 13 purveyors of milk. From the report of the Sanitary Inspector it is gathered that the flooring and channels in the cowsheds are not satisfactory.

OTHER FOODS—

16 carcases appear to have been voluntarily submitted for inspection, and 3,563 lbs. condemned on account of tuberculosis. One prosecution, for selling and exposing for sale tuberculous meat, was undertaken, the owner was convicted, and the private slaughter-house closed.

SEWERAGE AND DRAINAGE—

The Sanitary Inspector reports many defects in house drains, and complaints have been received of smells from sewers.

POLLUTION OF RIVERS AND STREAMS—

"The course of the river was followed from Cockermouth to Ouse Bridge, and no grave source of pollution was seen."

EXCREMENT DISPOSAL—

REMOVAL AND DISPOSAL OF HOUSE REFUSE—

NUISANCES—

BYELAWS—

SCHOOLS—

METHODS OF DEALING WITH INFECTIOUS DISEASES—

METHODS OF CONTROL OF TUBERCULOSIS—

MILLOM.

P. B. STONEY, M.R.C.S., &c., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	10,000		
Birth-rate	21·5	Total notifications ...	18
Death-rate	13·4	Smallpox	Nil
Zymotic death-rate ...	1·3	Scarlet Fever	3
Phthisis death-rate ...	0·9	Diphtheria	8
Total tuberculosis death-rate	1·5	Fevers (Enteric, &c.)...	1
		Puerperal Fever ...	Nil
Respiratory diseases death-rate	1·7	Cases treated in Hospital	32
		Measles	(6)
Infant Mortality, rate per 1,000 births ...	134	Whooping Cough ...	(5)
		Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

Is more than sufficient, there being more than 200 empty houses.

The necessary steps have been taken to carry out the Housing and Town Planning Act.

Water Supply—

Upland surface water, and is reported to be pure and ample in quantity.

No drinking water is used except from the Council's mains.

Milk Supply—

16 dairies or purveyors of milk, all of which have been visited.

Other Foods—

The attention of the Medical Officer has not been called to any unsound meat, or to any insanitary condition of premises where food is stored.

Sewerage and Drainage—

Stated to be complete in all parts of the district.

Pollution of Rivers and Streams—

None.

Excrement Disposal—

Water-closets are now used all over the district.

Removal and Disposal of House Refuse—

Carried out by the Council's men and is very satisfactory.

Nuisances—

32 notices served to abate nuisances. All received attention.

Schools—

The sanitary condition is good and the water supplied from the Council's mains.

Methods of Dealing with Infectious Diseases—

Disinfectants are supplied free. Houses, clothing, and bedding are fumigated or sent to the steam disinfector.

The School Attendance Officer and the Librarian are notified of each case.

Methods of Control of Tuberculosis—

A special report was submitted to the Isolation Committee, but no action was taken. Subsequently a Health Visitor was appointed.

PENRITH.

F. HASWELL, M.D., &c., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	9,395	Total notifications ...	28
Birth rate	20·07	Smallpox	Nil
Death-rate	12·3	Scarlet Fever ...	16
Zymotic death rate ...	0·2	Diphtheria	11
Phthisis death-rate ...	0·7	Fevers (Enteric, &c.)	Nil
Total tuberculosis death-rate	1·4	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	1·4	Cases treated in Hospital	23
Infant mortality rate per 1,000 births ...	107	Measles	(Nil)
		Whooping Cough ...	(1)
		Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

10 houses have been closed as unfit for habitation, and seven more are under repair. Other houses are under observation and will be gradually dealt with.

Plans for new houses are always submitted for the approval of the Council.

Water Supply—

From Hayeswater is quite a success. Most houses are now supplied from the main, but a few of the outlying houses have private wells.

Milk Supply—

The 29 dairies and cowsheds have been inspected at intervals. The cows are examined by a Veterinary Inspector every quarter, and his reports generally are satisfactory.

Neglect of white-washing seems to be the chief complaint.

Other Foods—

No public abattoir. The private slaughter-houses are inspected regularly, and there has been iittle reason to complain of their condition.

Portions of a carcase were condemned as unfit for human food.

Sewerage and Drainage—

The main sewer and outfall works continue to be satisfactory.

The reconstruction of old sewers has been proceeded with.

Very great improvements are reported as having been effected in the drainage of private property.

The drains are principally tested hydraulically.

Eamont Bridge now drains into the town main sewer

Pollution of Rivers and Streams—

Some drains still discharge into the stream running through the town, but it is reported as being in a more pure condition than formerly.

Excrement Disposal—

Removal and Disposal of House Refuse—

Council's carts employed to remove sweepings and refuse to tip about one mile north-west of the town.

Scavenging is also done by the staff of the Council, and experiments in road making are being tried with a view to lessen dust, save expense, and make the streets more sanitary.

Schools—

The sanitary condition of these buildings is in general in a satisfactory state, and all have the town's water supply.

Methods of Dealing with Infectious Diseases—

School children are frequently inspected when any infectious disease is reported.

House disinfection is done by spraying with formalin, and bedding, &c., disinfected in a Reck's steam disinfector.

Methods of Control of Tuberculosis—

Houses where a death from Phthisis occurs are disinfected.

Good has been done by a charitable fund to provide assistance to go to a Sanatorium.

WIGTON.

J. BLACKLOCK, M.D., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	3,455	Total notifications ...	23
Birth-rate	25·7	Smallpox	Nil
Death-rate	19·6	Scarlet Fever ...	14
Zymotic death-rate ...	0·5	Diphtheria	7
Phthisis death-rate ...	0·8	Fevers (Enteric, &c.) ...	1
Total tuberculosis death-rate	1·4	Puerperal Fever ...	Nil
		Cases treated in Hospital	Nil
Respiratory diseases death-rate	5·2	Measles	(1)
		Whooping Cough ...	(Nil)
Infant Mortality, rate per 1,000 births ...	112	Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

Many of the poorer class houses are imperfectly ventilated and there is a lack of air space and sunlight. Demolition and reconstruction of these houses would be the best remedy, but improvement could be brought about by the substitution of sash for casement windows.

Water Supply—

Comes from two springs in the limestone, continues to be pure, efficient in quantity, and free from risks of pollution.

Milk Supply—

More air space is desirable in the cowsheds; they are, however, clean and properly drained.

The appointment of a Veterinary Inspector is contemplated.

Other Foods—

No carcases or parts of carcases have been found to be tuberculous.

It has not been found necessary to destroy any fish during the year.

The six private slaughter-houses have been regularly inspected; they are properly supplied with water, well drained and ventilated.

Attention is drawn to the impossibility of efficient inspection of meat owing to the want of an abattoir.

Sewerage and Drainage—

The town is well drained and sewered. Flushing is easily and regularly carried out.

The sewage is conducted to a sewage farm, where it is treated by broad irrigation, a satisfactory effluent, discharging into the River Waver, being produced.

Excrement Disposal—

The water carriage system is universal.

Removal and Disposal of House Refuse—

Collected by public scavengers from suitable receptacles for the most part, but there are still a small number of ashpits. The abolition of these is again recommended.

Methods of Dealing with Infectious Diseases—

The want of isolation hospital accommodation is again commented upon.

