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HEALTH DEPARTMENT.



REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING

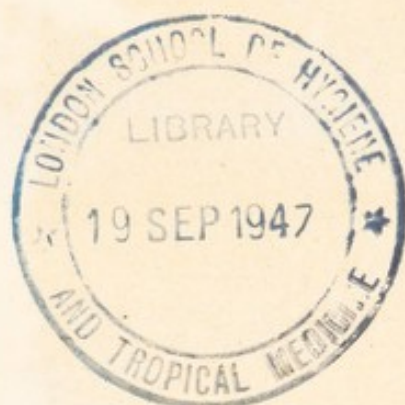
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BY THE

MEDICAL OFFICER OF HEALTH.



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HEALTH DEPARTMENT.

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REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING

**1903**

BY

E. W. HOPE, M.D., D.Sc.,  
*Medical Officer of Health.*



*(Ordered by the Health Committee to be printed 21st April, 1904).*



LIVERPOOL:

C. TINLING & Co., PRINTING CONTRACTORS, 53, VICTORIA STREET

1904.





	PAGE
Abattoirs ... ..	146 and 147
Age Period, influence of, on Mortality ... ..	9 and 10
Alcoholism ... ..	76
Ambulance Staff ... ..	138
Analysis, Samples of Food and Drugs taken for ... ..	180 to 187
,, Bacteriological ... ..	188 to 197
,, of Infants' Patent Foods ... ..	187
Anthrax ... ..	155 and 195
Area of the City ... ..	3
Army Blankets, Disinfection and Destruction of ... ..	142
Ashbins ... ..	85, 201 to 203
Bacteriological Examinations and Analyses ... ..	188 to 197
,, Diagnosis of Diphtheria and Typhoid Fever ... ..	190 and 197
Bakehouses ... ..	119
Bakehouses, Underground ... ..	122
,, requirements under Act of 1901 ... ..	122
Baths and Wash-Houses ... ..	118
Births and Birth Rate ... ..	3 to 8
Birth Rate of Large Towns ... ..	7 and 8
Blankets, Destruction of ... ..	142
Building Surveyor ... ..	105
Canal Boats ... ..	106
Cancer... ..	75
Cattle, Licences to keep ... ..	158
,, Inspection of, in Shippons ... ..	161
,, Slaughtered in City, Returns of ... ..	146 and 147
,, Smothered or Injured ... ..	151
Causes of Death ... ..	21
	and Table "E" Appendix.
Cellar Dwellings ... ..	103
Cellars filled in ... ..	103

	PAGE
City Engineer, Returns furnished by ... ..	105 and 201 to 213
City Hospital, Fazakerley, Plan of ... ..	Facing 221
City Hospitals for Infectious Disease ... ..	221
City Hospitals, Returns showing results of treatment in ... ..	226 to 238
Cleansing of Infected Houses ... ..	140
,,    Dirty    ,,    ... ..	87
Cleansing and Scavenging ... ..	201 to 213
Clothing, &c., Destroyed under Public Health Act ... ..	188 and 189
Common Lodging-Houses ... ..	90 to 102
Complaints by Inhabitants ... ..	85
Condensed Milk ... ..	189 and 193
Continued Fever ... ..	77
Court and Alley Examinations ... ..	88
Cows, Licences to keep ... ..	158
Cowshed Inspection... ..	159 and 161
Crematorium... ..	143
Croup ... ..	62
Dairies, Cowsheds and Milkshops Order... ..	160
Deaths of Infants ... ..	17
,,    of Children below 5 years of age... ..	19 and 20
,,    and Death Rate ... ..	9 to 16
,,    in Public Institutions ... ..	12
,,    in Districts of the City ... ..	14
Death Rate of large Towns ... ..	15 and 16
,,    ,,    at different Age Periods ... ..	10
,,    ,,    during last 20 years ... ..	77
,,    ,,    of Infants ... ..	17
Diagram, illustrating Birth Rate since 1861 ... ..	See Appendix.
,,    ,,    Death    ,,    ,,    ... ..	,,    ,,
,,    ,,    how Smallpox is spread ... ..	24—25
Diarrhoea ... ..	18, 63 to 65, 67 and 68
,,    Mortality ... ..	77
Diphtheria ... ..	61, 223 to 234
,,    , Bacteriological Examinations ... ..	190 and 197
Diseases of Animals Act ... ..	144, 152 to 157
Disinfecting Apparatus ... ..	141

	PAGE
Disinfection of Houses ... ..	140
Disposal of Refuse ... ..	203
Employment of Children Act ... ..	130
Excessive Drinking, Deaths from... ..	76
Factory and Workshop Act ... ..	119, 127 to 129
"    "    "    "    Home Work Order of 1901 ... ..	129
Female Sanitary Staff ... ..	116
Fever Mortality ... ..	77
Fines and Costs—Amount of, in various Sanitary Prosecutions ... ..	{ 85, 87, 88, 93, 96, 103, 107, 110, 126, 128, 151, 157, 159, 160, 161, 184 and 185
Fish, unwholesome, seized and destroyed ... ..	148 to 150
Food and Drugs Act... ..	180 to 187
Glanders and Farcy... ..	152
Home Work Order—Factory and Workshop Act ... ..	129
Hornby Street Insanitary Area ... ..	217
Horse Boxes ... ..	145
Hospital Accommodation for Infectious Diseases, Extension of ... ..	221
Hospitals and Institutions, Deaths occurring in ... ..	12
"    "    City ... ..	226 to 238
Houses, Dirty ... ..	87
"    erected ... ..	105
"    taken down... ..	105
Housing of the Working Classes Act ... ..	218
"    "    "    "    "    Notices served under ... ..	218
House-to-House Visitation... ..	87
Ice Cream ... ..	161
Infants fed on Sterilised Milk ... ..	175
Infants' Foods, Analysis of ... ..	187
Infantile Mortality ... ..	17 to 20
"    "    during the last five years ... ..	20
Infected Houses, Cleansing of ... ..	140
Infectious Disease in Schools ... ..	135 to 137
"    "    Cases of ... ..	223 to 225
"    "    "    reported and removed to Hospitals, 1889-1903 ... ..	225
"    "    (Notification) Act ... ..	224
"    "    "    Prosecutions for giving false information ... ..	29

	PAGE
Infectious Disease, Prosecutions for failing to notify ...	29
Inquests ...	21 and 76
Insanitary Property ...	217
,,     ,,     purchased and demolished in 1903 ...	218
Intemperance ...	76
Knacker's Yard Returns ...	114
Library Books ...	137
Localities of Fatal Prevalence of Diarrhœa ...	65
,,     Typhus Fever ...	52
Lodging-houses ...	90
Manure Yards and Wharves ...	114
Map, showing Birth Rate in Districts of City ...	See Appendix.
,,     ,,     Death Rate in Districts of City ...	,,     ,,
,,     ,,     Number of Deaths of Infants under One Year out of every 1,000 Born ...	,,     ,,
Map, showing Density of Population in Districts of City ...	,,     ,,
Map indicating situation of City Infectious Hospitals, Disinfecting Stations, Destructors, &c. ...	between 50 and 51
Maps indicating the localities of prevalence of Smallpox ...	,,     ,,     ,,
Margarine Act ...	185
Marine Stores ...	114
Measles ...	57 and 67 to 69
Meat, imported ...	146 and 147
,,     unwholesome, seized and destroyed ...	148 to 150
Meteorological Tables ...	78 and 79
Midwives Act, 1902 ...	133
Milk ...	162 to 164 and 190 to 193
,,     Analysis of ...	185 and 190
,,     Percentage of, Infected with Tubercle ...	191
,,     Supply ...	162
,,     ,,     Proceedings under Corporation Act, 1900...	162
,,     Condensed ...	189 and 193
,,     Sterilized Depôts ...	165 to 179
Milkshops ...	160
Model Lodging-houses ...	92
Mortality, see Death Rates ...	9, 10, 13, 14, 15, 67 to 69, and 77
Mortuaries ...	143
Natural Increase of Population ...	6
Notification of Infectious Diseases ...	224

	PAGE
Nuisances prejudicial to Health ... ..	85
Offensive Trades ... ..	113
Overcrowding ... ..	93 and 95
Patients removed to Hospital ... ..	138 and 223
Phthisis ... ..	69 to 74
,, , Notification of ... ..	72
Plummer, Mr. W. E. ... ..	78
Population of the City ... ..	14
,, , 1879-1903 ... ..	5
,, , different Districts of the City ... ..	14
Prosecutions for giving False Information ... ..	29
,, , failing to notify Infectious Disease ... ..	29
Public Institutions, Deaths occurring in ... ..	12
Rabies ... ..	157 and 195
Rainfall and Temperature, 1902-3 ... ..	80
Rats, Examination of ... ..	195
References to and from other Municipal Departments ... ..	86
Sanitary Administration ... ..	83 to 197
Sanitary Notices ... ..	84 and 85
Scarlatina ... ..	55, 67 to 69 and 223 to 238
Scavenging and Cleansing ... ..	201 to 213
Schools, Infectious Diseases in ... ..	135 to 137
Seamen's Licensed Lodging-houses ... ..	94
Seasonal Mortality ... ..	19
Seats for Shop Assistants Act ... ..	126
Sewer Ventilation ... ..	105
Shell-fish ... ..	194
Shop Hours Act ... ..	126
Slaughter-houses ... ..	146 to 150
Smallpox ... ..	24 to 50 and 67 to 69
,, , Source of Outbreak ... ..	24
,, , Diagram showing how the disease is spread ... ..	24-25
,, , Measures adopted to deal with ... ..	27
,, , Occupations of Patients ... ..	32
,, , Statistics ... ..	33 to 47
Smoke Nuisances, Causes of ... ..	109 to 113

	PAGE
Smoke Nuisances, Fines for	110
Stables	115
Staff Employed	83, 177 and 213
Sterilized Milk Depôts	165 to 179
"    "    , Expenditure and Income	178
Sub-let Houses	94
"    House Byelaws	97
Swine Fever	156
"    "    Order	144
"    Licenses to keep	157
Tables, shewing Deaths and Death Rates from Zymotic Diseases during	67 to 69
each of the last three decennial periods	80
Temperature and Rainfall, 1902-3	189 and 193
Tinned Meats	144 and 151
Transit of Animals Order	69 to 74
Tubercular Diseases	69
"    "    Diminution in	69 to 74
Tuberculosis	151
"    in Cattle	162 to 164 and 190 to 192
"    and Milk	53 and 77
Typhoid Fever	51, 67 to 69 and 77
Typhus Fever	122
Underground Bakehouses	48
Vaccination Acts, suggested amendments of	31
"    as a preventive of Smallpox	118
Wash-Houses	197
Water Analyses	59 and 67 to 69
Whooping Cough	92
Women's Model Lodging-houses	12 and 77
Workhouses, Deaths occurring in	127
Workshops, Summary of Visits to	22 to 69
Zymotic Diseases	

## APPENDIX.

Local Government Board Tables of Population, Births, Deaths and Infectious Sickness.

Plan-Map showing Birth Rate in Districts of City.

    "    "    Death Rate

    "    "    Number of Deaths of Infants under one year out of every 1000 born.

    "    "    Density of Population in Districts of City.

Diagram illustrating Birth Rate since 1861.

    "    "    Death Rate since 1861.

Table of Total Deaths registered in the City.

## PREFACE.

---

In the following pages certain information relating to the health of the City during the year 1903 is set out in detail.

The area of the City extends to 14,909 acres, or slightly more than Area.  
23 square miles.

The population, as estimated at the middle of the year, is 716,810, and Population.  
there is no reason to doubt that this estimate is sufficiently correct for all statistical purposes.

The birth-rate for the whole of the City continues high, viz., 33·3 per Birth-rate.  
1,000 of the population. The highest birth-rate was in Scotland District, where it was 42·9: the lowest was in the Sefton Park District, where it was 19·3.

The rate of mortality for the whole City was 19·8 per 1,000 of the Death-rate.  
population, which is the lowest ever recorded in Liverpool. The decline, although it has been more marked in some districts than in others, has been distributed over the City, the rate of mortality ranging from 30 in Exchange District to 9 in Sefton Park District. In Exchange District there is a large number of common lodging-houses, which are resorted to by tramps and persons of migratory habits, and the deaths amongst this class materially affect the death-rate of the district.

The lowered rate of mortality means that there were 1,090 fewer deaths during the year in Liverpool and Garston than occurred in the preceding year.

The Liverpool Charitable Institutions receive a large number of sick people from all parts of the country, and the mortality which results amongst them adds to the rate of mortality in the City.

The effect of age and sex upon the mortality returns is shown by Age and Sex  
Table on page 10. Attention is particularly directed to this table. Mortality.

## Smallpox.

Smallpox, which made its re-appearance in the City towards the close of the preceding year, attained considerable prevalence, causing much suffering and loss of life before it was finally extinguished. As is always the case, the disease singled out the unvaccinated, amongst whom none of the old virulence of the disease was lost. Large numbers of imperfectly vaccinated people were attacked, and in these it may be said generally that the disease was modified in proportion to the degree of protection afforded by vaccination as evidenced by the vaccination marks. Nurses and other attendants at the Smallpox Hospitals, who are protected by re-vaccination, remained entirely free from the disease. As all the sufferers, with two exceptions, were treated in hospitals, and a considerable number of those who had been in contact with them and other suspected persons were isolated, the outbreak entailed considerable expense to the City. Without the measures taken to check the disease, much more serious consequences would have resulted.

Vaccination  
in Germany.

During the year the Health Committee petitioned in favour of an amended Vaccination Act. It is a fact to which too much prominence cannot be given, that in Germany, where vaccination and re-vaccination are carefully attended to, the communities are not put to the expense of keeping up isolated establishments for the treatment of smallpox; during the last 12 years, in the German Empire the deaths from smallpox have been slightly over 600, a considerable proportion being foreigners, whilst in England and Wales, which have not much more than half the population of the German Empire, the deaths from smallpox during the same period were nearly 7,000—a lamentable example of avoidable sacrifice of human life.

Compulsory  
Notification  
of Chicken-  
pox.

The compulsory notification of chickenpox, which was temporarily instituted in 1902, was made permanent, and the value of the provision is evidenced by the fact that 54 cases which were reported to be suffering from chickenpox were found on examination to be suffering from smallpox and dealt with accordingly.

Cleansing  
and  
Scavenging.

There has been no relaxation in the improved methods of scavenging. Every encouragement has been given to householders to use the improved sanitary ash-bins, the use of which has been found so markedly beneficial. About 19,000 of these improved bins are now in use, to the manifest comfort and improved health of the citizens.

The health of the infant population, *i.e.*, under 12 months of age, has continued to receive a large share of the attention of the Health Department. There is happily a diminution in the incidence of infantile mortality throughout the whole City: the lowest rate, 88 per 1,000 born, was in the Sefton Park District, and the highest, 215 per 1,000 born, in the Scotland District; the mortality, it will be seen, is nearly three times as great in one district as in the other, and even in the district of least mortality, the rate is very much higher than the general death-rate of the City. Much labour and care have been expended in endeavouring not only to teach the mothers the way in which infants should be fed, but in providing them with proper and simple food, to tide over the season of danger. The results are dealt with in the text, and will be seen to be highly gratifying and encouraging. It must be remembered that without these aids, imperfect though they may be, a large number of lives would have been sacrificed. Several members of the Medical Staff of the Children's Infirmity, and other medical men of the City, have been good enough to interest themselves in the means and objects which the Corporation have in view, and have given valuable suggestions. Nothing which the Corporation can do, or which the medical profession can do, will ever absolve mothers from exercising some care and attention, and the educational necessities of the question must ever be borne in mind.

Infant  
Mortality.

Milk Depôts.

Care of  
Infants.

Much of the good work done by the Society for the Prevention of Cruelty to Children results in the better care of infants and young children. Recent legislation has enabled the police to deal with drunken persons having in their custody infants, or children of tender age.

Some of the more dangerous forms of zymotic disease show a gratifying decrease: for example, the number of cases of typhoid fever reported has been the lowest recorded since the extension of the City boundaries, and the deaths from the disease have been fewer than in any one of the preceding eight years.

Decrease  
in Zymotic  
Disease.

Measles also shows a considerable decline from the average.

Whooping-cough, though below the average, is not markedly so.

With regard to the prevention of tuberculosis, the voluntary notification of the disease by the medical attendant, which was commenced in 1901, has been persevered with. In this way the assistance of the

Phthisis and  
Tuberculosis.

Sanitary Authority is available in every case of phthisis, or other forms of tuberculous disease, in which the medical attendant considers requires it—in other words, the assistance of the Sanitary Authority is available wherever it can be of use. Suitable instructions are issued for the guidance of consumptive persons and of those who live with them, and disinfection of premises or articles is carried out wherever necessary. There has been no relaxation in the great sanitary measures which have proved so effectual in lessening the mortality from phthisis, and the beneficial results of this work are again reflected in the still further decline of the disease during the year.

**Typhus  
Fever.**

The increased prevalence of typhus fever during 1902 was fully dealt with in the Report for that year. There was during 1903 a still further extension of this disease, which, though trifling in comparison with outbreaks of former years, is nevertheless of serious import. It clearly shows the necessity for unremitting attention to the supervision of the homes of the poor and to the housing question generally. The disease is begotten in filthy and insanitary houses, especially those which do not admit of ventilation, but it is a very infectious disease, and is liable to spread from infected persons even to those whose surroundings are good.

**Alcoholism.**

Alcoholism, in one form or another, accounts, after Coroner's inquests, for 170 deaths, which is one more than in the year 1902. These figures show a considerable falling off from the average, and when taken in conjunction with other facts would point to a lessening in the abuse of alcohol amongst the lower working classes. There are, however, some few other instances in which alcoholism is returned as the cause of death without inquests, and a few in which drunken persons have been fatally injured, either by accident or intentional violence. Undoubtedly, much suffering and injury are inflicted upon young children whilst in the custody of drunken parents.

In districts where there is most intemperance there also the general death-rate is highest, and the proportion of deaths which took place in workhouses reached the maximum.

**Insanitary  
Property  
and  
Re-housing.**

The work of construction of new houses suitable for former occupants of insanitary property, and who have been dispossessed, has proceeded with activity; the foundation-stone of an important block of dwellings in Hornby Street was laid by H.R.H. Princess Louise on November 4th. Later in the year investigations preparatory to a further presentment of insanitary property were made.

Satisfactory progress has been made with the Hospital at Fazakerley, which when completed will bear a favourable comparison with any other institution of the kind in this country. Hospital Accommodation.

During a considerable part of the year a large number of beds in the City Hospitals were held in reserve for smallpox, and as a consequence of this it became necessary to send patients suffering from typhoid fever to the general hospitals.

References to the work of the hospitals will be found in their proper places. During the year it was found expedient to obtain power to frame bye-laws to prevent persons trespassing upon hospital grounds or premises.

A much needed Act to secure the better training of midwives, and to regulate their practice, became law on July 31st, 1902, and although many of the important provisions do not take immediate effect, yet the influence for good of this Act has been manifested during the past year. Midwives Act, 1902.

In order to meet important legislation affecting the sanitary condition of underground bakehouses, it became necessary during the year to deal with practically all of the underground bakehouses within the City. The Act in question provides that after the 1st January, 1904, no underground bakehouse shall be used unless it is certified by the Health Committee as suitable in all respects, and a certificate granted to that effect. Under-ground Bakehouses.

The Medical Officer drew up a series of suggestions for the information and guidance of owners and occupiers of cellar bakehouses.

