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REPORT

ON THE

Health of the County Borough of Bootle for the Year 1905.

BY

W. NAYLOR BARLOW,

M.R.C.S. (ENG.), L.R.C.P. (LOND.), D.P.H. (CAMB).

Medical Officer of Health of the Borough.

Medical Superintendent of the Corporation Hospital for Infectious Diseases.

Surgeon to the Police Force and Fire Brigade.



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HEALTH COMMITTEE
OF THE
BOOTLE TOWN COUNCIL,

1905-6.

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AND

HIS WORSHIP THE MAYOR (Mr. Alderman Roberts).

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W. NAYLOR BARLOW, M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Camb.)

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Inspectors under the Food and Drugs Act :

W. DALEY. | *R. J. McCULLOCH.

Sanitary Staff :

*R. J. McCULLOCH. | *H. V. SMITH.
H. OWENS. | J. LOBB (Disinfecting Workman).
J. WALL.

Clerical Staff :

F. McBREARTY. | W. DUNN.

Lady Sanitary Inspector and Inspector under the Midwives Act :

*Miss ADA STOTT.

Those marked * are Certified Inspectors.

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Ward map with statistics at end of report.

HEALTH DEPARTMENT,

TOWN HALL,

April, 1906.

*To the Mayor, Aldermen and Councillors
of the County Borough of Bootle.*

GENTLEMEN,

I have the honour to present to you my Fifth Annual Report on the health of the Borough, in compliance with the requirements of the Local Government Board.

In the month of November, the district of Orrell became part of the Borough of Bootle, but in order to prevent confusion I have not included the statistics for that district in this report, except where expressly stated. I have, however, inserted separately the report of the Medical Officer of Health for Orrell, and have brought his statistics up to the end of the year.

In addition to having last year the lowest death-rate on record for the town, the vital statistics generally will compare favourably with those of former years. On the whole the health of Bootle last year was very satisfactory with the exception of the infant mortality. I have discussed this problem at length in the report (pages 14—17), and I would also direct your attention to my remarks on Summer Diarrhœa (pages 30—38) and on Schools (pages 28—30) as also bearing upon this question.

The work done under the new Midwives Act will be found on pages 41—45. The staff of my department have performed the duties allotted to them with tact and assiduity, and I have to thank them for their cordial co-operation, without which it would have been impossible to have carried out so successfully such a large volume of work.

In conclusion, I wish to thank the Chairman and members of the Health Committee for the kindness and courtesy I have received at their hands, and for the consideration they have always given to my suggestions.

I am, Gentlemen,

Your obedient servant,

W. N. BARLOW.

BOROUGH OF BOOTLE.



ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

HEALTH COMMITTEE.



POPULATION.

The estimated population of Bootle in June, 1905, was 63,134.

The area of the Borough is 1,576 acres (excluding Orrell).

The population shown by the last three Census returns has been :—

1881.	...	1891.	...	1901.
27,374		49,217		58,556

As I pointed out in my last annual report, the population is estimated on the assumption that the rate of annual increase since the last census has been the same as that obtaining between the last two intercensal periods. This is the method adopted by the Registrar General in estimating the populations of

different places for the purpose of working out his weekly and annual returns, but it is a method which does not always give accurate results, especially in small but rapidly growing towns. It takes no note whatever of purely local circumstances which may affect the growth, or otherwise, of a town.

The Registrar General's estimate of the population of Bootle, viz., 63,134, is probably an underestimate, with the result that the different mortality rates which are calculated on this estimate of the population appear higher than they are in reality, and the town is thus shown in a less favourable light from a public health point of view than would be the case were a higher estimate of the population made use of as a basis for the calculations.

Table shewing Houses certified for habitation since the last census :—

Year.	Derby.	Stanley.	Mersey.	Knowsley.	Linacre.	Total.
April 1901—April 1902 ...	110 ...	— ...	8 ...	— ...	169 ...	287 ...
„ 1902 „ 1903 ...	126 ...	28 ...	— ...	— ...	85 ...	239 ...
„ 1903 „ 1904 ...	91 ...	28 ...	— ...	30 ...	132 ...	281 ...
„ 1904 „ 1905 ...	135 ...	76 ...	— ...	1 ...	143 ...	355 ...
„ 1905 „ 1906 ...	278 ...	52 ...	— ...	— ...	214 ...	544 ...

The population per house at the last census was 5·8.

From the number of new houses built it would also seem probable that the population of the Borough has increased more than is estimated by the Registrar General.

The following table gives the area of each ward :—

	Area excluding Dock Estate.	Area including Dock Estate.
Derby	451 acres.	451 acres.
Stanley	235 „	235 „
Mersey.....	174 „	312 „
Knowsley.....	176 „	306 „
Linacre	203 „	272 „
	1,239	1,576
	1,239	1,576

Population of the Borough at the undermentioned age periods on an estimated population of 63,000 :—

Under 1 year	...	...	...	...	1,745
1 year and under 5	...	...	...	...	6,029
Total under 5				...	7,774
5 years and under 15	...	...	...	...	13,600
15	„	25	...	...	12,913
25	„	45	...	...	17,972
45	„	65	...	...	9,086
65	„	and upwards	...	...	1,655
					63,000
					63,000

BIRTHS.

The number of children born in Bootle during 1905 was 2,079—1,022 males, 1,057 females.

The birth rate is therefore 32·9 per 1,000, which is 2·0 per 1,000 higher than last year, and 5·0 per 1,000 in excess of that of England and Wales.

Considering the way in which the birth rate of the country generally has declined in the past few years, the position of Bootle in this respect may be looked upon as fairly satisfactory. The birth rate of Bootle last year was the lowest in the history of the town, and a glance at the chart opposite page 10 will show that, although this year the rate has increased 2·0 per 1,000, there have been only two lower rates in the last 15 years.

It is no uncommon thing for one to find in the same week in the birth returns the entry of a birth at a certain house, and in the death returns the entry of the death of the same child. Forty-two days grace is given within which the birth of a child must be registered. This period is too long. In the first place there is no doubt that a considerable number of births are not registered at all, the parents having left the district before the expiration of the statutory 6 weeks, and it is probable that no trouble will be taken to register the birth in the new district. In not a few cases when the Lady Sanitary Inspector visits houses with the intention of giving instruction

(where needed) on infant feeding, &c., she finds that the child is dead and buried, and often has died from some complaint which proper instruction and advice might have prevented, and the child's life have been saved. Table No. 4, page 87 of the report, shows that about 30% of all deaths of children under 1 year die before the age of six weeks. It is probable that many a life could be saved to the State if births had to be registered within a week of their occurrence.

The following table shows the number of births in each of the four quarters of the year, and their distribution among the different wards:—

Ward.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
Derby	122	108	125	97	452
Stanley.....	75	68	75	79	297
Mersey	115	102	112	100	429
Knowsley	120	107	94	101	422
Linacre.....	119	126	126	108	479
Entire Borough.....	551	511	532	485	2,079

The number of illegitimate births was 38 or 1·7 per cent of the total number of births. They were divided among the wards as follows:—

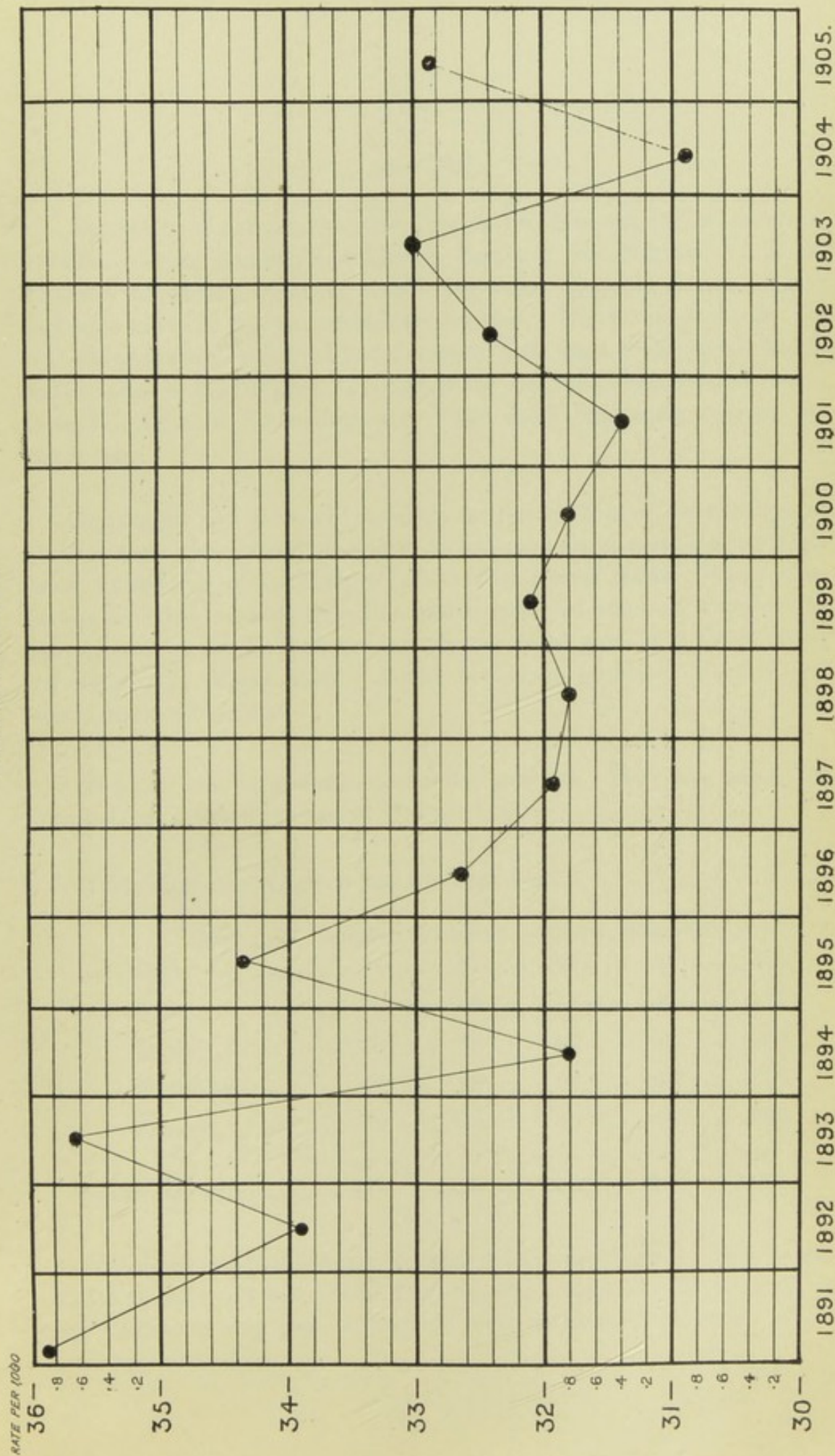
Derby.	Stanley.	Mersey.	Knowsley.	Linacre.
7	8	13	7	3
1·5%	2·6%	3·0%	1·6%	·6% of total births

in each ward.

Table shewing natural increase or decrease of the population, *i.e.*, the increase or decrease in the number of births over deaths in the different wards:—

Ward.	Births.	Deaths.	Excess of Births over Deaths.	Excess of Deaths over Births.
Derby	452	212	240	—
Stanley.....	297	172	125	—
Mersey.....	429	290	139	—
Knowsley	422	215	207	—
Linacre.....	479	208	271	—
Entire Borough.....	2,079	1,097	982	—

CHART SHOWING BIRTH RATE OF BOOTLE
 — SINCE 1891. —



This image shows a blank sheet of graph paper. The paper has a light cream or off-white color. A grid of thin, light gray lines is printed on the page, forming a series of small squares. The grid covers most of the page, leaving a margin around the edges. There are a few very small, faint dark spots scattered across the page, likely due to the scanning process or the age of the paper. The overall appearance is that of a clean, unused sheet of graph paper.

DEATHS.

The deaths of non-residents who died in the Borough (32 in number), principally in the Borough and Linacre Hospitals, are excluded, while the deaths in the workhouses of the West Derby Union of people who are said to be Bootle residents (147 in number) are included. There is no doubt that the only claim which many of the last-mentioned class have to be styled Bootle residents lies in the fact that they slept in the Borough immediately prior to their admission to the workhouse. These deaths materially increase the death rate.

In considering the rates of mortality for Bootle, it must be remembered that the town does not contain within its boundaries large areas sparsely populated, where many of the healthy and wealthy classes reside. These areas always have low rates of mortality, which have the effect of lowering the general rates of a town, the more densely populated parts of a town having correspondingly higher rates. Bootle is densely populated in every part except one small portion.

The total number of deaths during the year was 1,097 (601 males, 496 females), equal to a death rate of 17·3 per 1,000.

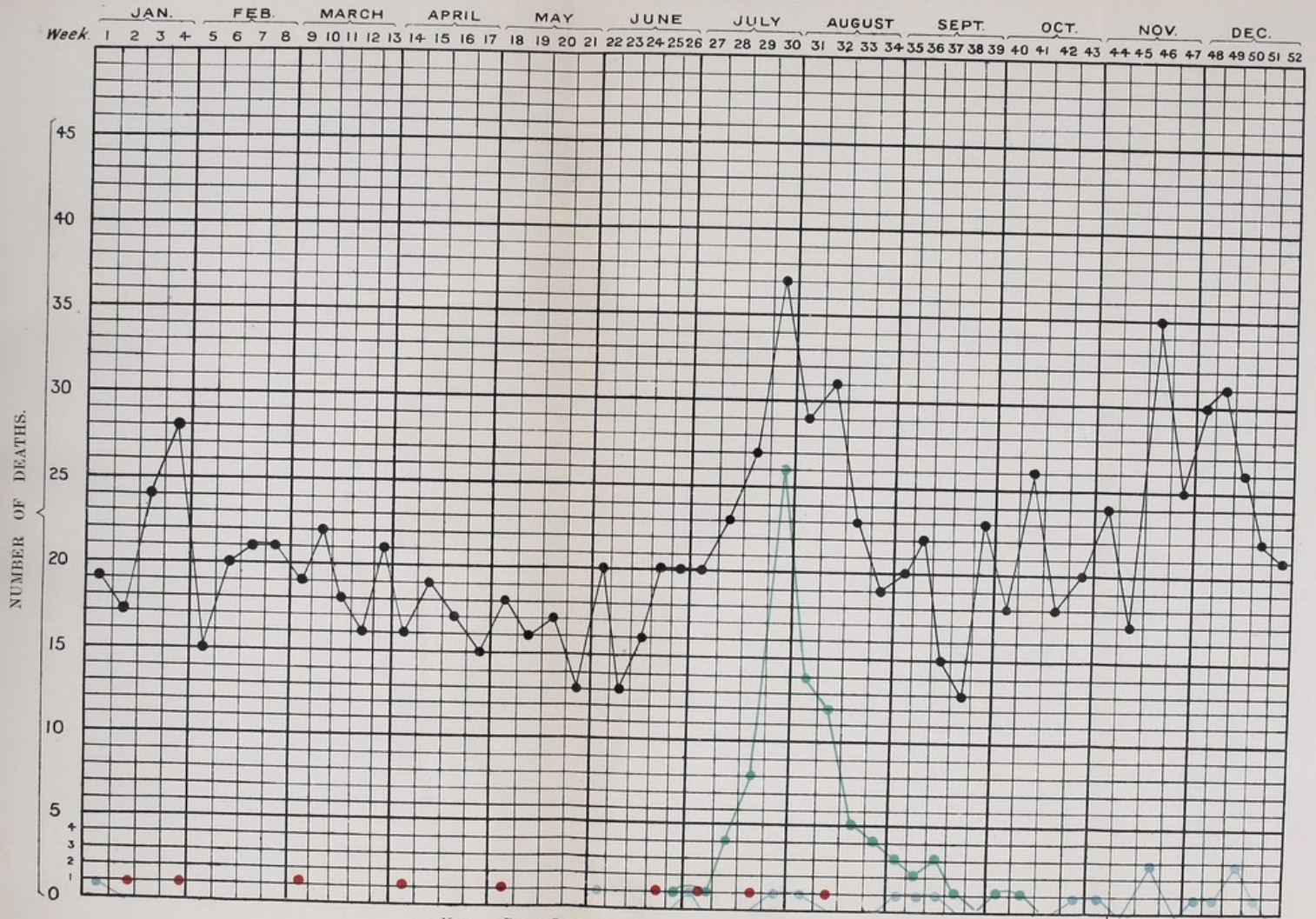
Table shewing number of deaths in each Ward :—

Ward.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
Derby	41	51	59	61	212
Stanley	40	37	53	42	172
Mersey	70	58	80	82	290
Knowsley	57	32	62	64	215
Linacre	54	48	48	58	208
Entire Borough	262	226	302	307	1,097

The death rate is the lowest of which I have any record. It is in my opinion an extremely low general death rate for a town like Bootle, with its large element of very poor people, and with so much employment of the casual type abounding.

The chart opposite shows the weekly variations in the number of deaths, and the effect of summer diarrhoea on the gross death rate. In table No. 3, page 86, it will be noticed that 38 of the deaths were not certified by a doctor. In none of these was an inquest held. Of these 38, 13 died before reaching the age of 1, and another 6 before reaching the age of 5. It is within the discretion of the coroner to hold an inquest in the event of a death occurring which is not certified by a doctor. He decides the question, I believe, on the information forwarded to him by the police. The ordinary policeman is quite unsuited to make enquiries of this kind. It requires some person with a knowledge of medicine, who could weigh the probabilities of the story told by the parents or friends of the deceased child as to the cause of the child's death. If the registrar gets no information from the coroner as to the cause of the child's death, he has to interrogate the parents himself, and in his returns to the Registrar General he describes what he thinks is the probable cause of death. There is no reason to think that the registrar can arrive at a more accurate decision than the policeman. It is most unsatisfactory from every point of view—medical, legal and scientific—that the cause of the death in these cases should in the end be determined by the relatives, and I am strongly of opinion that inquests should be held in every case where the death is uncertified, i.e., when no doctor was present during the last illness, unless the coroner can satisfy himself that there is no necessity for an inquest, not from the report of a policeman or coroner's officer, but from a report from a medical man who knows the deceased, and may have attended him quite recently. It is especially necessary that inquests should be held in those cases where the uncertified death is that of a young child. The high mortality among illegitimate births—undesired children—shows with what facility such may be got rid of. Is it not possible that cases of overlaying are concealed under the term "convulsions"? One repeatedly hears of, and occasionally sees, drunken women in charge of babies. Do these drunken mothers so rarely, as statistics would seem to show, overlay their children?