Methods of Control of Tuberculosis—

Instructions, both verbal and printed, are given, and disinfection of premises after a death.

ALSTON (RURAL).

STEWART CARSON, M.B., C.M., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	3,150	Total notifications ...	22
Birth-rate	17·1	Smallpox	Nil
Death-rate	15·5	Scarlet Fever	15
Zymotic death-rate ...	Nil	Diphtheria	3
Phthisis death-rate ...	1·2	Fevers (Enteric, &c.) ...	3
Total tuberculosis death-rate	1·2	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	2·2	Cases treated in Hospital	Nil
		Measles	(Nil)
Infant mortality rate per 1,000 births ...	55	Whooping Cough ...	(Nil)
		Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Farming and mining.

Some men travel daily to the coal mines in the adjoining county; many work in the limestone quarries, the lime kilns, and coal pits connected therewith, but the majority of the working men work in the mines (lead, zinc, and barytes) at Nenthead, Haggs, Cashwell, Carshield, and Rodderup.

Housing Accommodation—

Is still scanty. Four new houses were built and five altered during the year. Baths and bathrooms are becoming more general in the houses.

Barracks are provided at some of the mines for German and Italian workmen; nuisances arising from these have been dealt with during the year, and additional closet accommodation has been provided.

One farmhouse was condemned.

Water Supply—

The addition of another spring has more than doubled the town supply.

A storage tank holding 10,000 gallons has been erected. The town supply is now complete, 97,200 gallons per 24 hours being available.

Clitheroe was supplied in 1905.

Leadgate has a good supply, but the pipes are earthenware.

Garrigill village supply completed in 1904 and extended to the schools in 1908.

Nenthead village, the East supply was extended in 1908 to the village and to Holmesfoot.

Hill Top was supplied in 1905.

In 1907 the Greengill source, supplying West Nenthead and the schools, was condemned, and the East supply

was extended to West Nenthead in 1910, and the school is supplied from the same source at Holmesfoot.

Improved supply to Hillersdon is contemplated.

Milk Supply—

No milkshops. 20 milk sellers registered.

Four excellent new cowsheds have been erected.

Cowbyres which do not meet with the requirements have not been dealt with, but have been left until the "Milk Bill" foreshadowed for some time appeared on the statute book.

Other Foods—

Three private slaughter-houses in the town and three others outside at a considerable distance from each other. They have on the whole been kept clean and in good order, but some of them require a receptacle which can be closed for the temporary reception of offal, which is now allowed to accumulate on the premises.

Sewerage and Drainage—

Two lengths of the Chapel Terrace sewer were laid, and the connecting link between the Overburn and Butts sewers and the new King's Arms Lane sewer will now be completed.

New sewers are required in Physic Hall and Town Foot.

Excrement Disposal—

20 new water-closets were fixed in Alston and 4 earth-closets outside the town area.

In Alston, although a few pail-closets still exist, the water carriage system is almost universal.

These closets used to discharge into the mill race, but they are now nearly all connected with the new sewers.

In villages the pail system is in general use.

Removal and Disposal of House Refuse—

Is done twice a week in Alston and Nenthead by scavengers to tips.

Byelaws—

Schools—

Methods of Dealing with Infectious Diseases—

Isolation at home and subsequent disinfection.

No isolation hospital.

Methods of Control of Tuberculosis—

Disinfection of rooms.

BOOTLE.

W. A. JOHNSTON, L.R.C.P. and S.I., Medical Officer of Health.

Vital Statistics.	
Estimated population	5,050
Birth-rate	21·5
Death-rate	15·6
Zymotic death-rate ...	0·5
Phthisis death-rate ...	1·7
Total tuberculosis death-rate	1·9
Respiratory diseases death-rate ...	1·7
Infant mortality rate per 1,000 births ...	36

Infectious Diseases Cases (and deaths).	
Total notifications ...	35
Smallpox	Nil
Scarlet Fever ...	21
Diphtheria	6
Fevers (Enteric, &c.)	3
Puerperal Fever ...	1
Cases treated in Hospital	24
Measles	(Nil)
Whooping Cough ...	(3)
Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

Water Supply—

The district is well supplied, and the supply has been satisfactory.

The main has been laid to Irton.

Milk Supply—

Other Foods—

Sewerage and Drainage—

Extension of outfall sewer at Seascale. Automatic flushing tanks built on sewers. Webb's Camps adopted for ventilating sewers.

Pollution of Rivers and Streams—

Excrement Disposal—

Removal and Disposal of House Refuse—

Nuisances—

Byelaws—

Schools—

All have been inspected and the following improvements carried out:—Drigg, new sanitary conveniences and cloakrooms; Thwaites, drainage renewed and playground repaired; Bootle (Capt. Shaw's and Hycemoor), plans approved for new sanitary conveniences.

Methods of Dealing with Infectious Diseases—

Isolation Hospital.

Methods of Control of Tuberculosis—

BRAMPTON.

WILLIAM SYMINGTON, M.B., C.M., Ed., Medical Officer of Health.

Vital Statistics.	
Estimated population	8,784
Birth-rate	16·3
Death-rate	12·5
Zymotic death-rate ...	0·7
Phthisis death-rate ...	1·1
Total tuberculosis death-rate	1·1
Respiratory diseases death-rate	1·3
Infant Mortality, rate per 1,000 births ...	62

Infectious Diseases Cases (and deaths).	
Total notifications ...	27
Smallpox	Nil
Scarlet Fever ...	17
Diphtheria	9
Fevers (Enteric, &c.)	Nil
Puerperal Fever ...	Nil
Cases treated in Hospital	Nil
Measles	(Nil)
Whooping Cough ...	(Nil)
Diarrhœa	(2)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

Mainly agriculture, a small proportion of coal miners.

HOUSING ACCOMMODATION—

Fairly good. A great deal has been done in recent years to improve dampness and ventilation. Surroundings generally clean.

WATER SUPPLY—

The town of Brampton is supplied from an upland source. The water is of excellent quality.

Several subsidiary supplies, which are not quite satisfactory.

The Gelt Water Scheme (now completed) supplies some parts of the Brampton district.

The parishes of Castle Carrock, Hayton, and Irthington, have got an abundant supply, and connections are being made for domestic purposes.

Cumwhitton has not yet received the additional supply required.

Farlam village supply at present presents grave danger, but a new and presumably satisfactory supply can be obtained from Boonhill Spring.

MILK SUPPLY—

All dairies and cowsheds were inspected and specially reported on. All the recommendations have been, or are being, carried out.

OTHER FOODS—

Three private slaughter-houses in the town of Brampton; although kept fairly clean, their situation is not good.

The erection of a public abattoir has been under consideration.

No inspector is specially appointed to inspect meat.

Sewerage and Drainage—

In many parts of the district most inadequate, and the Medical Officer remarks:—"(this) has been previously reported for a large number of years both specially and generally, but I again regret to say that the work has not been carried out, or only partially done."

Brampton itself is reported on as satisfactory, the disposal being by irrigation over ground about two miles from the town.

The following villages have been reported upon as having no sewerage at all, or only a partial system:—Hayton, Irthington, Castle Carrock, Newtown, Laversdale, Corby Hill, Cumwhitton, Milton, and Hallbankgate.