The Employment of Children Act is designed to prevent the over-working of children under 14 years of age in those occupations which are still unregulated by law. Manifestly the employment of young school children until late hours at night cannot be other than injurious, and in the extreme cases in which the earnings of the child are looked to for the maintenance of the child's parents, it is better that the parents should obtain relief through established channels rather than that the child's health should be endangered by its efforts to support its parents. Employment of Children Act, 1903.

At the request of the Education Committee an examination was undertaken and commenced towards the close of the year of the whole of the Public Elementary Schools. Very much additional labour was thrown upon the Department on account of the nature of the examination desired by the Education Committee. Examination of Public Elementary Schools.

The reports were made in conjunction with the Corporation Surveyor and the Director of Elementary Education, and the three reports were considered together by the Education Sub-Committee, and the Managers of the schools duly apprised of the results of the examination, and careful consideration given to the requirements.

School  
Closure.

In only one instance was it found necessary to close a school on account of the prevalence of infectious sickness.

The Teaching  
of Hygiene.

The circumstance that the City Council is now the Education Authority will no doubt stimulate more general teaching of the rudiments of sanitary science in schools. Already much benefit has been shown to result from this teaching.

Meteoro-  
logical  
conditions.

The temperature during May to September was below the previous thirty years' average, and the rainfall was equal to  $1\frac{3}{4}$  inches above the thirty years' average. The beneficial effects of the heavy rains in washing and cleansing the City were evident, whilst the greater coolness of the atmosphere lessened putrefactive tendencies in decomposing rubbish and filth, contents of ashpits, &c., which from time to time accumulate.

Staff.

There has been a steady and continuous increase in the work and responsibilities thrown upon the Department, and from time to time during the year it became necessary to add temporarily to the staff.

Return for  
Outlay.

The results of the year's work are to be regarded as satisfactory; the diminution in sickness and the saving of 1,090 lives represent a return for the outlay upon the sanitary operations carried on in the City, which will be appreciated by anyone who can realise the possibility that he himself may be one of the 1,090.

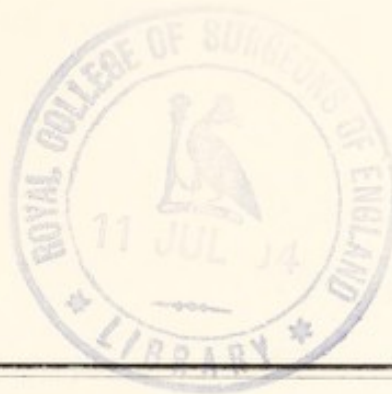
E. W. HOPE,

MEDICAL OFFICER OF HEALTH.

Public Health Department,

Municipal Offices,

Liverpool, *April 21st, 1904.*



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# STATISTICS

RELATING TO

BIRTHS, DEATHS, AND CAUSES OF DEATH, &c.,  
ZYMOTIC DISEASES AND THEIR INCIDENCE.

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## BIRTHS.

---

During the fifty-two weeks of the year, terminating on Saturday, January 2nd, 1904, the returns of the local registrars recorded 23,910 births within the city. Of the total births 12,102 were males and 11,808 were females.

The birth-rate in the City of Liverpool is considerably above the average of the great towns. During 1903 the birth-rate was 33·3 per 1,000 of the population; the average of the previous five years (1898-1902) being 33·2. The rates are calculated upon the corrected population as ascertained by the Census of 1891 and 1901.

The variations in the birth-rate and the distribution of the births in the different wards and districts of the city, which together comprise 14,909 acres (23 square miles), are indicated upon the accompanying plan-map (see Appendix), and have also been arranged in the following tables:—

## BIRTHS.

DISTRICTS.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		1903.		Corrected Average Rate per 1000 during the 5 years 1898-1902.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Births.	Rate per 1000	
Scotland .....	307	299	282	287	265	281	282	264	2267	42.9	40.2
Exchange .....	138	168	144	136	185	157	147	155	1230	29.7	29.7
Abercromby .....	213	205	208	235	212	226	227	187	1713	33.1	31.4
Everton .....	552	517	548	525	540	554	593	513	4342	35.1	36.3
Kirkdale .....	303	314	304	287	312	261	280	291	2352	33.6	34.2
West Derby—West .....	394	381	375	373	390	359	358	366	2996	33.9	35.2
Toxteth .....	464	421	450	413	438	441	390	388	3405	32.2	32.9
Walton .....	242	237	234	237	247	256	224	235	1912	32.9	32.7
West Derby—East .....	162	164	201	163	187	189	182	178	1426	31.2	26.3
Wavertree .....	122	107	128	136	128	124	129	106	980	33.7	32.6
Sefton Park .....	69	76	95	92	76	80	69	73	630	19.3	21.2
(late Toxteth Rural)											
Garston .....	81	85	83	90	68	88	74	88	657	35.9	32.5
City.....	3047	2974	3052	2974	3048	3016	2955	2844	23910	33.3	33.2

The birth-rate is still very high in the old parts of the city, in some instances higher than in the rapidly-extending areas in the suburbs. The high birth-rate amongst the poorer classes no doubt partially results from very early marriage.

The following table shows the population, number of births, and the corrected birth-rate per 1,000 during the last twenty-five years:—

Year.	Population.	No. of Births.	Rate per 1,000.
1879	538,338	20,844	38·7
1880	544,056	20,783	38·2
1881	551,617	20,762	37·6
1882	548,065	20,498	37·4
1883	544,547	19,907	36·6
1884	541,031	20,071	37·1
1885	537,548	19,464	36·2
1886	534,088	19,559	36·6
1887	530,649	18,414	34·7
1888	527,233	17,777	33·7
1889	523,838	17,676	33·7
1890	520,466	17,592	33·8
1891	518,302	17,832	34·4
1892	519,590	17,758	34·2
1893	520,882	18,328	35·2
1894	522,178	17,893	34·3
*1895	*652,523	*22,006	*33·7
1896	658,050	21,943	33·3
1897	663,633	22,280	33·6
1898	669,243	22,227	33·2
1899	674,912	22,488	33·3
1900	680,628	22,762	33·4
1901	686,332	21,980	32·0
**1902	**710,337	**24,283	**34·2
1903	716,810	23,910	33·3

\* City area extended.

\*\* City area extended.

The foregoing table shews the decrease in the birth-rate during the last 25 years. This decrease has, however, been even more pronounced in other parts of the country, and notwithstanding the decline in Liverpool, the birth-rate in this City is still amongst the highest, being exceeded by only three of the thirty-three great towns (see pages 7 and 8).

The following table shows the *Natural* increase or decrease of population, that is, the increase or decrease in the number of births over deaths during the year 1903, in the several districts of the City. In only one district, viz., Exchange, is any decrease shown; the nett result in the City showing an increase of births over deaths of 9,700.

DISTRICTS.							Births.	Deaths.	Number of Births over Deaths.	Number of Deaths over Births.
Scotland	...	...	...	...	...	...	2,267	1,571	696	—
Exchange	...	...	...	...	...	...	1,230	1,241	—	11
Abercromby	...	...	...	...	...	...	1,713	1,140	573	—
Everton	...	...	...	...	...	...	4,342	2,650	1,692	—
Kirkdale	...	...	...	...	...	...	2,352	1,297	1,055	—
West Derby—West	...	...	...	...	...	...	2,996	1,639	1,357	—
Toxteth	...	...	...	...	...	...	3,405	2,141	1,264	—
Walton	...	...	...	...	...	...	1,912	818	1,094	—
West Derby—East	...	...	...	...	...	...	1,426	716	710	—
Wavertree	...	...	...	...	...	...	980	414	566	—
Sefton Park (late Toxteth Rural)	...	...	...	...	...	...	630	293	337	—
Garston	...	...	...	...	...	...	657	290	367	—
City	...	...	...	...	...	...	23,910	14,210	9,700	11
Hospitals (Residences outside City)	...	...	...	...	...	...	—	690	—	—
Total	...	...	...	...	...	...	23,910	14,900	—	—

The following tables give the estimated population, number of births recorded, and birth-rate of eighty of the large towns of the United Kingdom.

TOWNS.						Estimated Popula- tion in the middle of the year 1903.	No. of Births.	Annual Rate to 1,000 of population.
London	...	...	...	...	...	4,613,812	130,906	28·4
Croydon	...	...	...	...	...	141,157	3,708	26·3
Willesden	...	...	...	...	...	127,077	4,059	32·0
Hornsey	...	...	...	...	...	78,386	1,589	20·3
Tottenham	...	...	...	...	...	109,749	3,532	32·3
West Ham	...	...	...	...	...	281,894	9,479	33·7
East Ham	...	...	...	...	...	110,451	3,798	34·5
Leyton	...	...	...	...	...	107,153	3,267	30·6
Walthamstow	...	...	...	...	...	106,290	3,495	33·0
Hastings	...	...	...	...	...	66,194	1,208	18·3
Brighton	...	...	...	...	...	125,405	3,046	24·3
Portsmouth	...	...	...	...	...	194,960	5,431	27·9
Bournemouth	...	...	...	...	...	63,132	1,119	17·8
Southampton	...	...	...	...	...	110,120	3,102	28·2
Reading	...	...	...	...	...	75,082	2,021	27·0
Northampton	...	...	...	...	...	89,863	2,187	24·4
Ipswich	...	...	...	...	...	68,818	1,943	28·3
Great Yarmouth	...	...	...	...	...	51,851	1,422	27·5
Norwich	...	...	...	...	...	114,351	3,179	27·9
Plymouth	...	...	...	...	...	112,022	2,847	25·5
Devonport	...	...	...	...	...	73,815	2,088	28·4
Bristol	...	...	...	...	...	338,895	9,257	27·4
Hanley	...	...	...	...	...	63,205	2,199	34·9
Burton-on-Trent	...	...	...	...	...	51,450	1,362	26·5
Wolverhampton	...	...	...	...	...	96,947	2,944	30·5
Walsall	...	...	...	...	...	89,878	3,046	34·0
Handsworth	...	...	...	...	...	57,557	1,460	25·4
West Bromwich	...	...	...	...	...	66,558	2,299	34·6
Birmingham	...	...	...	...	...	533,039	16,897	31·8
King's Norton	...	...	...	...	...	63,717	1,753	27·6
Smethwick	...	...	...	...	...	58,787	1,978	33·7
Aston Manor...	...	...	...	...	...	79,417	2,271	28·7
Coventry	...	...	...	...	...	72,684	2,160	29·8
Leicester	...	...	...	...	...	220,272	6,015	27·4
Grimsby	...	...	...	...	...	65,772	1,889	28·8
Nottingham	...	...	...	...	...	245,985	6,945	28·3
Derby	...	...	...	...	...	118,707	3,215	27·2
Stockport	...	...	...	...	...	95,709	2,794	29·3

TOWNS.							Estimated Popula- tion in the middle of the year 1903.	No. of Births.	Annual Rate to 1,000 of population.
Birkenhead ... ..	...	...	...	...	...	...	113,598	3,489	30·8
Wallasey ... ..	...	...	...	...	...	...	58,258	1,605	27·6
Bootle ... ..	...	...	...	...	...	...	60,761	1,999	33·0
St. Helens ... ..	...	...	...	...	...	...	87,259	3,373	38·8
Wigan ... ..	...	...	...	...	...	...	62,165	2,201	35·5
Warrington ... ..	...	...	...	...	...	...	66,370	2,395	36·2
Bolton ... ..	...	...	...	...	...	...	173,401	4,669	27·0
Bury ... ..	...	...	...	...	...	...	58,313	1,322	22·7
Manchester ... ..	...	...	...	...	...	...	553,486	17,704	32·1
Salford ... ..	...	...	...	...	...	...	226,480	7,284	32·3
Oldham ... ..	...	...	...	...	...	...	138,786	3,545	25·6
Rochdale ... ..	...	...	...	...	...	...	84,824	2,029	24·0
Burnley ... ..	...	...	...	...	...	...	99,469	2,701	27·2
Blackburn ... ..	...	...	...	...	...	...	131,218	3,288	25·1
Preston ... ..	...	...	...	...	...	...	114,404	3,466	30·4
Barrow-in-Furness ... ..	...	...	...	...	...	...	59,009	1,962	33·3
Huddersfield ... ..	...	...	...	...	...	...	94,963	2,252	23·8
Halifax ... ..	...	...	...	...	...	...	106,754	2,244	21·1
Bradford ... ..	...	...	...	...	...	...	283,412	6,596	23·3
Leeds ... ..	...	...	...	...	...	...	443,559	12,996	29·4
Sheffield ... ..	...	...	...	...	...	...	425,528	14,091	33·2
Rotherham ... ..	...	...	...	...	...	...	57,212	1,969	34·5
York ... ..	...	...	...	...	...	...	80,186	2,340	29·3
Hull ... ..	...	...	...	...	...	...	249,639	7,800	31·3
Middlesbrough ... ..	...	...	...	...	...	...	95,013	3,466	36·6
Stockton-on-Tees ... ..	...	...	...	...	...	...	51,965	1,644	31·7
West Hartlepool ... ..	...	...	...	...	...	...	67,201	2,274	33·9
Sunderland ... ..	...	...	...	...	...	...	149,572	5,233	35·1
South Shields ... ..	...	...	...	...	...	...	105,325	3,625	34·5
Gateshead ... ..	...	...	...	...	...	...	115,531	4,118	35·8
Newcastle-on-Tyne ... ..	...	...	...	...	...	...	222,241	6,897	31·1
Tynemouth ... ..	...	...	...	...	...	...	52,531	1,725	32·9
Newport, Mon. ... ..	...	...	...	...	...	...	70,217	2,271	32·4
Cardiff ... ..	...	...	...	...	...	...	172,598	5,250	30·5
Rhondda ... ..	...	...	...	...	...	...	119,652	4,897	41·1
Merthyr Tydfil ... ..	...	...	...	...	...	...	71,651	2,744	38·4
Swansea ... ..	...	...	...	...	...	...	95,489	3,049	32·0
Edinburgh ... ..	...	...	...	...	...	...	327,441	8,093	24·8
Glasgow ... ..	...	...	...	...	...	...	786,897	25,019	31·9
Dublin ... ..	...	...	...	...	...	...	378,994	10,876	28·8
Belfast ... ..	...	...	...	...	...	...	358,680	11,488	32·1
<b>LIVERPOOL</b> ... ..	...	...	...	...	...	...	<b>716,810</b>	<b>23,910</b>	<b>33·3</b>

## DEATHS.

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The most interesting, as well as the most important statistics are those dealing with mortality and its causes. These are set forth in the ensuing pages; the total death-rate of the city during the year was 19·8 per 1,000, the lowest ever recorded in Liverpool; the average rate during the nine years since the extension of the city boundaries (1895-1903) was 22·4. The deaths of 47 residents of the City in the Infectious Diseases Hospital, Fazakerley, have been added to the total deaths within the City, and the deaths in public institutions of 690 non-residents, equal to 0·9 per 1,000, have been eliminated.

On comparing the death-rates of one locality with those of another, it is necessary, before any correct conclusions can be drawn from the comparison, to ascertain whether the populations of the two localities are comparable in point of age; if they are not, certain corrections must be made. Quite apart from conditions of sanitation, mortality varies widely at different age-periods, as the next table shows; consequently the death-rate of the community is largely influenced by the proportions living at each age-period; the effect of a high birth-rate in raising the crude death-rate is well seen by the table, which also indicates plainly enough how the crude returns are modified if there happens to be an unusual proportion of the population at any one age-period. A hospital for foundlings, or a home for aged people, will have a very different influence upon the mortality returns of the District than a school containing an equal number of boys from 10 to 15 years of age.

If, for example, we could conceive that the whole population of Liverpool consisted of persons between the ages of 20 and 30, the death-rate last year would have been 5·2 per 1,000; if, on the other hand, we could conceive that it consisted entirely of people under 1 year of age, the death-rate would be about 188·9 per 1,000, and if above 60 years, 74·4 per 1,000. It is plain that any variation in the *proportions* living at the respective age periods would affect the death-rate, and this with absolutely no change whatever in the condition of municipal sanitation.

THE FOLLOWING TABLE SHOWS THE ANNUAL RATE OF MORTALITY PER 1,000 AT EACH OF TWELVE AGE-PERIODS DURING LAST YEAR IN LIVERPOOL, AS WELL AS THE TOTAL NUMBER OF DEATHS.

THE DIFFERENCES WHICH THE FIGURES SHOW ARE VERY STRIKING:—

1903.	Under 1 year.	1 to 2	2 to 5	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 and upwards.	Total at all Ages.
Rate of Mortality per 1,000 living at ages indicated.	188.9	63.8	16.5	4.9	2.9	5.2	9.9	16.7	31.3	56.7	101.3	185.8	19.8
Total Number of Deaths at each Age Period.	3773	1104	836	383	427	729	1036	1265	1552	1650	1067	388	14210

The following table gives the total number of deaths occurring in each of the four quarters of the year, allocated to each district:—

DISTRICTS.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Year.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Total Deaths.
Scotland .....	195	225	207	184	201	205	192	162	1571
Exchange .....	199	141	175	140	171	136	148	131	1241
Abercromby .....	174	144	176	113	143	133	127	130	1140
Everton .....	343	323	338	278	356	318	338	356	2650
Kirkdale .....	192	190	151	142	157	146	162	157	1297
West Derby (West)..	188	197	208	198	182	207	239	220	1639
Toxteth .....	277	267	288	231	268	231	289	290	2141
Walton.....	89	112	92	93	105	86	126	115	818
West Derby (East)...	91	97	74	79	84	86	83	122	716
Wavertree .....	69	55	36	38	44	46	60	66	414
Sefton Park .....	37	43	37	39	27	24	42	44	293
(late Toxteth Rural)									
Garston .....	31	39	33	27	33	39	43	45	290
Deaths of Non-Resi- dents of the City in Workhouses and Hospitals .....	107	79	113	69	97	67	104	54	690
Total Deaths in City	1992	1912	1928	1631	1868	1724	1953	1892	14,900

Deaths of residents of the City in Public Institutions have been transferred to the districts from whence they came.

DEATHS IN PUBLIC INSTITUTIONS.

Deaths in Public Institutions are referred to the Wards from whence the patients came, but the following table shows that the deaths of 4,601 persons occurred in the undermentioned Institutions for the treatment of the sick:—

	Total Deaths.	Non-Residents of City.
Parish Workhouse ... ..	1,250	76
Royal Infirmary ... ..	341	92
Children's Infirmary ... ..	56	8
Lying-in Hospital ... ..	14	3
Consumption Hospital ... ..	11	5
Hahnemann Hospital ... ..	23	1
David Lewis Northern Hospital ... ..	233	36
Stanley Hospital ... ..	143	32
Royal Southern Hospital ... ..	217	43
Mill Road Infirmary ... ..	672	77
Hospital for Women ... ..	38	22
City Hospital North ... ..	80	6
Do. South ... ..	38	4
Do. Parkhill ... ..	117	3
Do. East, Mill Lane ... ..	102	3
Do. Priory Road ... ..	18	—
Do. Fazakerley ... ..	52	5
Walton Workhouse ... ..	665	151
Belmont Road Workhouse ... ..	48	42
St. Joseph's Home ... ..	29	29
Toxteth Workhouse ... ..	333	9
Home for Incurables ... ..	14	6
House of Providence ... ..	10	7
Turner Memorial Home ... ..	8	4
St. Augustine's Home ... ..	15	4
Kirkdale Home ... ..	12	1
Grove Mount Home ... ..	11	1
Walton Gaol ... ..	10	8
Tuebrook Villa Asylum ... ..	8	4
Other Public Institutions ... ..	33	8
	4,601	690

From the returns made as to the residences of these persons 3,911 of the deaths in these establishments are classified in the districts from whence the patients were removed, viz.:—526 under Scotland district,

599 under Exchange district, 399 under Abercromby district, 720 under Everton, 326 under Kirkdale, 385 under West Derby (West), 548 under Toxteth, 139 under Walton, 111 under West Derby (East), 61 under Wavertree, 46 under Sefton Park (late Toxteth Rural) and 51 under Garston; 507 were non-residents, who had sought relief in Liverpool Institutions, and the remainder, 183 were waifs, strangers to the city, whose previous residences were unknown.