CHART SHOWING NUMBER OF DEATHS FROM ALL CAUSES EACH WEEK IN 1905, ALSO THE NUMBER OF DEATHS FROM ZYMOTIC DISEASES,
AND FROM EPIDEMIC DIARRHŒA.



Note. BLACK LINE—Number of deaths from all causes.
 RED LINE—Number of Deaths from Measles.
 GREEN LINE—Number of Deaths from Diarrhœa.
 BLUE LINE—Number of Deaths from Whooping Cough.

Orrell cases included from this date.

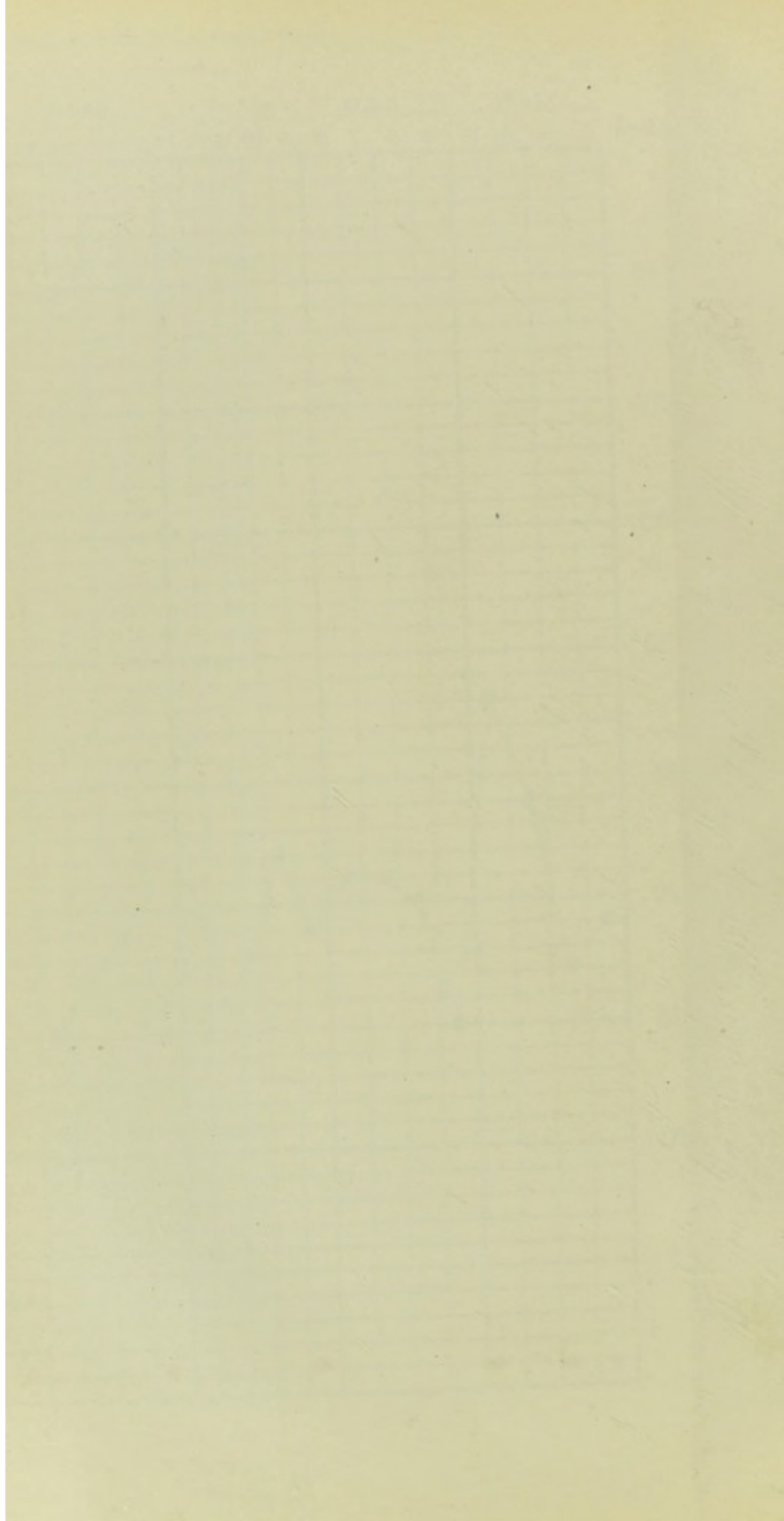


TABLE SHEWING THE PRINCIPAL POINTS OF COMPARISON BETWEEN THE VITAL STATISTICS OF BOOTLE AND THE OTHER LARGE TOWNS IN THE NORTH-WESTERN DISTRICT OF ENGLAND.

	Crude Death Rate.	Corrected Death Rate.	Birth Rate.	Infantile Deaths per 1,000 births.	Deaths per 1,000 persons living from							Comparative Mortality Figure.		
					Smallpox	Measles	Scarlet F.	Diph.	Wh'g Cough.	Enteric.	Phthisis.			
Birkenhead.....		No return	received											
Wallasey.....	13.2	14.4	28.3	98	.01	.10	.17	.03	.13	.06	.6	888		
Liverpool.....	19.2	20.6	33.2	154	.3	.4	.2	.2	.06	1.59	1,271			
Bootle.....	17.3	19.1	32.9	153	.1	.5	.2	.3	.06	1.2	1,179			
St. Helens.....	17.0	18.4	36.0	131	.4	.1	.2	.2	.02	...	1,135			
Wigan.....	19.4	18.0	33.0	163	.67	.12	.11	.16	.40	1.04	1,111			
Warrington.....	16.9	18.2	32.9	147	.96	.13	.12	.23	.05	1.37	1,123			
Bolton.....	15.4	17.4	25.1	166	.5	.02	.09	.04	.19	1.17	1,074			
Bury.....	18.1	16.4	21.6	146	.02	.1	.08	.02	.18	1.24	1,012			
Salford.....	17.2	19.0	30.5	150	...	.3	.3	.2	.2	1.4	1,172	
Oldham.....	18.9	18.1	24.3	150	.03	.3	.08	.4	.08	1.4	1,117			
Blackburn.....	16.4	18.5	24.0	146	...	.3	.2	.08	.1	1.0	1,141	
Preston.....		No return	received											
Stockport.....	18.6	18.2	27.1	168	.1	.07	.07	.3	.09	1.2	1,123			
England and Wales.....	16.2	...	27.9	146	...	...	...	...	...	...	1,000
70 Great Towns.....	17.2	...	29.1	160	...	...	...	...	...	...	...

The terms "Corrected Death Rate" and "Comparative Mortality Figure" in the preceding table need some explanation.

It is well-known that the greatest mortality takes place among persons at the extremes of life, viz., the very young and the very old. Towns, therefore, which have a larger proportion than normal of people in the middle ages of life, *i.e.*, people among whom mortality is slight, show a low death rate compared with towns which have an unusually large proportion of children and old people. The sex distribution of the people also varies greatly in different places, and the rate of mortality also varies in the sexes.

By methods into which it is not necessary to enter here, the Registrar General has calculated a factor (for Bootle 1.105) by means of which the age and sex distribution of any place is made similar to that prevailing in the whole of England and Wales. The corrected Death Rate is the rate obtained after making this allowance for age and sex distribution, and is therefore the best rate to be used for comparative purposes.

The Comparative Mortality figure shows the number of deaths which would occur in any given place compared with 1,000 which takes place in England and Wales taken as a whole, *e.g.*, the Comparative Mortality figure for Bootle 1,179, means that for every 1,000 people who die in England and Wales as a whole, 1,179 die in Bootle.

INFANT MORTALITY.

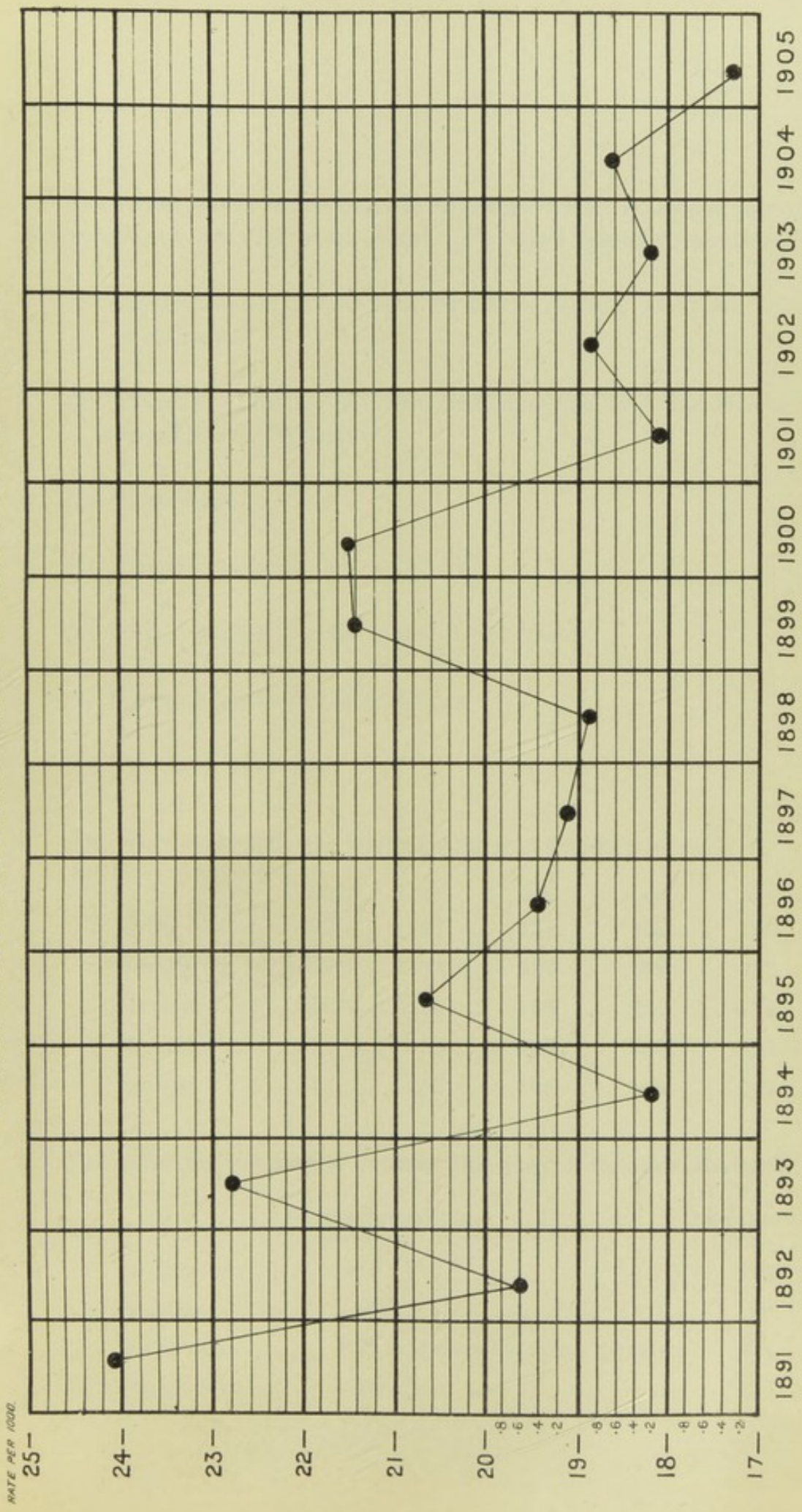
During the year 1905, 321 children died who had, at the time of their deaths, not reached one year of age.

This gives an Infant Mortality Rate of 153 per 1,000 Births.

Generally speaking, an Infantile Mortality Rate of about 100 may be considered normal.

Although the General Death Rate of England and Wales has been steadily decreasing, the Infantile Mortality Rate stands as high as it did 50 years ago in spite of improved sanitation.

CHART SHOWING DEATH RATE OF BOOTLE SINCE 1891.



The causes mainly contributing to an excessive rate of Infant Mortality were mentioned in my last year's report. Perhaps I may reproduce them :—

- (1) Carelessness and ignorance on the part of parents, as to the rearing of children.
- (2) The artificial feeding of infants with improper food and the use of unsuitable feeding bottles.
- (3) Under feeding.
- (4) Excessive feeding.
- (5) Positive neglect of children and their ailments.
- (6) Inherited constitutional conditions.
- (7) Untrained midwifery.

The Rates in the different Wards for the past 5 years are :—

	1901.	1902.	1903.	1904.	1905.
Derby	127	127	151	152	159
Stanley	127	113	197	162	148
Mersey	277	199	166	234	179
Knowsley	194	163	168	183	137
Linacre	145	150	136	158	146

Table showing influence of Summer Diarrhœa on Infantile Mortality :—

	No. of deaths of children under 1 year.	Infant Mortality Rate.
1st Quarter	69	125
2nd Quarter	63	123
3rd Quarter	109 (Summer Diarrhœa prevalent)	204
4th Quarter	80	167

I have said more than once that I look upon the rate of Infant Mortality more as an indication of the social well-being of the people than as pointing to the presence of insanitary conditions capable of removal. A consideration of the above mentioned causes and of the table No. 4, page 87, where the causes of all the deaths of children under one year of age are set out in detail, will show that this is so, and here let me remove a common misconception with respect to the meaning attached by the public to the word "preventible." They take it to mean "preventible by the Sanitary Authority and its officers." Very few of the deaths set out on table page 87, are due to causes with which the Sanitary Authority has directly anything whatever to do. If any one Committee of a Corporation has power to influence the Infantile Mortality Rate more than another, it is, in my opinion, the Education Committee, for it is mainly as the result of educative measures that any improvement will be manifested. Dr. Niven, Medical Officer of Health of Manchester, in his last annual report, writes, "In my opinion whatever the girls may or may not be taught it should be absolutely compulsory on them to get a thorough grounding in certain domestic branches of knowledge before leaving school. A girl should know how to cook a variety of common articles of food, how to sew and mend. She should know, also, how to clean a house, and when a house can be regarded as clean. She should be taught the dangers to health arising from filth. The course should comprise the properties and prices of suitable food. She should learn how to clean, manage and feed infants and young children. She should know something about infectious diseases, their dangers, and how to act when they occur." All this may be summed up as the teaching of Elementary Hygiene which I, for the past two years, have recommended should be taught, and it is precisely when this knowledge is widely disseminated, and an improvement in the moral sense of the people is appreciable, that decrease in the Infantile Mortality Rate will be seen.

The efforts of the Health Committee in this direction consist in the removal of insanitary conditions as far as possible, but mainly in (1) educating the people by the distribution of leaflets on feeding, and on the so-called minor infectious diseases, and (2) the educative work of the Lady Sanitary Inspector. Last year I recommended the appointment of a second Lady Inspector for the summer months. My recommendation was not approved of. I again recommend this. [Since going to press, this recommendation has been approved by the Health Committee.] It is not possible for one lady inspector to perform thoroughly all the duties thrown upon her. Some of her

duties must be allowed to go by the wall when the diarrhœa season is on. It is not possible for every birth to be visited, for the cases notified by the schools to be visited, and for the diarrhœa cases to be visited, by one person.

The Infant Mortality Rates are always highest in those parts of a town in which the least prudent, and the most ignorant of the people, live.

An examination of table, page 87, shows that Diarrhœal diseases, Convulsions (mainly due to digestive disorders) and Atrophy, account for 126 deaths out of 321. In other words, nearly 40 per cent of the total deaths of children under one year of age are due to defective nutrition, due either to ingestion of insufficient or unsuitable or contaminated foods.

Premature Births number 40, and probably many of these were the result of malnutrition of the mother. 76 deaths were due to Respiratory diseases, 24 per cent of the total number. To these should be added 14 deaths from Whooping Cough. There can be no doubt that ignorance and often neglect and indifference on the part of parents are accountable for many of these deaths.

Table shewing Infantile Mortality and Diarrhœa deaths:—

	Infantile Deaths.	Infantile Mortality Rate per 1,000 Births.	Deaths from Diarrhœa.	Rate per 1,000 of Population.
1893	351	197	131	2·5
1894	262	157	45	·8
1895	335	183	107	2·0
1896	324	184	72	1·3
1897	349	199	153	2·8
1898	329	183	114	2·0
1899	337	186	146	2·6
1900	373	204	139	2·4
1901	337	183	113	1·9
1902	302	154	53	·8
1903	325	161	85	1·4
1904	346	180	109	1·7
1905	311	153	87	1·3

ZYMOTIC DEATH RATE.

Table showing number of deaths from Zymotic diseases since 1896:—

	1896	1897.	1898.	1899.	1900.	1901	1902.	1903.	1904.	1905
Smallpox ...	—	—	—	—	—	—	4	6	—	—
Scarlet Fever...	20	12	10	10	17	16	14	25	13	32
Diphtheria ...	7	5	8	10	10	11	8	9	19	20
Measles ...	31	14	7	6	21	5	46	2	48	9
Whooping Co'gh	15	14	28	21	56	6	23	16	41	18
Enteric ...	24	20	17	10	16	12	13	12	3	4
Typhus ...	—	—	7	1	—	2	3	—	—	—
Diarrhœa ...	72	153	114	46	139	113	56	85	109	87
Totals ...	169	218	191	104	259	165	167	155	230	170
Rate per 1,000	3.1	3.9	3.4	1.8	4.5	2.8	2.7	2.5	3.7	2.6

INFECTIOUS DISEASES.