The want of efficient sewerage prevents many necessary improvements being carried out.

Pollution of Rivers and Streams—

Occurs wherever hamlets or farms are near them, as there is no other means of disposal.

Excrement Disposal—

Brampton excepted, this is generally by privy or pail system, which are emptied on adjoining land. Attention has been called for many years to the necessity of adopting some scheme for the systematic and regular emptying and cleansing of these places, as it is now done most irregularly, leading to accumulations of filth, often in close proximity to dwelling houses.

Removal and Disposal of House Refuse—

Is done in Brampton by public scavengers, and removed to a depôt outside the town.

Nuisances—

Byelaws—

Three lodging-houses in the town, all well kept and clean.

Schools—

Are fairly satisfactory. In some the water supply is not good, but this it is hoped will be remedied now that the great water scheme is completed.

Methods of Dealing with Infectious Diseases—

No Isolation Hospital.

Methods of Control of Tuberculosis—

No general system of notification.

CARLISLE.

JAMES MACDONALD, M.D., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	17,382	Total notifications ...	159
Birth-rate	19·7	Smallpox	Nil
Death-rate	11·5	Scarlet Fever ...	135
Zymotic death-rate ...	0·4	Diphtheria	13
Phthisis death-rate ...	0·7	Fevers (Enteric, &c.)	1
Total tuberculosis death-rate ...	0·9	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	1·4	Cases treated in Hospital	55
Infant Mortality, rate per 1,000 births ...	55	Measles	(Nil)
		Whooping Cough ...	(2)
		Diarrhœa	(1)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

The Sanitary Inspector has been designated to carry out the Housing (Inspection of District) regulations.

Water Supply—

The public supplies by which the greater part of the district is served continue to meet requirements. The school at Houghton is now supplied from the City main.

The supply (from a shallow well) to Great Orton School has been condemned, and another source of supply is under consideration.

Milk Supply—

85 registered cowsheds in the district.

Many of these, especially the larger ones, present a high standard of excellency. Attention is, however, drawn to the old-fashioned ideas that cows are better in dark, unventilated byres.

Other Foods—

14 licensed and registered slaughter-houses All visited and inspected regularly and reported as "on the whole to be conducted in a satisfactory way."

Five carcases have been examined by request, one and a portion of one condemned.

Sewerage and Drainage—

Water carriage system is almost completely in use in Wetheral and Great Corby villages.

The effluents at the disposal works for Stanwix and the villages of Belle Vue and Stainton, have been found satisfactory on analysis.

The scheme for the sewerage of St. Cuthbert Without and district is still engaging the attention of the District and City Councils.

Pollution of Rivers and Streams—

Excrement Disposal—

A large number of midden privies have been abolished owing to the various sewerage schemes now completed.

Removal and Disposal of House Refuse—

In parts of Stanwix this is done by a contractor.

The question is raised whether it would not be better to substitute portable bins for the present ashpits, for it is pointed out that careless tenants can still make ashpits a source of nuisance.

Nuisances—

A large number of nuisances have been dealt with.

Byelaws—

Building bye-laws are now in force.

SCHOOLS—

The water supply of several schools has been dealt with.

METHODS OF DEALING WITH INFECTIOUS DISEASES—

Infectious Disease Hospital.

An interesting and instructive comparison is given between the spread of infection from cases treated in hospital and those treated in their own homes.

METHODS OF CONTROL OF TUBERCULOSIS—

Only one case was notified under the Tuberculosis Regulations (1908).

The Guardians of the Carlisle Union have recently decided to provide accommodation at Fusehill Workhouse for the reception of patients in the advanced stages of consumption.

COCKERMOUTH.

JOHN PENNY, D.Sc., M.B., &c., MEDICAL OFFICER OF HEALTH.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	22,250	Total notifications ...	233
Birth-rate	26·9	Smallpox	Nil
Death-rate	15·7	Scarlet Fever ...	190
Zymotic death-rate ..	1·3	Diphtheria	24
Phthisis death-rate ...	1·03	Fevers (Enteric, &c.)	2
Total tuberculosis death-rate	1·3	Puerperal Fever ...	Nil
Respiratory diseases death-rate ...	2·3	Cases treated in Hospital	84
Infant mortality rate per 1,000 births ...	110	Measles	(13)
		Whooping Cough ...	(2)
		Diarrhœa	(5)

PHYSICAL FEATURES—

This district extends from Threlkeld Granite Quarries to the Solway, near Allonby, and from Dunmail Raise to Distington.

The River Derwent and its tributaries, the Greta, Bloomer, Cocker, and Marron, run through it.

The Derwent rises in Borrowdale and flows in a northerly direction into the southern end of Derwentwater near Lodore. It leaves the lake at Portinscale, nearer the west, and receives the water from the Greta (which rises in Scales Tarn at the foot of Saddleback).

The Greta receives St. John's beck from Lake Thirlmere after flowing through St. John's-in-the-Vale.

Three miles north-west of Keswick the Derwent enters Bassenthwaite Lake and, after flowing through the lake, leaves it near Ouse Bridge, and continues in a westerly and south-westerly direction to Isel, where it is joined by the Bloomer, and flows to Cockermouth to be there joined by the Cocker, coming from lakes Buttermere, Crummock, and Loweswater, through the Vale of Lorton. It then flows in a westerly direction and is joined by the Marron, and flows into the sea at Workington.

The River Ellen has its source in Overwater, forms part of the boundary between the Rural districts of Cockermouth and Wigton, and flows into the Solway at Maryport.

Beneath the red marl of the western district coal is found. In the Whitehaven district some of the coal seams extend for three or four miles under the sea.

Colleries exist all along the coast past Harrington, Workington, Flimby, Broughton Moor, Maryport, and extend inland to Aspatria and Mealsgate.

Limestone is abundant in many localities, and granite in some few districts. Slate is found in Borrowdale and on Honister Craggs.

CHIEF OCCUPATIONS OF INHABITANTS—

Chiefly agricultural, though many work at quarries and in mines.

HOUSING ACCOMMODATION—

Overcrowding has been dealt with in Flimby and at Dearham.

The Sanitary Inspector is the designated officer appointed to carry out the work of Housing (Inspection of District) Regulations.

Water Supply—

The area supplied from Crummock Lake has generally had an ample supply as regards quantity, and has retained its good record for purity.

The supply of Oughterside, Crosby, Crosby Villa, and Crosscanonby, from the Overwater Scheme, still continues discoloured at times.

The villages of Dovenby, Dearham, and Flimby are supplied from the River Derwent through the Maryport Water Scheme.

The supplies to Blindcrake, Redmain, Sunderland, Bassenthwaite, Grange-in-Borrowdale, and Applethwaite-under-Skiddaw, still remain as reported in 1908.

Analysis of seven samples from various districts are given, which all show serious pollution.

Milk Supply—

The 70 registered cowsheds have been regularly visited.