It is noteworthy that in Liverpool the proportion of deaths which take place in Public Institutions is larger than is the case in other towns, and the fact is an interesting one, as something may be learned of the social conditions of a locality when so large a proportion in times of sickness seek refuge in public institutions, more especially in the workhouses. Generally it implies poverty and want; but on the other hand it may also, and no doubt does, imply that the institutions have a wide reputation, and attract sufferers to them not only from within the city, but from a distance. Probably both of these conditions exercise influence, but be that as it may, the fact remains that there is no provincial city in which so large a proportion of the deaths takes place in workhouses and hospitals.

The following table shows the percentage of deaths which have occurred in public institutions during the 5 years, 1899-1903, in the great towns of Birmingham, Leeds, Manchester and Liverpool:—

	1899.	1900.	1901.	1902.	1903.	Average.
Birmingham .....	16.1	20.4	19.8	24.6	23.9	21.0
Leeds .....	12.4	12.5	14.0	14.5	14.8	13.6
Manchester .....	19.7	21.9	23.3	23.2	24.5	22.5
Liverpool .....	25.3	25.9	27.3	28.5	30.8	27.5

The results of the allocation of deaths in public institutions to the districts from whence the patients had been removed, and the addition

of these to the number of deaths of residents in those various districts, are shown in the following table, from which a calculated rate of mortality per 1,000 per annum of the inhabitants has been made. The rates are calculated upon the corrected population as ascertained by the Census of 1891 and 1901.

DISTRICTS.	Population.	1903.		Corrected Average Rate per 1000 during the five years 1898-1902
		Deaths.	Rate per 1000	
Scotland ... ..	52,834	1,571	29·7	33·8
Exchange ... ..	41,332	1,241	30·0	35·2
Abercromby ... ..	51,742	1,140	22·0	23·0
Everton ... ..	123,521	2,650	21·4	23·9
Kirkdale ... ..	69,984	1,297	18·5	21·5
West Derby (West) ... ..	88,295	1,639	18·5	20·8
Toxteth ... ..	105,532	2,141	20·3	23·1
Walton ... ..	58,032	818	14·1	15·6
West Derby (East) ... ..	45,736	716	15·6	16·7
Wavertree ... ..	29,018	414	14·3	15·4
Sefton Park (late Toxteth Rural) ... ..	32,489	293	9·0	11·7
Garston... ..	18,295	290	15·8	16·9
City ... ..	716,810	14,210	19·8	22·5

The District Registrars' Returns show that there were 24 deaths (21 of women and 3 of men) at the age of 90 and upwards, viz., 3 males and 5 females at 90, 3 females at 91, 4 females at 92, 1 female at 93, 2 females at 94, 1 female at 95, 1 female at 97, 1 female at 98, 1 female at 100, 1 female at 101, and 1 female at 108.

The death-rate per 1,000 for 1903 in each of the districts of the city is indicated upon the appended map. Scotland and Exchange districts, it must be remembered, contain a great number of common lodging-houses, some of which are resorted to by non-residents of the districts, persons of very migratory habits, and often indigent and broken down. This class tends to swell the mortality of these two districts. Last year the rate in Scotland district was increased by more than one per 1,000 from this cause, and in Exchange district by more than three per 1,000.

The following tables give the estimated population, the number of deaths recorded, and the death-rate of eighty of the large towns of the United Kingdom :—

TOWNS.							Estimated Population in the middle of the year 1903.	No. of Deaths.	Annual Rate to 1000 of Popula- tion.
London	...	...	...	...	...	...	4,613,812	72,109	15·7
Croydon	...	...	...	...	...	...	141,157	1,666	11·8
Willesden	...	...	...	...	...	...	127,077	1,535	12·1
Hornsey	...	...	...	...	...	...	78,386	614	7·9
Tottenham	...	...	...	...	...	...	109,749	1,426	13·0
West Ham	...	...	...	...	...	...	281,894	4,291	15·3
East Ham	...	...	...	...	...	...	110,451	1,207	11·0
Leyton	...	...	...	...	...	...	107,153	1,154	10·8
Walthamstow	...	...	...	...	...	...	106,290	1,177	11·1
Hastings	...	...	...	...	...	...	66,194	851	12·9
Brighton	...	...	...	...	...	...	125,405	1,784	14·3
Portsmouth	...	...	...	...	...	...	194,960	2,867	14·7
Bournemouth	...	...	...	...	...	...	63,132	762	12·1
Southampton...	...	...	...	...	...	...	110,120	1,513	13·8
Reading	...	...	...	...	...	...	75,082	952	12·7
Northampton	...	...	...	...	...	...	89,863	1,272	14·2
Ipswich	...	...	...	...	...	...	68,818	1,046	15·2
Great Yarmouth	...	...	...	...	...	...	51,851	939	18·2
Norwich	...	...	...	...	...	...	114,351	1,737	15·2
Plymouth	...	...	...	...	...	...	112,022	1,844	16·5
Devonport	...	...	...	...	...	...	73,815	1,040	14·1
Bristol	...	...	...	...	...	...	338,895	4,825	14·3
Hanley	...	...	...	...	...	...	63,205	1,178	18·7
Burton-on-Trent	...	...	...	...	...	...	51,450	632	12·3
Wolverhampton	...	...	...	...	...	...	96,947	1,502	15·5
Walsall	...	...	...	...	...	...	89,878	1,474	16·4
Handsworth	...	...	...	...	...	...	57,557	597	10·4
West Bromwich	...	...	...	...	...	...	66,558	1,116	16·8
Birmingham	...	...	...	...	...	...	533,039	9,449	17·8
King's Norton	...	...	...	...	...	...	63,717	633	10·0
Smethwick	...	...	...	...	...	...	58,787	790	13·5
Aston Manor...	...	...	...	...	...	...	79,417	1,100	13·9
Coventry	...	...	...	...	...	...	72,684	1,172	16·2
Leicester	...	...	...	...	...	...	220,272	3,122	14·2
Grimsby	...	...	...	...	...	...	65,772	931	14·2
Nottingham	...	...	...	...	...	...	245,985	4,152	16·9
Derby	...	...	...	...	...	...	118,707	1,609	13·6
Stockport	...	...	...	...	...	...	95,709	1,761	18·5

TOWNS.							Estimated Population in the middle of the year 1903.	No. of Deaths.	Annual Rate to 1000 of Popula- tion.
Birkenhead ... ..	...	...	...	...	...	...	113,598	1,899	16·8
Wallasey ... ..	...	...	...	...	...	...	58,258	805	13·9
Bootle ... ..	...	...	...	...	...	...	60,761	1,154	19·0
St. Helens ... ..	...	...	...	...	...	...	87,259	1,541	17·7
Wigan ... ..	...	...	...	...	...	...	62,165	1,374	22·2
Warrington ... ..	...	...	...	...	...	...	66,370	1,236	18·7
Bolton... ..	...	...	...	...	...	...	173,401	3,019	17·5
Bury ... ..	...	...	...	...	...	...	58,313	1,007	17·3
Manchester ... ..	...	...	...	...	...	...	553,486	10,886	19·7
Salford ... ..	...	...	...	...	...	...	226,480	4,284	19·0
Oldham ... ..	...	...	...	...	...	...	138,786	2,577	18·6
Rochdale ... ..	...	...	...	...	...	...	84,824	1,451	17·1
Burnley ... ..	...	...	...	...	...	...	99,469	1,901	19·2
Blackburn ... ..	...	...	...	...	...	...	131,218	2,058	15·7
Preston ... ..	...	...	...	...	...	...	114,404	2,131	18·7
Barrow-in-Furness ... ..	...	...	...	...	...	...	59,009	749	12·7
Huddersfield ... ..	...	...	...	...	...	...	94,963	1,584	16·7
Halifax ... ..	...	...	...	...	...	...	106,754	1,599	15·0
Bradford ... ..	...	...	...	...	...	...	283,412	4,633	16·4
Leeds ... ..	...	...	...	...	...	...	443,559	7,325	16·6
Sheffield ... ..	...	...	...	...	...	...	425,528	7,903	18·6
Rotherham ... ..	...	...	...	...	...	...	57,212	1,006	17·6
York ... ..	...	...	...	...	...	...	80,186	1,301	16·3
Hull ... ..	...	...	...	...	...	...	249,639	4,212	16·9
Middlesbrough ... ..	...	...	...	...	...	...	95,013	2,040	21·5
Stockton-on-Tees ... ..	...	...	...	...	...	...	51,965	829	16·0
West Hartlepool ... ..	...	...	...	...	...	...	67,201	958	14·3
Sunderland ... ..	...	...	...	...	...	...	149,572	2,974	19·9
South Shields ... ..	...	...	...	...	...	...	105,325	1,805	17·2
Gateshead ... ..	...	...	...	...	...	...	115,531	1,928	16·7
Newcastle-on-Tyne ... ..	...	...	...	...	...	...	222,241	4,259	19·2
Tynemouth ... ..	...	...	...	...	...	...	52,531	952	18·2
Newport Mon. ... ..	...	...	...	...	...	...	70,217	1,100	15·7
Cardiff... ..	...	...	...	...	...	...	172,598	2,408	14·0
Rhondda ... ..	...	...	...	...	...	...	119,652	1,976	16·6
Merthyr Tydfil ... ..	...	...	...	...	...	...	71,651	1,363	19·1
Swansea ... ..	...	...	...	...	...	...	95,489	1,770	18·6
Edinburgh ... ..	...	...	...	...	...	...	327,441	5,495	16·8
Glasgow ... ..	...	...	...	...	...	...	786,897	15,027	19·2
Dublin ... ..	...	...	...	...	...	...	378,994	8,643	22·9
Belfast ... ..	...	...	...	...	...	...	358,680	7,169	20·0
<b>LIVERPOOL...</b> ... ..	...	...	...	...	...	...	<b>716,810</b>	<b>14,210</b>	<b>19·8</b>

The above table is, with the exception of Liverpool, taken without correction from the Registrar General's Return.

## INFANTILE MORTALITY.

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In previous reports this subject has been dealt with in considerable detail.

The term "infant" is restricted to twelve months of age. It will be seen from the tables, or perhaps more readily from the plan-maps in the appendix, that the loss of infant life in the various districts of the City varies widely, the range being from 88 per 1,000 in the district where it is the lowest, up to 215 in the district where it is the highest. Even in the lowest, the death-rate of infants is four times as high as the general death-rate of the community.

The high mortality amongst infants, however good their surroundings, and however intelligently maternal care is exercised, arises from many causes: a certain proportion are premature, and cannot all survive, some are born with malformations and other defects which soon terminate their existence; others, the offspring of weakly parents, cannot long survive, and in spite of all care, there is a large proportion who will succumb to one or other of the many ailments to which infancy is susceptible. Making due allowance for these, it may be taken that an annual death-rate amongst infants, of 80 to 100 per 1,000, may be looked for. Anything above this is preventable, although the necessary means to prevent it are so extremely difficult to apply that even in the best districts the loss of infant life is often in excess of the standard. In the poorer districts it is plain to the most casual observer that necessary care and attention are not given to infants: nothing is more common than to see the infant handed over to the custody of children or irresponsible persons, whilst the responsible guardians are either at work, or engaged in some other occupation. The children of the very poor are in this way exposed to neglect and inattention, which, together with improper food and scanty clothing, result in considerable sacrifice of life.

A much closer differentiation, however, is possible in each district than is indicated by these broad distinctions. Thus, in the districts of highest mortality, whilst there are instances in abundance of families in which every child has been reared, there are examples, far too numerous, in which all, or nearly all, of the children have perished in infancy, or before attaining to the age of five years.

As regards the nature of the illness to which death is most commonly ascribed, it must be borne in mind that the obscurity of symptoms of

illness in infants and young children often leaves a doubt as to which of two or more causes was the primary one. However during the year 1903 the total number of deaths of infants under one year of age was 3,815, developmental diseases accounted for 1,139, premature birth being answerable for 439, and atrophy for 627; general experience justifies the assumption that the atrophy owed its origin in a very large proportion of cases to want of proper feeding. Zymotic diseases accounted for 763 deaths, the great majority of them, viz., 461, being due to diarrhœa, the exciting cause being no doubt the same as that in the case of atrophy, viz., improper feeding. Following upon this comes whooping cough with 143 deaths, and measles with 33 deaths. Under the heading, "Diseases of the digestive system," no less than 404 deaths of infants are recorded, under that of "Diseases of the respiratory system" 722 deaths of infants are recorded, and under that of "Diseases of the nervous system" 474 deaths of infants are recorded.

It is an interesting fact that the number of deaths per 1,000 births attributed to premature birth during 1903 is more than double the number per 1,000 births in 1873. Since the latter date there has been a steady increase in the number of deaths recorded from premature birth.

Inquests were held on the bodies of 92 infants, under 12 months of age, who had been accidentally suffocated, usually by their mothers, whilst in bed.

Always remembering that the natural guardian of the infant is the mother, and that it is only with extreme caution that the efforts of the municipality can be specially directed to the preservation of infant life, there is still scope for the action of the municipality in various directions.

It is necessary that some hospital provision should be made for infants suffering from whooping-cough and measles, and in which they could be received together with the mother, or other natural guardian of the child, if necessary. With regard to feeding, there is strong evidence that the efforts of the Health Committee in widely circulating instructions as to the feeding of infants, in employing a large staff to give verbal instructions and to supervise, in establishing sterilised milk depôts at which milk specially prepared for infants can be obtained, in improving the general sanitation of slums, scavenging, &c., have resulted in marked benefit. The difficulty which is encountered in some towns, in which, owing to the work of the mother, the infant is left often in incompetent hands, is not of relatively frequent occurrence in this City.

The following table indicates the incidence of infantile mortality in the various districts of the City, and during different seasons, also the proportion of deaths under five years to the total deaths.

DISTRICTS.	Quarters.				Total Deaths.	Deaths under 5 years of age.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.
	March.	June	Sept.	Dec.				
Scotland .....	171	169	232	175	1,571	747	47·5	21·5
Exchange .....	94	90	133	91	1,241	408	32·8	21·2
Abercromby .....	85	79	103	83	1,140	355	31·1	13·2
Everton .....	277	250	348	306	2,650	1,181	44·5	17·6
Kirkdale .....	135	96	163	125	1,297	519	40·0	14·3
West Derby (West).	144	128	195	215	1,639	682	41·6	15·4
Toxteth .....	205	167	242	241	2,141	855	39·9	16·8
Walton .....	81	60	88	94	818	323	39·4	11·9
West Derby (East) .	57	52	68	81	716	258	36·0	12·4
Wavertree .....	49	31	42	60	414	182	43·9	11·8
Sefton Park .....	20	16	18	26	293	80	27·3	8·8
(late Toxteth Rural)								
Garston .....	31	17	34	43	290	125	43·1	12·0
Workhouses & Hospitals (Residences outside City) .....	25	12	18	16	690	71	10·2	...
City .....	1,374	1,167	1,689	1,556	14,900	5,786	38·8	15·9

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

The proportion which the deaths of children under five years of age has borne to the total deaths in the various districts of the City during the last five years is shown in the following table, and also the proportion of deaths of infants under one year of age to every hundred births registered.

DISTRICTS.	1899.		1900.		1901.		1902.		1903.	
	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.
Scotland .....	49.9	25.1	45.0	24.1	45.1	22.2	47.1	22.1	47.5	21.5
Exchange .....	34.9	27.4	34.0	26.0	36.4	24.1	37.4	24.5	32.8	21.2
Abercromby .....	30.6	14.5	28.3	15.4	33.7	15.6	31.6	12.5	31.1	13.2
Everton .....	46.2	21.0	44.8	19.0	48.0	19.4	44.2	15.7	44.5	17.6
Kirkdale .....	44.7	18.8	44.6	19.5	44.4	19.5	42.7	16.7	40.0	14.3
West Derby (West) .....	42.1	18.8	40.5	16.8	45.8	17.8	41.4	15.0	41.6	15.4
Toxteth.....	43.4	20.4	42.0	19.9	41.6	18.8	41.9	17.1	39.9	16.8
Walton .....	47.0	16.5	42.1	14.0	48.3	15.5	42.6	13.1	39.4	11.9
West Derby (East).....	37.1	16.6	31.9	13.4	37.7	16.5	31.5	11.2	36.0	12.4
Wavertree .....	45.7	16.4	41.1	14.0	46.2	16.5	42.8	12.8	43.9	11.8
Sefton Park..... (late Toxteth Rural)	34.8	13.6	36.0	10.5	29.3	12.0	30.4	14.6	27.3	8.8
Garston .....	47.0	17.3	43.6	16.7	48.2	18.5	38.6	10.7	43.1	12.0
Workhouse and Hospitals (Residences outside of City)	8.6	...	10.8	...	11.8	...	12.1	...	10.2	...
City .....	42.1	19.8	39.2	18.6	42.0	18.7	39.8	16.2	38.8	15.9

## CAUSES OF DEATH.

Full details as to the causes of death are set forth in table *E* in the Appendix; in this table the age at which each death took place and the district in which it occurred will also be found.

The following table gives a classification of the causes of death during the four quarters of the year, grouped under 16 classes.

CLASSES.	QUARTERS.				YEAR 1903.
	March	June.	Sept.	Dec.	
1. Zymotic and Septic Diseases .....	494	387	771	410	2,062
2. Diseases of Uncertain or Variable Seat.....	173	174	161	196	704
3. Constitutional Diseases.....	37	44	25	41	147
4. Tubercular Diseases .....	440	461	363	419	1,683
5. Diseases of the Nervous System .....	407	392	362	421	1,582
6. „ „ Circulatory „ .....	297	288	251	285	1,121
7. „ „ Respiratory „ .....	919	737	494	992	3,142
8. „ „ Digestive „ .....	220	212	334	239	1,005
9. „ „ Lymphatic „ .....	8	6	1	3	18
10. „ „ Urinary „ .....	131	122	125	112	490
11. „ „ Reproductive „ .....	24	19	22	25	90
12. „ „ Joints, &c. ....	13	11	8	12	44
13. „ „ Integumentary System .....	8	8	8	12	36
14. Dietetic Diseases.....	2	3	5	6	16
15. Developmental Diseases .....	474	444	459	401	1,778
16. Causes investigated at Coroner's Inquests ...	254	249	203	267	973
Causes not specified .....	3	2	—	4	9
All Causes .....	3,904	3,559	3,592	3,845	14,900

## ZYMOTICS.

This class of disease is one calling for special attention, and is dealt with in some detail in the following tables, the first of which shows the localities and the periods of the fatal prevalence of zymotic diseases, and the subsequent tables deal specifically with each form of zymotic disease during 1903 :—

DISTRICTS.	Deaths from all causes.	ZYMOTICS.				
		Quarters.				Percentage of Zymotic Deaths to Deaths from all causes.
		March.	June.	Sept.	Dec.	
Scotland.....	1,571	69	57	105	34	16·8
Exchange .....	1,241	40	31	70	18	12·8
Abercromby .....	1,140	36	25	43	20	10·8
Everton .....	2,650	88	89	171	81	16·1
Kirkdale .....	1,297	46	24	75	35	13·8
West Derby (West).....	1,639	35	26	80	58	12·1
Toxteth .....	2,141	73	63	109	75	14·9
Walton .....	818	28	14	35	21	11·9
West Derby (East) .....	716	22	24	37	21	14·5
Wavertree .....	414	26	12	9	11	14·0
Sefton Park .....	293	11	6	7	7	10·5
(late Toxteth Rural)						
Garston .....	290	6	5	11	15	12·7
Workhouses and Hospitals (Residences outside City) .....	690	14	11	19	14	8·4
City .....	14,900	494	387	771	410	13·8

Deaths in Public Institutions are transferred to the Districts from whence the patients came,

Zymotic diseases occasioned 2,062 deaths during the year 1903, and accounted for 13·8 per cent. of the total mortality within the City during this period. The death-rate from zymotic diseases per 1,000 was 2·8. The average rate for the preceding 5 years (1898-1902) was 3·7. The deaths during 1903 were as follows:—

	QUARTERS.				YEAR 1903.
	March.	June.	Sept.	Dec.	
Total Zymotics .....	494	387	771	410	2,062
Smallpox .....	73	50	18	—	141
Measles .....	90	25	10	7	132
Scarlatina .....	68	41	50	42	201
Diphtheria .....	45	33	38	37	153
Membranous Croup .....	3	5	2	2	12
Whooping-cough .....	56	53	59	150	318
Diarrhoea .....	38	62	483	74	657
Influenza .....	14	22	9	15	60
Typhus .....	8	16	21	12	57
Fever { Typhoid .....	33	23	24	28	108
Simple Continued .....	—	—	—	—	—
Other Zymotics .....	66	57	57	43	223

NOTE.—Influenza, Measles, and Whooping-cough appear to have been predisposing causes in the case of many deaths primarily ascribed to Respiratory Disease (page 21), inasmuch as one or other of these Zymotics had preceded the fatal illness. See also notes to succeeding tables.