The number of infectious diseases notified during 1905 shows a slight increase over those notified during the previous year.

A reference to the table on page 19 shows an increase of 21 in the number of cases of Scarlet Fever and an increase of two in the number of cases of Enteric.

Diphtheria shows a marked increase of 30 cases.

For further information regarding the number of cases of Infectious Disease notified during the year, and the Wards in which the cases occurred see page 85.

The following table shows the number of notifications in each quarter of the year, 1905:—

	1st quarter.	2nd Quarter.	3rd quarter.	4th quarter.	Total.
Smallpox ...	0	0	0	0	0
Scarlet Fever ...	44	56	86	103	289
Diphtheria ...	33	14	13	18	78
Enteric Fever ...	9	3	9	3	24
Continued Fever	0	0	0	0	0
Typhus Fever ...	0	0	0	0	0
Erysipelas ...	7	6	6	13	32
Puerperal Fever	0	0	0	0	0
Phthisis...	6	3	6	7	22
Totals ...	99	82	120	144	445

N.B.—Orrell cases are included for November and December. The Chart opposite shows the number of infectious cases reported each week throughout the year.

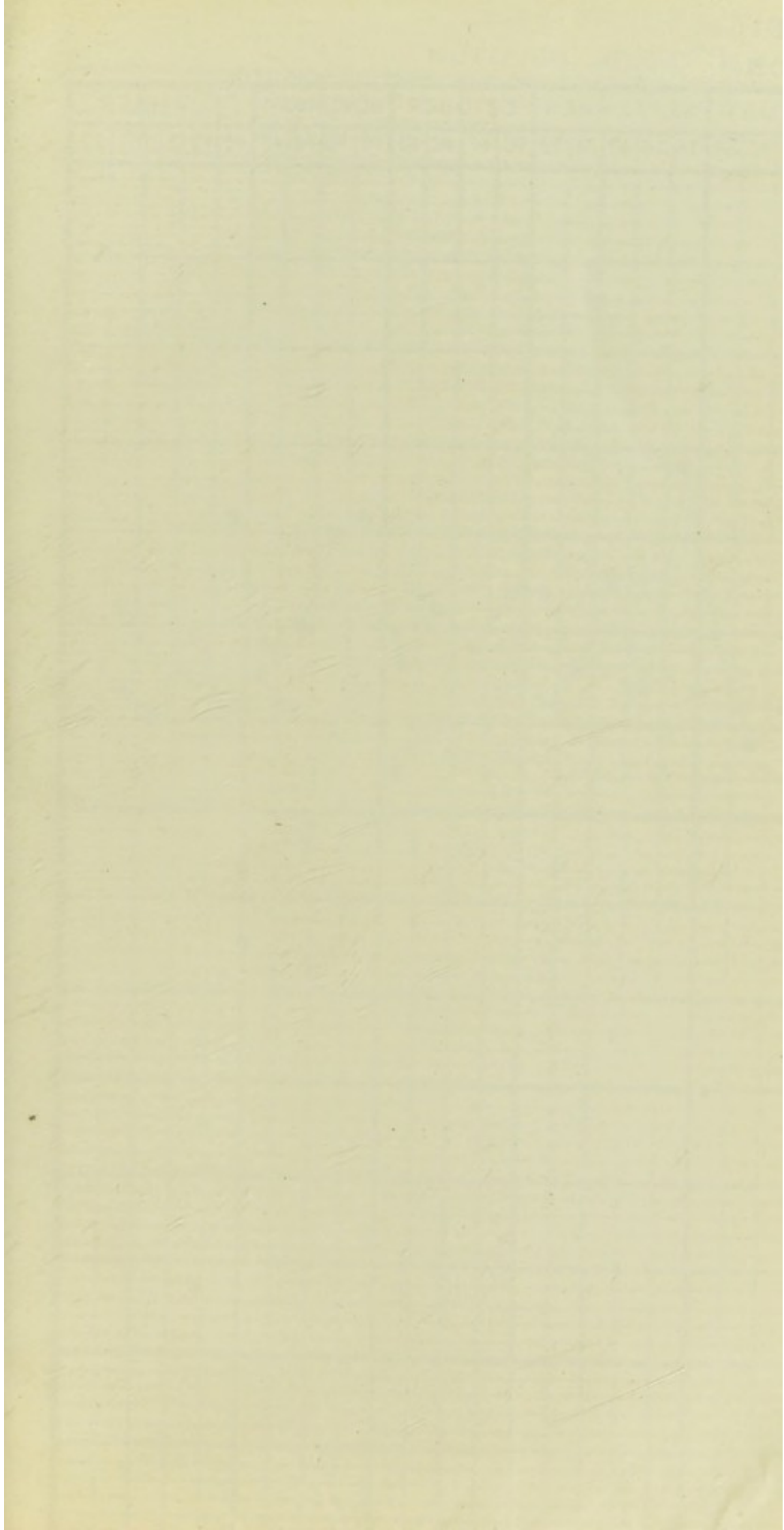




Table showing number of notifications of Infectious Disease since 1896.

	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
<i>Population</i>	53,710	54,630	55,550	55,500	57,450	58,556	60,000	60,800	62,000	63,134
Smallpox	1 ...	— ...	— ..	— ...	3 ...	1 ...	25 ...	122 ...	— ...	—
Scarlet Fever ...	297 ...	245 ...	263 ...	198 ...	270 ...	285 ...	321 ...	353 ...	268 ...	289
Diphtheria in- cluding Croup } ...	23 ...	21 ...	21 ..	45 ...	24 ...	64 ...	34 ...	33 ...	48 ...	78
Typhus Fever ...	1 ...	7 ...	36 ...	1 ...	— ...	12 ...	15 ...	— ...	— ...	—
Continued Fever...	— ...	— ...	— ...	— ...	— ...	— ...	— ...	— ...	1 ...	—
Enteric Fever ...	132 ..	154 ...	124 ...	77 ...	97 ...	76 ..	62 ..	61 ...	22 ...	24
Puerperal Fever ...	12 ...	3 ..	2 ...	3 ...	2 ...	6 ...	1 ...	— ...	— ...	—
Erysipelas	62 ...	67 ...	41 ...	40 ...	54 ...	51 ...	50 ...	25 ...	39 ...	32
Phthisis	— ...	— ...	— ...	— ...	— ...	†22 ...	21 ...	21 ...	43 ...	22

(6 mths.)

† Phthisis not notifiable until July, 1901.

Out of 391 cases occurring among the classes of disease for which accommodation is provided at Linacre Hospital, 295 or 75 per cent. were removed to hospital. The percentage of removals in 1904 was 77 per cent.

SMALLPOX.

No cases of Smallpox were notified during the year, though several persons who had been in contact with the disease on vessels arriving in the Mersey have from time to time been under supervision.

SCARLET FEVER.

The number of cases of Scarlet Fever notified in the first two quarters of the year was below the average. In the latter part of the third and in the fourth quarter there was a large increase in the numbers notified, with no special incidence of the disease in any particular part of the town. The cases moreover were of a particularly severe type. In the neighbouring city of Liverpool, I believe a similar state of things existed, a large number of particularly severe cases occurring in the autumn and early winter.

The number of cases notified during 1905 was 289, a decrease of 85 compared with 1904.

The deaths numbered 32 (11 per cent. of the cases) compared with 13 in 1904 (or 4.8 per cent.)

The rise in the death rate is wholly due to the fact mentioned above, that the cases which occurred at the end of the year were of a particularly severe type. Of the 32 deaths, 19 were under the age of 5.

The cases were distributed among the Wards as follows:—

	Derby.	Stanley.	Mersey.	Knowsley.	Linacre.	Orrell.
Cases Notified	95	46	36	43	66	3
Cases Removed	87	34	27	35	53	1

The following Table shews the percentage of cases notified as Scarlet Fever removed to Hospital since 1891, with the number of deaths and percentage of deaths to cases.

Year.	Cases Notified.	Cases Notified per 1 000 of Population.	Cases Removed.	Percentage of Removals.	Deaths.	Percentage of deaths to Notifications.
1891.....	259	5.2	29	11	32	12.3
1892.....	289	5.7	47	16	32	11.0
1893.....	332	6.5	89	27	20	6.0
1894.....	638	12.2	195	30	36	5.6
1895.....	300	5.7	124	41	14	4.6
1896.....	297	5.5	124	41	20	6.7
1897.....	245	4.5	133	54	13	4.9
1898.....	263	4.8	162	61	10	3.8
1899.....	198	3.5	124	62	10	5.0
1900.....	270	4.7	170	62	17	6.2
1901.....	285	4.8	202	71	16	5.6
1902.....	321	5.4	259	80	14	4.3
*1903.....	353	5.7	225	63	25	7.0
1904.....	269	4.3	210	78	13	4.8
1905.....	289	4.5	237	82	32	11.0

*N.B.—In this year Smallpox was epidemic. As a result, the accommodation available for Scarlet Fever was curtailed, and admission was refused to very many cases, which otherwise would have gone to hospital.

I would like to repeat what I mentioned in my last annual report, viz., that many cases could be prevented if an ordinary amount of care were exercised by parents in isolating patients before they are removed to hospital. By doing so, they would be saved much anxiety, and the town a large amount of money. It is a common occurrence for the inspector when he calls to remove the patient to find such patient playing with, or in the same bed as other children not suffering from the disease.

RETURN CASES.

No of Case.	Date of Admission to Hospital.	Date of Discharge.	Length of Stay.	Complications while in Hospital.	Condition of Patient since discharge.	Disinfection.	Date of Admission of 2nd Case.	Any other known source of possible infection.	Remarks.
1.	Nov. 5/05.	Jan. 13/06.	69 days.	None.	Has had a cold since discharge, with slight rhinorrhoea. This was present when child was examined at home.	Complete.	Jan. 20. 7 days after arrival home of first case.	Went to school, but no case known at school.	Seems to be a genuine return case.
2.	June 24.	Aug. 16.	53 days.	None.	Well since leaving hospital. Developed a cold a day or two before his brother was taken ill. On examination the child had a cold, and large chronic tonsils.	Complete.	Sept. 4. 19 days after arrival home of first case.	No.	Seems to be a genuine return case. The two children slept apart, according to printed instruction, for 2 weeks after discharge of first case. They slept together, and No. 1 developed his cold in this period also.
3.	(a) June 21 (b) June 21	Aug. 16. Aug. 29.	56 days. 69 days.	None. None.	(a) Quite well. (b) 2 days after discharge otorrhoea commenced. Ears dry on examination, but appeared to have been discharging. Also had a cold in the head.	Complete.	Sept. 7. 9 days after return of last case.	Went to school, but no known case there.	(a) Home 3 weeks, and had slept with the third case for a week prior to her illness. Appears to be a return case from (b).
4.	(a) Sept. 27 (b) Oct. 5	Nov. 14. Nov. 23.	48 days. 49 days.	None.	Both have been quite well, and remain so now.	Complete.	Nov. 24. 10 days after return of first case.	No.	It is difficult to imagine a return case from (a) and (b), but no other source of infection known. Is No. 3 a case of latent infection?
5.	Oct. 13.	Nov. 28.	46 days.	None.	Well since leaving hospital until Dec. 5, when a cold developed, and on examination, has slight rhinorrhoea.	Complete.	Dec. 8. 10 days after return of first case.	Also played with children from No. 4.	Probably a genuine return case.

The above 5 cases represent 1·7 per cent. of the total number of notifications. In 1903 there were 10 return cases, representing 2·8 per cent. of the notifications. There is thus a considerable reduction. The old method of discharging patients in hospital was as follows:—The patient was received into compartment No. 1 of the discharge block, where he left his infected clothes, then went into compartment No. 2 to have a hot bath, finally being clothed in clean clothes in department No. 3, and delivered into the hands of his friends. I have for some time held the opinion that the hot bath immediately before discharge was often the cause of nasal catarrh, and that this catarrh set free the *materies morbi*, lurking perhaps in the posterior nares, and caused an infection of other susceptible children on arrival home. With the idea of preventing this catarrh, I, in the first place, tried cooling the water down while the patient was in the bath, and now have abolished the bath altogether. The patients for discharge are now bathed in the wards on the preceding night, and pass through the discharge block next day in the same way, except that instead of having a bath in compartment No. 2, their bodies are rubbed with an antiseptic oil. Whether or not the lessened number of return cases is the result of the new method of discharging, it is impossible to say definitely, in the present state of our knowledge, as to what is the infection in Scarlet Fever. There are one or two additional facts in support of the nose being the site where the infection lurks—(1) Return cases are most common in winter and spring, when colds in the head are most prevalent; (2) The cases which are kept in hospital for the longest periods of time are the cases which most frequently give rise to return cases on their discharge, and probably the most frequent reason for their lengthy stay in hospital is nasal discharge, or some eczema round the *alae nasi*, caused by the irritating discharge; (3) In four out of the five cases specially enquired into last year, it will be noticed that when I examined at its home the child which had lately returned from hospital, I found evidences of nasal catarrh.

Even after the most careful enquiries, it is very difficult to satisfy one's self in a very large number of instances, that the child lately from hospital is the cause of the second case being infected, and I am of opinion that many cases styled "Return Cases" are not return cases, in spite of the apparently strong presumptive evidence sometimes forthcoming, and my experience inclines me more and more to the opinion that just as the Klebs Loëffler bacillus (the cause of Diphtheria), may be found in the throats of people perfectly well, so the infection of scarlet fever may remain latent, and only

become active when the lowering of the body health from any cause, or certain other conditions, favour such increased activity as to cause the development of Scarlet Fever.

DIPHThERIA.

In 1904 the number of cases notified was 78, of which number 18 died. The percentage of deaths to cases is thus 23.

The cases occurred in the Wards as under :—

Derby.	Stanley.	Mersey.	Knowsley.	Linacre.	Orrell.
20	30	10	8	8	2

The following table shows the number of Diphtheria cases, number of deaths and percentage of deaths to cases during last 12 years.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905
Number of cases notified, including Croup	44	27	23	21	21	45	24	64	34	33	48	78
Number of Deaths including Croup	...	10	19	12	11	12	14	10	11	8	9	19
Number of cases admitted to Hospital	...	3	2	8	5	4	12	9	45	25	20	36
Number of deaths in Hospital	...	—	—	3	1	2	—	4	7	2	4	12
TRACHEOTOMY—												
Number of Cases						—	3	11	8	4	9	8
Number of Deaths	(No Record)					—	—	2	—	3	3	3
*Hospital Mortality	—	0%	37%	20%	50%	0%	44%	15%	8%	20%	33%	18%
*Outside Mortality	22%	76%	60%	62%	58%	42%	40%	21%	66%	37%	58%	30%

*NOTE.—The numbers dealt with are so small that the percentages are of very little value.

For fuller details of Diphtheria cases see the Hospital Report, pages 65—69.

The marked increase in the number of cases of Diphtheria during the year is accounted for by a small epidemic which occurred among the scholars attending Bedford Road Schools in the months of January and February.

As soon as it became evident that the disease was, in all probability, being spread by immediate contact at school, I visited the schools and found that the outbreak was confined to the children attending the Infants' Department, and especially to two classes of that department. I examined the throats of all the children and as the result of that examination excluded

8 children from school for an indefinite period. In addition I took four swabs from the throats of children, which I suspected to be diphtheritic, and submitted them for bacteriological examination, but in none of them was the Klebs Loëffler bacillus found. I also recommended the closing for one month of the two classes principally affected and the disinfection of the rooms. The Education Committee, however, decided to close the whole of the Infants' Department. By these means the epidemic which at one time threatened to assume large proportions was stamped out.

Between January 14 and the dates when the schools were closed (February 17) 15 cases were notified among the scholars. From February 17 to February 28, six further cases were notified or discovered which were traceable to school infection, afterwards no further cases occurred. I may mention that the cases excluded from school were isolated at home and regularly visited by the Lady Sanitary Inspector or myself. The schools were closed from February 17 to March 13.

Swabs of all the throats were taken on the admission of cases to hospital and examined bacteriologically.

120,000 units of Antitoxin were given free to practitioners on application, against 54,000 units in 1904. The Antitoxin is kept in small bottles, each containing 2,000 units. 4,000 units is a dose which can safely be given to a very young child. It is a well-established fact that the mortality from Diphtheria depends very largely on the promptness with which the disease is cut short by the use of Antitoxin. The importance of its use at the earliest possible moment need, therefore, hardly be urged here.

Many of the cases were sent into hospital at a very late stage of the disease, when they were thoroughly saturated with the poison, and in a condition which gave little hope of recovery. I have no hesitation in saying that if medical advice had been sought earlier, and the cases removed to the hospital sooner, many lives would have been saved.

TYPHOID.

The number of notified cases, 24, was only two in excess of last year's low record. Of these 24, 15 were treated in hospital and 5 were then found not to be suffering from typhoid, thus leaving but 19 cases. In 1897, there were 154, and in 1898, 124 cases. The decline from that time has been marked and continuous until it has reached its present low level.

Perhaps the decline in the typhoid rate may be best exemplified by saying that whereas in 1897 one case of typhoid fever occurred to every 357 inhabitants, last year the rate was one case to every 3,333 inhabitants.

This disease is perhaps the most intimately connected of all the infectious diseases with sanitation, and the comparative freedom of the Borough from the disease speaks well for its general sanitary condition.

The 24 cases were distributed among the wards as follows:—

Derby Ward.	Stanley Ward.	Mersey Ward	Knowsley Ward.	Linacre Ward.
4	5	7	5	3

Fifteen of the cases were removed to hospital.

Enquiries were made in all cases of Typhoid notified as to whether shell fish had been eaten or not, but in no instance was such a history obtained.

TYPHUS FEVER.

No case of Typhus occurred during the past year.

MEASLES.

During 1905 the deaths of 9 children were due to Measles as against 48 in 1904, and 2 in 1903.