The majority of the cowsheds are "cobble-paved," the ground being saturated with sewage, and consequently unsatisfactory. The byres vary considerably in structure. No systematic Veterinary inspection is carried out at the majority of farms. The opinion is expressed that "There is not the slightest doubt that an appreciable proportion of the cows yield tuberculous milk, and that occasionally other disease-producing organisms derived from inflammatory conditions of the teats and udders, find their way into this important article of food."

Other Foods—

The 25 private slaughter-houses have been visited and found to be fairly clean.

Supervision of the meat supply, however, is impossible, owing to their scattered situations.

No unsound meat has been seized.

Sewerage and Drainage—

Plans for the sewering of Great Clifton, Broughton, Broughton Moor, and Rosthwaite, have been prepared, but owing to "difficulties arising *re* the outfalls for the two

last-named villages, these schemes have not been submitted to the Local Government Board for their enquiries."

Nothing has yet been done with regard to Braithwaite, Little Clifton (including Chapel Brow, &c.), Broughton Cross, and Dearham and Embleton.

Attention is also drawn to many other unsatisfactory conditions.

Pollution of Rivers and Streams—

The rivers Cocker, Derwent, Ellen, Greta, Marron, and Bassenthwaite Lake are all polluted by drainage from villages or mine washings.

Excrement Disposal—

Mention is again made of the "foul stinking midden privies" in Great Clifton.

Removal and Disposal of House Refuse—

The collection of ashes bi-weekly in Great Clifton and Flimby was recommended in a previous report. Nothing has yet been done.

Nuisances—

Nuisances are recorded in many parts of the district, arising from defective drains, want of drainage, &c., and from fried fish shops in unsuitable premises.

Byelaws—

No common lodging-houses.

Schools—

Water supplies generally are satisfactory, but a few require improvements.

Attention is drawn to the imperfect closet accommodation in several schools.

Methods of Dealing with Infectious Diseases—

Isolation Hospital accommodatoin only for Scarlet Fever.

On receipt of notification the house is visited, particulars as to source of infection, milk supply, school attended, drainage, &c., obtained. Rooms and bedding fumigated and sprayed with formalin on removal or recovery of patient.

Printed instructions of precautions are left and disinfectants supplied free.

Children from infected houses are forbidden to attend school. Superintendents of Sunday Schools are also warned, and in the event of school closure are asked to close their schools too.

METHODS OF CONTROL OF TUBERCULOSIS—

Only one case notified under the Public Health (Tuberculosis) Regulations.

LONGTOWN.

S. F. MC.LACHLAN, M.B., C.M., MEDICAL OFFICER OF HEALTH.

Vital Statistics.	
Estimated population	6,600
Birth-rate	18·7
Death-rate	16·3
Zymotic death-rate ...	1·5
Phthisis death-rate ...	1·06
Total tuberculosis death-rate ...	1·2
Respiratory diseases death-rate ...	2·1
Infant Mortality, rate per 1,000 births ...	161

Infectious Diseases Cases (and deaths).	
Total notifications ...	24
Smallpox	Nil
Scarlet Fever ...	18
Diphtheria	3
Fevers (Enteric, &c.)	Nil
Puerperal Fever ...	2
Cases treated in Hospital	Nil
Measles	(Nil)
Whooping Cough ...	(7)
Diarrhœa	(1)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

HOUSING ACCOMMODATION—

Sufficient.

WATER SUPPLY—

Only one public water supply in the district. Is sufficient, constant, and of excellent quality. "This applies to the parishes of Arthuret and Kirkandrews, with a population of 3,000 including the village of Longtown with a population of 1,700."

Other parts of the district are supplied by wells.

Milk Supply—

All cowsheds and dairies inspected.

Other Foods—

"I do not know of any conditions affecting the wholesomeness of foods for human consumption produced or sold in the district."

Four slaughter-houses.

Sewerage and Drainage—

Longtown is the only part of the district where there is a drainage system. In other parts of the district sewage finds its way on to the land or into ditches or burns.

Pollution of Rivers and Streams—

The River Esk is polluted by the drainage from Longtown which runs into it. The Esk and Lyne are also polluted by sewage from houses along their course.

Excrement Disposal—

About 800 privies in the district and about 30 water-closets.

Removal and Disposal of House Refuse—

Twice weekly in Longtown, and carted to a tip on the Esk below the village.

The owners clean out privies and ashpits and have it carted on to the land for manure.

Nuisances—

Many nuisances seem to arise owing to bad condition of middens, want of drainage and damp in the houses.

Byelaws—

Schools—

Methods of Dealing with Infectious Diseases—

Visit and give instructions. Disinfection.

No Isolation Hospital.

Methods of Control of Tuberculosis—

PENRITH.

FRANCIS HASWELL, M.D., M.R.C.S., Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	12,485	Total notifications ...	41
Birth-rate	22·1	Smallpox	Nil
Death-rate	11·8	Scarlet Fever ...	11
Zymotic death-rate ...	0·32	Diphtheria	26
Phthisis death-rate ..	0·4	Fevers (Enteric, &c.)	Nil
Total tuberculosis death-rate	0·6	Puerperal Fever ...	Nil
		Cases treated in Hospital	26
Respiratory diseases death-rate ...	1·2	Measles	(Nil)
		Whooping Cough ...	(2)
Infant Mortality rate per 1,000 births ...	57	Diarrhœa	(Nil)

Physical Features—

On the west side the geological formation is chiefly Skiddaw slate and volcanic rocks, and it is in this part of the district that the high ground principally occurs, viz. :—Blencathra, part of Helvellyn and Skiddaw. Further east is a long belt of carboniferous limestone, running nearly north and south, which thus gives place to permian sandstone, comprising the whole of Penrith Fell, and extending across the River Eden to the slopes of the Pennine Range, where the carboniferous series again commences on the east side of the Great Pennine Fault.

Chief Occupations of Inhabitants—

Chiefly agriculture. The population is entirely rural, occupying numerous villages and isolated farm houses.

Housing Accommodation—

Sufficient.

Water Supply—

The greater part of this district is supplied by various gravitation schemes.

The parishes which have water supplies are:—

East Division.—Ainstable, Croglin, Culgaith, Gamblesby, Glassonby, Hesket, Hunsonby and Winskill, Kirkoswald, Lazonby, Langwathby, Melmerby, Ousby, Blencarn, Renwick, Skirwith, Great Salkeld, Little Salkeld, Edenhall (private).

West Division.—Blencow, Dacre, Hesket, Threlkeld, Greystoke (private).

Another area in the West Division has been the subject of a Local Government Board enquiry during the year, for a scheme to supply the parishes of Hutton Roof, Berrier and Murrah, Hutton Soil, Hutton John, Dacre, Greystoke, Skelton, Catterlen, and Newton.

When this scheme is finished there will only be a small area without a public supply, and in this the wells are usually sufficient.

Milk Supply—

Dairies and cowsheds inspected and in good order.

The milk supply is generally excellent.

Other Foods—

The slaughter-houses are supervised, but few are ideal, and are generally converted barns, with little money spent for adaptation; few have impervious floors and frequently drainage is poor.

Sewerage and Drainage—

A considerable number of villages have sewers—Ainstable (part), Armathwaite, Blencarn (part), Culgaith, Croglin, Great Salkeld, Glassonby, Kirkoswald, Lazonby, Langwathby, Little Salkeld, Newton, Penruddock, Skelton, Renwick, Stainton (part), Threlkeld, Low Hesket, Edenhall, and Winskill.