### SMALL-POX.

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The prevalence of smallpox in the city during the year 1902, which owed its origin to importations on 23 occasions by sea, and on 16 occasions by tramps, has already been considered in the Annual Report on the Health of the City relating to that year, but reference to the conditions existing during the last quarter of 1902 is necessary in order to show the connection between those conditions and the more extended outbreak of 1903.

During September, 1902, 15 cases of smallpox occurred in the city. Eight out of the 15 were directly connected with previous cases, three having been discovered at their homes by the inspectors. The source of infection of six (three being in one house) was uncertain, and the remaining case was brought into the Port from Bilbao.

The extension of the outbreak originated with an unrecognised case in Robsart Street. This was the first case known in the vicinity; the patient was an unvaccinated infant, to whom no doctor had been called until it was dying of the disease after an illness of at least eight days; the child was actually dead by the time an intimation had been received by the Medical Officer of Health. On visiting the house it was found that all the other persons in the house, six in number, were also suffering from the initial stages of smallpox. They were at once removed to hospital, and the dead body of the child was conveyed to the hospital mortuary; the house was taken possession of by the sanitary staff and thoroughly disinfected.

It could not be expected that the mischief would be limited to the one house, and a house-to-house visitation of the district was forthwith commenced, with the result that within the next few days 20 more cases were discovered by the officers of the Health Committee, most of them being friends of the infected family, and six others were notified by medical men.

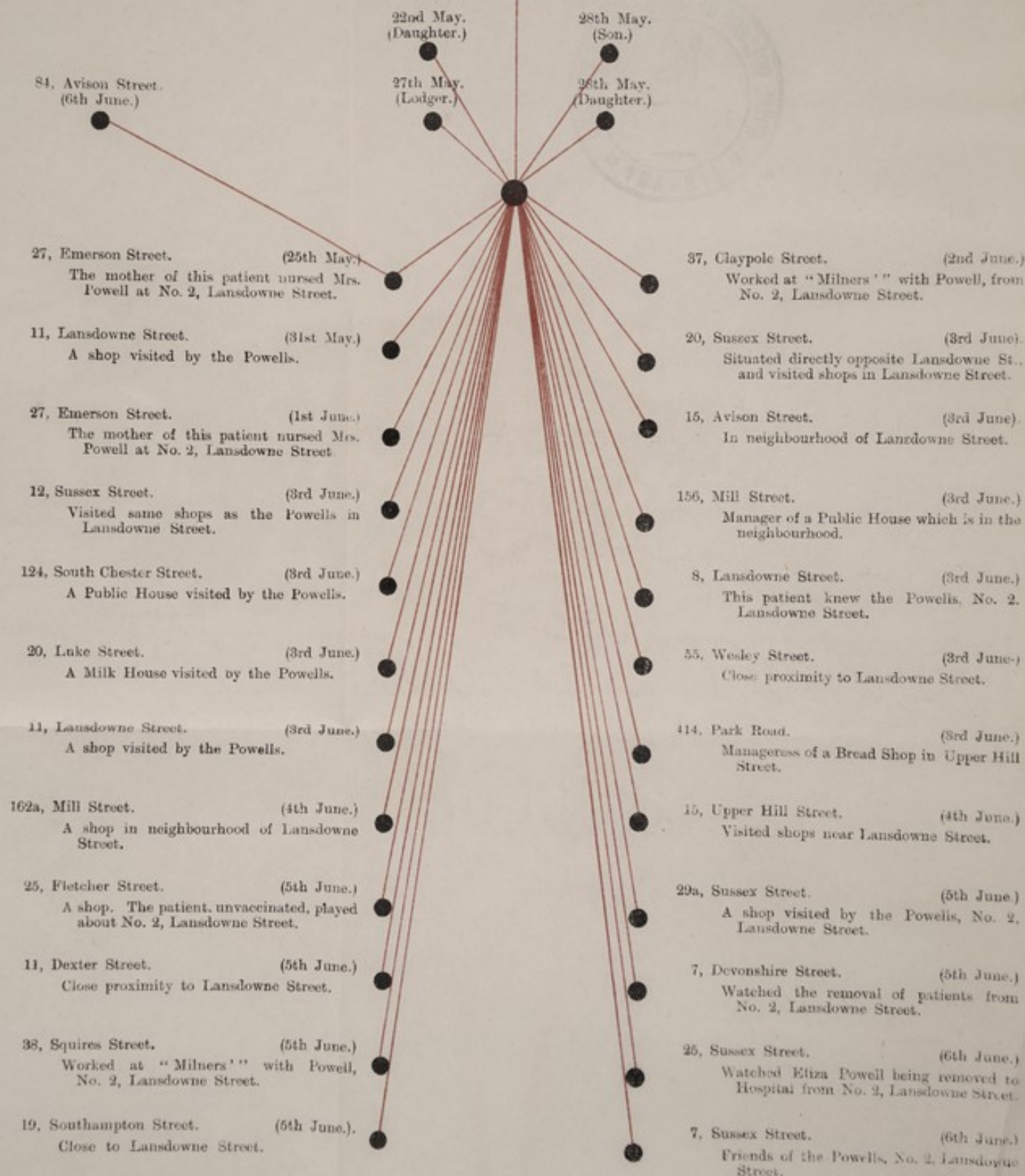
From this time onwards, in spite of the measures taken to check it, the disease continued slowly to gain ground. The number of cases



# SMALLPOX OUTBREAK in connection with No. 2, Lansdowne Street.

ONSET,—The Woman ELIZA POWELL, aged 48.  
Removed to Hospital, 22nd May 1903  
Died 23rd May, 1903.  
She had been ill 3 weeks.

## No. 2 LANSDOWNE STREET.



which occurred in the vicinity of Robsart Street during the three months ending January, 1903, was 99, of which 68 were discovered by the staff as a result of house-to-house visitation.

The further progress of the disease is indicated upon the maps; it had reached the Walton district in December, and during the subsequent few months was carried by infected persons to the east and south of the city. Meantime it must be remembered that re-importations from neighbouring towns and districts by travellers or tramps had been frequent, the re-introduction of centres of infection increasing the difficulties to be encountered.

The skeleton maps (see page 50) indicate the course which the disease followed during the outbreak, and show its disappearance from one part of the city and appearance or re-appearance in another part of the city. The general map shows the full extent of the outbreak, and the whole of the streets in which the disease appeared from October, 1902, to December 31st, 1903.

### **Means of Infection.**

The freedom of a community from smallpox, is associated with the extent and efficiency with which vaccination has been practised. Those who are efficiently vaccinated are as safe as the hospital nurses. It is only those who are imperfectly protected who are liable to contract the disease at all.

The means of infection in the majority of cases were proved to be either:—

Direct contact with, or exposure to, infected persons or things, or

Indirect contact, as, for example, a healthy person coming from an infected house and conveying the contagion to fellow employees at his place of business, or to other persons in other places frequented by him.

One instance, in addition to the Robsart Street case, will be sufficient to illustrate these points. The diagram represents the case of a patient living at No. 2, Lansdowne Street. She was suffering from smallpox, and was ill at home for three weeks before she was removed to hospital, where she died, no doctor having been called in to attend her. During the time of her illness, members of her household were pursuing their

daily avocations with the result that smallpox occurred not only where these people were employed, but in the shops, public houses, &c., which they frequented, and at the homes of friends who visited the house while the patient lay ill. This case gave rise to 29 other cases, as shown on the diagram. The relatives of the patient displayed the utmost disregard for the public safety in this case, and several prosecutions were instituted at the instance of the Health Committee, and convictions followed in each case.

### **Modified Cases.**

Doubt as to the nature of the illness proved another fruitful source of dissemination; owing to the fact that a large number of cases, modified by vaccination, were regarded by the medical attendant as chicken-pox, it became necessary to schedule chicken-pox as a notifiable disease, in order that doubtful cases might be visited by a medical officer experienced in smallpox. The value of this measure is confirmed by the fact that 54 cases of smallpox, which were under treatment as chicken-pox, were discovered and dealt with. Unfortunately, however, there were still many cases of so mild a type that no medical man was called in, and it was only after the severe infection of others by these cases, that the real nature of the disease was evident. A further mischief connected with this mild form of the disease arose from the patients going in public conveyances to places of public resort, or to places of business, laundries, tobacco works, tailors' shops, &c., not only infecting those with whom they associated, but infecting articles which they handled. Children and other inmates of their houses were also going to and fro to their daily duties. In several cases the patient, in doubt as to the nature of his illness, had sought advice at the out-patient department of the Charitable Medical Institutions, and had sat amongst the crowded occupants of the waiting room until his turn came to see the doctor.

Re-introductions of the disease were frequent, by tramps, labourers, and others, the disease being carried by them into the workhouses, common lodging-houses, tramp sheds, gaol, &c.

### **Social Condition of the Patients.**

Evidence is conclusive that "social condition" is of no consequence provided that the exposure is the same. The determining factor in all cases is the "vaccination condition." The incidence of the disease is

entirely different from the incidence say of typhus fever, which is essentially associated with slum property, and the most insanitary conditions in the city.

The occupations of the patients or their parents will be seen from the appended list (page 32). The streets from whence the patients came will be seen from the map.

### **Preventive Measures.**

Whenever a case of smallpox is notified (often by telephone), the patient is at once removed to hospital, the house is disinfected throughout, and the bedding and clothing removed the same day to the Disinfecting Station reserved for smallpox. The infected rooms are stripped of wall-paper by the sanitary staff; the paper is placed in special bags, the bags and contents being removed and burnt. A special staff, special ambulance carriages, bedding vans, &c., are employed in dealing with smallpox.

Special inspectors, experienced in the work, visit the infected or suspected houses to ascertain precise particulars as to the vaccination of the inmates, visitors, and neighbours, and also to endeavour to find out all the persons who have been in contact; the inspectors are provided with extra suits of uniform clothing, in order that their clothes may be frequently disinfected, and the risk of spreading infection reduced to a minimum.

Meanwhile, notice is sent to the Vaccination Officer that the case has occurred, and full particulars of all contacts are also sent to him. The employers of patients and of contacts are communicated with, and recommended to advise the whole of their employees to be re-vaccinated.

In order to facilitate the vaccination of contacts, the Health Committee authorised the engagement of an extra Medical Staff to visit the houses from whence cases had been removed, and vaccinate all contacts, and others in the near vicinity.

In many instances the special inspectors accompanied either the Public Vaccinators, or the Doctors appointed by the Health Committee in a house-to-house visitation, chiefly to court-houses and common lodging-houses in the lower parts of the town, with a view to induce the occupants to be re-vaccinated, with the result that a large number of persons availed themselves of the opportunity. In the case of the common

lodging-houses, the visits were paid either in the early morning, or late in the evening, this being the most convenient time to see the occupants. In order to encourage the general public to avail themselves of vaccination, the names and addresses of all the Public Vaccinators were from time to time published in the daily papers, and many thousands of circulars, giving this information, were distributed throughout the city, by the sanitary staff, and in other ways.

In some cases visits were paid to places where large numbers of people were employed, and at the request of the employers vaccination was offered to the workpeople. This offer was almost invariably accepted, with very beneficial results.

A special effort was made to induce the other inmates of the house who were employed in large works or offices, &c., to be re-vaccinated. If they refused, an intimation was sent to their employer that it was advisable for them to remain at home for fourteen days.

The Public Vaccinators were authorised to re-vaccinate, at the Health Committee's expense, any children under 10 years of age, who in their opinion were not efficiently vaccinated, and a large number of children were consequently re-vaccinated.

Notice was sent to the Head of the School attended by the children (if any) precluding their further attendance.

In instances where persons living in other towns were found to have visited or to have been in contact with a patient, information was at once sent to the Medical Officer of the district.

Infected houses, and all contact cases are visited every day for fourteen days, and every few days subsequently for a further period of two weeks, to ascertain if any fresh sickness occurs; if any ailment is reported, the sick person is visited by the Assistant Medical Officer.

During the time that smallpox was most prevalent, as many as 2,000 families were visited daily by the inspectors, with the result that 470 cases were discovered that otherwise would have escaped detection for a longer or shorter period, giving rise to the risks already alluded to.

When a case occurs in a court house, or similar insanitary premises, the other inmates are removed to the City Hospital for disinfection, and

re-vaccination. If thought necessary they are detained for a period as long as twelve days, before returning to their homes, their wages being paid by the Health Committee in the meantime. The occupants of certain common lodging-houses also received their wages so long as they remained in the lodging-house at the request of the Medical Officer, provided that they were re-vaccinated, and were seen daily by the inspector.

In five instances this detention resulted in persons who were incubating smallpox developing the disease during detention in the Isolation Wards of the Hospital.

It will be gathered that promptness in dealing with the case is a matter of the greatest importance; in a large number of instances the discovery of the case was immediately followed by the removal of the patient to hospital, and the visits of the Disinfecting Staff and the Public Vaccinator, as already described.

Special arrangements were made with the West Derby Board of Guardians, for the prompt vaccination of all tramps coming into the city and stopping at Belmont Road Test House, and the Health Committee authorised the payment of a small sum to each tramp who consented to be vaccinated. This arrangement was also made in the case of some of the common lodging-houses frequented by persons of the lowest class, and it is worthy of note that with these precautions cases amongst the vagrant class ceased.

### Prosecutions.

Prosecutions were instituted and convictions followed in the under-mentioned twenty cases:—

January	1st	...	Furnishing False Information.
February	4th	...	Failing to Notify.
"	"	...	" "
"	"	...	Furnishing False Information.
"	11th	...	Failing to Notify.
March	25th	...	" "
April	8th	...	" "
"	22nd	...	Furnishing False Information.
May	27th	...	Failing to Notify.

June	3rd	...	Furnishing False Information.
"	10th	...	Exposure of infected Person.
"	"	...	" "
"	"	...	Furnishing False Information.
"	24th	...	Failing to Notify.
"	"	...	Exposure of infected Person.
July	1st	...	Failing to Notify.
"	"	...	Exposure of infected Person.
"	"	...	" "
"	8th	...	Failing to Notify.
Sept.	16th	...	" "

Of these proceedings, it will be observed, five were taken under the Liverpool Corporation Act of 1902, for giving false information or false answers to inquiries. The value of the Act is obvious.

#### Cases of Smallpox, October, 1902 to 31st December, 1903.

October	...	...	...	...	...	...	33
November	...	...	...	...	...	...	75
December	...	...	...	...	...	...	204
January	...	...	...	...	...	...	300
February	...	...	...	...	...	...	266
March	...	...	...	...	...	...	356
April	...	...	...	...	...	...	320
May	...	...	...	...	...	...	213
June	...	...	...	...	...	...	124
July	...	...	...	...	...	...	74
August	...	...	...	...	...	...	32
September	...	...	...	...	...	...	21
October	...	...	...	...	...	...	*13
November	...	...	...	...	...	...	—
December	...	...	...	...	...	...	1
Total							2032†

\* 5 importations by sea.

† 28 patients from neighbouring districts are not included.

Out of the total of 2032 cases only two were not removed to hospital, one being the unvaccinated infant in Robsart Street previously referred to, and a hæmorrhagic case, the patient dying after a very short illness and before removal to hospital could be effected.

The maximum number in hospital at any one time was 335 on 19th March.

**Experiences of the Smallpox Hospitals as to the effects of  
Vaccination in protecting from Smallpox, or  
modifying the course of the illness.**

The protective effects of vaccination are shown by the immunity from smallpox of the Hospital Staff, all of whom are re-vaccinated when entering upon their duties. No doctor, nurse, nor any officer of any of the smallpox hospitals contracted smallpox notwithstanding their intimate and constant association with smallpox patients.

Details as to the condition of each patient in regard to vaccination, and the effects of vaccination in modifying the illness, have been carefully recorded by the Visiting Physicians, and tabulated by the Resident Medical Officers to the Smallpox Hospitals, Dr. Dunne and Dr. Prior, and their results are given on the following tables, to which most careful attention should be given. (Pages 33 to 47.)

### OCCUPATIONS OF SMALLPOX PATIENTS.

October, 1902, to December, 1903.

Occupation.	Heads of Family.	Members of Family.
Artizans and Skilled Workmen ... ..	287	201
Charwomen ... ..	29	9
Commercial (Travellers, Salesmen, &c.) ... ..	20	5
Cowkeepers, Milk Dealers ... ..	2	6
Do. Assistants ... ..	1	1
Domestic Servants ... ..	38	0
Emigrants ... ..	2	3
Employers (Contractors, Coach Builders, &c.) ... ..	7	6
Employees in Factories ... ..	45	10
Hawkers ... ..	27	14
Labourers :—		
Ordinary ... .. 300 272		
Dock ... .. 104 106		
Farm ... .. 3 1		
	407	379
Lodging House Keepers ... ..	6	5
Do. Assistants ... ..	1	0
Miscellaneous (Drivers, Watchmen, Dock Runners, &c.)	15	14
Paupers ... ..	7	0
Professional (Actors, Clerks, Chemist, Dressmakers, Nurses, Music Teachers, Optician, School Teachers, &c.) ... ..	94	21
Public House Managers .. ..	12	14
Do. Assistants ... ..	16	0
Public Servants (Customs, Corporation, &c.) ... ..	21	15
Sailors (Stewards, Firemen, &c.) ... ..	49	54
Master Mariners and Officers ... ..	4	1
Shopkeepers ... ..	35	37
Do. Assistants ... ..	34	2
Tailors (Master) ... ..	5	2
Do Assistants ... ..	11	7
Tramps ... ..	18	0
Travelling Showman ... ..	0	1
Unknown ... ..	32	0
Total ... ..	1,225	807

# CASES PRESENTING NO VACCINATION MARK.

Age Period.	A Un-vaccinated.			B Not stated to have been Vaccinated.			C Stated to have been Vaccinated, and stated to have been unsuccessfully Vaccinated.			Those whose Vaccination is doubtful.		
	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.
0—1	5	2	4	...	...	...	...	...	...	...	...	...
1—5	5	1	9	...	1	...	1	...	...	...	1	...
5—15	18	9	4	1	1	...	8	...	...	2	2	...
15—30	13	7	3	...	...	...	1	3	1	3	...	2
30 and up.	4	...	5	...	...	1	11	1	...	11	...	5
Mild	...	...	45	Mild	...	1	Mild	...	21	Mild	...	16
Severe	...	...	19	Severe	...	2	Severe	...	4	Severe	...	3
Fatal	...	...	25	Fatal	...	1	Fatal	...	1	Fatal	...	7
Mortality	...	...	89	Mortality	...	4	Mortality	...	26	Mortality	...	26
			28.1 %			25.0 %			3.8 %			26.9 %
TOTAL—Mild ... .. 83												
Severe ... .. 28												
Fatal ... .. 34												
Mortality ... .. 145												
Mortality ... .. 23.4 %												

CITY HOSPITAL,

FAZAKERLEY.