The tendency of Measles to become epidemic every second year is well exemplified by the following table.

Table showing certain statistics with regard to Measles for the last 9 years:—

Year.	Total Deaths.	Ages at Death.					
		Under 1	1 to 5	5 to 15.	15 to 25.	25 to 65.	over 65.
1897	14	—	14				
1898	7	—	7				
1899	6	—	6				
1900	21	8	11	2			
1901	5	1	3	1			
1902	46	9	35	2			
1903	2	1	1				
1904	48	9	39				
1905	9	2	7				

Deaths under 1 year were not differentiated from the next class until 1900.

Table showing mortality from Measles per 1,000 persons living at the undermentioned age groups :—

Below 1.	1 to 5	5 to 15	15 to 25	25 to 65.	over 65.
1·1	1·1	0	0	0	0

Every case of the disease notified by the School Authorities is visited by the Lady Sanitary Inspector, who gives advice as to isolation and nursing, and leaves a copy of a leaflet with information concerning the disease.

97 Houses where Measles had broken out were thus visited.

Measles has not been at all prevalent during the past year, and it has not been found necessary to close any schools or take any special action with regard to the disease.

WHOOPING COUGH.

This disease caused 20 deaths last year, equal to a rate of ·3 per 1,000 people living, against a rate of ·66 per 1,000 in the previous year.

Deaths from Whooping Cough from 1891 :—

	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
Deaths	35	6	32	22	26	14	14	27	21	56	6	23	16	41	18

Death rates from Whooping Cough per 1,000 of children living at the following age groups :—

Under 1.	1 to 5	5 to 15	15 to 25	25 to 65	over 65
9·0	0·6	—	—	—	—

Whooping Cough and Measles yearly cause more deaths than all the other infectious diseases taken together. The disease is very infectious, but the period of infection is indefinite and variable. Many deaths, doubtless, could be avoided with ordinary care on the part of parents to prevent the children affected taking chills, but it is difficult to suggest any means for reducing the mortality from this disease except by eradicating from people's minds the idea that Measles and Whooping Cough are diseases about which no trouble need be taken and no anxiety felt.

Owing to the prevalence of Whooping Cough at the end of the year, I drew up a leaflet for distribution by school teachers and the Lady Sanitary Inspector among the parents of the affected children.

As many as possible of the cases of Whooping Cough and Measles notified from schools are visited by the Lady Sanitary Inspector. The following table shows the work done in this direction :—

CASES OF INFECTIOUS DISEASE NOTIFIED BY ELEMENTARY EDUCATION
AUTHORITIES.

1905.

SCHOOL.	Measles.	Chicken Pox.	Whooping Cough.	Other Diseases.	TOTAL.
Salisbury Road.....	1	0	0	1	2
Hawthorne Road...	1	0	0	1	2
Linacre Lane.....	3	0	0	0	3
Bedford Road.....	11	8	22	6	47
Gray Street.....	0	7	0	0	7
St. James'.....	2	11	13	13	39
St. Mary's.....	8	17	26	26	77
Christ Church.....	21	7	3	3	34
St. John's.....	7	2	22	22	53
St. Alexander's....	24	7	8	8	47
St. Paul's.....	1	1	2	2	6
St. Winefride's....	0	0	19	19	38
Total.....	79	60	115	101	355

CASES VISITED BY LADY SANITARY INSPECTOR.

	No. Visited and diagnosis found correct.	No. found not suffering as reported.	
Measles	85	12	
*Chicken Pox	76	8	
Whooping Cough	110	18	
Other Diseases	129	2	
Total	400	50	= 450

*Doubtful cases of Chicken Pox were subsequently seen by the Medical Officer of Health.

SCHOOLS.

There is no doubt that this very necessary and important work in connection with schools and school children affords room for great development with enormous potential benefit to the health of the children attending the public elementary schools and the public health generally. It is impossible for one Lady Inspector who has multifarious other duties to perform, to do the work satisfactorily. In the first place, probably not one-fourth of the cases which ought to be reported to the Health Department from the schools are reported, and even if they were, it would be impossible with the present staff to visit them all. It is impossible to efficiently supervise and re-visit even the number at present reported. In the second place, under an efficient system, the number of notifiable diseases might, with great advantage, be enlarged to include verminous heads, dirty children, underfed children, and children ill of diseases other than infectious ailments who are obviously neglected. In fact, what is necessary is a complete scheme of medical inspection with a staff sufficient to follow up every case to its home and exercise supervision until there is no longer necessity for it.

What is the good of spending money on the education of those children who are physically unfit to benefit by the education? In proportion as the teaching of these delicate children is efficient the effect on their health is bad. There does not seem to be much advantage in having educated these children, if in the process of their education their health at first not sound, has been made worse, and they are, although educated, incapable by reason of bad health of becoming wage earners, but on the other hand are to be a future charge on the community as inmates of hospitals and workhouses. Again, in the special class of diseases known as infectious diseases, the rates would be saved much money if by any well-organised system of medical inspection these cases could be prevented, as many of them could without any doubt.

To give a concrete example: A small epidemic of Diphtheria occurred in the early months of the year among the scholars of Bedford Road School. This epidemic probably cost the ratepayers at the least £200, to say nothing of the two deaths which occurred among the affected. There were children attending school with obvious sore throats (I excluded 8 on my visit), these children undoubtedly infected other children. These cases could have been prevented, and, in my opinion, *would* have been prevented, and most of that money saved, in addition to the two lives, if there had been a well-organised system of medical inspection of the schools at work in this town.

A verminous child means a dirty home, and judging from the children admitted to the infectious hospital, and from my own observations elsewhere, there is an astonishingly large number of children with verminous heads, and consequently dirty homes. These children, in my opinion, should be excluded from school, and followed into their homes by an inspector, who would see that their heads were cleansed. Dirty heads cause enlarged neck glands, enlarged neck glands not infrequently become infected with tuberculosis, and a site for general infection.

Indeed, it is hardly necessary, at this late period, to prove the necessity for the Medical Inspection of Public Elementary Schools, such an appointment was a recommendation of the Inter-departmental Committee on Physical Deterioration, the report of which was published in 1904. There was published last year another blue book, containing the report of another Inter-departmental Committee on the medical inspection of children attending public elementary schools. I cannot do better than quote from this report. On pages 4 and 5 there will be found the following extracts:—

“There are distinct advantages in the School Medical Officer being also Medical Officer of Health. The duties of the two offices naturally overlap, or may do so. The inspection of children for the prevention of the spread of infectious disease, and the sanitary inspection of the premises, are examples of this. The union of the two offices tends to prevent duplication of work. It has the additional advantage that the staff of the authority's sanitary department is thus made easily accessible for any special work. They are employed for disinfecting schools, and for following up cases of dirty, verminous children, and for obtaining attention to the condition of the homes as well as of the children. At the same time the Medical Officer of Health finds that his position as Educational Medical Officer greatly facilitates his work in preventing the spread of infectious disease. The chief danger of the arrangement is that the work for the prevention of infectious disease may tend to swamp the work in other directions. In saying this we must not be understood to be in any way underestimating the value of this work, we merely desire to point to the possible danger of other important branches of medical inspection not receiving due consideration.”

“Dr. Kerr has given it as his opinion in his memorandum that the irregular calls made upon, and duties demanded from a general practitioner, who has to be at everybody's beck and call, will always make the combination of general

practice and the duties of a school doctor incompatible. Danger may also arise in another direction unless great tact is exercised. If the Medical Officer (*i.e.*, of the School Authority) is in private practice, the other medical practitioners may be jealous of him, and may, rightly or wrongly, accuse him of using his position to remove their patients from them. It is true that only one case of this difficulty was mentioned and that this was almost certainly due to a misunderstanding, but the danger was evidently very much in the minds of the witnesses whom we examined, and clearly needs to be guarded against. The importance of this, it is true, is somewhat diminished by the fact that the duty of the Medical Officer is confined to the examination of the children and to the discovery of any ailments from which they may be suffering, and does not extend to their treatment. His work on the other hand is not popular, and the unpopularity of his official duties may lead to a loss of private practice. Again, as Dr. Martin and others have pointed out, the private practitioner and the Medical Officer have different points of view—"The one aiming at curing diseases, and the other at hunting for disease."

DIARRHŒA.

The number of deaths from Diarrhœa shows a marked decrease, but since the decrease is general throughout the country the principal reason for the lessened mortality in the Borough last year need not be looked for locally, although, it would be against probability to suppose that the efforts put forth in various directions in the last few years, with the view of diminishing the immense waste of human life from this cause, have not been productive of some amount of good. They have undoubtedly been a factor, even if not the principal factor, in the generally lower rate which has prevailed in the last four years from this disease.

I do not think the general public realize how great is the mortality from this disease. For more attention is paid to Phthisis as a cause of death, and yet it may surprise people to learn that during the last 10 years in Bootle, 974 deaths have occurred from Diarrhœa and only 821 from Phthisis. There is a tendency to place the whole responsibility for the prevention of diarrhœal mortality on the shoulders of the Health Committee, but it must not be overlooked—the fact indeed ought to be impressed upon the public and the public interest aroused, *viz.*, that this disease depends largely upon causes which are not preventible by the Sanitary Authority directly but by the people themselves. Diarrhœa is often caused by the ignorance, indifference, apathy and uncleanly

habits of the people themselves. Poverty is a potent indirect cause of diarrhœa, as anyone who thinks for one minute will readily understand. The Health Committee and its officers attempt by means of leaflets and personal advice in the homes of the people, to minimise the first, but over the other causes they cannot be said to have any control. The measures to be adopted for the diminution in the mortality from Diarrhœa, as I have stated with regard to Infant Mortality generally, appear to me to lie within the province of the Education Authority as much as within that of the Health Committee. In addition to obtaining some knowledge in the feeding and care of children, every girl should be taught what is meant by domestic cleanliness, and every child should have decent personal habits instilled into them and taught that they must not defœcate about the house and street at their will, but in the places set apart for such acts. One would think from the opinions sometimes expressed that impure and unclean milk was the only cause of Summer Diarrhœa. I am of opinion that the influence of milk as a causative factor has been exaggerated. To my mind quite as many children die from lack of milk as from impure milk. Of course the importance of milk as a food demands that it should be produced and kept under the best possible conditions as regards cleanliness, and I would advocate no relaxing of the regulations tending to ensure this, but, on the other hand, I would make them stricter in some directions, but if fresh cow's milk from the shippon in the town were used in preference to the patent prepared foods and condensed milks, I am convinced there would be fewer deaths annually from Summer Diarrhœa.

Condensed milks, both whole and skimmed, are extensively used in the feeding of young children. A grocer with two shops situated in by no means the worst portion of the Borough, told me that he sold 1,000 tins of condensed skimmed milk weekly. Of course I do not suggest for a minute that all this is used for infant feeding, but some is and the result is slow starvation and death from the first ailment which comes along, perhaps Measles, perhaps Whooping Cough or Diarrhœa, perhaps the death is notified as due to Inanition, Marasmus or Convulsions.

There can be no doubt whatever that the previous health of a child has a great influence in determining (1) whether a child will be attacked by Diarrhœa, (2) whether the child will survive if attacked. It is just here where the effect of improper feeding is manifested. When a child is habitually fed on food which it cannot digest, the stomach and intestines of that child are kept in a state of constant irritation, the irritation being, in some cases, so great as to cause

vomiting and diarrhœa, and in all cases feebleness and malnutrition, in other words, starvation. Many a child dies of starvation in this way, and in some instances, I am afraid, from *intentional* starvation, though probably in most cases unintentional.

Though the food given to children may be so grossly improper as to cause death from the constant Diarrhœa and vomiting set up thereby, in the majority of instances this improper feeding does not directly cause death but (among other results) paves the way in the summer time for an attack of Summer Diarrhœa. A much smaller amount of the infection will suffice to set up the disease in these badly nourished children than in well nourished breast-fed children. It has been shown over and over again by different observers that not only in respect of summer diarrhœa is the mortality among breast-fed children very markedly less than among the hand-fed, but that the immunity extends to all diseases, infectious or otherwise, throughout child life. This fact cannot be too widely known. The importance of breast feeding cannot be too greatly insisted on.

Summer Diarrhœa is probably due to a specific micro-organism and evidence is rapidly accumulating in support of the contention that flies, to a very great extent, act as carriers of this infection—if indeed the contention cannot now be said to be scientifically proved. In my first Annual Report (for the year 1901) I wrote as follows: “One finds milk for the use of the child left in the rooms in dirty utensils and without any covering, ready for the deposit of all kinds of dust and dirt, to say nothing of the flies which may have come from a neighbouring ashpit directly to the milk, and are a source of contamination, which has been overlooked until quite recently.”

I also wrote: “I am convinced that any sanitary measures which may be taken to prevent this annual epidemic are foredoomed to failure unless the mothers are at the same time instructed. This is pre-eminently the work of a Lady Sanitary Inspector, but to my mind much greater good will ultimately ensue if the elder children in Board Schools are given instruction in the feeding of children, and also instructed in the rudiments of hygiene.”

With regard to the influence of flies, I may mention that there was quite a plague of flies in the last two weeks of July. I noted this fact in my diary at the time. In the second of these two weeks no less than 35 children died from diarrhœa. Afterwards the weather became wet and colder and the flies considerably less, and the death rate from diarrhœa declined *pari passu* with these three, shall I say coincident, facts.

With regard to the suggested "Teaching of Hygiene to include Infant Feeding," a Royal Commission has since sat to consider the question of Physical Deterioration, and have included the above among their recommendations. The Education Committee of the Borough, beyond approving of the suggestion, have so far as I am aware, taken no steps to put it into operation.

I must again recommend the Health Committee to appoint an additional Lady Sanitary Inspector for the summer months, who shall devote her whole time to the discovering and visitation of cases of diarrhœa. It is absolutely impossible for our present inspector to perform this work unless all her other work is allowed to slide, which is not, in my opinion, a wise course to pursue.

The following table shows the number of deaths ascribed to Diarrhœa in each year since 1897:—

1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
153	114	146	139	113	53	85	109	87

Deaths from Diarrhœa in the different Wards, year 1905:—

MERSEY.	STANLEY.	DERBY.
Ampton Place ... 1	Beatrice Street... 1	Brookhill Road 2
Canal Street ... 1	Benedict Street 2	Elm Street ... 1
Bedford Road .. 1	Queen's Road ... 1	Garden Lane ... 1
Berry Street ... 1	Miranda Road ... 2	Gloucester Road 2
Cross Street .. 1	Olivia Street ... 3	Hawthorne Road 1
Johnstone Street 2	Orlando Street... 1	Litherland Road 3
King's Road ... 1		Lunt Road ... 1
Kirk Street ... 4		Marsh Lane ... 1
Lyons Street ... 2		New Street ... 2
Mann Street ... 1		Recreation Street 1
Pleasant Grove 2		St. Andrew's Road 1
Pleasant Place 1		Stanley Road ... 1
Molyneux Street 1		Thornton Road 2
Queen's Road ... 1		
Stanley Road ... 1		
Seaforth Street 4		
Wm. Henry Street 1		
Total ... 26		10
		19

KNOWSLEY.		LINACRE.	
Aber Street ...	2	Akenside Street	1
Bala Street ...	1	Bibby's Lane .	1
Bangor Street...	2	Chesnut Grove	2
Browning Street	1	Croxteth Road	1
Carolina Street	1	Dryden Street...	1
Conway Street	1	Falkner Street	1
Denbigh Street	1	Knowsley Road	1
Garfield Street	1	Longfellow Street	1
Florida Street...	2	Mildmay Road	1
Oregon Street...	1	Moore Street ..	3
Stafford Street.	1	Shelley Street...	2
Wadsworth Street	1	Tennyson Street	1
C'tral Fire Station	1		
Total ...	16	Total ...	16

A glance at this table shows that the greatest incidence of mortality is in the streets in which the poorest of our population live, and I may add that generally speaking, a very large number of children who died were weakly children, who in the ordinary course of events would have fallen victims to the first severe illness which might have befallen them. No less than 17 or 19% of the total number of deaths were reported by the Lady Sanitary Inspector as those of children extremely delicate from birth. Three of these were children of twin-birth. In nine instances mothers of very young children had left them in charge of a third person.

In 60 cases or 68% of the total number of deaths the infants were insured. In 27 instances one or more deaths from Diarrhœa had occurred previously in the same family.

In the following 7 instances, 3 or more deaths have occurred :—

No. of children in family.	No. died from	No. died from	Parents drink	Age.	Food.
	No. dead.	Diarrhœa.			
10	5	4	Both drink	10 months	Breast and Bread.
12	10	10	No	9 months	New milk and barley water, boat-shaped bottle.

No. of children in family.	No. dead.	No. died from Diarrhoea.	Parents drink.	Age.	Food.
15	8	3		7 months	New milk and Robinson's Barley, boat-shaped bottle.
9	3	3	Father drinks	15 months	Breast, new milk and water, biscuit, bread and butter.
6	4	4	Both drink	8 months	Milk and barley water, L. T. B.
6	3	3	Doubtful	2 months	New milk and barley water, L. T. B.
5	3	3	No	4 months	New milk and water, boat-shaped bottle.

Sanitary defects were found in 14 cases :—

Defective yard surfaces	...	...	...	...	10
Choked drains	...	...	...	...	3
Defective privy	...	...	...	...	1

Enquiries were also made with the idea of showing the effect (if any), of excessive indulgence in Alcohol upon Summer Diarrhoea. I do not suggest that the excessive indulgence in the use of Alcohol by the parents has any direct effect upon the disease, but its indirect effect is undoubtedly great. In the first place the children born of parents markedly intemperate, are often weakly children, likely to succumb to the first illness which may attack them; in the second place the amount of money spent in drink must diminish the amount available for the purchase of food, and since it is common knowledge that very many people in this class will have drink rather than food, when work is not plentiful the amount of money spent upon food diminishes to the vanishing point, with the result that when food is bought the quantity is insufficient for the proper nourishment, not only of the children, but of the parents, and moreover, the food bought is of the very cheapest without regard to suitability. Children not breast-fed will then have the choice between an insufficient amount of new milk, or the cheapest kinds of prepared foods, and such articles of diet as skimmed milk, condensed skimmed milk, barley water, or some other patented barley—foods generally speaking unable to sustain life, and which are in addition probably badly prepared for the children.