Pollution of Rivers and Streams—

Excrement and Refuse Disposal—

Principally privy middens emptied by occupiers.

Byelaws—

Byelaws are in use and all new houses have to strictly comply.

SCHOOLS—

Generally in a good condition. More attention should be given to the cleansing of school privies.

METHOD OF DEALING WITH INFECTIOUS DISEASES—

Two hospitals, one for Smallpox and one for other infectious diseases. Both satisfactory.

Disinfection of houses by means of equifex sprayer and formalin.

METHODS OF CONTROL OF TUBERCULOSIS—

No system of notification.
Disinfection after death.

WHITEHAVEN.

J. B. FISHER, M.D., D.P.H., MEDICAL OFFICER OF HEALTH.

Vital Statistics.	
Estimated population	13,000
Birth-rate	29·6
Death-rate	14
Zymotic death-rate ...	0·3
Phthisis death-rate ...	1·5
Total tuberculosis death-rate ...	1·7
Respiratory diseases death-rate ..	2·2
Infant Mortality, rate per 1,000 births ...	116

Infectious Diseases Cases (and deaths).	
Total notifications ...	117
Smallpox	Nil
Scarlet Fever ...	97
Diphtheria	6
Fevers (Enteric, &c.)	1
Puerperal Fever ...	Nil
Cases treated in Hospital	73
Measles	(Nil)
Whooping Cough ...	(2)
Diarrhœa	(Nil)

PHYSICAL FEATURES—

CHIEF OCCUPATIONS OF INHABITANTS—

HOUSING ACCOMMODATION—

The Sanitary Inspector is the designated officer under the Housing (Inspection of District) Regulations.

WATER SUPPLY—

Works for the supply of water from springs in the neighbourhood of Gosforth to the parishes south of Egremont are now completed.

A new four-inch main has been laid in St. Bees. Thus there is a four-inch and a three-inch main for the whole of the district from the point at which the water is taken from the main of the Cleator Moor Urban District Council, and provides an ample supply.

The most populous portions of the district are now all supplied from public sources.

MILK SUPPLY—

63 registered cow-keepers, who supply milk direct to the consumers.

Cowsheds have all been visited. Two cowsheds have been closed during the year. Many minor defects have been remedied. No arrangement for examination by a Veterinary Surgeon.

OTHER FOODS—

Seven registered slaughter-houses.

No inspector possessing a certificate in meat inspection, and routine visits are not made at the time of slaughtering. No carcases were found to be tuberculous.

SEWERAGE AND DRAINAGE—

Many villages in this district have no drainage at all, or only very inadequate, and now that most of the villages have a water supply and more water closets are likely to be constructed, it is pointed out that a system of drainage and sewage disposal are necessary.

POLLUTION OF RIVERS AND STREAMS—

Must be considerable.

EXCREMENT DISPOSAL—

REMOVAL AND DISPOSAL OF HOUSE REFUSE—

NUISANCES—

Seventy-one written notices were served, all of which were complied with, in addition many verbal notices were given.

BYELAWS—

Only one registered common lodging-house.

Schools—

Methods of Dealing with Infectious Diseases—

Visit to premises, printed instructions giving necessary precautions, and supply of disinfectants.

Isolation Hospital.

Methods of Control of Tuberculosis—

WIGTON.

W. PERRY BRIGGS, L.R.C.P., L.R.F.P.S., &c.,
Medical Officer of Health.

Vital Statistics.		*Infectious Diseases Cases (and deaths).*	
Estimated population	11,652	Total notifications ...	93
Birth-rate	22·8	Smallpox	Nil
Death-rate	13·8	Scarlet Fever ...	76
Zymotic death-rate ...	0·3	Diphtheria	7
Phthisis death-rate ..	0·2	Fevers (Enteric, &c.)	2
Total tuberculosis death-rate	0·4	Puerperal Fever ...	Nil
		Cases treated in Hospital	Nil
Respiratory diseases death-rate ...	2·4	Measles	(Nil)
		Whooping Cough ...	(1)
Infant Mortality rate per 1,000 births ...	116	Diarrhœa	(Nil)

Physical Features—

Chief Occupations of Inhabitants—

Housing Accommodation—

The Sanitary Inspector has been appointed the designated officer under the Housing (Inspection of District) Regulations.

Water Supply—

The Overwater Lake gravitation supply has been abundant in quantity and of good quality. It is slightly discoloured at times, but it is hoped filtering will remedy this.

Five out of six samples taken from Hayton were found seriously polluted since connected with the Over-

water supply. A sample from Haltcliffe taken from a spring was found to be pure. Another from Crookdale Hall was condemned, a new well was sunk, which gives a pure supply.

Another from a farm at Crookdale was found seriously polluted. No other supply has been provided.

The supplies to Brough Hill, Bolton-low-Houses, and Bolton-new-Houses were condemned some time ago; they are now being connected to the Overwater main.

The wells in Langrigg, Bromfield, and Blencogo have been condemned, and it is recommended that these villages be supplied from Overwater.

A scheme is suggested for supplying all the villages in the north-west part of the district. All the villages possess supplies of a doubtful character, derived chiefly from shallow wells.

This scheme includes the parishes of Langrigg, Mealrigg, Bromfield, Blencogo, Dundraw, Waverton, Oulton, Aikton, Kirkbride, and Bowness-on-Solway.

The villages of Uldale and Haltcliffe also require a good wholesome supply.

Milk Supply—

There is no arrangement for the examination of dairy cattle by a Veterinary Surgeon.

All the dairies and cowsheds were visited and recommendations suggested at previous visits carried out, with one exception, and the certificate of this was withdrawn.

Ventilation, air space, and light are very defective in the great majority.

Other Foods—

20 slaughter-houses are registered. More frequent inspection is required to ensure cleanliness, and visits are not paid, except by accident, at the time of slaughtering.

No inspector with a certificate in meat inspection.

No unsound carcases were found during the year.

Sewerage and Drainage—

A system of sewage disposal for the village of Allonby was completed during the year.

A new sewer has also been laid in the village of Ireby.

Plans and estimates for the sewering of Kirkbride have been considered, but it was resolved not to proceed till a water supply had been provided.

The drainage of the village is very unsatisfactory.

The drainage of Fletchertown is also being considered.

Pollution of Rivers and Streams—

Excrement Disposal—

Removal and Disposal of House Refuse—

Nuisances—

Byelaws—

Schools—

Methods of Dealing with Infectious Diseases—

After notification the house is visited and a copy of the notification is sent to the head teacher if the child attends school.

Instructions given and disinfectants supplied.

Any suspicious circumstances are noted, and enquiry into milk supply made.

Disinfection is carried out on recovery.

No isolation hospital.

Methods of Control of Tuberculosis—

Disinfection of premises carried out where a death has occurred.

VITAL STATISTICS FOR 1910.

Table I.