## DEATHS.

Age Period.	Un-vaccinated.			Doubtfully Vaccinated.	Vaccinated.			
	A	B	C		One Mark.	Two Marks.	Three Marks.	Four Marks.
0—1	4	...	...	...	...	...	...	...
1—5	9	...	...	...	...	...	...	...
5—15	4	...	...	...	...	...	...	...
15—30	3	...	1	2	1	2	...	...
30 and up.	5	1	...	5	3	4	4	1

		Deaths.	Total Cases.	Mortality.
Un-vaccinated (A, B, C)	.....	27	119	22.7 %
Doubtfully Vaccinated.....	.....	7	26	26.9 %
Vaccinated .....	.....	15	571	2.6 %
		49	716	6.8 %

CITY HOSPITAL,

FAZAKERLEY.

## CASES PRESENTING NO VACCINATION MARK.

Age Period.	A Stated to have been Vaccinated.			B Not stated to have been Vaccinated.			C Stated to be Un-vaccinated.			D Vaccination stated to have been performed, but never successfully.		
	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.
0—1	...	...	...	...	...	2	10	6	21	...	2	...
1—5	...	...	2	2	4	...	11	20	8	1	1	...
5—15	2	4	...	2	3	...	9	43	3	4	3	...
15—30	...	11	1	3	2	...	8	34	7	...	2	...
30 and up.	3	8	7	...	...	...	5	9	8	...	...	6
	Mild	...	5	Mild	...	7	Mild	...	43	Mild	...	5
	Severe	...	23	Severe	...	9	Severe	...	112	Severe	...	8
	Fatal	...	10	Fatal	...	2	Fatal	...	47	Fatal	...	6
	Mortality	...	38	Mortality	...	18	Mortality	...	202	Mortality	...	19
			26.3 %			11.1 %			23.2 %			31.5 %
Total—												
	Mild	...	...	...	...	...	...	...	60	...	...	...
	Severe	...	...	...	...	...	...	...	152	...	...	...
	Fatal	...	...	...	...	...	...	...	65	...	...	...
									277			
	Mortality	...	...	Mortality	...	...	Mortality	...	23.4 %			

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

Cases in which it was impossible to obtain information or evidence as to Vaccination.

Age Period.	Mild.	Severe.	Fatal.	Remarks.
0-1	...	...	...	
1-5	...	...	...	
5-15	...	...	...	
15-30	2*	...	1†	*1st.—Doubt as to existence of mark owing to the eruption. *2nd.—In this case no record could be found.
30 and up.	...	...	1	†Patient moribund, eruption too copious to distinguish marks, if any.  Patient moribund, eruption too copious to distinguish marks, if any.

Mild	...	...	...	...	2
Severe	...	...	...	...	—
Fatal	...	...	...	...	2
Mortality ...					4
					50 %

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

# VACCINATED CASES.

## Presenting One or More Vaccination Marks.

Age Period.	One Mark.			Two Marks.			Three Marks.			Four Marks.		
	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.
0—1	...	...	...	...	...	...	...	...	...	...	...	...
1—5	4	...	...	1	..	...	...	..	...	...	...	...
5—15	17	4	...	18	3	...	6	2	...	35	8	...
15—30	43	29*	2	75	37	2	85	32	...	133	63	1
30 and up.	69	40	8	77	53	9	77	46	8	52	19	5
												38

Mild	...	...	133	Mild	...	...	171	Mild	...	...	168	Mild	...	...	220
Severe	...	...	73	Severe	...	...	93	Severe	...	...	80	Severe	...	...	90
Fatal	...	...	10	Fatal	...	...	11	Fatal	...	...	8	Fatal	...	...	6
Mortality	...	...	216	Mortality	...	...	275	Mortality	...	...	256	Mortality	...	...	316
			4.6 %				4.0 %				3.1 %				1.9 %

TOTAL.—Mild	...	...	...	...	...	...	692
Severe	...	...	...	...	...	...	336
Fatal	...	...	...	...	...	...	35
							1063

Mortality ... 3.3 %

\* One of these showed one mark  $\frac{1}{2}$  in. area; this was stated to be a re-vaccination mark. There were no primary marks though stated to have been vaccinated in infancy.

## DEATHS.

Age Period.	Un-vaccinated.				Doubtfully Vaccinated.	Vaccinated.			
	A	B	C	D		One Mark.	Two Marks.	Three Marks.	Four Marks.
0—1	...	2	21	...	...	...	...	...	...
1—5	2	...	8	...	...	...	...	...	...
5—15	...	...	3	...	...	...	...	...	...
15—30	1	...	7	...	1	2	2	...	1
30 and up.	7	...	8	6	1	8	9	8	5

	Deaths.	Total Cases.	Mortality.
Un-vaccinated (A, B, C, D) .....	65	277	23.4 %
Doubtfully Vaccinated .....	2	4	50.0 %
Vaccinated .....	35	1063	3.3 %
	102	1344	7.6 %

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

## SUBSIDIARY TABLES—

## CONCURRENT VACCINATION AND SMALLPOX.

Cases presenting no Vaccination Marks excepting those of Vaccination performed after infection by Smallpox.

Age Period.	Mild.	Severe.	Fatal.
0—1	3	1	2
1—5	...	1	1
5—15	3	1	1
15—30	3	1	...
30 and up.	1	...	1

Mild ..... 10  
 Severe ..... 4  
 Fatal..... 5

---

 19

Mortality..... 26·3 %

CITY HOSPITAL,

FAZAKERLEY.

# CONCURRENT RE-VACCINATION AND SMALLPOX.

Patients successfully Re-vaccinated only after being infected by Smallpox.

Age Period.	Mild.	Severe.	Fatal.
0—1	...	...	...
1—5	...	...	...
5—15	8	...	...
15—30	22	1	...
30 and up.	17	2	...

Mild ...	47
Severe .....	3
Fatal.....	—
	50
Mortality .....	Nil.

CITY HOSPITAL,  
FAZAKERLEY.

# RE-VACCINATION.

Stated to have been Re-vaccinated.

Age Period.	SUCCESSFUL.			UN-SUCCESSFUL.		
	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.
0—1	...	...	...	...	...	...
1—5	...	...	...	...	...	...
5—15	...	...	...	...	...	...
15—30	...	...	...	1	...	...
30 and up.	16	...	1*	1	...	...

Mild .....	16	Mild.....	2
Severe .....	—	Severe.....	—
Fatal .....	1	Fatal .....	—
	<u>17</u>		<u>2</u>

Mortality..... 5.9 %

Mortality..... Nil.

\* This patient who was aged 73 years had previously been in a feeble condition.

CITY HOSPITAL,

FAZAKERLEY.



# CONCURRENT RE-VACCINATION AND SMALLPOX.

Patients successfully Re-vaccinated only after being infected by Smallpox.

Age Period.	Mild.	Severe.	Fatal.
0-1	...	...	...
1-5	...	...	...
5-15	8	...	...
15-30	55	9	1
30 and up.	43	13	3

Mild	...	...	...	...	...	106
Severe	...	...	...	...	...	22
Fatal	...	...	...	...	...	4
						132
Mortality	...	...	...	...	...	3.0 %

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

# RE-VACCINATION.

Stated to have been Successfully Re-vaccinated.

Age Period.	Mild.				Severe.				Fatal.			
	One Mark.	Two Marks.	Three Marks.	Four Marks.	One Mark.	Two Marks.	Three Marks.	Four Marks.	One Mark.	Two Marks.	Three Marks.	Four Marks.
0—1	...	...	...	...	...	...	...	...	...	...	...	...
1—5	...	...	...	...	...	...	...	...	...	...	...	...
5—15	...	...	...	...	...	...	...	...	...	...	...	...
15—30	1	...	...	...	1*	...	...	...	...	...	...	...
30 and up.	2	5	2	1	...	2	1	...	...	...	...	...

Mild	...	...	...	...	...	...	11
Severe	...	...	...	...	...	...	4
Fatal	...	...	...	...	...	...	—
							15

Mortality nil.  
Re-vaccinated 1895, cicatrix  $\frac{1}{8}$  in.

\* Stated to have been Vaccinated in Infancy.

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

## RE-VACCINATION.

Stated to have been Re-vaccinated, but unsuccessfully.

Age Period.	Mild.				Severe.				Fatal.			
	One Mark.	Two Marks.	Three Marks.	Four Marks.	One Mark.	Two Marks.	Three Marks.	Four Marks.	One Mark.	Two Marks.	Three Marks.	Four Marks.
0-1	...	...	...	...	...	...	...	...	...	...	...	...
1-5	...	...	...	...	...	...	...	...	...	...	...	...
5-15	1	...	...	...	...	...	...	...	...	...	...	...
15-30	...	...	1	...	1*	...	...	...	...	...	...	...
30 and up.	...	1	1	1	...	...	...	...	...	...	...	...

Mild	...	...	...	...	...	...	...	5
Severe	...	...	...	...	...	...	...	1
Fatal	...	...	...	...	...	...	...	—
							6	Mortality nil.

\* Stated to have been Vaccinated in infancy—no primary mark. Re-vaccinated successfully, 1895—mark  $\frac{1}{2}$  in. Re-vaccinated unsuccessfully, February, 1902, on rejoining Regiment—no mark.

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

## PREVIOUS SMALLPOX.

Stated to have previously suffered from Smallpox.

Age Period.	Un-vaccinated.									Vaccinated.											
	Mild.			Severe.			Fatal.			One Mark.			Two Marks.			Three Marks.			Four Marks.		
	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.	Mild.	Severe.	Fatal.			
0—1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
1—5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
5—15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
15—30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
30 & up.	4	...	...	2	...	...	...	1	...	...	...	...	...	...	...	...	1	...			

Mild ... .. 6

Severe ... .. 2

Fatal ... .. —

8 Mortality nil.

CITY HOSPITALS,  
PARKHILL AND PRIORY ROAD.

### The Smallpox Hospitals.

Until within recent years there was an impression that a smallpox hospital, however well conducted, must necessarily be a source of infection to the district in which it is situated, owing to what is known as aerial convection, *i.e.* conveyance of infection for prolonged distances through the atmosphere. It is important, therefore, that the experience of the Liverpool hospitals in this respect should be borne in mind, because it shows that in strictly disciplined institutions, placed as these hospitals are, no danger arises from this source.

The accompanying map shows the position of the three institutions used for smallpox. It will be seen that at Parkhill a few cases arose in the streets nearest the hospital. Attention is particularly called to this in order to emphasise the fact that these cases arose 12 days prior to the opening of the hospital on 12th January for smallpox patients. The point is of importance, since it might otherwise have been assumed that the smallpox had spread from the hospital to the district, but this was not the case.

Similarly there is no reason to suppose that either of the other two institutions contributed in this way to the number of cases of smallpox.

### Vaccination Acts.

In conclusion, attention may be called to the fact that the outbreak furnishes additional evidence of the necessity for Amendments in the Vaccination Acts, a subject upon which the Health Committee have already given expression to their views. Briefly summarised the principal amendments needed are:—

- (1) The transference of the Vaccination Staff from Boards of Guardians to the Sanitary Authority.
- (2) The provision of dépôts, under Government control, at which a suitable and adequate supply of lymph may be obtained.
- (3) Provision for re-vaccination, at the public expense, at the twelfth year of age of the child.
- (4) The compulsory vaccination of all tramps, and the re-vaccination of all persons who have recently been in contact with smallpox.
- (5) The payment of a suitable fee to the Vaccination Officer in cases of re-vaccination.

It might also be suggested that in Port Sanitary Districts the Port Medical Officer should be made the Public Vaccinator.

## SMALLPOX.

The next tables show the incidence of smallpox in regard to season and locality, and the ages at death of the fatal cases during the year 1903.

DISTRICTS.	QUARTERS.								YEAR 1903.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland.....	10	3	4	1	1	...	...	...	15	4	19
Exchange .....	4	4	3	1	3	1	...	...	10	6	16
Abercromby .....	3	4	1	3	...	...	...	...	4	7	11
Everton .....	7	5	3	2	1	...	...	...	11	7	18
Kirkdale.....	6	7	1	1	...	1	...	...	7	9	16
West Derby (West) .....	...	...	1	...	2	...	...	...	3	..	3
Toxteth .....	8	6	12	11	1	2	...	...	21	19	40
Walton .....	1	1	1	...	2	1	...	...	4	2	6
West Derby (East) .....	1	...	2	1	...	1	...	...	3	2	5
Wavertree .....	1	1	...	1	...	...	...	...	1	2	3
Sefton Park .....	...	...	...	...	...	...	...	...	...	...	...
(late Toxteth Rural).											
Garston .....	...	...	...	...	...	...	...	...	...	...	...
Hospitals (Residences outside the City)	...	1	...	1	1	1	...	...	1	3	4
City.....	41	32	28	22	11	7	...	...	80	61	141

AGES AT DEATH.													
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
23	7	3	3	6	7	...	8	15	33	20	9	7	141

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## SMALL-POX DURING THE LAST FORTY-ONE YEARS.

Years of Increase.	No of Cases.	Deaths.	Years of Subsidence.	No of Cases.	Deaths.
1863	Unrecorded	100			
1864	"	482			
1865	"	459			
1866	"	102			
			1867	Unrecorded	22
			1868	"	18
			1869	"	20
1870	"	174			
1871	"	1,919			
1872	"	50			
			1873	"	10
			1874	"	30
			1875	"	29
1876	"	386			
1877	1,660	299			
			1878	35	3
			1879	12	...
			1880	14	2
			1881	262	34
			1882	67	6
			1883	126	26
1884	832	106			
			1885	375	46
			1886	234	29
			1887	23	1
			1888	27	1
			1889	9	1
			1890	2	...
			1891	21	2
			1892	177	13
			1893	75	9
			1894	229	20
			1895	130	12
			1896	8	...
			1897	6	...
			1898	17	2
			1899	10	1
			1900	156	23
			1901	37	6
1902	560	20			
1903	*1720	*141			

\*NOTE.—These figures and the figures on the preceding page refer to the year 1903, whilst the tables on pages 30 to 47 refer to a period of 15 months extending from 1st October, 1902, to the end of 1903.

# CITY OF LIVERPOOL.

The Red Dots denote the number of Smallpox Cases during the months of November and December, 1902, and January, 1903.



CITY OF

The Red Dots denote the num  
months of November and I

# CITY OF LIVERPOOL.

The Red Dots denote the number of Smallpox Cases during the months of February, March and April, 1903.



# 1. COPY OF

The Red Dots denote the  
months of February, 1900



# CITY OF LIVERPOOL.

The Red Dots denote the number of Smallpox Cases during the months of May, June and July, 1903.





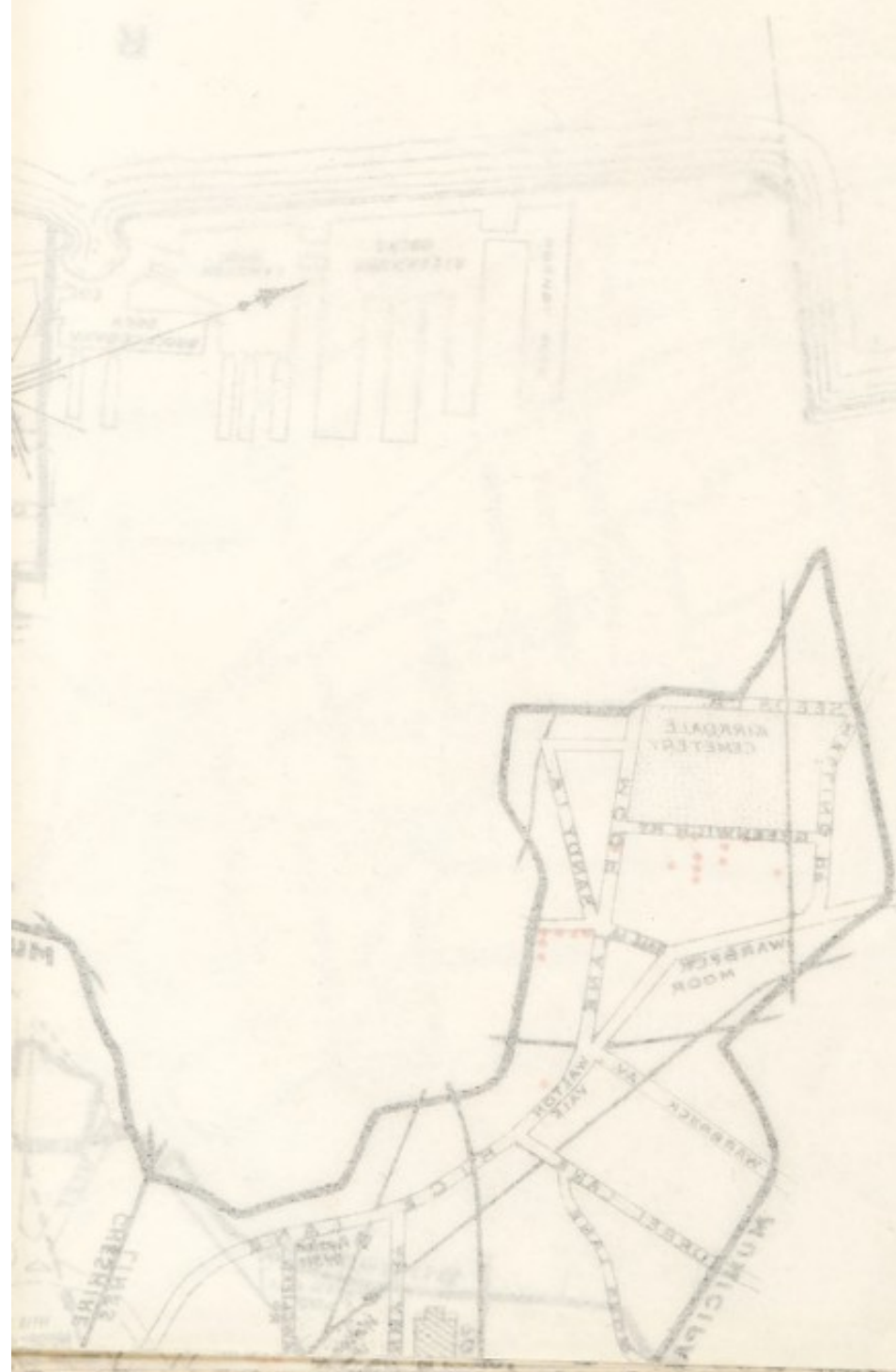
# CITY OF LIVERPOOL.

The Red Dots denote the number of Smallpox Cases during the months of August to December, 1903 (Five months.)