Again, it must be remembered that when the mothers are drunk, the infants are either utterly forgotten and get no food at all, or else are given over to the care of children very few years older than themselves, with results often disastrous.

The information contained in the following table is probably an under estimate, only authenticated instances being reported, *e.g.*, either that the parents were seen by the Lady Sanitary Inspector drunk on several occasions, or the information was given by the people themselves :—

In 8 cases both parents drink.

In 5 cases father alone drinks.

In 4 cases mother alone drinks.

In ten instances a plague of flies was noted as settling on food, dropping into milk and tea, and crawling over babies' faces. In many other instances flies, living and dead, were found in tins of condensed milk used for the baby, and in four cases children were known to have sat on the kitchen floor or on the front door step or in the street, the inference from which is that the children put their hands into all kinds of dirt and afterwards infect their food with their unwashed hands. The custom of putting young children to play on the bare kitchen floor is not one to be commended.

It has often been suggested that Summer Diarrhœa is sometimes spread by case to case infection after the manner of Typhoid. One instance was reported to me which strongly favours that suggestion, though of course one would have to multiply such evidence before being able to arrive at any conclusion on the point. The particulars were as follows :—Mrs. M bringing her baby, went to help Mrs. L, whose baby was suffering from diarrhœa and eventually died. On the next day Mrs. M's baby was taken ill with diarrhœa and died in six hours.

Among the 87 infants who died :—

27 were under 6 months old.	} <i>i.e.</i> , 65 under 1 year of age.
38 between 6 and 12 months old.	
12 between 12 and 18 months.	
4 between 18 and 24 months.	
6 over 2 years old.	

Enquiries as to the method of feeding the children gave the following results :—

6 cases were fed on breast only. In 3 of these cases the mother admitted to having given the child an occasional crust.

31 cases were fed on breast and by hand. Eight of these children had been recently weaned.

50 cases were fed by hand only.

Cow's milk alone was used in 41 cases. Cow's milk with other foods, 15.

Condensed milk alone, 7 cases. Condensed milk and other foods, 4.

Anything going, 12.

Other foods—Neave's, Ridge's, Allenbury's, rusks, arrowroot biscuits, boiled bread.

Long Tubed Bottles were found to be in use in 13 instances. Boat Shaped Bottles in 35. From these figures it would appear that the hateful long tubes are being slowly relegated to the limbo of the past, though considering the publicity which has been given to the evils resulting from their use, it is perhaps somewhat surprising to find so many still being used.

The deaths occurred in 86 houses :—

50 of which were occupied by 1 family.

31 were occupied by 2 families.

4 were occupied by 3 families.

1 was occupied by 4 families.

The following are the measures taken to combat the disease.

1. At my request the Registrar of Births and Deaths very kindly consented to give to the parents at the registration of every birth a copy of a "Memorandum as to the Feeding of Infants and Young Children," compiled by me. This has been done.

2. The Lady Sanitary Inspector selects from the Returns of Births those occurring in the poorer neighbourhoods; visits these houses; gives the parents advice as to the feeding of infants; sees that the houses are kept clean; impresses upon the people the value of cleanliness; and instructs them as to the ventilation of their rooms.

3. The Lady Sanitary Inspector visits every house where a death from Diarrhœa has occurred; make enquiries and gives advice, should any other child be suffering from that disease.

PHTHISIS.

A very large proportion of the deaths registered from Phthisis occur in the Workhouse Hospitals of the West Derby Union; many of these are sailors and dock labourers who, in all probability, lived in Bootle but a very short time. These deaths materially increase the death rate from Phthisis.

During 1905, 78 deaths were registered from Phthisis, equal to a death rate of 1·2 per 1,000; compared with 100 deaths in 1904, and a rate of 1·6 per 1,000.

The deaths were divided among the Wards as follows:—

Derby.	Stanley.	Mersey.	Knowsley.	Linacre.
12	8	27	15	16

The following table shows the yearly number of deaths from Phthisis since 1894, and the rate per 1,000 of population.

	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
No. of Deaths.....	83	84	70	86	75	92	75	78	92	76	100	78
Death Rate per 1,000.....	1·5	1·5	1·3	1·5	1·3	1·6	1·3	1·3	1·6	1·2	1·6	1·2

Table showing progressive decline in the death rate from Phthisis for the last three decades for the whole of England.

	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1900.
Annual average death-rate per 1,000 of the population above 6 years of age from Phthisis.....	3·62	2·78	2·44	2·03

Since July, 1901, a fee of 2s. 6d. has been paid to medical practitioners for all cases of Phthisis notified by them.

From July to December, 1901, 22 cases were notified. In 1902, 22 cases only were notified for the whole 12 months. In 1903, 21 cases. In 1904, 40 cases. In 1905, 22 cases.

On receipt of the notification, enquiries are made, a leaflet of the precautions to be taken is left, and a pocket spittoon is given when required. An offer to disinfect the premises is made after every death from Phthisis, and also after the removal of a case to the Hospital.

A special register for Phthisis cases is now kept and the cases are periodically visited by an Inspector, who sees that the necessary precautions for preventing the spread of the infection are being taken. Enquiries are also made with a view of shewing the effect on the disease of (1) domestic infection (2) occupation (3) alcoholism. The results are carefully kept, and will doubtless prove of much value in pointing out the lines upon which to proceed in combating the disease.

Notices warning people against the filthy habit of promiscuous expectoration have now been hung in all the bakehouses, and most of the workshops in the town.

I regret that more cases are not notified to me by the medical gentlemen of the borough.

It will be noticed that only 22 cases were notified, 21 less than last year, while 77 deaths were certified as due to the disease. Many of the cases were notified after death. Although I am of opinion that the prevention of this disease, at any rate as regards case to case infection, is the concern of the family doctor much more than of the Sanitary Authority, I still think there are many more cases than are notified in which the aid of the Sanitary Authority would be of extreme value in the direction of insisting upon cleanliness and ventilation.

I am of opinion that the risk of infection from case to case is apt to be over estimated, but whatever the amount of the risk may be, I have no doubt that such risk would be greatly lessened if due attention were paid to the cleanliness of houses and to the efficient ventilation of houses and rooms by open doors and windows.

The Sanatorium treatment of Phthisis mainly consists in paying attention to light and cleanliness, and to providing abundance of fresh air—and if useful for curing the disease, how much more useful must be the application of these principles to the prevention thereof.

The bacteriological examination of sputum is undertaken at the Linacre Hospital, free of charge. This opportunity for bacteriological examination might, however, be made more use of.

Although fewer cases were notified last year than in 1902, the offers to disinfect have been as a rule received with more enthusiasm.

The details of the work done under this head are as follows:—

Number of cases notified and taken from Death Returns ..	88
Number of houses disinfected	67
Number of houses disinfected and cleansed	31

The cleansing, which is done at the expense of the Corporation, consists of stripping the walls and whitening the ceilings of the rooms occupied by the patient.

Disinfection consists in thoroughly spraying the walls, ceilings, floors, &c., with a strong solution of Formalin by means of an Equifex Spray.

ALCOHOLISM.

Eleven deaths are put down as due to this cause compared with 14 last year.

This comparatively small number of deaths from Alcoholism does not in any way indicate the amount of harm done to the public health by excessive drinking.

It is not too much to say that if the problem of the prevention of excessive drinking were solved, more than half the public health and social questions would automatically disappear.

The children of intemperate parents are often weakly, and nearly always neglected, and it has been found over and over again that the parents of many of those children whose deaths are certified as being due to "Marasmus, Summer Diarrhoea," and such diseases, are markedly intemperate.

Then again alcoholism is one of the chief causes of poverty and all that implies (*e.g.*) uncleanness and lack of comfort in the home, and impaired health of the children. It is undoubtedly an important factor as a predisposing cause of consumption, and mental experts tell us that a history of alcoholic intemperance is obtainable in a very large percentage of asylum cases—in fact the evil effects of alcoholic excess are traceable in many different directions, and have not a little to do with the excessive mortality which prevails for certain diseases.

A suggestion has been made that Bootle shall follow in the wake of other towns, and draw public attention to the evils of alcoholic excess by mural placards, and I personally am in favour of taking any step, the possible result of which would be to lessen in any way the evil, and perhaps one of the best ways to commence is to make everyone acquainted with the evil results which follow such excess.

THE MIDWIVES ACT.

This Act came into operation on the 1st of April, 1905. The object of the Act is to secure the better training of midwives and to regulate their practice. The Central Authority is the Midwives Board, and by Sec. 8 of the Act, the Councils of County Boroughs are constituted the local supervising authorities. The powers and duties of the local supervising authority for Bootle have been delegated to the Health Committee with the Medical Officer of Health as the executive officer. The duties are laid down as follows:—

- (1). To exercise general supervision over all midwives practising within their area in accordance with the rules to be laid down under this Act.
- (2). To investigate charges of malpractice, negligence, or misconduct, on the part of any midwife practising within their area, and should a *prima facie* case be established, to report the same to the Central Midwives Board.
- (3). To suspend any midwife from practice, in accordance with the rules under this Act, if such suspension appears necessary in order to prevent the spread of infection.

- (4). To report at once to the said Board the name of any midwife practising in their area convicted of an offence.
- (5). During the month of January of each year to supply the Secretary of the Central Midwives Board with the names and addresses of all midwives who, during the preceding year, have notified their intention to practice within their area, and to keep a current copy of the roll of midwives, accessible at all reasonable times for public inspection.
- (6). To report at once to the Central Midwives Board the death of any midwife, or any change in the name or address of any midwife in their area, so that the necessary alteration may be made in the roll.
- (7). To give due notice of the effect of the Act so far as practicable, to persons at present using the title of midwife.

The Central Midwives Board have framed rules by which the midwives have to regulate their work. There are provisions in the rules for ensuring the personal cleanliness of midwives, and also the cleanliness of their homes and clothing. They must carry with them to their cases certain specified articles, and the bags containing them must be open to inspection at any time.

They must keep records of all the cases they attend. They must notify the local S.A. of still births, deaths, Puerperal Fever cases and infectious disease, and also of those cases in which they seek medical aid.

In order to carry out the duties imposed upon them, the local supervising authority appointed as Female Sanitary Inspector, a qualified midwife to assist the M.O.H. in the administration of the Act.

As some of the midwives enrolled are absolutely illiterate and without any training, in addition to supervisory work, the Inspector spends a good deal of time in giving them much needed instructions. I have myself also visited at the homes of all the midwives, and inspected their books, bags, and appliances, and have also given them instruction in the rules framed by the Board and their duties as set out therein.

Strict enquiries have been made into all cases of still births notified by the midwives, and in addition into the cases of children who by the death returns have died in the first month of their lives, particularly those who have died within a few days of their birth, with the idea of discovering any possible carelessness on the part of the midwife (if any) which has not come to the notice of the local supervising authority.

There are 21 on the local roll of midwives, 18 of these have had at some time or other some systematic training, many of them require their knowledge bringing up to date, the remaining 3 were placed on the roll by reason of the fact that each produced a certificate to the effect that she had been in *bona fide* practice as a midwife for at least one year prior to July 31, 1902, and that she was sober, trustworthy and of good moral character. Of these 2 cannot read nor write.

The following is the summary of the work done under the Act since April 1 :—

Routine visits paid to midwives' houses, inspection of bags, case books, &c.	77
Enquiries <i>re</i> still born children	40
Other enquiries	26
<hr/>	
Total visits paid under the Midwives Act	143

Under the Rules of the Central Midwives Board (Sec. E. 18), the following notifications have been received :—

Records of sending for medical help	40
Still births... ..	20
Death of mother or child before attendance of a medical practitioner	0
Cases of Puerperal Fever notified	0
Cases of other infectious diseases... ..	0

Under Sec. 8, I have to keep the Central Midwives' Board acquainted with the death, change of name or address of any midwife. The under-mentioned changes have been notified:—

Change of name	...	...	...	...	...	...	0
Change of address	...	...	...	...	...	...	4
Deaths of midwives...	...	...	...	...	...	...	0

There has not been a single notification of Puerperal Fever during the year, indeed, the last notification was received in 1902, and then only one. In every year prior to 1902 several cases had been notified. In 1902 there was 1, in 1901, 6.

On looking through the Notification Book I find that in 1903 two notifications were received, but in each case other doctors were subsequently called in who certified that the cases were not Puerperal Fever. This is interesting as bearing on the question "What is Puerperal Fever?"

In the last three years 6,000 births have been registered in Bootle, and with the exception of the two cases above-mentioned (which have not been included in the statistics because the notification was in each instance contradicted) there has not been a single case of Puerperal Fever among the 6,000 births occurring in Bootle. Now 75% of these cases would be attended by midwives, many of them without any training, with very little intelligence, dirty in their clothes and person, and practising without any supervision.

There would appear to be something requiring an explanation here, especially when it is borne in mind that there is not another of the 76 large towns which can claim a complete immunity from this disease for so long a time. Perhaps to some extent the situation might be explained by the differences of opinion which are held by members of the medical profession as to what constitutes a case of Puerperal Fever. By some the term is applied only to those cases of severe infection which almost invariably have a fatal result, indeed, in most places the number of notifications of Puerperal Fever nearly always coincide with the number of deaths from that disease. But surely, just as one can have a severe and mild form of any disease, *e.g.*, Scarlet Fever, which may be so severe as to kill the patient within 24 hours, and may be so mild as sometimes to escape detection, yet there is a legal obligation on

the medical practitioner, or other responsible person, to notify both types of the disease, so if the midwives are to be made more careful and more capable, it is very necessary that even the mildest case of Puerperal Fever should be notified as well as those cases which are notified because the death would in a day or two appear in the Registrar's returns. With the idea of ensuring more complete notification, the North Western Branch of the Incorporated Society of Medical Officers of Health, have drawn up a much needed definition of the term Puerperal Fever, and have forwarded it to the Local Government Board with the idea of having it adopted as a legal definition of the term.

The proposed definition reads thus :—

“ For the purposes of the Notification Acts, 1889 and 1899, the term Puerperal Fever shall include all cases in which within seven days after the birth of a child, alive or stillborn, the mother shall have a rise of temperature exceeding 100·4 Fah. with quick pulse, maintained for a period exceeding 24 hours without any ascertainable cause other than the puerperal state. It shall also include all cases in which, within seven days after the birth of a child, there has been the occurrence of rigor (with attendant illness) without any ascertainable cause other than the puerperal state.”

This definition, if adopted, would embrace all forms of the disease, and would unquestionably bring to light many cases now not heard of, and would lead to greater care being shown in the management of childbirth and consequently tend to diminish the amount of after suffering (often life-long) and perhaps actual loss of life among women, as the result sometimes unavoidable, sometimes due to careless handling at the time of child birth.

DRAIN TESTING.

During the year the drains of all new houses have withstood the water test before receiving a certificate of suitability for habitation.

Five-hundred-and-forty-five drains in all have been tested.

When the test was first introduced it was found necessary to apply it in many cases a second, and even a third time, but it is now very occasionally that a second test is necessary, and the second test is chiefly due to the fact that the builders themselves have asked for the test to be made before the cement has been firmly set.

The use of this test has thus effected a great improvement in the laying of drains.

OFFENSIVE TRADES.

These have been regularly supervised throughout the year. These trades number five and are as follows :—

	No. of inspections made.		
2 Tanneries	7
1 Fellmonger	3 now closed.
1 Soap Boiler	10
1 Bone Boiler	9
1 Gut Scraper	7

SUBLET HOUSES.

The bye-laws with respect to these have been in force a little more than a year. There are 140 houses on the register, and to these 1,106 visits have been made, both by day and night. 103 notices have been served upon the occupiers for infringements of these bye-laws in respect of overcrowding, dirty rooms, &c., and it has been found necessary to prosecute in seven instances :—

PARTICULARS OF PROSECUTIONS.

Date.	Offence.	Result.
March 21.	Overcrowding.	Pay costs, 7s.
March 21.	Overcrowding.	Pay costs, 7s.
April 25.	Dirty floors, &c.	1s. and 1s. costs.
April 25.	Dirty floors, &c.	1s. and 1s. costs.
April 25.	Dirty floors, &c.	1s. and 1s. costs.
May 15.	Overcrowding.	5s. and costs, or 7 days.
May 15.	Overcrowding.	5s. and costs, or 7 days.

These prosecutions have had a very salutary effect, and on receipt of notices the causes of complaint are now promptly remedied.

SLAUGHTER HOUSES.

There are but two slaughter houses in constant use in the Borough. These are kept in a satisfactory condition. Another is occasionally used. Practically all the meat sold in Bootle comes either from the public abattoirs in Liverpool and Birkenhead, or is imported frozen from abroad.

FOOD INSPECTION.

807 Visits have been made to Meat, Fish, Fruit and Ice Cream shops during the year. These visits were made chiefly during the summer. Surprise visits have also been made on Sunday mornings to shops in certain parts of the Borough where unsound food might be sold, but with trifling exceptions no article of food in an unsound condition has been discovered.

In addition 44 carts selling articles of food in the street were examined.

FACTORY AND WORKSHOP ACT, 1901.

Under this Act the Medical Officer of Health is required to report specifically on the administration of the Act in workshops and workplaces, and to send a copy of such report to the Secretary of State.

The workshops and workplaces include Bakehouses, Confectioners' Bakehouses, Dressmakers, Tailors and Milliners' workrooms, Laundries, Bootmakers. A list of outworkers employed by different firms engaged in the manufacture of wearing apparel is also kept, and the rooms where the work is done inspected regularly.