DISTRICTS.	Population estimated to middle of 1910.	Births.		Total Deaths Registered in District.				Total deaths in Public Institutions in the District.	Deaths of Non-Residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all ages belonging to the Districts.		Area of Districts in Acres.	At Census of 1901.		
				Under 1 year of age		At all ages.								Total Population at all Ages.	No. of Inhabited Houses.	Average No. of Persons per House.
		Number.	Rate.*	Number.	Rate per 1,000 Births Registered.	Number.	Rate.*				Number.	Rate.*				
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
URBAN:—																
Carlisle (Borough)	51,433	1,145	22.2	126	110	683	13.2	158	63	28	648	12.6	2,025	45,480	9,362	4.8
Workington (Borough)	27,500	726	26.4	94	129	345	12.5	14	4	5	346	12.5	2,466	26,143	4,927	5.3
Whitehaven (Borough)	19,320	604	31.2	78	129	527	27.2	86	34	5	498	25.9	1,810	19,324	3,959	4.8
Arlecdon and Frizington	5,200	147	28.2	23	156	89	17.1	—	—	7	96	18.4	5,554	5,341	1,066	5.0
Aspatria	3,331	85	25.5	11	129	40	12.0	—	—	—	40	12.0	3,552	2,885	597	5.0
Cleator Moor	8,000	222	27.7	26	117	112	14.0	—	—	17	129	16.1	2,947	8,120	1,592	5.1
Cockermouth	5,410	130	24.0	23	176	117	21.6	46	33	4	88	16.2	2,425	5,355	1,156	4.1
Egremont	6,300	176	27.9	19	107	87	13.8	—	—	—	87	13.8	2,769	5,761	1,158	5.0
Harrington	3,766	136	36.1	14	103	63	16.7	—	—	2	65	17.2	2,390	3,679	699	4.0
Holme Cultram	4,493	89	19.8	4	44	61	13.5	1	1	7	67	14.8	25,489	4,275	921	4.0
Keswick	4,500	80	17.7	9	112	62	13.7	6	0	5	67	14.8	1,166	4,451	990	4.1
Maryport	12,600	309	24.5	34	110	157	12.4	5	3	10	164	13.2	1,515	11,897	2,416	4.8
Millom	10,000	215	21.5	29	134	134	13.4	2	—	3	137	13.4	1,463	10,426	1,862	5.5
Penrith	9,395	195	20.7	21	107	120	12.7	16	11	7	116	12.3	7,585	9,182	2,063	4.4
Wigton	3,455	89	25.7	10	112	71	20.5	13	10	7	68	19.6	1,002	3,692	844	4.1
Total and means for combined Urban Districts	174,703	4,346	24.8	521	119	2,668	15.2	347	159	107	2,616	14.4	64,158	166,011	33,612	4.9
RURAL:—																
Alston	3,150	54	17.1	3	55	47	14.9	7	—	2	49	15.5	36,971	3,134	773	4.0
Bootle	5,050	109	21.6	4	36	78	15.4	2	—	1	79	15.6	91,180	5,467	1,088	4.8
Brampton	8,784	144	16.3	9	62	109	12.4	7	—	1	110	12.5	97,697	8,785	1,919	4.5
Carlisle	17,382	344	19.7	19	55	263	15.1	92	86	23	200	11.5	67,225	17,361	3,597	5.0
Cockermouth	22,250	600	26.9	66	110	333	14.9	4	1	18	350	15.7	162,783	21,690	4,383	4.9
Longtown	6,600	124	18.7	20	161	106	16.0	3	1	3	108	16.3	88,475	6,676	1,435	4.5
Penrith	12,485	276	22.1	16	57	143	11.4	2	5	10	148	11.8	180,706	13,023	2,742	4.7
Whitehaven	13,000	386	29.6	45	116	182	14.0	3	3	3	182	14.0	75,314	13,317	2,628	5.0
Wigton	11,652	265	22.8	31	116	151	12.8	—	—	10	161	13.8	108,577	11,449	2,509	4.6
Total and means for combined Rural Districts	100,353	2,302	22.9	213	92	1,412	14.0	120	96	71	1,387	13.8	908,928	100,922	21,084	4.7
Total for Administrative County	275,056	6,650	24.1	734	110	4,080	14.8	467	255	178	4,003	14.2	973,086	266,933	54,696	4.8

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

CAUSES OF AND AGES AT DEATH DURING THE YEAR 1910.

Table II.

DISTRICT.	At all Ages.	Under 1 Year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards
URBAN.							
Carlisle	848	125	62	23	29	227	182
Workington	346	94	36	18	12	112	74
Whitehaven	498	78	49	24	58	202	87
Aspatria	96	23	6	2	7	28	30
Cleator Moor	49	11	4	2	—	4	19
Cockermouth	129	26	14	2	13	55	19
Egremont	88	23	3	3	4	26	29
Harrington	87	19	11	2	2	28	25
Holme Cultram	65	14	13	3	1	19	15
Keswick	67	4	3	3	4	25	28
Maryport	67	9	4	3	2	21	28
Millom	157	33	28	7	5	47	37
Penrith	134	29	12	8	—	41	44
Wigton	116	22	10	2	6	35	41
Totals for Urban Districts	2866	520	259	104	145	883	695
RURAL.							
Alston	49	9	2	—	2	22	20
Bootle	78	4	4	—	5	20	45
Brampton	116	9	6	2	4	39	56
Carlisle	250	18	12	6	7	78	78
Cockermouth	350	66	48	17	14	85	120
Longtown	108	29	4	2	4	20	48
Penrith	148	16	7	—	6	43	76
Whitehaven	182	45	11	8	7	56	55
Wigton	161	31	12	2	6	50	60
Totals for Rural Districts	1386	213	106	37	55	423	552
Totals for Administrative County	3992	733	365	141	200	1306	1247

Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria, including Membranous Croup.	Fever. Croup.	Fever. Typhus.	Fever. Enteric.	Fever. Other continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Gastritis.	Puerperal Fever.	Erysipelas.	Phthisis.	Other Tuberculous Diseases.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Respiratory Diseases.	Alcoholism. Cirrhosis of Liver.	Venereal Diseases.	Premature Birth.	Diseases & Accidents of Pa turition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.	All Causes.
—	3	2	11	2	—	—	—	—	7	3	14	3	1	1	22	30	47	35	56	—	7	2	6	33	4	96	16	3	214	648
—	1	1	5	1	1	—	1	—	—	9	4	10	—	—	12	17	9	43	28	2	—	1	—	22	—	25	8	—	146	846
—	1	5	11	2	—	—	—	—	1	12	2	1	1	—	12	17	9	43	28	2	7	2	6	33	4	96	16	3	214	648
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	32	14	49	17	2	2	4	3	22	—	25	8	—	146	846
—	2	4	—	—	—	—	—	—	—	—	4	2	—	—	5	1	2	9	5	—	1	2	—	5	1	34	152	—	120	498
—	—	—	3	2	—	—	—	—	—	1	—	—	—	—	2	1	5	—	—	—	—	—	—	3	—	10	4	1	47	96
—	1	—	—	—	—	—	—	—	1	2	4	1	—	1	13	5	4	4	4	1	—	1	2	5	—	19	4	—	50	129
—	4	—	—	—	—	—	1	—	1	1	—	—	—	—	1	3	6	14	6	—	1	1	2	3	—	12	1	—	30	88
—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	1	4	—	15	11	—	—	—	1	—	—	8	3	—	39	87
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	3	6	8	11	—	—	—	—	2	—	7	2	—	24	65
—	2	3	—	1	—	—	—	—	—	1	—	—	—	—	7	1	12	4	4	—	—	—	—	1	1	6	3	1	31	67
—	6	—	5	—	—	—	1	—	—	1	4	6	—	—	13	—	18	7	7	—	—	—	—	1	1	9	4	—	18	67
—	—	—	1	—	—	—	—	—	—	—	3	1	1	—	18	—	18	4	13	1	—	1	—	3	2	15	6	—	57	157
—	1	—	—	1	—	—	—	—	—	—	3	—	—	—	9	6	5	14	3	—	—	—	—	5	—	15	7	2	51	134
—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	7	7	12	—	9	—	5	2	—	4	—	16	7	—	42	116
—	21	17	36	17	2	—	5	—	10	30	42	27	3	2	169	114	140	215	183	6	16	15	12	89	9	281	239	8	916	2606
—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	4	—	10	4	—	1	2	1	—	1	—	9	1	—	14	49
—	—	—	3	1	—	—	—	—	—	—	—	1	—	—	9	1	6	5	4	—	—	—	—	1	—	13	4	1	29	78
—	13	9	2	2	—	—	—	—	3	1	3	1	—	—	13	4	18	11	10	—	4	4	—	1	1	16	2	—	49	110
—	—	—	2	4	—	—	1	—	—	5	10	7	—	2	23	7	19	27	22	—	3	3	—	3	1	32	19	4	72	200
—	—	—	2	2	—	—	—	—	1	1	1	—	—	1	7	1	7	5	7	1	1	—	—	9	2	44	8	3	129	350
—	—	2	2	—	—	—	—	—	1	—	3	7	—	—	6	2	13	3	7	—	6	1	—	5	—	19	9	2	87	108
—	—	—	1	1	1	—	1	—	1	—	5	—	—	—	20	3	11	12	14	1	2	3	—	8	1	37	7	5	63	182
—	13	11	19	17	1	—	2	—	9	9	25	16	—	3	95	20	108	83	88	4	18	12	—	39	8	202	46	18	529	1386
—	34	28	55	34	3	—	7	—	19	39	67	43	3	5	264	134	248	298	271	10	34	27	12	128	17	483	266	26	1436	3992

Discrepances between this Table and Table I are due to errors in the District Reports.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1910.

Table III.

URBAN DISTRICTS.	AGE OF CASES NOTIFIED.						NUMBER AND CLASS OF CASES NOTIFIED.											NUMBER AND CLASS OF CASES REMOVED TO HOSPITAL.											
	At all ages.	Under 1 year.	1 and under 5 years.	5 and under 15 years.	15 and under 25 years.	25 and under 65 years.	65 and over.	Smallpox.	Cholera.	Diphtheria and Membranous Croup.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Relapsing Fever.	Continued Fever.	Puerperal Fever.	Plague.	Totals.	Smallpox.	Cholera.	Diphtheria and Membranous Croup.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Relapsing Fever.	Continued Fever.	Puerperal Fever.	Plague.	Totals.	
Carlisle	357	9	64	173	49	60	2	—	—	37	60	248	—	6	—	—	6	—	357	—	—	27	—	171	—	4	—	—	—	—	202	
Workington	144	1	26	54	14	46	3	—	—	44	45	38	—	17	—	—	—	—	144	—	—	8	—	26	—	15	—	—	—	—	49	
Whitehaven	201	3	58	107	13	18	2	—	—	10	17	172	—	1	—	—	1	—	201	—	—	1	—	128	—	—	—	—	—	—	129	
Arlecdon and Frizington	15	2	5	4	1	3	—	—	—	—	3	12	—	—	—	—	—	—	15	—	—	—	—	5	—	—	—	—	—	—	5	
Aspatria	123	1	19	94	4	4	1	—	—	4	7	112	—	—	—	—	—	—	123	—	—	—	—	—	—	—	—	—	—	—	0	No Isolation Hospital.
Cleator Moor	22	1	7	11	—	3	—	—	—	8	3	11	—	—	—	—	—	—	22	—	—	1	—	6	—	—	—	—	—	—	7	
Cockermouth	4	—	—	1	—	2	1	—	—	—	3	1	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	0	No Isolation Hospital.
Egremont	74	3	22	41	3	3	2	—	—	2	5	66	—	1	—	—	—	—	74	—	—	—	—	—	—	—	—	—	—	—	0	
Harrington	7	—	1	3	1	2	—	—	—	2	2	2	—	1	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	0	
Holme Cultram	5	—	2	—	1	1	1	—	—	—	1	2	—	2	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	0	
Keswick	14	—	3	5	3	3	—	—	—	3	4	7	—	—	—	—	—	—	14	—	—	—	—	—	—	—	—	—	—	—	0	
Maryport	97	2	24	49	6	14	2	—	—	14	8	72	—	3	—	—	—	—	97	—	—	2	—	6	—	—	—	—	—	—	8	
Millom	*18	—	—	6	1	7	—	—	—	8	6	3	—	1	—	—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	0	
Penrith	28	—	4	16	3	5	—	—	—	11	1	16	—	—	—	—	—	—	28	—	—	—	—	—	—	—	—	—	—	—	0	
Wigton	23	1	5	13	1	3	—	—	—	7	1	14	—	1	—	—	—	—	23	—	—	9	—	14	—	—	—	—	—	—	23	
Total for Urban Districts	1132	23	243	577	97	174	14	—	—	150	166	776	—	33	—	—	7	—	1132	—	—	48	—	356	—	21	—	—	—	—	425	No Isolation Hospital.
RURAL DISTRICTS																															
Alston	22	—	4	9	4	5	—	—	—	3	1	15	—	3	—	—	—	—	22	—	—	—	—	—	—	—	—	—	—	—	0	No Isolation Hospital.
Bootle	35	—	3	22	2	8	—	—	—	6	4	21	—	3	—	—	1	—	35	—	—	4	—	17	—	3	—	—	—	—	24	
Brompton	26	—	14	12	—	0	—	—	—	9	—	17	—	—	—	—	—	—	26	—	—	—	—	—	—	—	—	—	—	—	0	No Isolation Hospital.
Carlisle	159	1	27	99	18	13	1	—	—	13	10	135	—	1	—	—	—	—	159	—	—	8	—	47	—	—	—	—	—	—	55	
Cockermouth	233	5	85	105	20	17	1	—	—	24	17	190	—	2	—	—	—	—	233	—	—	—	—	84	—	—	—	—	—	—	84	
Longtown	24	1	1	10	9	3	—	—	—	3	1	18	—	—	2	—	—	—	24	—	—	—	—	—	—	—	—	—	—	—	0	
Penrith	41	—	5	24	4	8	—	—	—	26	4	11	—	—	—	—	—	—	41	—	—	20	—	6	—	—	—	—	—	—	26	
Whitehaven	117	1	34	64	6	11	1	—	—	6	13	97	—	1	—	—	—	—	117	—	—	3	—	70	—	—	—	—	—	—	73	
Wigton	93	—	5	71	8	5	4	—	—	7	8	76	—	2	—	—	—	—	93	—	—	—	—	—	—	—	—	—	—	—	0	No Isolation Hospital.
Total for Rural Districts	750	8	178	416	71	70	7	—	—	97	58	580	—	12	2	—	1	—	750	—	—	35	—	224	—	3	—	—	—	—	262	
Table for Administrative County	1882	31	421	993	168	244	21	—	—	247	224	1356	—	45	2	—	8	—	1882	—	—	83	—	580	—	24	—	—	—	—	687	

*Figures incorrect in District Report.