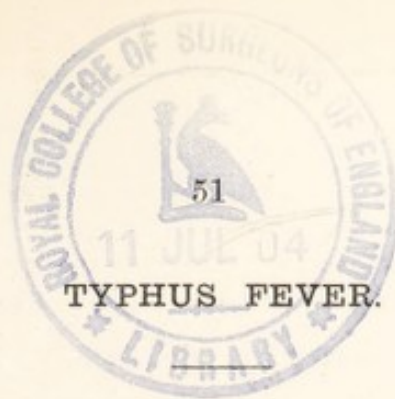
# CITY OF

The Red Dots denote the number of months of August to D









## TYPHUS FEVER.

Increased prevalence of this disease was noted in the Annual Report for 1902; this owed its origin to an insanitary area which has since been dealt with by the Housing Committee, but there was a continued diffusion of the disease from this centre during 1903.

The disease is particularly liable to spread amongst dirty, ill-fed, and intemperate persons, and incessant watchfulness is necessary in order to hold it in check. The disease almost always attacks the children of the family first; in them the symptoms are obscure, and are often unrecognised until adults succumb.

Of the total number of 272 cases, 57, as the table shows, resulted fatally, the majority of the deaths taking place during adult age, the period when the disease is most fatal.

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & upwards.	All Ages.
—	—	2	1	2	4	9	15	14	7	3	57

Reports for preceding years sufficiently illustrate the importance of the daily visits which are made to houses which have been infected with typhus fever, as well as the importance of keeping under supervision every person who is known to have been in contact with the patient. It is not necessary to allude to this at present, further than to say that none of the stringent measures which have been adopted against typhus are in any way relaxed.

The number of deaths during each of the preceding eight years has been as follows:—24, 36, 23, 19, 13, 11, 14 and 25.

List of streets in the city where cases of TYPHUS FEVER occurred  
during the year 1903.

STREETS.	Cases.	Deaths.	STREETS.	Cases.	Deaths.
Anthony .....	1	1	Kirkdale Road .....	1	...
Arkwright .....	3	1	Landor.....	9	1
Arundel .....	1	1	Latimer .....	1	...
Ashfield Cottages .....	2	1	Leyden.....	1	...
Athol .....	4	...	Llewellyn .....	3	2
Barry .....	1	1	Magnum .....	1	...
Beatrice .....	2	...	Mark .....	1	...
Blenheim .....	2	...	Mill .....	2	1
Bostock .....	1	...	Milton .....	1	...
Boundary .....	3	1	Mount Pleasant .....	1	...
Boyd.....	1	1	Netherfield Road Hospital	1	...
Brownlow Hill Workhouse ...	2	...	(A Nurse)		
(Inmates)			Newsham Street .....	6	...
Burlington .....	4	1	Opie .....	3	1
Bute .....	6	3	Parliament .....	1	...
Calmet.....	1	...	Penrhyn .....	5	1
Caradoc Square .....	4	...	Porter .....	1	...
Cardigan .....	1	1	Portland Place .....	5	1
China.....	9	4	Prince Edwin.....	12	3
Clement .....	1	...	Princes View (Hesketh St.)	8	2
Clifton .....	1	1	Queen .....	3	...
Dawson Place, Hunter St.....	1	1	Rathbone.....	1	...
Denison .....	1	1	Regent .....	9	1
Derby Road .....	1	...	Richmond Row .....	2	...
Doncaster .....	1	...	Robsart .....	1	1
Douro .....	1	...	Rockingham .....	2	2
Ebor .....	1	...	Roscoe Lane .....	1	...
Evans .....	2	...	Rose Vale .....	2	...
Falkland .....	1	1	Silvester .....	2	...
Field.....	1	...	Southwell .....	6	1
Garden Lane .....	1	1	Spurgeon .....	2	...
Gascoyne.....	1	...	Stitt .....	8	2
Gay .....	1	...	Strickland .....	3	...
Gerard .....	11	2	St. Anne .....	1	1
Gildart's Gardens .....	2	...	Tatlock .....	1	1
Gomer .....	1	...	Tindall.....	1	...
Haigh .....	5	...	Titchfield.....	1	...
Hampton.....	1	...	Turner .....	2	...
Hankin .....	3	1	Upper Beau .....	6	...
Hibbert .....	10	2	Victoria Square .....	1	1
Hopwood .....	5	2	Warburton .....	1	1
Hornby .....	19	4	Wesley .....	1	1
Howe... ..	3	...	Westmoreland Place.....	1	...
Hunter.....	1	...	Wilbraham .....	1	...
Iliad .....	7	...	Wrayburn .....	1	...
Jordan .....	1	...	Wylie .....	3	...
Kew .....	14	1			

### TYPHOID FEVER.

---

There were 681 cases of Typhoid Fever reported during the year, against 1,026 in the preceding year, and the deaths from the disease were 108, being 82 fewer than in the preceding year. These figures—both the total number of cases reported and the total number of deaths—represent the lowest recorded since the extension of the City Boundaries in 1895.

Upwards of 67 per cent. of the total number of cases notified during the year were removed to hospital. (See page 223).

The following table gives the ages at death of the fatal cases:—

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30	40—	50—	60 & up- wards.	All Ages.
1	1	7	12	6	11	30	21	11	5	3	108

The number of deaths during each of the preceding eight years has been as follows:—197, 166, 145, 148, 182, 120, 154, and 190.

Table showing the locality and season of deaths from Typhus Fever and Typhoid Fever, during the year 1903. (See also page 77).

DISTRICTS.	1st Quarter.				2nd Quarter.				3rd Quarter.				4th Quarter.				YEAR.			
	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.
Scotland.....	3	3	—	6	6	4	—	10	4	2	—	6	4	4	—	8	17	13	—	30
Exchange .....	—	3	—	3	—	3	—	3	5	1	—	6	1	—	—	1	6	7	—	13
Abercromby .....	—	2	—	2	—	—	—	—	—	2	—	2	—	1	—	1	—	5	—	5
Everton .....	2	5	—	7	8	4	—	12	10	5	—	15	2	5	—	7	22	19	—	41
Kirkdale.....	1	2	—	3	—	2	—	2	—	4	—	4	3	2	—	5	4	10	—	14
West Derby (West) .....	—	5	—	5	—	2	—	2	1	1	—	2	—	5	—	5	1	13	—	14
Toxteth .....	—	4	—	4	2	5	—	7	1	2	—	3	2	4	—	6	5	15	—	20
Walton .....	—	1	—	1	—	1	—	1	—	—	—	—	—	2	—	2	—	4	—	4
West Derby (East) .....	—	3	—	3	—	2	—	2	—	6	—	6	—	1	—	1	—	12	—	12
Wavertree .....	1	3	—	4	—	—	—	—	—	—	—	—	—	—	—	—	1	3	—	4
Sefton Park .....	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	2
(late Toxteth Rural)																				
Garston .....	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	2	—	2
Hospitals (Residences out of City) ...	—	1	—	1	—	—	—	—	—	1	—	1	—	2	—	2	—	4	—	4
TOTAL FOR WHOLE CITY ...	8	33	—	41	16	23	—	39	21	24	—	45	12	28	—	40	57	108	—	165

In arranging this table, all deaths occurring in hospitals have been transferred to the districts from whence the patients came.

### SCARLATINA.

---

Owing to the outbreak of Smallpox, all the beds at the Park Hill Hospital had to be held in reserve for this form of sickness. The scarlet fever pavilions were, therefore, not available. For this reason only 52·9 per cent. of the cases were removed to hospital, *i.e.*, 2,145, out of a total of 4,053 cases reported. The percentage of the total number of scarlet fever patients removed to hospital during each of the preceding eight years has been as follows:—38·3, 44·3, 54·6, 60·5, 63·6, 60·8, 54·8 and 53·4. The public appreciation of the value of isolation is well established, and many more cases would have been isolated had more accommodation been available.

The mortality from the disease reached 4·9 per cent., the great majority of the deaths being below five years of age. (See table, page 56.)

The total number of deaths was 201, against 318 last year, and an average of 165 during the preceding five years.

The following table shows the periods of the year and the localities in which deaths from Scarlatina occurred, and also the ages at death.

The number of deaths from Scarlatina during each of the preceding eight years, 1895-1902, has been as follows:—169, 217, 209, 145, 164, 113, 195 and 318.

DISTRICTS.	QUARTERS.								YEAR.			
	March.		June.		Sept.		Dec.					
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total	
Scotland .....	1	1	2	...	2	...	2	1	7	2	9	
Exchange .....	2	1	...	2	...	2	...	...	2	5	7	
Abercromby .....	...	2	2	...	2	1	1	...	5	3	8	
Everton .....	11	2	5	6	2	4	3	2	21	14	35	
Kirkdale .....	6	4	3	2	3	7	6	2	18	15	33	
West Derby (West) .....	3	2	3	...	1	5	5	5	12	12	24	
Toxteth .....	12	2	...	6	5	1	...	...	17	9	26	
Walton .....	3	2	3	1	3	3	3	3	12	9	21	
West Derby (East) .....	1	1	3	1	2	...	1	...	7	2	9	
Wavertree .....	4	2	2	...	1	...	2	...	9	2	11	
Sefton Park .....	1	3	...	...	1	...	1	...	3	3	6	
(late Toxteth Rural)												
Garston .....	1	...	...	...	...	...	...	1	1	1	2	
Hospitals (Residences outside												
the City) .....	...	1	...	...	4	1	2	2	6	4	10	
City .....	45	23	23	18	26	24	26	16	120	81	201	
AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
11	24	48	29	30	43	8	4	3	...	1	...	201

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## MEASLES.

---

Measles showed a marked decrease as compared with the preceding year, the cases reported reaching 2,728, as against 7,141 in 1902, 6,766 in 1901 and 2,372 in 1900. There were 132 deaths directly ascribed to it, the great majority of them being of infants below 3 years of age.

The number of deaths does not fully indicate the destruction of life due to measles, since this disease is commonly associated with bronchitis and pneumonia, and it is beyond any question that deaths primarily due to measles are entered in the returns as due to pulmonary disease. The isolation of the infectious sick in hospital is important and necessary. No provision of hospital accommodation, except for a very limited number of cases, has yet been made for measles, and the deaths from measles do not show a decline comparable to that which has taken place in the forms of infectious disease for which hospital accommodation is available. In the great number of homes in which measles occurs isolation in the house is difficult or impossible. In making arrangements for hospital isolation of measles, difficulties of a special kind arise owing to the tender age of the patient, and the peculiarities of the infection in this form of disease.

The following table shows the periods of the year and the localities in which deaths from Measles occurred, and also the ages at death.

The number of deaths from Measles during each of the preceding eight years, 1895-1902, has been as follows:—398, 312, 344, 283, 321, 150, 473 and 334.

DISTRICTS.	QUARTERS.								YEAR.			
	March.		June.		Sept.		Dec.					
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.	
Scotland .....	4	9	3	2	...	...	...	...	7	11	18	
Exchange .....	1	8	2	2	2	...	...	...	5	10	15	
Abercromby .....	5	9	2	2	1	4	...	...	8	15	23	
Everton .....	6	7	2	...	...	1	2	3	10	11	21	
Kirkdale .....	2	3	1	...	...	...	...	...	3	3	6	
West Derby (West) .....	1	5	...	...	...	1	...	...	1	6	7	
Toxteth .....	6	4	2	1	...	...	...	...	8	5	13	
Walton .....	1	2	1	...	...	...	...	...	2	2	4	
West Derby (East).....	3	1	1	1	...	...	1	...	5	2	7	
Wavertree .....	3	6	...	1	1	...	...	...	4	7	11	
Sefton Park..... (late Toxteth Rural)	1	...	...	...	...	...	...	...	1	...	1	
Garston.....	...	...	...	...	...	...	...	...	...	...	...	
Hospitals (Residences outside the City) .....	1	2	...	2	...	...	1	...	2	4	6	
City .....	34	56	14	11	4	6	4	3	56	76	132	
AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
33	55	23	8	8	3	...	...	1	1	...	...	132

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## WHOOPING-COUGH.

---

Whooping-cough again showed a considerable prevalence in the City. This disease is one of the most distressing and painful causes of death in very early life. A large number of deaths certified to be primarily due to diseases of the lungs are found on inquiry to have originated in whooping-cough. The great majority of the deaths occur below two years of age, and nearly one-half below twelve months of age. It is plain from this circumstance that isolation of the infected infant in hospital presents many difficulties. In a large proportion of cases the patient would have to be accompanied by the mother, and the period of detention in hospital would in the majority of cases be protracted. During last year 318 deaths were directly attributed to whooping-cough, but this figure is by no means a complete representation of the mischief caused by it.

Notwithstanding the difficulties in the way, some means of isolation will have to be found for the infected children, and some lessening of this disease may then be expected with confidence. Experience has repeatedly shown that the introduction of a case of whooping-cough into a court has resulted in the infection of practically the whole of the infant population in the court.

The following table shows the periods of the year and the localities in which deaths from Whooping-cough occurred, and also the ages at death.

The number of deaths from Whooping-cough during each of the preceding eight years 1895-1902 has been as follows:—412, 298, 356, 333, 314, 538, 166 and 407.

DISTRICTS.	QUARTERS.								YEAR.			
	March.		June.		Sept.		Dec.					
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.	
Scotland .....	6	10	6	4	...	4	2	6	14	24	38	
Exchange .....	3	2	2	4	...	...	4	2	9	8	17	
Abercromby .....	3	...	...	1	...	5	4	4	7	10	17	
Everton .....	11	7	7	12	12	8	11	16	41	43	84	
Kirkdale.....	2	2	2	1	1	...	4	6	9	9	18	
West Derby (West) .....	3	...	...	1	4	2	12	11	19	14	33	
Toxteth .....	1	1	2	2	6	4	16	22	25	29	54	
Walton .....	2	...	1	1	...	...	2	1	5	2	7	
West Derby (East) .....	...	...	2	2	6	2	3	9	11	13	24	
Wavertree .....	...	1	1	...	...	...	4	3	5	4	9	
Sefton Park .....	...	...	1	...	1	1	1	...	3	1	4	
(late Toxteth Rural).												
Garston .....	...	...	...	...	2	1	3	3	5	4	9	
Hospitals (Residences outside the City)	1	1	...	1	...	...	...	1	1	3	4	
City .....	32	24	24	29	32	27	66	84	154	164	318	
AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
143	104	27	24	11	8	1	...	...	...	...	...	318

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## DIPHTHERIA.

Deaths from Diphtheria attained their maximum during the first quarter of the year. Appended is a table showing the periods of the year and the localities in which the deaths from Diphtheria occurred, and also the ages at death.

The number of deaths during each of the preceding eight years has been as follows:—98, 120, 91, 123, 192, 143, 158 and 200.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland .....	3	...	1	2	...	1	...	...	4	3	7
Exchange .....	1	3	...	1	...	...	...	1	1	5	6
Abercromby .....	1	3	2	...	...	1	2	2	5	6	11
Everton .....	3	2	7	3	3	5	6	3	19	13	32
Kirkdale .....	...	2	1	3	3	2	2	2	6	9	15
West Derby (West) .....	2	4	...	2	1	1	3	1	6	8	14
Toxteth .....	2	3	3	1	6	4	3	4	14	12	26
Walton .....	5	2	1	1	3	2	...	2	9	7	16
West Derby (East) .....	...	3	...	...	1	1	...	1	1	5	6
Wavertree .....	1	1	2	...	...	...	...	...	3	1	4
Sefton Park .....	1	1	1	...	...	1	...	1	2	3	5
(late Toxteth Rural).											
Garston .....	...	2	2	...	...	3	2	1	4	6	10
Hospitals (Residences out-											
side the City).....	...	...	...	...	...	...	1	...	1	...	1
City .....	19	26	20	13	17	21	19	18	75	78	153

## AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30	40—	50	60—	All Ages.
10	25	29	28	24	29	5	...	...	2	1	...	...	153

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

**CROUP.**

The following table shows the periods of the year and the localities in which deaths attributed to Croup occurred, and also the ages at death. Twelve of the deaths were attributed to Membranous Croup, and twelve to Croup.

The number of deaths during each of the preceding eight years has been as follows:—72, 82, 58, 41, 50, 40, 51 and 41.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland .....	...	...	...	...	...	...	...	...	...	...	...
Exchange .....	...	...	...	...	...	1	...	...	...	1	1
Abercromby.....	...	...	1	1	1	...	...	...	2	1	3
Everton .....	...	1	1	...	1	...	...	1	2	2	4
Kirkdale .....	...	1	1	...	...	...	3	1	4	2	6
West Derby (West) .....	2	...	...	...	...	...	...	1	2	1	3
Toxteth .....	...	1	...	...	1	...	...	...	1	1	2
Walton.....	1	...	...	...	...	...	...	...	1	...	1
West Derby (East).....	...	...	1	...	...	...	...	...	1	...	1
Wavertree .....	1	...	1	...	...	...	...	...	2	...	2
Sefton Park .....	...	...	...	...	...	...	...	...	...	...	...
(late Toxteth Rural).											
Garston .....	...	...	...	...	...	...	1	...	1	...	1
Hospitals (Residences outside the City) .....	...	...	...	...	...	...	...	...	...	...	...
City .....	4	3	5	1	3	1	4	3	16	8	24

**AGES AT DEATH.**

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
2	11	7	1	1	2	...	...	...	...	...	...	24

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## ZYMOTIC DIARRHŒA.

As is always the case, the mortality from diarrhœa chiefly affected infants, nearly three-fourths of the total number of deaths being those of infants under twelve months old. It commenced to figure prominently in the mortality returns about the middle of July, and continued until October. Over 500 deaths were registered from it during this brief period, and to these must be added deaths from the closely-allied and identical disease, English cholera.

Investigation proves incontestably that the deaths of infants from this cause are closely associated with the method of feeding, putrefying food being the medium by which the specific poison is commonly introduced. The deaths amongst children under three months of age, either wholly or partially fed on artificial foods, are fifteen times as great as they are amongst an equal number of infants fed upon breast milk; e.g., investigation has tended to prove that, out of every 1,000 infants under three months of age, naturally fed upon breast milk alone, 20 die of autumnal choleraic disease; but if the same number of infants, at the same age, are artificially fed, then, instead of 20 dying, as many as 300 will die from this cause. It is mainly with a view to meet this that sterilized milk depôts have been established

The mortality is always highest in the season of decay; if the summer and autumn are wet and cool it is comparatively small, but a warm, dry season is invariably attended with a high mortality.

The number of deaths during each of the preceding eight years has been as follows:—1,108, 851, 1,182, 956, 1,158, 900, 1,269 and 611.