This work is performed by one male inspector, while the lady inspector visits the shops where women are employed. They report on :—

- (1) Ventilation.
- (2) Cleanliness of floors and walls.
- (3) Lighting.
- (4) Water-closet provision.
- (5) Overcrowding.

A sharp look out is also kept that no work connected with clothing is done in any house infected with Smallpox or Scarlet Fever.

The following Table shows the summary of work done under the Factory and Workshop Act. It is set forth more in detail on pages 79—80.

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES AND HOMEWORK.

1.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories (Including Factory Laundries)	61	15	—
Workshops (Including Workshop Laundries)	810	56	—
Workplaces	614	8	—
Homeworkers' Premises	64	6	—
Total	1549	85	—

2.—DEFECTS FOUND.

Particulars.	Number of Defects			Number of Prosecutions.
	Found.	Remedied.	Referred to H. M. Inspector.	
Nuisance under the Public Health Acts:—				
Want of Cleanliness	77	77	—	—
Want of Ventilation	3	3	—	—
Overcrowding	2	2	—	—
Want of drainage of floors	5	5	—	—
Other Nuisances	71	71	—	—
Sanitary accommodations {	insufficient ...	7	7	—
	unsuitable or defective ...	4	4	—
	not separate for sexes ..	—	—	—
Offences under the Factory and Workshop Act:—				
Illegal occupation of underground bakehouse (S. 101)	—	—	—	—
Breach of special sanitary requirements for bakehouses (SS. 97 to 100)	—	—	—	—
Failure as regard list of outworkers (S. 107)	2	2	—	—
Giving out work to be done in premises which are { unwholesome (S. 108)... infected (S. 110)	—	—	—	—
Allowing wearing apparel to be made in premises infected by scarlet fever or smallpox (S. 109).	—	—	—	—
Other Offences	34	34	—	—
Total	205	205	11	0

3.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspectors of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133)	17
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts, but not under the Factory Act (S. 5) {	7
N'fied by H.M. Insp'tor Reports(of action taken) sent to H.M. Inspectors	11
Other	4
Underground Bakehouses (S. 101)—	
Certificates granted during the year (Renewed)	18
In use at the end of 1905	18
Homework : —	
	Number of
	Lists. Outworkers.
List of Outworkers (S. 107) :—	
Lists received	6 16
Addresses of outworkers {	
forwarded to other Authorities ...	4 4
received from other Authorities ...	2 10
Homework in unwholesome or infected premises :—	
	Wearing Apparel. Other.
Notices prohibiting homework in unwholesome premises (S. 108)	— —
Cases of infectious disease notified in homeworke's premises	1 —
Orders of prohibiting homework in infected premises (S. 110)	1 —
Workshops on the Register (S. 131) at the end of 1905 :—	
Bakehouses	37
Confectionery Bakehouses	30
Workshops	84
Work Places	76
Outworkers Premises	16
Total number of workshops on Register ...	243

Speaking generally, the rooms where dressmaking, millinery and tailoring are done, are sanitary, and are kept in a cleanly state. The same applies to rooms occupied by outworkers. The number of cellars in Bootle used as workshops is very few.

BAKEHOUSES.

On pages 79—80 will be found a summary of the work done with respect to the above. Since the alteration to the underground bakehouses there has been a great general improvement in their condition as regards cleanliness, and also as regards the cleanliness of the utensils. Provision for the washing of the workers' hands is now the rule, though the towels provided are not always clean, and in a few instances old sacks are used as towels. It will be noticed that it has not been found necessary to serve a single notice for the cleansing of utensils during the year, although 11 notices were served for the cleansing of dirty walls and ceilings.

DAIRIES, COWSHEDS AND MILKSHOPS.

The Dairies, Cowsheds and Milkshops have been regularly inspected throughout the year. For particulars see page 78.

All the cows in the various shippens have been examined periodically by the Veterinary Surgeon, and distinct benefit has resulted from this procedure. All animals showing distinct signs of Tuberculosis of the udder, and all those animals showing doubtful signs which have given a positive re-action to the Tuberculin test, have been removed from the district without delay. Fourteen animals have thus been removed during the past year. Thirteen of these cows were sent out of the Borough by the cowkeepers themselves without the Tuberculin test being applied on the Veterinary Surgeon expressing his opinion that the animals were suffering from Tuberculosis of the udder. The remaining one was tested but no re-action followed—the cowkeeper, however, sent the animal away rather than have a suspected cow in his shippen. The average number of cows housed in shippens in Bootle is about 500.

Under the old method of procedure the milk of the 14 cows above-mentioned would have been sent for bacteriological examination, and an interval of about five weeks would have elapsed before the result of such examination could be known. During this period the milk from such animals would either have been destroyed at the expense of the Corporation, or have been mixed with other milk and sold.

The Veterinary Surgeon reports that the quality and condition of the cows kept in Bootle shippons continues to be of a high standard, and that both shippons and cows were invariably clean on the occasions of his visits.

In a few of the shippons there is no adequate provision for the washing of the milker's hands, while the practice of cleansing the cows udders before milking is not universal. I have on the occasion of my own visits to the shippons advised that the udder of each cow be wiped with a clean damp cloth before milking, and I am sure the institution of this little reform as a routine practice will tend to prevent the entry into the milk of those micro-organisms which are at all times an indication of uncleanness in some particular, and in summer time are not without danger to those drinking the milk.

During the year 20 samples of milk were sent to Professor Boyce for Bacteriological Examination. The following table shows the results of such examination :—

Milk from.	No. of samples sent.	No. of samples in which Bacillus Coli was found.	No. found Tubercular.	No. correct.
Bootle Shippons	10	4	0	6
Country	10	4	0	6

The Bacillus Coli is an organism associated with dirt. Its presence in milk indicates contamination, which may take place either from the hands of milkers, or from the cow, or in course of transit.

SALE OF FOOD AND DRUGS ACTS, YEAR 1905.

	Total Number of Samples Analysed.	Number Reported by Analyst as Adul- terated.	Prosecu- tions.	Results.	REMARKS.
Butter	50	—	—	—	—
Milk	83	14	9	£9 10 0	—
Cream	1	1	—	—	—
Linseed Meal	1	—	—	—	—
Margarine	9	2	1	—	—
Cheese	11	—	—	—	—
Coffee	2	—	—	—	—
Castor Sugar	1	—	—	—	—
White Precipitate	1	—	—	—	—
Magnesia	1	—	—	—	—
Oil of Eucalyptus	1	—	—	—	—
Lard	3	—	—	—	—
Beer	3	—	—	—	—
Keeloma... .. .	1	—	—	—	—
Quinine Wine	1	—	—	—	—
White Pepper	8	—	—	—	—
Brandy	1	—	—	—	—
Rum	1	—	—	—	—
Sweet Spirit of Nitre	1	—	—	—	—
Prescription	1	—	—	—	—
Orange Wine	1	—	—	—	—
Raspberry Wine	2	—	—	—	—
Cherry Brandy... .. .	1	—	—	—	—
Blackcurrant Wine	1	—	—	—	—
Sweets	2	—	—	—	—
Potted Shrimps... .. .	2	—	—	—	—
Linseed Liquorice & Chlorodyne Lozenges	3	3	—	—	—
Total	193	20	19	£9 10 0	—

NOTE—In addition to the above, other samples were taken, but were not sent to the Public Analyst, viz. :—Milk 20, Cheese 2, and White Pepper 1.

Twenty samples of milk were taken for the purpose of Bacteriological Examination by Professor Boyce at the Liverpool University. See page 52.

The foregoing table shows that the largest numbers of samples purchased in Bootle were those of milk. This is in accordance with the recommendation of the Board of Agriculture, viz. : that the total number of samples taken should total not less than 3 per 1,000 of population, and half of these should be milk.

Considering the importance of milk as an article of diet for young children and invalids, it is of extreme importance that the quality of the milk sold should be the best possible.

In March, 1905, a circular letter was received from the Board of Agriculture as to the procedure recommended to be adopted by local authorities with respect to the milk standard. This letter, together with a previous letter on the same subject, have been considered by the Health Committee on several occasions, and are of such importance and general interest that I reproduce them. The Medical Officer of Health for Newcastle-on-Tyne has criticised these circular letters in a report to his Health Committee, and these criticisms are so explicit and coincide with my own views so exactly that I have thought it would be well to reprint his report with the letters in the hope that the information contained might be of use to the members of my own Committee if ever the subject should come up for discussion again.

BOARD OF AGRICULTURE AND FISHERIES.

4, WHITEHALL PLACE,

LONDON, S.W.,

16th March, 1905.

SALE OF FOOD AND DRUGS ACT, 1899.

(62 and 63 Vict. c. 51.)

SIR,

I am directed by the Board of Agriculture and Fisheries to advert to their circular letter of the 28th December, 1901, of which a copy is herewith enclosed, and to inform you that they have received numerous representations from dairy farmers and others complaining of the institution of proceedings under the Sale of Food and Drugs Act, 1875 to 1899, in cases in which, as it is alleged,

the deficiency of milk fat or milk solids as compared with the limits laid down in the Sale of Milk Regulations, 1901, was due to accidental causes and not any fraudulent action on the part of the vendor.

In the circular letter above referred to, the Board suggested that in the absence of any special circumstances indicating the commission of fraud, the Local Authority might in the first instance call the attention of the vendor to the adverse report of the analyst and afford him an opportunity of submitting any explanation he might desire to offer on the subject. The Board further expressed the opinion that if the explanation were one which the Local Authority felt able to accept, they might, in the exercise of their discretion, refrain from the institution of proceedings, or withdraw any summons which it might have been necessary to take out in order to avoid the failure of proceedings, at the same time making arrangements for the taking of further samples of the milk supplied, in order that a satisfactory conclusion as to its character might be arrived at.

The experience of the past three years has confirmed the propriety of the views expressed by the Board on the subject, and they would be glad to learn that your Local Authority have made arrangements to proceed on the lines suggested, and if not, that the matter will be further considered at an early date.

I am also to say that the Board think it very desirable that farmers, dairymen, and all other cowkeepers should have samples of the milk of their cows tested from time to time, so that they may be able to watch the seasonal and other variations in the quantity of milk fat contained in the milk, and by modifications in the feeding, housing, or time of milking, and if necessary by the disposal of animals giving milk of an exceptionally poor character, keep the quality of their milk at a satisfactory level. The Board have ascertained that with the object of assisting farmers thus to acquaint themselves with the character of their milk, the various Agricultural Colleges and Agricultural Departments of University Colleges, etc., are willing to determine, for the fee of sixpence, the percentage of milk fat in any sample of milk which may be sent to them from the counties with which they are respectively associated. Detailed information as to the arrangements thus made is given in the journal of the Board of Agriculture for March, 1905. The Board would be glad if your Local Authority would co-operate with them in the matter, and do what is possible to facilitate the testing of milk in the manner proposed.

The Board are satisfied that if the keepers of cows will from time to time test the quality of their milk for themselves, and if the Local Authorities will adopt some such arrangement as that above suggested for hearing what the vendor has to say for himself before taking the case into open court, any legitimate ground of complaint on the part of producers as to the administration of the law so far as the adulteration of milk is concerned, will speedily be removed.

I am, Sir,

Your obedient Servant,

(Signed) T. H. ELLIOTT,

Secretary.

BOARD OF AGRICULTURE,

4, WHITEHALL PLACE,

LONDON, S.W.

28th December, 1901.

SALE OF FOOD AND DRUGS ACT, 1899.

(62 and 63 Vict., c. 51).

SIR,

I am directed by the Board of Agriculture to bring under the notice of your Local Authority the following observations with reference to the Regulations relating to the Sale of Milk in Great Britain, which, in pursuance of the powers conferred upon the Board by section 4 of the Sale of Food and Drugs Act, 1899, were made by the Board on the 5th August, and came into operation on the first September, 1901.

The Regulations were as follows :—

MILK.

(1) Where a sample of milk (not being sold as skimmed, or separated, or condensed milk) contains less than three per cent. of milk fat, it shall be presumed for the purposes of the Sale of Food and Drugs Acts, 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk fat, or the addition thereto of water.

(2) Where a sample of milk (not being milk sold as skimmed, or separated, or condensed milk) contains less than 8·5 per cent. of milk solids, other than milk fat, it shall be presumed for the purposes of the Sale of Food and Drugs Acts, 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk solids other than milk fat, or the addition thereto of water.

SKIMMED OR SEPARATED MILK.

(3) Where a sample of skimmed or separated milk (not being condensed milk) contains less than 9 per cent of milk solids, it shall be presumed for the purposes of the Sale of Food and Drugs Acts, 1875 to 1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk solids, other than milk fat, or the addition thereto of water.

In the regulations the limits below which a presumption is raised that the milk is not genuine were necessarily fixed at figures lower than those which are usually afforded by genuine milk, in which the proportion of milk fat and non-fatty solids very frequently exceeds the percentages specified above. It is, therefore, important that Local Authorities should keep steadily in view the possibility of the artificial reduction of the quality of the milk to the official limits by the abstraction of cream, or the addition of separated milk, or of water, and arrangements should be made for the taking of samples and the submission of the same for analysis whenever the existence of malpractices of the kind is suspected. In this connection it may be observed that the evidence given before the Milk Regulation Committee (Cd. 491), tended to show that the practice of fraudulently mixing separated milk with new milk has become increasingly prevalent, particularly in some of the larger towns.

Although the quality of genuine milk offered for sale will usually be well above the official limits of milk fats and non-fatty solids, there may occasionally, and especially in some seasons of the year, be cases in which a sample of genuine milk may fall below those limits. To meet cases of this kind it is suggested that, in the absence of any special circumstances indicating that the case is a fraudulent one, the Local Authority might, in the first instance, call the vendor's attention to the Analyst's report, and ask him whether he desires to offer any explanation, and if the explanation is one they are able to accept, they might, in the exercise of their discretion, refrain from the

institution of the proceedings, or withdraw any summons which, in order to prevent the failure of proceedings, by reason of the time limit imposed by the Act, it may have been necessary to take out. But it may be desirable that further samples of milk should be taken in such cases, in order that a satisfactory conclusion as to the character of the milk supplied may be arrived at.

CREAM.

The Milk Regulations Committee reported that the evidence submitted to them went to show that it was a common practice to add gelatin to cream for the purpose of giving it a fictitious appearance of richness and thickness. Local Authorities are urged to take steps to ascertain whether this form of adulteration is practised within their districts, and, if a public analyst reports the presence of gelatin, or other similar substance, in a sample of cream, the Local Authority concerned should consider whether the case is one in which proceedings might not, with advantage, be instituted under section 6 of the Sale of Food and Drugs Act, 1875.

The Board would be obliged if you would take steps to bring this circular under the notice of your Local Authority, and they will be glad to forward you additional copies for distribution amongst the members of your Local Authority and the officers concerned, upon being informed of the number you require.

I am, Sir,

Your obedient Servant,

(Signed) T. H. ELLIOTT.

Secretary.

Dr. Armstrong criticises the foregoing letters as follows:—

SUMMARY.

1. Examination of Board of Agriculture's proposal to Local Authorities as to vendor's explanation of his low standard milk.
2. Difficulty of carrying out recommendation of Board of Agriculture as to taking of successive samples. Effect of this recommendation on the bench and on the farmer.

3. Explanation of poor quality of his milk by farmer (whether guilty or innocent), unreliable and unsatisfactory. "Appeal to the cow" an unfair tax on the ratepayer.

4. Farmer's explanation best made to Magistrates.

5. Farmer's proper responsibility and power of self-protection.

6. Board of Agriculture's recommendation to let farmer EXPLAIN to Sanitary Authority is an innovation and contrary to invariable rule with other tradesmen.

7. Farmer's *duty* the same as that of other tradesmen.

8. Board of Agriculture's recommendation as to milk-testing and examination, and probable results of attempt to carry it into effect.

9. Method of milk-testing suggested by Board of Agriculture not likely to be fairly tried by farmer. Farmer should test for himself.

10. Milk standard already fixed so low as to be easily attainable, hence farmer has no claim for special privilege.

11. Low milk standard benefits only a few low-class farmers, whilst it injures all others, as well as all consumers.

12. Criticism of present low milk standard.

13. The duty of Sanitary Authorities is to protect the helpless consumer, not the producer, who has ample lawful means and methods of promoting his own interests.

14. Higher milk standard desirable. Every person FOUND SELLING milk below fixed standard should be prosecuted.

1. "The Board . . . have received numerous representations from dairy farmers and others complaining, etc., etc. . . . in the absence of any special circumstances indicating the commission of fraud, the Local Authority, might, in the first instance, call the attention of the vendor to the adverse report of the Analyst, and afford him an opportunity of submitting any explanation he might desire to offer on the subject."

The latter paragraph of the above quotation consists of two parts, viz. :—

1. "The absence of any special circumstances indicating the commission of fraud."
2. The Local Authority to "call the attention of the vendor . . . and afford him an opportunity of submitting any explanation," etc.

With respect to the first of these parts, it may be observed that this point can only be determined after hearing the evidence of both sides. The vendor's disclaimer of fraud is not proof of his innocence, and his admission of guilt is not to be expected.

The circumstances bearing on the quality of a given milk supply are so complex, and the opportunities of plausible excuse for its poorness are so many and varied, as, in most cases, to deprive a Local Authority of the means of determining the truth or falsity of any explanation offered.

As regards the second part of the paragraph, the attention of the vendor will be called to the circumstance by the summons, after the service of which, and before the hearing of the case in Court, he may submit his explanation to the Local Authority. The Local Authority of Newcastle, whilst not INVITING, has received, and has never refused to receive and consider such explanation when voluntarily offered.

Respecting decision on such explanations, the Local Authority being the prosecutor, is not precisely in the position of a Grand Jury, yet even the latter body decides on the *prima facie* case of the prosecution without hearing the defence. For the Local Authority to go further and constitute itself a preliminary tribunal to INVITE, inquire into, and in a certain sense adjudicate upon, an explanation, parts of which may be afterwards used against a defendant in Court, is wrong in principle.