INFANTILE MORTALITY DURING THE YEAR 1910.

Table IV.

DISTRICTS.	Population estimated to middle of 1910.	Births in the Year. Legitimate.	Births in the Year. Illegitimate.	Ages at Death under One Year of Age. Under 1 week.	1–2 weeks.	2–3 weeks.	3–4 weeks.	Total under 1 month.
Carlisle (Borough)	51,432	1,060	55	29	8	9	2	48
Workington (do.)	27,330	725		24	8	4	1	37
Whitehaven (do.)	19,320	515	31	13	5	4	2	21
Arlecdon and Frizington	5,200	247		4	3	1	—	8
Aspatria	3,331	80	5	1	1	2	—	4
Cleator Moor	8,000	202		11	2	—	1	14
Cockermouth	5,430	168	23	2	—	2	—	4
Egremont	6,300	139	15	2	1	1	—	4
Harrington	3,706	135	3	2	2	1	—	5
Holme Cultram	4,035	79	10	—	—	—	—	0
Keswick	4,500	85	2	1	—	—	1	2
Maryport	12,000	230	11	8	2	1	1	12
Millom	10,000	255	22	5	2	—	—	8
Penrith	9,308	176	13	5	1	1	1	8
Wigton	3,435	77	22	—	1	—	1	2
Totals for combined Urban Districts	174,703			109	34	20	9	172
RURAL.								
Alston	5,150	40	6	1	—	1	—	2
Bootle	5,050	105	5	1	—	1	—	2
Brampton	8,764	180	4	2	—	—	—	2
Carlisle	17,352	721	16	2	—	—	—	2
Cockermouth	22,250	581	29	5	2	—	—	9
Longtown	6,500	118	14	21	5	3	—	29
Penrith	12,955	255	15	3	3	8	—	12
Whitehaven	13,000	367	18	3	3	—	—	6
Wigton	13,632	252	12	10	8	3	2	21
Totals for combined Rural Districts	100,353	2,145	117	66	14	12	5	97
Totals for Administrative County	275,056			175	48	30	14	275

DISTRICTS.	1–2 months.	2–3 months.	3–4 months.	4–5 months.	5–6 months.	6–7 months.	7–8 months.	8–9 months.	9–10 months.	10–11 months.	11–12 months.	Total deaths under 1 year.
Carlisle (Borough)	13	9	8	5	11	8	7	6	8	2	2	120
Workington (do.)	1	10	5	7	2	4	6	5	—	3	2	96
Whitehaven (do.)	1	6	7	4	5	9	3	5	4	5	2	71
Arlecdon and Frizington	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23
Aspatria	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21
Cleator Moor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25
Cockermouth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23
Egremont	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15
Harrington	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16
Holme Cultram	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8
Keswick	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9
Maryport	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	34
Millom	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25
Penrith	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22
Wigton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	33
Totals for combined Urban Districts	34	42	36	34	35	32	26	21	27	11	15	521
RURAL.												
Alston	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3
Bootle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
Brampton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6
Carlisle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13
Cockermouth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66
Longtown	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20
Penrith	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35
Whitehaven	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45
Wigton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31
Totals for combined Rural Districts	27	11	3	11	10	9	11	5	7	8	2	113
Totals for Administrative County	60	53	43	45	45	42	37	26	30	21	20	634

DISTRICTS.	All Causes. Certified.	All Causes. Uncertified.	Deaths in the Year of Legitimate Infants.	Deaths in the Year of Illegitimate Infants.	Common Infectious Diseases. Smallpox.	Chickenpox.	Measles.	Scarlet Fever.	Diphtheria: Croup.	Whooping Cough.	Diarrhoeal Diseases. Diarrhoea, all forms.	Enteritis, Muco-enteritis, Gastro-enteritis.	Gastritis; Gastro-intestinal Catarrh.
Carlisle (Borough)	115	5	111	9	—	—	1	—	—	5	1	11	2
Workington (do.)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Whitehaven (do.)	58	4	60	9	—	—	—	—	1	2	3	4	[illegible]
Arlecdon and Frizington	19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aspatria	21	—	21	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cleator Moor	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cockermouth	21	2	20	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Egremont	[illegible]	[illegible]	15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Harrington	14	[illegible]	14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Holme Cultram	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Keswick	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maryport	30	4	30	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Millom	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Penrith	21	1	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wigton	33	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals for combined Urban Districts					—	—	6	—	5	11	22	29	18
RURAL.													
Alston	3	—	2	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bootle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Brampton	6	—	5	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Carlisle	13	[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cockermouth	64	2	64	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Longtown	20	[illegible]	17	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Penrith	35	1	16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Whitehaven	43	2	40	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wigton	31	[illegible]	28	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals for combined Rural Districts					—	1	2	—	—	12	7	11	13
Totals for Administrative County					—	1	20	—	5	20	28	40	32

DISTRICTS.	Wasting Diseases. Premature Birth.	Congenital Defects.	Injury at Birth.	Want of Breast Milk, Starvation.	Atrophy, Debility, Marasmus.	Tuberculous Diseases. Tuberculous Meningitis.	Tuberculous Peritonitis: Tabes Mesenterica.	Other Tuberculous Diseases.	Erysipelas.	Syphilis.	Rickets.	Meningitis (not Tuberculous).	Convulsions.	Bronchitis.	Laryngitis.	Pneumonia.	Suffocation, overlying.	Other causes.	Deaths from all Causes at all Ages belonging to the District.
Carlisle (Borough)	31	6	1	1	15	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	648
Workington (do.)	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	346
Whitehaven (do.)	[illegible]	[illegible]	1	2	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	432
Arlecdon and Frizington	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96
Aspatria	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44
Cleator Moor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	129
Cockermouth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58
Egremont	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57
Harrington	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	65
Holme Cultram	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67
Keswick	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67
Maryport	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	164
Millom	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	137
Penrith	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	135
Wigton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	88
Totals for combined Urban Districts	14	23	5	4	64	13	12	3	—	12	2	18	40	57	1	34	5	27	2,108
RURAL.																			
Alston	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	69
Bootle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	79
Brampton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	153
Carlisle	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200
Cockermouth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	330
Longtown	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100
Penrith	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	160
Whitehaven	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	182
Wigton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	162
Totals for combined Rural Districts	36	16	2	—	33	9	2	—	1	—	—	1	25	13	—	33	—	20	1,387
Totals for Administrative County	127	39	7	4	96	21	13	3	1	12	2	22	54	70	1	44	5	47	4,003

The blanks in this table cannot be filled in owing to incomplete returns from the Districts.