## DEATHS FROM DIARRHŒA.

DISTRICTS.					QUARTERS.								YEAR.		
					March.		June.		Sept.		Dec.				
					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.
Scotland ...	...	...	...	4	3	7	9	41	46	6	3	58	61	119	
Exchange	...	...	...	2	3	2	4	29	19	5	3	38	29	67	
Abercromby	...	...	...	...	...	2	3	12	11	1	2	15	16	31	
Everton ...	...	...	...	6	3	12	5	59	45	7	7	84	60	144	
Kirkdale ...	...	...	...	1	...	...	1	24	24	3	1	28	26	54	
West Derby (West)	...	...	...	1	5	2	4	27	25	9	2	39	36	75	
Toxteth ...	...	...	...	3	3	4	1	34	36	10	5	51	45	96	
Walton ...	...	...	...	...	1	...	1	10	9	2	3	12	14	26	
West Derby (East)	...	...	...	2	...	1	3	10	5	1	...	14	8	22	
Wavertree	...	...	...	...	...	...	...	4	2	...	...	4	2	6	
Sefton Park (late Toxteth Rural)	...	...	...	...	...	...	...	1	1	...	...	1	1	2	
Garston .....	...	...	...	...	1	...	1	4	2	...	1	4	5	9	
Hospitals (Residences outside the City) ...	...	...	...	...	...	...	...	...	3	1	2	1	5	6	
City ...	...	...	...	19	19	30	32	255	228	45	29	349	308	657	
AGES AT DEATH.															
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.		
461	142	21	6	2	5	1	1	...	2	4	1	11	657		

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

**List of Streets in the City wherein Three or more Deaths from  
Diarrhœa occurred during the year 1903.**

STREETS.	No. of Deaths.	STREETS.	No. of Deaths.
Arlington .....	3	Lind .....	3
Beaufort .....	6	Lionel .....	3
Birkett .....	3	Mann .....	4
Blundell .....	4	Mason .....	4
Bond .....	6	Mill .....	5
Boundary .....	4	Molyneux Road.....	4
Burlington .....	8	Newsham .....	3
Clifton .....	3	Paget .....	3
Coleridge .....	3	Pembroke .....	3
Dryden .....	4	Penrhyn .....	6
Eldon .....	3	Phythian .....	3
Great Richmond.....	3	Portland.....	3
Hill .....	3	Prince Edwin .....	3
Hopwood .....	3	Raymond .....	3
Hornby.....	4	Richmond Row .....	3
Iliad .....	3	Rokeby .....	4
Jenkinson.....	3	Rosalind.....	3
Latimer .....	3	Rose Vale.....	4
Letterstone.....	4	Saltney .....	3
Leyden .....	3	Victoria Square.....	3

In arranging the foregoing list of streets, all deaths occurring in hospitals have been transferred to the streets from whence the patients were removed.

## OTHER ZYMOTICS.

The following table indicates the localities in which deaths from other forms of zymotic disease occurred during the year:—

DISTRICTS.	Influenza.		Erysipelas.		Syphilis.		Rheumatic Fever.		Puerperal Fever.		Other Zymotics.		YEAR.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland .....	2	...	...	2	8	3	...	2	...	2	4	2	25
Exchange .....	1	...	1	...	3	5	2	1	...	1	3	1	18
Abercromby .....	2	5	...	1	2	1	...	...	...	1	4	...	16
Everton .....	5	6	2	2	9	4	3	6	...	3	5	6	51
Kirkdale .....	...	3	2	1	5	...	3	1	...	1	3	1	20
West Derby (West) ..	3	3	1	2	5	3	3	2	...	5	1	1	29
Toxteth .....	7	6	3	1	7	4	5	3	...	2	6	1	45
Walton .....	1	...	...	1	...	2	...	4	...	3	1	1	13
West Derby (East)...	5	3	2	1	1	...	2	2	...	...	2	...	18
Wavertree .....	...	...	...	...	...	1	1	3	...	2	2	...	9
Sefton Park..... (late Toxteth Rural)	1	3	...	1	1	...	1	2	...	1	1	...	11
Garston .....	1	1	2	1	...	1	1	...	...	1	...	...	8
Hospitals (Residences outside the City) ..	1	1	3	2	5	3	1	1	...	1	2	...	20
City .....	29	31	16	15	46	27	22	27	...	23	34	13	283

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

THE FOLLOWING TABLE SHOWING THE ANNUAL AVERAGE NUMBER OF DEATHS FROM SIX OF THE PRINCIPAL ZYMOTIC DISEASES DURING EACH OF THE LAST THREE DECENNIAL PERIODS, IS INTERESTING AND INSTRUCTIVE. THE DECLINE IN THE MORE FORMIDABLE FORMS OF INFECTIOUS DISEASES IS VERY MARKED.

Years.	Small Pox.	Typhus.	Scarlet Fever.	Measles.	Whooping Cough.	Diarrhoea.
1866 to 1875 .....	237·4	652·8	789·4	425·7	496·8	995·3
1876 to 1885 .....	90·8	238·0	421·2	517·8	472·3	658·4
1886 to 1895 .....	8·8	37·1	257·5	399·5	322·4	600·6
*1896 to 1903 .....	24·1	24·7	195·1	293·5	341·2	985·5

\* Including extended City area.

ANNUAL AVERAGE NUMBER OF DEATHS FROM SIX OF THE PRINCIPAL ZYMOTIC DISEASES  
DURING EACH OF THE LAST THREE DECENNIAL PERIODS, DISTINGUISHING THOSE  
OF PERSONS ABOVE AND BELOW FIVE YEARS OF AGE.

YEARS.	SMALLPOX.		TYPHUS.		SCARLET FEVER.		MEASLES.		WHOOPING COUGH.		DIARRHŒA.	
	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.
1866 to 1875	141.7	95.7	*...	*...	187.7	601.7	14.4	411.3	9.9	486.9	105.7	889.6
1876 to 1885	62.5	28.3	*...	*...	137.0	284.2	35.4	482.4	18.6	453.7	61.9	596.5
1886 to 1895	6.2	2.6	+33.2	+ 7	87.6	169.9	28.3	371.2	15.1	307.3	60.2	540.4
**1896 to 1903	18.0	6.1	23.7	1.0	59.5	135.6	17.0	276.5	11.7	329.5	56.9	928.6

\* During these years the ages at death from Typhus were not differentiated.

+ During the eight years, 1888-1895.

\*\* Including extended City Area.

The following table shows the annual average death-rate, per 100,000 of the population, during each of the last three decennial periods, and during the eight years 1896-1903, from the undermentioned Zymotic Diseases :—

DISEASES.	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1903.
Typhus .. ...	132.1	43.0	7.1	3.6
Small Pox ... ..	48.0	16.3	1.5	3.5
Scarlet Fever ... ..	159.9	76.2	49.6	28.6
Measles .. ...	86.1	93.6	77.0	43.0
Whooping Cough ... ..	100.5	85.4	62.1	49.9

#### TUBERCULAR DISEASES.

These diseases are associated with insanitary surroundings, and with conditions of life which tend to lower the general health. Improved sanitation is accompanied by a diminished mortality from these forms of disease, as the accompanying table, which relates to the last three decades, indicates :—

	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1903.	1903.
Annual Average Death-rate per 100,000 of the population, at all ages, from all forms of Tuberculosis ... ..	430.8	349.8	309.8	251.1	234.7
Annual Average Death-rate per 100,000 of the population above 5 years of age from Phthisis ...	362.8	278.6	244.4	204.1	195.8
Annual Average Death-rate per 100,000 of the population below 5 years of age from : Tabes Mesenterica     ) Hydrocephalus         ) Scrofula                )	637.1	597.3	539.1	344.5	290.7

The Group of Tubercular Diseases includes Phthisis, Scrofula, Tabes Mesenterica, and Hydrocephalus. They occasioned 1,683 deaths in the City of Liverpool during the year 1903.

#### DEATHS FROM PHTHISIS.

The number of deaths from Phthisis during the year was 1,258. The number of deaths during each of the preceding eight years, 1895-1902 has been as follows :—1,305, 1,198, 1,220, 1,209, 1,313, 1,287, 1,302 and 1,347.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland ... ..	22	14	21	11	17	10	16	9	76	44	120
Exchange ... ..	35	14	31	13	21	8	25	12	112	47	159
Abercromby ... ..	21	9	30	9	18	9	17	10	86	37	123
Everton ... ..	36	23	29	18	28	23	31	19	124	83	207
Kirkdale ... ..	16	15	10	15	5	6	13	11	44	47	91
West Derby (West) ... ..	16	18	18	18	18	16	20	17	72	69	141
Toxteth ... ..	13	13	32	20	19	15	21	20	85	68	153
Walton ... ..	2	5	7	8	7	4	10	12	26	29	55
West Derby (East) ... ..	12	5	8	5	6	6	5	5	31	21	52
Wavertree ... ..	2	4	2	3	1	3	3	5	8	15	23
Sefton Park ... .. (late Toxteth Rural)	...	3	3	4	2	5	9	1	14	13	27
Garston .....	3	2	2	2	1	2	4	3	10	9	19
Hospitals (Residences outside the City) ... ..	18	9	19	1	11	6	22	2	70	18	88
City ... ..	196	134	212	127	154	113	196	126	758	500	1,258
AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.
6	11	9	24	27	73	260	314	300	162	72	1,258

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## DEATHS FROM OTHER TUBERCULAR DISEASES.

Viz.:—Scrofula, Tabes Mesenterica, and Hydrocephalus.

DISTRICTS.					Scrofula.		Tabes Mesenterica.		Hydrocephalus.		YEAR.		
					M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	...	...	...	...	15	12	4	2	10	3	29	17	46
Exchange	...	...	...	...	9	9	1	1	4	7	14	17	31
Abercromby...	...	...	...	...	10	9	3	3	7	4	20	16	36
Everton	...	...	...	...	21	14	13	7	7	6	41	27	68
Kirkdale	...	...	...	...	5	6	2	5	9	7	16	18	34
West Derby (West)	...	...	...	...	10	12	10	21	2	2	22	35	57
Toxteth	...	...	...	...	15	6	4	3	8	9	27	18	45
Walton	...	...	...	...	9	2	4	2	7	3	20	7	27
West Derby (East)	...	...	...	...	4	4	2	1	2	4	8	9	17
Wavertree	...	...	...	...	1	3	5	5	7	6	13	14	27
Sefton Park ... (late Toxteth Rural)	...	...	...	...	3	2	...	...	1	3	4	5	9
Garston .....	...	...	...	...	3	1	1	1	1	1	5	3	8
Hospitals (Residences outside the City)	...	...	...	...	4	8	4	...	2	2	10	10	20
City	...	...	...	...	109	88	53	51	67	57	229	196	425
AGES AT DEATH.													
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & upwards.	All Ages.		
118	59	77	48	31	25	26	17	8	11	5	425		

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

## NOTIFICATION OF PHTHISIS.

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The system of voluntary notification of those cases of consumption in which the services of the Health Department could be of use came into operation on 14th February, 1901, and has been continued with good results.

A special form upon which the notification can be made has been circulated amongst medical men, and in those cases in which the requirements of the Health Committee have been fulfilled, the usual notification fee has been paid.

A table of statistics relating to the work is set forth below.

### PHTHISIS.

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During the year 1903, the cases reported	
numbered .....	2,067
Of this number .....	193 were duplicates.
<hr style="width: 10%; margin: 5px auto;"/>	
Leaving a total of.....	1,874 Cases.
Deaths from the Disease totalled .....	1,258
Rooms, Bedding, &c., disinfected in .....	746 instances.
Bedding, &c., removed for special disin-	
fection in the apparatus in .....	36     ,,

The age period at which the greatest number of cases were reported is from 25 years upwards, when 991 males and 571 females were reported. 180 males and 140 females were reported between 15 and 25 years.

Total number of Males reported .....	1,153
Total number of Females reported .....	721

There were 52 cases of Tuberculosis other than of the lungs reported.

Dirty Houses were reported in ..... 50 cases.

The occupations showing the largest number of cases were as follows :—

Labourers .....	527 Cases.
Domestic Servants .....	60 „
Charwomen .....	57 „
Seamen .....	57 „
Carters .....	55 „
Hawkers .....	48 „
Bookkeepers.....	43 „
Firemen.....	41 „
Laundresses .....	26 „

The following table of information for consumptive people was circulated through appropriate channels:—

1.—Consumption is a preventible disease which is caused by minute living germs, called “tubercle bacilli,” which usually enter the body with the air breathed.

2.—The matter which consumptive people cough or spit-up contains the germs of the disease in great numbers. If this matter is spat upon the floors, or the walls of any public or private place, or elsewhere, as soon as it becomes dry the germs of the disease which it contains are blown about and float in the air, like any other minute particles of dust, and are inhaled by anybody breathing that air: or they may fall upon milk or other food, and gain access to the body with that food. These are the commonest ways in which the seeds of the disease enter the body of a healthy person.

3.—It may, therefore, be dangerous to sleep with or to live in close relationship with a consumptive, unless the patient is careful that what he coughs up is destroyed. A cup containing a little water should be used to spit in, so that the matter may not dry, and it should be emptied in the closet (not into the ashpit, or upon the footwalk or the roadway), and the cup carefully washed afterwards with boiling water. If the consumptive prefers to use linen or calico cloths or handkerchiefs to spit in, they should be thrown upon the fire and burnt forthwith. He should take care that his hands, face, and clothing do not become soiled with the matter coughed up, nor should he swallow it.

4.—It is better for a consumptive to sleep alone, and the bed-clothing and personal clothing should be boiled and washed separately from the clothing of other people.

5.—Tubercle bacilli are not only the cause of ordinary consumption of the lungs, but they may also give rise to consumption of the bowels and other parts of the body, and therefore milk and other uncooked food should be carefully protected from the tubercle bacilli. If such food be kept in a place to which a consumptive patient of careless habits has access and who may spit upon the floor, the dry particles of the matter spat up may blow about with dust and find access to milk or other food, and in this way contaminate it.

6.—Cows suffer from consumption, and the milk from consumptive cows is liable to contain the tubercle bacilli. Milk had better be boiled for a few seconds unless the consumer is sure that it comes from a healthy cow, and that it has not been exposed to danger of contamination afterwards. These precautions should be specially observed in the case of children.

7.—Consumption is a disease from which large numbers of patients recover if the rooms they occupy are always kept thoroughly well-ventilated, and clean and free from dust.

8.—Sunshine and fresh air destroy tubercle bacilli, and are the principal curative agents; the more sunshine and fresh air the consumptive patient gets, the more likely is he to recover.

9.—Sanitary improvements which have been carried out in the city with a view to admit more pure air and sunshine to dwellings, and to lessen overcrowding, have reduced the mortality from consumption to about one-half of what it was 30 years ago, but, to reduce it still further, the people must help themselves by keeping their rooms clean and well-ventilated, and by maintaining strictly temperate habits.

10.—Rooms that have been occupied by consumptives should be thoroughly disinfected and cleansed before they are again occupied, and the carpets and bedding should be disinfected; in fact, so far as these precautions are concerned, consumption may be regarded in precisely the same light as any other infectious disease.

11.—The Officers of the Health Department are always ready to do the necessary disinfection, both of rooms and of clothing, free of charge.

# CANCER.

The following table indicates the number of deaths from Cancer and kindred Diseases during the last five years, and the part of the body affected by the disease:—

DISEASE.	1899.			1900.			1901.			1902.			1903.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Cancer of Stomach and Bowels..	103	86	189	70	101	171	117	106	223	103	93	196	102	108	210
„ Liver .....	29	46	75	25	47	72	21	52	73	32	50	82	33	55	88
„ Urinary and Generative Organs .....	21	89	110	11	103	114	8	116	124	16	116	132	14	119	133
„ Breast.....	1	49	50	...	48	48	...	43	43	...	54	54	...	67	67
„ Head and Face .....	19	8	27	16	8	24	24	4	28	29	4	33	27	9	36
„ Tongue, Neck, and Throat.....	31	9	40	44	9	53	51	6	57	51	13	64	68	15	83
„ Other parts of the Body .....	11	5	16	17	9	26	16	8	24	16	10	26	17	9	26
„ Parts not specified ...	7	16	23	4	14	18	9	12	21	11	15	26	8	10	18
Total .....	222	308	530	187	339	526	246	347	593	258	355	613	269	392	661

### ALCOHOLISM.

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It has already been pointed out in previous reports that there are grounds for the belief that intemperance is becoming less frequent, and for several years past this view has received confirmation by police statistics. The number of deaths certified by coroners' juries to be the result of excessive drinking during the last few years was 170 in 1903, 169 in 1902, 155 in 1901, against 236 in 1900.

With regard to the fatal cases during 1903, inquests were held during the year on the bodies of 170 persons (77 of whom had died in Work-houses and Hospitals), viz., 31 men and 35 women, whose deaths were caused by excessive drinking; 66 men and 32 women whose deaths were accelerated by excessive drinking; 4 women who were fatally injured by accident, and 2 who were suffocated whilst under the influence of drink. But besides these, there are many cases of fatal injury in which the verdict of "accidental death" omits any reference to the fact that the injured person was intoxicated at the time.

Injuries to infants and young children whilst in the custody of drunken persons are inevitable.

It is a significant fact that in nearly five thousand cases of cruelty and neglect dealt with by the Society for the Prevention of Cruelty to Children during the year, the trouble originated in the drunkenness of the parents or custodians.

In three inquests in which death was found to be the result of violence, both the person who inflicted the injuries and the injured person were under the influence of drink at the time.

In addition to the foregoing, "Alcoholism" is given as the cause of death of 6 men and 4 women.

The general effect of intemperance is indicated by the facts, which speak for themselves, that it is in the districts where there is most

intemperance that the general death-rate is highest and the proportion of deaths in workhouses is greatest.

Three districts are contrasted in these particulars:—

	Population.	General Death-rate per 1,000.	Proportion of Deaths in Workhouses and Hospitals.	Proportion of Deaths due to Excessive Drinking.
Exchange	41,332	30·0	48·2 per cent.	2·5 per cent.
West Derby (East)	45,736	16·7	15·5 „	0·7 „
Walton	58,032	15·6	17·0 „	0·5 „

#### FEVER AND DIARRHŒA MORTALITY.

The following table shows the death-rate per 1,000 of the population, and the number of deaths from Fever and Diarrhœa during the last twenty years.

Year.	*Death Rate per 1,000 of Population from all causes.	Deaths from Diarrhœa.	Deaths from Fever.		
			Typhus.	Typhoid.	Continued.
1884	26·6	841	77	112	16
1885	25·6	422	71	95	16
1886	26·1	781	47	140	11
1887	26·4	619	52	130	12
1888	23·1	431	32	125	4
1889	24·9	575	45	167	...
1890	27·5	468	23	99	1
1891	26·8	330	37	92	2
1892	24·4	415	18	111	2
1893	26·7	866	44	221	5
1894	23·1	503	50	248	7
†1895	24·8	1,108	24	197	4
1896	21·4	851	36	166	2
1897	22·8	1,182	23	145	5
1898	22·2	956	19	148	5
1899	24·1	1,158	13	182	4
1900	23·1	900	11	120	4
1901	21·6	1,269	14	154	3
‡1902	21·6	611	25	190	2
1903	19·8	657	57	108	...

\* Calculated on corrected population as per Census Returns of 1891 and 1901.

† City Boundaries extended.

‡ City Boundaries extended.

Mr. Plummer, M.A. F.R.A.S., Astronomer to the Mersey Docks and Harbour Board, has kindly supplied the following tables relating to Meteorological observations made by him at the Liverpool Observatory, Bidston :—

LIVERPOOL OBSERVATORY, BIDSTON, BIRKENHEAD.

Latitude  $53^{\circ} 24' 5''$  N. Longitude  $3^{\circ} 4' 20''$  W.

Height above the Mean Level of the Sea 202 feet.

Year and Month, 1903.	Barometer. Mean.	Temperature. Mean.	Rainfall. Amount.	No. of days on which 0·01 in. or more rain fell.	Mean Monthly Humidity. Complete Satur- ation equal 100.
	Inches.	Degrees.	Inches.		
January .....	29·877	39·9	1·985	15	83
February .....	29·986	45·0	1·599	15	81
March .....	29·700	45·2	2·992	23	78
April .....	29·887	44·3	1·689	14	76
May .....	29·873	52·1	2·509	19	74
June .....	30·069	55·7	1·915	10	73
July.....	29·910	58·8	2·339	15	77
August .....	29·788	58·0	3·374	24	77
September .....	29·979	55·5	4·316	21	80
October .....	29·535	50·8	7·372	30	81
November .....	30·037	44·4	2·765	21	85
December .....	29·710	38·8	1·563	17	87

DIFFERENCE FROM THE AVERAGE QUANTITIES OBSERVED DURING THE  
LAST 30 YEARS.