Moreover, inasmuch as by far the largest majority of milk vendors are merely retailers without any knowledge of the circumstances which might be considered to exculpate the producer of a milk below standard, any invitation of the kind to them would be altogether out of place.

2. “. if the explanation were one which the Local Authority felt able to accept, they might, in the exercise of their discretion, refrain from the institution of proceedings, or withdraw any summons which it might have been necessary to take out in order to avoid the failure of proceedings, at the same time making arrangements for the taking of further samples of milk supplied, in order that a satisfactory conclusion as to its character might be arrived at.”

One objection to the foregoing proposal is the difficulty (often great) of finding a particular retail vendor of milk from whom to take further samples on several successive occasions within a reasonable time after the first sample was obtained. Another objection is that it leads the Court to be disinclined to convict, except on evidence of repeated and persistent adulteration. The consequence is that it acts as a direct incentive to the fraudulent dealer (whether producer or merchant), who feels that he may adulterate with impunity until a first sample is taken by the Authority for analysis. This is his warning, and he then ceases to adulterate, so that the succeeding samples afford no ground for conviction.

3. In attempting to show why their milk was below standard the same explanation would be given by the fraudulent as by the ingenious producer, and the Sanitary Authority would be unable to distinguish one from the other. Hence the Board's recommendation would shield both alike, and go a long way towards nullifying the protection to the public which is the primary object of the Food and Drugs Acts. If to this objection the Board urge that in every such instance there should be an “appeal to the cow,” the cost of such appeals in the producer's interest would be a heavy and unfair tax on the ratepayers, and out of proportion to the benefit they would receive from it.

4. Any explanation the farmer might have to offer would, both for his own and the consumer's sake, be better made publicly in Court than privately before Committee.

5. The milk vendor, whether farmer or retailer, is as responsible as any other tradesman for the quality of the article he sells. If he has his milk periodically analysed on his own account, he needs no Inspector to inform him when it is falling below standard. Therefore, in the absence of such periodical analyses, no defence should be accepted either by Sanitary Authority or Justices.

6. The recommendation of the Board of Agriculture is an innovation. All producers of goods, other than milk, have to protect their own interests. The Board proposes to protect those of the milk producer only.

7. It is the farmer's DUTY to keep himself right with the law and the public. It is not the Authority's duty to do this for him. There is no reason why the farmer in this respect should be placed on a different footing from other tradesmen.

8. After indicating that the various Agricultural Colleges and Agricultural Departments of University Colleges, etc., are willing, for a fee of sixpence, to determine the percentage of milk-fat in samples of milk sent to them, the circular of the Board of Agriculture goes on to state that the Board would be glad if the

“Local Authority would co-operate with them in the matter and do what is possible to facilitate the testing of milk in the manner proposed.”

The intention of this last quoted paragraph is not clear. It appears to suggest that the Local Authority would communicate with each dairy farmer and cowkeeper supplying milk to their district, and urge him to act on this recommendation of the Board of Agriculture. In the case of a district such as that of Newcastle, owing to the multiplicity of dairy farmers, the frequent variation in their number and constituency, and the immense distances from which many of them send their produce to the city, there can be no accurate register of these tradesmen. Even if obtainable, such a record, though perhaps fairly reliable to-day, would not be so to-morrow.

If the foregoing be the correct interpretation of the paragraph above quoted, and what it involves, the carrying out of the Board's suggestion will be extremely difficult, if not impossible. Furthermore, for the Local Authority to circularise each milk producer of the surrounding Counties in the hope of reaching all the suppliers of its particular district, would, on the one hand mean, in the majority of instances, communication with many persons not concerned, and, on the other, would flood the farmer with notices from all Local Authorities within a hundred or two hundred miles of their respective dairies. Such an idea is therefore obviously out of the question.

9. The recommendation that the farmer's milk should be frequently tested is in itself, good, but the method suggested—apart from any other objections—is sufficient to attain its object. It is not likely that a farmer will send samples of his milk to a distant laboratory for analysis every week. To expect him to do so every day—and such examinations should be made daily—would be absurd. On the other hand, by the purchase of a milk-tester, costing a guinea, he may easily and rapidly determine for himself the amount of butter-fat whenever he chooses.

The surest way to cause dairy farmers and cowkeepers to test their produce frequently and carefully is to prosecute in every case where the milk is found to be below standard.

10. In considering the general question, it is to be borne in mind that the general limits fixed by the Sale of Milk Regulations are low, very much below the figures for average milk, and that several members of the Milk and Cream Committee were in favour of fixing higher limits. A farmer who is careful as to the breed and feeding of his cows, the intervals between successive milkings, and the regular testing of his milk, may easily keep his supply, not only up to, but above the standard.

11. A low milk standard benefits (at the expense of their customers) a few producers only, the inferior class of whose stock or whose methods of conducting business disentitle them to such special consideration. On the other hand, it hurts the main body of milk producers whose superior article brings them no higher price than is commanded by poorer stuff.

Further, it is a direct suggestion which may be acted on to the detriment of consumers, that good milk can, without risk to the dairyman, be reduced in quality.

12. That there must be a milk standard is a matter of course; but to fix it at barely above the poorest average quality known is—except for the serious loss it entails on the consumer—ridiculous.

13. It is for Sanitary Authorities to protect the helpless consumer of milk rather than the resourceful producer, who may (if so disposed), keep cows of a class to produce milk naturally below standard, feed them on brewers' grains, or give them an undue amount of water to drink, and

thereby actually dilute the milk before it leaves their bodies; or even add skim milk to it, and thus reduce its quality after yield; and by any or all of these processes, without breach of the law or fear of penalty therefor, make as much unfair profit as the illegal adulterator.

14. If, instead of the complicated and unusual course recommended by the Board of Agriculture, a somewhat higher milk standard were adopted and strictly adhered to, and if every person found selling milk below it were prosecuted, leaving him (in case of his being a middleman or retailer) to seek his own remedy against the producer who had supplied him, then the interest of milk consumers would be more thoroughly protected, the difficulties of administering the law with respect to adulteration would be greatly reduced, and justice against offenders would be more readily secured.

Report of Cases treated in the Infectious Hospital, Linacre.

Resident Medical Officer—Dr. JOSEPH BEARD.

Table shewing cases treated in hospital.

Disease.	No. of Cases.	No. of Deaths.	Percentage Mortality.
Scarlet Fever.....	261	27	10·3
Enteric Fever.....	12	—	—
Diphtheria.....	50	10	20·0
Small Pox.....	—	—	—
Other Diseases.....	11	4	36·3

Bootle.
304

Litherland.
15

Orrell.
15 Cases.

SCARLET FEVER.

Age.	Bootle.		Litherland.		Orrell.		Total.	Deaths.
	Males.	Females.	Males.	Females.	Males.	Females.		
0-1	—	1	—	—	—	—	1	—
1-2	8	6	1	1	1	1	18	6
2-3	12	9	—	—	1	2	24	4
3-4	12	11	1	—	1	1	26	4
4-5	13	13	1	—	—	2	29	5
5-10	40	54	1	2	2	1	100	8
10-15	20	17	3	1	—	1	42	—
15-20	5	3	1	—	—	—	8	—
20-25	3	3	—	—	—	—	6	—
25-35	2	3	—	—	—	—	5	—
35-45	2	—	—	—	—	—	2	—
	117	120	7	4	5	8	261	27

The deaths were distributed as follows :—

Bootle.		Litherland.		Orrell.
24	...	2	...	1

DIPHThERIA.

Age	Bootle.		Litherland.		Orrell.		Total.	Deaths.
	Males.	Females.	Males	Females.	Males.	Females.		
0-1	1	—	—	—	—	—	1	1
1-2	3	—	—	—	—	—	3	2
2-3	2	5	1	—	—	—	8	2
3-4	3	3	—	—	—	—	6	1
4-5	4	4	—	1	—	—	9	1
5-10	12	6	—	—	—	—	18	3
10-15	3	—	—	—	—	—	3	—
15-20	—	—	—	—	—	—	—	—
20-25	1	1	—	—	—	—	2	—
	29	19	1	1	—	—	50	10

DEATHS.

Bootle	Litherland.	Orrell.
9	1	0

Tracheotomy was performed in nine cases, with 4 deaths.

ENTERIC FEVER.

Age.	Bootle.		Litherland.		Orrell.		Total.	Deaths.
	Males.	Females	Males.	Females.	Males.	Females.		
0-5	2	—	—	—	—	—	2	—
5-10	—	—	—	—	—	—	—	—
10-15	—	—	—	—	—	—	—	—
15-25	1	1	—	—	1	—	3	—
25-35	1	1	—	—	—	1	3	—
35-45	2	—	—	—	—	—	2	—
over 45	2	—	—	—	—	—	—	—
	8	2	—	—	1	1	12	0

CASES SENT IN WITH INCORRECT DIAGNOSIS.

No. of Cases.	Diseases.	Sent in as	Result.	
			Died.	Recovered.
2	Tuberculous Meningitis	Enteric Fever ...	2	—
1	Appendicitis	Enteric Fever ...	—	1
1	Acute Pneumonia	Enteric Fever ...	1	—
1	Pyo-salpinx	Enteric Fever ...	1	—
1	Simple Fever	Enteric Fever ...	—	1
1	Chicken Pox	Small Pox ...	—	1
3	Scarlet Fever	Diphtheria ...	—	3
10			4	6

TABLE No. 1.—TABLE SHEWING QUARTERLY ANALYSIS OF WATER SUPPLIED BY THE LIVERPOOL WATER COMMITTEE TO BOOTLE DURING THE YEAR 1905.

Description.	DATES OF Analysis Report	DATES OF Samples Drawn	Total Solid Matter in Solution	Ammonia.	Ammonia from Organic Matter by distillation with Alkaline Permanganate.	Nitrogen as Nitrates	Combined Chlorine	Oxygen required		Total Hardness.
								In 15 mins	In 3 hrs.	
Vyrnwy ...	Mar. ...	Mar. ...	5.4	.002	.003	.000	.85	.078	.158	1.7°
Rivington ...	Mar. 11th, 1905.	Mar. 6th, 1905.	9.4	.003	.006	.021	1.6	.023	.046	4.3°
Green Lane Well	...	...	34.8	.000	.000	.612	3.3	.000	.000	22.3°
Vyrnwy ...	June ...	June ...	6.50	.002	.005	.000	1.0	.059	.119	2.6°
Rivington ...	June 10th, 1905.	June 5th, 1905.	10.90	.002	.005	.021	1.6	.016	.029	4.43°
Green Lane Well	...	...	33.0	.000	.000	.525	3.4	.000	.000	19.29°
Vyrnwy ...	Sept. ...	Sept. ...	4.88	.004	.007	.000	0.9	.101	.154	2.21°
Rivington ...	Sept. 8th, 1905.	Sept. 4th, 1905.	11.24	.003	.007	.000	1.7	.037	.073	4.03°
Green Lane Well	...	...	35.36	.000	.000	.700	3.2	.000	.000	21.42°
Vyrnwy ...	Dec. ...	Dec. ...	5.48	.002	.009	.000	0.85	.109	.203	2.21°
Rivington ...	Dec. 9th, 1905.	Dec. 4th, 1905.	11.16	.005	.010	.021	1.50	.059	.127	4.57°
Green Lane	...	...	34.12	.000	.000	.525	3.40	.000	.000	21.42°

WATER ANALYSIS.

In addition to the foregoing, a sample was sent to Professor Boyce for bacteriological analysis on June 3rd, and his report was as follows:—

Sample taken from main in Oriel Road, opposite Town Hall, Bootle.

No. of bacteria present per c.c.	...	66
Bacillus Coli communis	...	absent
Bacillus Enteritidis Sporogenes	..	absent

On September 23rd, owing to the water from the main being of a brownish colour, I had a sample taken and sent to Professor Campbell Brown for analysis. On this sample he reported as under:—

Total solid matter in solution	...	8 parts per 100,000
Oxygen required to oxidise	{ in 15 minutes	... ·095 ,, ,, "
	{ in 3 hours	... ·183 ,, ,, "
Ammonia	... ..	... ·002 ,, ,, "
Ammonia from organic matter by distillation		
with alkaline permanganate	... ..	... ·006 ,, ,, "
Nitrogen as nitrates and nitrites	... ..	... ·000 ,, ,, "
Combined chlorine	... ..	... ·9 ,, ,, "

Contains very few organisms, chiefly diatoms. This is a good sample for domestic use.

ANNUAL REPORT FOR ORRELL

FOR THE YEAR 1905.

The township of Orrell became, on November 9th, part of the Borough of Bootle. For purposes of comparison in future years, and for the information of members of the Council, I include here the Annual Report of Dr. Bradshaw on that district for the year 1905.

DONARD LODGE,

WALTON,

LIVERPOOL, 27th February, 1906.

Report on Township of Orrell from 1st January to 9th November, 1905.

To the Chairman and Members of the Council.

GENTLEMEN,

BIRTHS.

During that period, 155 births have been registered (78 male and 77 female).

POPULATION.

The population is estimated at 3,500.

BIRTH RATE.

The birth rate is 44·2.

DEATHS AND DEATH RATE.

The number of deaths is 53 (27 male and 26 female). The death rate is 15·1 per 1,000 inhabitants.

INFANT DEATH RATE.

Number of infant deaths under one year, 36. Deaths of infants per 1,000 born, 232.

ZYMOTIC DEATHS.

Deaths from zymotic diseases, 9. Zymotic death rate, 2.57 per 1,000.

Four deaths of people belonging to the district took place in institutions outside the district.

INFECTIOUS DISEASES NOTIFIED.

The following cases of infection were notified.

	4 cases of Diphtheria,	as against 2 last year.
20	„ Scarlet Fever,	„ 11 „
2	„ Enteric,	„ 7 „
0	„ Erysipelas,	„ 1 „
<u>Totals</u>	<u>26</u>	<u>21</u>

KLONDYKE DRAINAGE.

Nearly all the infectious disease occurred, as usual, in the populous part of the township known as "Klondyke," and we may consider ourselves very fortunate that no more serious outbreak of infection in such a badly sewered hamlet took place. However, I have no doubt Bootle will attend to that matter, which has been such a constant menace to us in the past.

The following work has been carried out during the year, under the superintendence of your Sanitary Inspector:—

NUISANCES, NOTICES, &c.

Notices to cleanse and strip premises after infection	...	20
Blocked and defective drains opened and repaired...	...	4
Offensive ditch cleansed	... ..	1
Accumulations of stagnant water and filth removed	...	2
Pigs and poultry filthily kept	... ..	1
Complaints received from the Public	... ..	2
Inspector's visits relating to abatement of nuisances	...	43
Visits to infected houses	... ..	32
	Total	<u>105</u>

DAIRIES, COWSHEDS, AND MILKSHOPS.

Periodically inspected and found in fairly clean and sanitary condition.

FACTORY.

One smelting factory exists here, and is carried on satisfactorily.

SUMMARY.

Considering the aforesaid defective drainage of the populous portion, the township was in a satisfactory sanitary condition on its being handed over to Bootle, on November 9th.

I am, Gentlemen,

Your obedient Servant,

JAMES CHARLES BRADSHAW, L.R.C.P., D.P.H., &c.
Medical Officer of Health.

Sanitary Administration.

SUMMARY OF WORK DONE BY LADY SANITARY INSPECTOR.

No. of Houses visited (including visits to houses where deaths had occurred from Epidemic Diarrhœa)	3970
„ Houses found dirty	511
„ Families visited	6138
„ Houses re-visited	1366
„ Notices sent for dirty floors and bedding	72
„ Notices sent for overcrowding	14
„ Notices sent for dirty floors	16
„ Notices complied with... ..	102
„ Notices referred to Sanitary Inspectors	28
„ References to Sanitary Inspectors	498
„ Enquiry visits	228
„ Workshops visited	26
„ Workshops found dirty	2
„ Workshops re-visited	2
„ Notices sent to Workshops	2
„ Notices complied with	2
„ Visits to cases of infectious disease notified by the Elementary Education Authorities	338
„ Sublet houses visited	1170
„ Sublet houses found dirty	37
„ Sublet houses overcrowded	18
„ Of other infringements	43
„ Notices sent for defective sash cords	153
„ Notices complied with... ..	106
„ Notices not complied with	47
„ Visits under Midwives Act	120
„ Routine visits	57
„ Enquiries <i>re</i> still-births	40
„ Other enquiries	23

NUISANCES.

No. of Complaints made by inhabitants	...	...	...	1220
„ Nuisances discovered on above	...	...	..	983
„ Nuisances discovered on house to house inspection	..			8981
„ Notices issued to owners	...	...	...	6001
„ Notices issued to occupiers	...	..	...	255
„ Notes to Complainants	...	...	...	283
„ Notes sent to comply with notices	...	...	...	293
„ Nuisances re-inspected	...	...	...	9860
„ Water closet conversions	...	..	...	12
„ Ashpits substituted by bins (does not include number fixed at new property	...	...	...	16
„ Informations laid	...	...	...	12
„ Of convictions	..	...	...	11
„ Magistrates Orders obtained	...	...	...	6
Amount of Fines and Costs	...	...	...	£4 8s. 6d.

One of the above Magistrates' Orders was for the removal of a body to the Public Mortuary. The remaining five related to the abatement of smoke nuisances.

COMMUNICATIONS SENT OUT FROM OFFICE.

References to the Borough Engineer...	...	...	...	430
„ „ Water Engineer, Liverpool	...	...	...	206
„ „ The Education Authorities	...	...	...	247
„ „ Public Library	...	...	...	451
„ „ House Surgeon, Bootle Hospital	...	...	...	451
„ „ Sunday Schools	...	...	...	117
„ „ Day Schools	...	...	...	360
Communications <i>re</i> Nuisances	...	...	...	523
„ <i>re</i> Contacts	...	...	...	12

CANAL BOATS ACT.

Boats inspected in 1905	215
-------------------------	-----	-----	-----	-----	-----

Infringements :—

Registration	...	...	...	...	—
Notification of change of Master	...				—
Certificates	...	...	...	...	—
Marking	...	...	...	...	—
Overcrowding	...	...	...	...	1
Separation of the Sexes	...	...	...	...	2
Cleanliness	...	...	...	...	1
Ventilation	...	...	...	..	—
Painting	..	..	...	...	14
Provision of Water Cask	...	...			—
Removal of Bilge Water...	...	..			—
Notification of Infectious Disease	...				—
Admittance of Inspector	..	...			—
Notices sent in respect of same	...	...	...	...	19
Legal proceedings were taken in two cases.					
Penalties inflicted	...	...	...	5s. and costs in each case	
Cases of Infections dealt with and measures of isolation					
adopted	...	...	...	...	None
Detention of boats for cleansing and disinfection	...	...			None

CATTLE SHIPS.

No. Inspected	..	...	...	...	...	653
„ Infringements reported	...	...	...	...	...	1
„ Ships re-inspected	...	...	...	...	...	320
„ Found clean on re-inspection	...	...	...	...	...	319

Legal proceedings were taken in one case for failure to cleanse cattle fittings on board ship. A fine of 20s. and costs was imposed.

COMMON LODGING HOUSES.

No. registered under the Public Health Act...	...	...			8
„ of day and night inspections	..	...	...	...	918
Infringements of Byelaws—					
Failure to cleanse walls and ceilings	...	...	...	...	6
No. of informations laid in respect of infringements	...				1
„ Convictions	...	...	...	...	1
Amount of Fines and Costs	...	...	...	...	5s. and costs

SUBLET HOUSES.

No. of Houses on Sublet Register	...	...	...	...	140
„ Day and night inspections	...	..	...	...	1106
„ Infringements of Sublet Byelaws	...	...	...	...	103
„ Informations laid in respect of infringements	...	...	...	...	7
„ Convictions	...	...	...	...	7
Amount of Fines and Costs	...	...	...	...	£1 4s. 0d.

STEPS TAKEN TO PREVENT SMOKE NUISANCE.

No. of Observations made	...	...	...	...	217
„ Notices served in respect of excessive black smoke	...	...	...	...	56
„ Informations laid in default of compliance with notices	...	...	...	...	5
„ Informations laid in default of compliance with Order	...	..	...	...	1
Amount of Fines and Costs	...	...	...	...	£2 8s. 6d.

DAIRIES, COWSHEDS AND MILKSHOPS.

No. of Milkshops on Register	...	..	...	...	40
„ Shippons with dairies attached	...	...	...	...	33
„ Inspections made	...	...	...	...	497
„ Notices served for defects	...	...	...	...	6
„ Notices complied with	...	...	...	...	6
„ Notices served <i>re</i> utensils and covering of milk vessels	...	...	...	...	12
„ Notices served requiring removal of manure...	...	..	...	...	53

Last year, in the case of one shippon, the middenstead was found to be of faulty construction. The walls and floor were cemented and rendered impervious, under notice from this Department.

In addition to written notices the occupiers of shippons and milkshops have from time to time been verbally cautioned with regard to the cleanliness of the premises, the cows, and proper storage of milk.

CONFECTIONERY BAKEHOUSES.

No. on Register	...	...	..	...	...	...	30
No. of Visits made	...	...	...	...	...	...	166
No. found dirty (walls and ceilings)	...	...	...	...	...	...	7
No. of Notices issued for limewashing	...	...	..	...	...	...	2
„ Notices issued for defective drainage	...	...	..	...	...	...	4
„ Notices issued to cleanse floors, utensils, etc.	...	...	..	...	...	...	6
„ Notices issued to remove drains	...	...	..	...	...	...	2

OUTWORKERS.

No. of Outworkers on Register	...	...	...	...	...	...	16
„ Visits made to houses of outworkers	...	...	...	...	...	...	64
„ Notices served for sanitary defects at houses of outworkers	...	...	...	...	...	...	6

[All the above notices were complied with.]

One case of Infectious Disease was notified at the house of an outworker. Work was suspended for the time being.

Outworkers employed in Bootle for Liverpool firms.	{	Tailors or Tailoresses	8
		Dressmakers	2
Outworkers employed in Liverpool for Bootle firms.	{	Tailors or Tailoresses	2
		Shirtmakers	4

FOOD INSPECTION.

No. of Foodshops visited	...	...	...	...	...	...	807
Amount of food seized in small quantities and destroyed during the year	...	...	...	...	...	...	38 $\frac{1}{4}$ lbs.

The above amount, consisting mostly of fruit, was destroyed by consent of the occupiers, without the formalities of a Magistrate's Order.

In addition, about 1 $\frac{1}{2}$ cwt. of unsound food was destroyed at one time by arrangement.

SUMMARY OF LEGAL PROCEEDINGS.

Breaches of Common Lodging House Regulations	...	1
Breaches of Sublet House Regulations	... ..	7
Smoke nuisances	... ..	4
Defective drains	... ..	4
Filthy floors, woodwork, etc....	... ..	1
Defective sash-cords	... ..	1
Overcrowding	... ..	1
Infringements of Sale of Food and Drugs Acts	... ..	10
Offences under Canal Boats Acts	... ..	2
Offences under Contagious Diseases of Animals Act	...	1
Depositing refuse on carriageway	... ..	1
Order obtained for removal of body to Mortuary	.. ...	1

DISINFECTION.

No. of houses disinfected after fevers	... ..	359
„ houses disinfected after Phthisis	... ..	67
„ houses disinfected after Measles	... ..	12
„ schools „ „ „	... ..	1
„ visits made to infected houses	... ..	536
„ re-visits „ „ „	... ..	759
„ houses cleaned in default of owners	... ..	11
„ houses disinfected from other causes than fevers	... ..	13

NOTE.—Since June, 1903, all houses with a rental of eight shillings per week or under, have been cleaned (*i.e.* the walls stripped, and the ceilings whitened), by the Corporation, free of cost.

FILTHY HOUSES.

No. of Notices sent to cleanse the walls and ceilings of filthy houses	... ..	426
No. of Notices complied with ..	... ..	425

One of the above notices, served in the latter part of last year, is still uncomplished with, an extension of time having been asked and granted.

LIST OF ARTICLES DISINFECTED.

Matrasses	...	...	...	...	...	...	577
Beds	...	...	...	...	...	...	538
Pillows	...	...	...	...	...	...	1617
Blankets	...	...	...	...	...	...	997
Quilts	...	...	...	...	...	...	638
Sheets	...	...	...	...	...	...	989
Carpets	...	...	...	...	...	...	373
Wearing Apparel	...	...	...	...	...	...	5281
Miscellaneous Articles	...	...	...	...	...	...	3776
							<hr/>
							14786
							<hr/>

NOTE.—These figures do not include the ambulance bedding (1 bed, 1 pillow, and 3 blankets), which is disinfected after each case.

The following articles were destroyed by request of the owners, after infectious disease :—

Matrasses	...	..	...	...	...	...	6
Pillows	...	...	...	...	...	...	3
Quilts	...	...	...	...	..	...	2
Miscellaneous	...	...	...	...	...	...	5
Beds	...	...	...	...	..	...	1
Blankets	...	...	...	...	.	...	1
Wearing Apparel	...	...	...	...	...	...	9

FLUSHING.

The flushing gang consists of two Corporation workmen, and one Liverpool waterman.

No. of private houses at which drains were flushed	...	13470
„ of passage sewers flushed	... ..	1264
„ of public buildings at which drains were flushed	...	38

A day a week has been devoted to special premises in which cases of fever had occurred.

The drains at the Bootle Borough Hospital were flushed 17 times during the year.

The amount of fresh water used during the year was 3,220,010 gallons, with the addition of 265,000 gallons of salt water supplied from the Corporation salt water hydrants, used one half-day in each week.

TABLE 1.—COUNTY BOROUGH OF BOOTLE.
VITAL STATISTICS OF WHOLE DISTRICT DURING 1905 AND PREVIOUS YEARS.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.			DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT.	Deaths of Non-residents registered in Public Institutions in District.	Deaths of Residents registered in Public Institutions beyond District.	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.		
		Number.	Rate.*	DEATHS AT ALL AGES. TOTAL.		Rate.*				Number.	Rate.*	
				Number.	Rate per 1,000 Births registered.							Number.	Rate.*
1	2	3	4	5	6	7	8	9	10	11	12	13
1895.	52,940	1,828	34.4	335	183	1,075	20.3	117	66	101	1,110	20.9
1896.	53,710	1,759	32.7	324	184	1,025	19.1	114	58	79	1,047	19.4
1897.	54,630	1,748	31.9	349	199	1,037	18.9	95	54	74	1,057	19.1
1898.	55,550	1,772	31.8	329	183	1,005	18.0	113	55	105	1,055	18.9
1899.	56,500	1,809	32.0	337	186	1,164	20.6	96	57	105	1,212	21.4
1900.	57,450	1,827	31.8	373	204	1,156	20.1	91	35	120	1,241	21.5
1901.	58,556	1,837	31.4	337	188	965	16.4	82	34	123	1,054	18.0
1902.	60,000	1,949	32.4	302	154	1,043	17.0	101	37	133	1,189	18.9
1903.	60,800	2,010	33.5	325	161	1,015	16.6	113	39	132	1,108	18.2
1904.	62,000	1,918	30.9	346	180	1,051	16.9	85	32	135	1,154	18.6
Averages for years 1895-1904.	57,213	1,845	32.2	335	181	1,053	18.3	100	46	110	1,117	19.4
1905.	63,134	2,079	32.9	321	153	983	15.5	109	33	147	1,097	17.3

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

Area of District in acres, exclusive of area covered by water—1,576.

Total Population at all ages, 58,556; number of inhabited houses, 10,041; average number of persons per house, 5.8—at census of 1901.

The Union Workhouse is not within the District.

TABLE 2.—COUNTY BOROUGH OF BOOTLE.
 CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1905.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.						TOTAL CASES NOTIFIED IN EACH LOCALITY.						NO. OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.						
	At all Ages.	At Ages—Years.					1 H* Derby Ward.	2 Stanley Ward.	3 Mersey Ward.	4 Knowsley Ward.	5 Linacre Ward.	6 Orrell Ward.	1 H* Derby Ward.	2 Stanley Ward.	3 Mersey Ward.	4 Knowsley Ward.	5 Linacre Ward.	6 Orrell Ward.	
		Under 1.	1 to 5	5 to 15.	15 to 25.	25 to 65.													65 and up-wards.
Small-pox ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Diphtheria—Membranous Croup ...	78	1	84	39	1	3	20	9	18	3	20	2	6	46	36	43	66	3	
Erysipelas ...	32	2	—	5	3	20	2	95	5	6	13	2	95	46	36	43	66	3	
Scarlet Fever ..	289	2	97	163	18	9	—	—	—	—	—	—	—	—	—	—	—	—	
Typhus Fever...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Enteric Fever ...	24	—	1	5	5	13	4	—	—	—	—	—	—	—	—	—	—	—	
Relapsing Fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Continued Fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Puerperal Fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Plague ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Phthisis ...	22	—	—	1	2	17	—	—	—	—	—	—	—	—	—	—	—	—	
Totals ...	445	5	132	213	29	62	4	121	90	65	68	96	5	102	58	38	44	58	2

NOTE.—Orrell cases included for November and December.

TABLE NO. 3.—COUNTY BOROUGH OF BOOTLE.

CAUSES OF, AND AGES AT, DEATH DURING YEAR 1905.

CAUSES OF DEATH.	DEATHS IN WHOLE DISTRICT AT SUBJOINED AGES.							DEATHS IN LOCALITIES (AT ALL AGES).					DEATHS IN PUBLIC INSTITUTIONS.	
	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Derby Ward.	Stanley Ward.	Mersey Ward.	Knowsley Ward.	Linacre Ward.		
Small-pox ...	—	—	—	—	—	—	—	—	—	—	—	—	Bootle Borough Hospital with non-residents	69
Measles ...	9	2	7	—	—	—	—	1	7	1	—	—		
Scarlet Fever ...	32	1	19	10	2	—	—	13	8	4	4	3		
Whooping Cough ...	20	16	4	—	—	—	—	4	8	3	2	3	Bootle Borough Hospital without non-residents	38
Diphtheria and Membranous Croup ...	18	—	11	6	—	1	—	2	9	3	4	—		
Croup ...	—	—	—	—	—	—	—	—	—	—	—	—	Inf. Hospital with non-residents	40
Fever { Typhus ...	—	—	—	—	—	—	—	—	—	—	—	—		
{ Enteric ...	4	—	—	1	—	3	—	1	1	1	1	—		
{ Other Continued ...	1	—	1	—	—	—	—	—	—	—	1	—	Inf. Hospital without non-residents	38
Epidemic Influenza ...	6	—	—	1	—	4	1	1	—	—	1	4		
Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—	Walton and Mill Rd. Workhouses	147
Plague ...	—	—	—	—	—	—	—	—	—	—	—	—		
Diarrhoea ...	87	65	18	1	—	2	1	20	12	24	16	15		
Enteritis ...	17	8	5	—	1	2	1	1	1	5	5	5	Walton and Mill Rd. Workhouses	147
Puerperal Fever ...	—	—	—	—	—	—	—	—	—	—	—	—		
Frysipelas ...	2	1	—	—	—	1	—	—	—	1	—	1	Walton and Mill Rd. Workhouses	147
Other Septic Diseases ...	11	1	2	3	—	3	2	—	1	3	5	2		
Phthisis ...	78	—	5	2	16	54	1	12	8	27	15	16	Walton and Mill Rd. Workhouses	147
Other Tubercular Diseases ...	31	3	12	3	2	11	—	4	5	12	9	1		
Cancer, Malignant Disease ...	45	—	—	—	1	30	14	12	9	10	7	7	Walton and Mill Rd. Workhouses	147
Bronchitis ...	117	37	12	2	2	35	29	24	14	30	29	20		
Pneumonia ...	131	41	22	7	2	44	15	29	18	32	25	27	Walton and Mill Rd. Workhouses	147
Pleurisy ...	3	—	—	1	—	2	—	1	—	—	—	2		
Other Diseases of Respiratory Organs ...	1	—	—	—	—	1	—	—	—	—	—	1	Walton and Mill Rd. Workhouses	147
Alcoholism	—	—	—	—	—	—	—	—	—	—	—	—		
Cirrhosis of Liver ...	11	—	—	—	1	9	1	1	3	1	5	1	Walton and Mill Rd. Workhouses	147
Venereal Diseases ...	5	3	1	—	—	1	—	2	—	1	2	—		
Premature Birth ...	43	43	—	—	—	—	—	13	6	6	6	12	Walton and Mill Rd. Workhouses	147
Diseases and Accidents of Parturition ...	12	6	—	—	1	5	—	4	1	1	2	4		
Heart Diseases ...	65	1	—	4	2	40	18	8	7	16	13	21	Walton and Mill Rd. Workhouses	147
Accidents ...	27	1	6	4	4	10	2	9	1	10	4	3		
Suicides ...	3	—	—	—	—	3	—	1	1	1	—	—	Walton and Mill Rd. Workhouses	147
Senile Decay ...	54	—	—	—	—	3	51	6	10	21	11	6		
Not Certified ...	38	13	6	4	—	12	3	6	3	11	7	11	Walton and Mill Rd. Workhouses	147
All other Causes ...	226	79	19	10	10	79	29	38	45	60	40	13		
All causes ...	1097	321	150	59	44	355	168	212	172	290	215	203		256

There were 70 Inquests held during the year.

TABLE 4.—INFANTILE MORTALITY DURING THE YEAR 1905.
Deaths from Stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.	Total under 1 Year.												Total Deaths under One Year.				
	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.
All Causes	53	9	14	9	85	31	20	19	18	21	22	26	19	15	17	15	308
	1					2	4	1				2	1				13
Common Infectious Diseases														1	1		2
Small-pox																	2
Chicken-pox																	2
Measles																	1
Scarlet Fever								1									
Diphtheria; Croup																	
Whooping Cough							2		1		4	2	3	1		3	16
Diarrhoeal Diseases						2	1	3	4	5	4	4	3	3	4	1	34
Enteritis (not Tuberculous)				1	1	3	2	4	4	1	3	5	4	1	2	5	35
Gastritis, Gastro-intestinal Catarrh						1	2	1	1		1		1			1	10
Wasting Diseases						34	1	3	1	38	3						43
Premature Birth						9	3	1	1	13	3						20
Congenital Defects						5				5							5
Injury at Birth																	2
Want of Breast-milk								1									1
Atrophy, Debility, Marasmus						2		4	2	8	6	5	2	3	2	1	30
Tuberculous Diseases																	2
Tuberculous Meningitis																	1
Tuberculous Peritonitis																	1
Other Tuberculous Diseases																	1
Other Tuberculous Diseases																	1
Erysipelas																	3
Syphilis																	1
Rickets																	7
Meningitis (not Tuberculous)																	17
Convulsions																	38
Bronchitis																	
Laryngitis																	
Pneumonia																	40
Suffocation, overlaying																	
Other Causes																	11
	4	1		2	7	1	1			2							
	9	9	14	9	86	33	24	20	18	21	23	28	20	16	17	15	321
	54																

Births in the year—Legitimate, 2,079; Illegitimate, 38.

Population, estimated to middle of 1905, 63,134.

Deaths from all Causes at all ages, 1,097.

BOROUGH OF BOOTLE.

ESTIMATED POPULATION, 63,134. (1905)

Birth Rate (blue) } Per 1000 of the estimated
Death Rate (black) } Population
Number of Deaths of Infants under one
year out of every 1000 born (green)
Estimated Population per acre, excluding
Dock Quays. (red)

in each of the Wards of the Borough during 1905



BOROUGH BY

ESTABLISHED