1903.	BAROMETER.		TEMPERATURE.		RAINFALL.	
	Above Average.	Below Average.	Above Average.	Below Average.	Above Average.	Below Average.
	Inches.	Inches.	Degrees.	Degrees.	Inches.	Inches.
January .....	...	0.056	0.7	...	...	0.183
February .....	0.045	...	4.7	...	...	0.085
March .....	...	0.199	3.2	...	1.285	...
April .....	...	0.009	...	2.7	0.056	...
May .....	...	0.095	0.1	...	0.579	...
June .....	0.083	...	...	2.1	...	0.148
July .....	...	0.028	...	1.6	...	0.415
August .....	...	0.129	...	2.1	0.413	...
September .....	0.041	...	...	0.9	1.332	...
October.....	...	0.239	1.5	...	3.717	...
November .....	0.138	...	0.5	...	0.097	...
December.....	...	0.157	...	1.2	...	1.062

OBSERVATIONS OF VELOCITY OF WIND.

1903.	Average Hourly Velocity for Month.	Maximum Hourly Velocity.	Date of Maximum Velocity.	Minimum Hourly Velocity.	Date of Minimum Velocity.
	Miles.	Miles.		Miles.	
January .....	20.7	52	Jan. 6, 30	1	January 9, 12.
February....	24.6	73	Feb. 27	3	February 15, 28.
March.....	23.0	68	March 30	0	March 10.
April .....	17.9	57	April 7	1	April 10, 18, 19, 30,
May .....	13.8	46	May 14	0	May 1, 19.
June .....	13.4	35	June 9	0	June 21.
July .....	15.8	58	July 6	0	July 10, 19.
August .....	18.7	50	August 15	0	August 11.
September..	16.6	48	Sept. 9	1	September 15, 16, 25.
October.....	18.6	66	Oct. 6	1	October 10, 18.
November...	19.6	65	Nov. 21	1	November 5, 18.
December...	15.4	43	Dec. 3	1	December 27.

### TEMPERATURE AND RAINFALL, 1902 and 1903.

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The average temperature of the five months, May to September, 1902, was two degrees below the average of the previous thirty years, whilst July and August were nearly three degrees below the thirty years' average; and the average temperature of the same five months of 1903 was 1·3 degrees below the previous thirty years' average—June, July and August being nearly two degrees below the average.

The total rainfall for 1902 was 25·566 inches (3 inches below the thirty years' average); 11·127 inches of the rainfall for 1902 fell during May to September, or an average exceeding 2 inches per month. The only month of the five having an excess of rain was May, when over 3 inches fell.

The total rainfall for 1903 was 34·418 inches ( $5\frac{1}{2}$  inches above the thirty years' average), 14·453 inches falling from May to September, or an average of nearly 3 inches per month, being equal to  $1\frac{3}{4}$  inches for the five months above the thirty years' average.

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SANITARY ADMINISTRATION.

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## SANITARY ADMINISTRATION.

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For the purpose of carrying out the requirements of the various Sanitary Acts of Parliament and the Orders, Bye-laws, and Regulations made thereunder, the following staff of the Medical Officer of Health's Department has been employed during the year:—

*Chief Sanitary Inspector	...	...	...	...	1
*Deputy Chief Sanitary Inspector	...	...	...	...	1
*Prosecuting Sanitary Inspectors	...	...	...	...	7
*Inspectors for General Sanitary Purposes	...	...	...	...	32
*Female Inspectors for General Sanitary Purposes	...	...	...	...	8
„ Superintendent of Sterilized Milk Depots	...	...	...	...	1
§Inspectors of Meat and Animals	...	...	...	...	4
„ under the Diseases of Animals Act	...	...	...	...	2
** „ of Fish and Fruit	...	...	...	...	4
* „ under the Sale of Food and Drugs Act...	...	...	...	...	3
* „ „ Workshop and Shop Hours Act.	...	...	...	...	3
† „ , Smoke	...	...	...	...	3
† „ , Ambulance	...	...	...	...	4
„ , Disinfecting and Wall Stripping Staff	...	...	...	...	40
Superintendents of Disinfecting Apparatus	...	...	...	...	2
„ of Wall Paper Stripping Staff	...	...	...	...	1
*Chief Inspector of Common Lodging and Sub-let Houses	...	...	...	...	1
***Inspectors of Common Lodging and Sub-let Houses	...	...	...	...	13
*Inspector of Canal Boats	...	...	...	...	1
* „ Bakehouses	...	...	...	...	1
*Inspectors of Cowsheds and Milkshops	...	...	...	...	2
Notice Servers	...	...	...	...	3
Permanent Clerical Staff	...	...	...	...	22
Temporary Assistants	...	...	...	...	12

In every case Officers are selected for these positions, whose previous training and occupation have been such as to fit them for the special

duties they are called upon to discharge. Those marked \* are required to hold the Certificate of the Sanitary Institute of Great Britain or a Certificate equivalent thereto; those marked † have Marine Engineers' First Class Certificates, and the ‡ Superintendent Ambulance Inspector holds Sanitary Certificate, and also the Certificate of St. John Ambulance Association. \*\* Fishmongers by trade. § Butchers by trade; candidates are submitted to practical examination upon the lines which have been indicated in the Report of the Royal Commission upon Tuberculosis. \*\*\*Several hold the Certificate of the Sanitary Institute, or an equivalent thereto.

The number of occasions upon which the advice and assistance of the Health Department have been sought has further increased during the year. These applications fluctuate slightly year by year; in 1896 they were 7,993, in 1897 they were 8,852, in 1898 they were 9,362, in 1899 they were 9,215, in 1900 they were 11,321, in 1901 9,657, in 1902 9,699, in 1903 10,144. As in former years, complaint in many cases was made to the Health Department only after repeated requests addressed to the persons causing or allowing the nuisance, or to agents or owners of property, had been ignored. Generally speaking, these complaints arise in connection with jerry-built property. A great deal of the time of the inspectors was taken up by these special examinations.

Requests to examine important public buildings and offices, as well as highly-rented dwelling-houses, have again been very numerous, and the application of the smoke test has in many cases brought to light defects in the drainage system. Requests for the application of the smoke test are frequent, and involve considerable time in carrying out.

A very large number of sanitary notices are served upon owners in respect to what is well known as "insanitary property." Owners would do well to demolish property such as this, and erect suitable habitations in their place. By thus co-operating with the Housing Committee, they would rid themselves of the annoyance of receiving notices, and remove centres of disease and degradation from the city.

The following table shows the number of nuisances found by routine inspection or on complaints, and the character of the proceedings taken to abate the nuisances, and the results:—

			<u>1902.</u>	<u>1903.</u>
Number of Complaints made by Inhabitants ...	...	...	9,699	10,144
„ Nuisances discovered on above complaints...			21,361	20,287
„ „ „ house to house inspection ...			85,863	81,598
			<u>1902.</u>	<u>1903.</u>
„ Notices issued ... { Owners	46,433	46,988	49,025	49,220
„ „ „ { Occupiers	2,592	2,232		
„ Notes to complainants ...	...	...	3,582	3,427
„ „ sent to comply with notices ...	...	...	8,547	7,978
„ Nuisances re-inspected ...	...	...	149,652	142,012
„ „ abated on re-inspection ...	...	...	85,774	78,947
„ Drains repaired ...	...	...	35,488	30,799
„ Ashpits „ ...	...	...	2,259	3,250
„ Closets „ ...	...	...	33,258	27,116
„ Water Closet Conversions ...	...	...	0	403
„ Ashpits substituted by improved movable Sanitary Bins ...	...	...	5,222	6,071
„ Spouts fixed and repaired ...	...	...	968	2,062
„ Notices to remove animals ...	...	...	168	176
„ Premises from which offensive matter has been removed ...	...	...	18	68
Nuisances caused by Stagnant Water ...	...	...	338	579
„ „ Dilapidated Houses ...	...	...	75	17
Number of Premises found without water and supplied			7,980	8,406
„ Railway Carriages inspected...	...	...	3,210	2,545
„ Premises under observation...	...	...	1,017	1,058
„ Informations laid ...	...	...	1,092	1,823
„ Fined ...	...	...	203	383
„ of Magistrates' Orders ...	...	...	468	611
„ Acquitted or Withdrawn ...	...	...	421	829
Amount of Fines and Costs ...	£222	1 0	£286	6 3

ASHPITS TO BE SUBSTITUTED WITH IMPROVED SANITARY

					<u>1902.</u>	<u>1903.</u>
No. of Ashpits reported ...	...	...	...	...	3,618	3,598
„ Ashbins required ...	...	...	...	...	6,103	6,444
„ Notices ...	...	...	...	...	2,951	3,966

REFERENCES TO OTHER DEPARTMENTS.

A considerable number of conditions ascertained by the Sanitary Staff to be prejudicial to health were referred to other departments to be dealt with :—

			<u>1902.</u>	<u>1903.</u>
Referred to City Engineer ...	...	...	9,216	7,515
„ Building Surveyor ...	...	...	1,799	1,678
„ Water Engineer ...	...	...	6,253	7,264
„ Education Department ...	...	...	39,182	31,530

The references to the Water Engineer comprise, mainly, defective fittings, resulting in waste of water; also cases in which the supply was insufficient, owing to various causes.

References to the Education Department chiefly relate to children from infected houses who are attending school, or who are suffering from ring-worm, ophthalmia, &c. (See page 136).

REFERENCES FROM OTHER DEPARTMENTS.

			<u>1902.</u>	<u>1903.</u>
Received from the City Engineer ...	...	...	10,665	11,840
„ Water Engineer ...	...	...	4,629	3,408
„ Lodging-house Inspectors			7,442	9,320
„ Education Department ...			20,515	15,126

The references from other Departments mainly comprise insanitary conditions discovered by officers belonging to those departments, but with which it is not within their province to deal. The City Engineer's Department continues to report defects in private drains brought to light during the process of systematic flushing.

HOUSE TO HOUSE VISITATION.

The following table indicates the results of the systematic house-to-house visitation by the District Male Staff:—

		<u>1902.</u>	<u>1903.</u>
Number of Inspections of Street Houses	... ..	26,631	27,236
„ Street Houses found Clean	... ..	23,731	24,699
„ „ „ Dirty	... ..	2,900	2,537
„ Apartments in Street Houses Examined		133,115	135,477
„ Inspections of Court Houses	... ..	2,283	1,604
„ Court Houses found Clean	... ..	1,739	1,280
„ „ „ Dirty	... ..	546	324
„ Apartments in Court Houses Examined		7,015	4,948
Total Number of Houses Examined and Re-inspected		28,863	28,940

DIRTY HOUSES.

		<u>1902.</u>	<u>1903.</u>
Number of Dirty Street Houses Inspected	... ..	2,900	2,537
„ „ Court „	... ..	546	324
„ „ Cellars Inspected	... ..	971	434
„ „ Houses and Cellars Re-inspected...		2,436	1,642
„ Notices to Owners to Cleanse Dirty Houses	... ..	3,875	3,267
„ Notices to Occupiers to Whitewash Dirty Houses	... ..	275	156
„ Notices to Owners to Whitewash Exteriors of Courts	... ..	1,239	1,172
„ Informations	... ..	48	47
„ Fined	... ..	28	24
„ Acquitted or Withdrawn	... ..	20	23

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Amount of Fines and Costs ... .. £20 14s. 0d. | £21 2s. 6d.

COURT AND ALLEY EXAMINATIONS.

								<u>1902.</u>	<u>1903.</u>
Number of Visits to Courts and Alleys ...	...	...	...	...	...	...	...	55,605	61,838
„ Closets found Dirty, but Cleansed by Officer's Instruction								51,519	49,894
„ Informations ...	...	...	...	...	...	...	...	5	—
„ Fined ...	...	...	...	...	...	...	...	5	—
Amount of Fines and Costs	...	...	...	...	...	...	...	£0 10 0	—

Special and systematic visits to courts and alleys are made with the object of ensuring the cleanliness of the domestic offices and the surface of the courts. The aim is to keep the courts and alleys uniformly clean throughout the week, and with this view the district inspectors are instructed that every tenant in each court is in turn to be held responsible for the cleanliness of the court for a period of one week; the inspector records in his visiting book whose turn it is, and duly informs that tenant. Failing compliance with his requirements, an information is laid under the following bye-law, made under the Liverpool Sanitary Act, 1846:—

“First. From and after the day on which these bye-laws shall come into operation, whenever tenants or occupiers of several houses in courts, alleys, streets, and other places within the Borough, have the right to use in common any middenstead or privy, the several persons having such right shall be, and they are hereby required to keep the internal walls, floors, seats, and fittings of such middenstead or privy thoroughly clean, so that the same is not a nuisance or annoyance to any inhabitant of the said Borough.

Second. That if any privy or middenstead so used in common, or the walls, floors, seats, or fittings thereof, or any of them, shall be in such a state or condition as to be a nuisance or annoyance to any inhabitant of the Borough, for want of proper cleansing thereof, as aforesaid, then the persons having the use thereof in common as aforesaid, shall severally be liable to a penalty not exceeding 40s., and a further penalty not exceeding 5s. for every day during which the same shall remain in such state or condition.”

But under the Public Health Acts Amendment Act, 1890, somewhat similar proceedings may be taken.

Section 21 of this Act runs as follows:—

“ With respect to any sanitary conveniences used in common by the occupiers of two or more separate dwelling-houses, or by other persons, the following provisions shall have effect:—

(1) If any person injures or improperly fouls any such sanitary convenience, or anything used in connection therewith, he shall for every such offence be liable to a penalty not exceeding ten shillings:

(2) If any sanitary convenience or the approaches thereto, or the walls, floors, seats, or fittings thereof is, or are, in the opinion of the urban authority or of the inspector of nuisances or medical officer of health of such authority in such a state or condition as to be a nuisance or annoyance to any inhabitant of the district for want of the proper cleansing thereof, such of the persons having the use thereof in common as aforesaid as may be in default, or in the absence of proof satisfactory to the court as to which of the persons having the use thereof in common is in default, each of those persons shall be liable to a penalty not exceeding ten shillings, and to a daily penalty not exceeding five shillings.”

The stipendiary magistrate has rendered great help to the department by imposing a small fine in those cases in which a prosecution became necessary. Improvement results up to a point, but the constant attention of the officer is very necessary, since the filthy habits of the people soon lead to a recurrence of the dirty conditions if the visits are lessened.

The courts and alleys continue to decrease in number, owing to the demolition of low-class property for the extension of business premises, or to the removal of insanitary property by the Housing Committee. The number of courts and alleys scheduled for inspection in 1890 was 2,165, in 1895 it had fallen to 1,660, in 1897 it had further fallen to 1,593, in 1898 the number was 1,466, in 1899 it was 1,432, in 1900 it was 1,195, in 1901 it was 1,159, in 1902 it was 1,074, and in 1903 it was 1,042, showing a diminution in thirteen years of 1,123 courts.

During the year all courts and alleys having covered entrances were specially washed and hosed down by the scavengers. Under the Liverpool Sanitary Act the exteriors of all courts and alleys require to be limewashed as often as may be necessary. In 1901 it was deemed advisable to cause the limewashing to be done in the autumn as well as in the spring. This practice has continued since.

### COMMON LODGING-HOUSES.

The Common Lodging-Houses Act provides that any person opening any premises as a Common Lodging-House, or receiving lodgers therein, without making application to the Medical Officer of Health to have such premises registered, is liable to a penalty of 40s. for every such offence.

When premises have been approved and registered in accordance with the requirements of the Common Lodging-Houses Act, the following rules and instructions, together with suitable and permanent cards indicating the various requirements, are handed to the keeper, to place in a prominent position in each room.

In addition to the requirements mentioned in the following instructions, the cleanliness and suitability of the beds and bedding engage the attention of the inspector:—

#### RULES AND INSTRUCTIONS.

1.—No greater number than                      Lodgers are to be received or accommodated in this house at any one time.

2.—The windows of every sleeping-room in this house are to be opened, and kept open to their full width, from nine to ten o'clock every morning, and from two to three o'clock every afternoon (weather permitting), unless in case of sickness in any room requiring the windows to be closed.

3.—The floors of every room in this house shall be well swept every morning before the hour of ten, and shall be well washed during the morning of every Friday.

4.—This house shall be thoroughly cleansed, and the walls and ceiling of every room in this house shall be well and sufficiently lime-washed, and the blankets, rugs, and bed-clothes, and covers used in this house, shall be thoroughly cleansed and scoured in the first week of each of the months of April, August, and December.

5.—Upon any person in this house, whether a Lodger or one of the family, being affected with fever or any contagious or infectious disorder, the Keeper shall forthwith give notice thereof to the Medical Officer of Health, at his Office, Municipal Offices, Dale Street, and the Medical Officer will visit the house, and take such proceedings as he shall think proper in compliance with the Act.

6.—If any person in this house shall be affected with fever or any infectious or contagious disorder, the blankets and bed-clothes used by such person shall be thoroughly cleansed and scoured, and the bedding fumigated, immediately after the removal of such person, and where the bedding used consists of shavings or straw, the same shall be burned immediately after such removal.

7.—The Keeper of this house shall provide sufficient accommodation for washing, together with a sufficient supply of water for the use of the Lodgers herein.

8.—The Keeper of this house shall reduce the number of Lodgers, or shall cease to receive and accommodate Lodgers altogether, immediately upon receiving notice to that effect from the Medical Officer of Health.

9.—This ticket shall be placed and kept in such situation in this house as the Medical Officer of Health shall from time to time direct and shall be produced and delivered to such Officer on demand.

N.B.—The keeper of any lodging-house defacing or removing this ticket or disobeying the above Rules and Instructions, will be liable to the several penalties in that behalf provided by the Bye-laws for regulating Lodging-houses, a copy whereof may be obtained on application at the Office of the Town Clerk, at the Municipal Offices, Dale Street.

By order of the Health Committee.

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At the end of 1902 there were on the register a total (including emigration houses) of 558 lodging houses, and at the end of 1903 the total number was 537, which furnished accommodation for 14,091 lodgers, besides 1,520 members of the keepers' families.

During the year 145 houses were given up and removed from the register, and 124 new houses added, leaving the number on the register 537. The diminution in the number of lodging-houses is due to several houses being closed, which were used for the accommodation of navvies, who left the town as the work on which they were engaged was completed.

One application was refused by the Health Committee because the character of the applicant was not satisfactory.

In some of the better-class houses for men, separate cubicles are provided for each lodger, the price paid for them varying from 6d. to 1s. 6d. per night. These cubicles are much more appreciated than the ordinary accommodation provided.

The number of what are known as "model" lodging-houses, for men only, upon the register is 159, and these are registered to accommodate 6,877 lodgers, as well as 317 members of the keepers' families.

The term "model" appears now to be used as a trade designation to indicate premises used for the accommodation of one sex only.

There are also 27 registered model lodging-houses for the accommodation of women only. These have room for 681 lodgers, in addition to 27 members of the keepers' families.

The visits to lodging-houses are both by day and by night. The night visits are almost restricted to the lower districts and commoner class of house. The lodging and emigration houses of the better class, especially those provided only with single beds for each person, and with no more beds than are equivalent to the number of lodgers allowed, are only occasionally visited at night, unless special circumstances necessitate a closer supervision.

Houses which are not licensed either as lodging or sub-let houses are frequently visited by day when such a course is deemed expedient, in order to ascertain whether any grounds exist for putting these houses on the register.

There were 500 visits paid during the year to such houses.

Persons harbouring lodgers in unlicensed premises receive a notice to apply to have the rooms measured and licensed. There were 30 such notices issued during the year.

The number of day visits paid during the year was 25,086, and the night visits 1,125. During the preceding year the day visits were 26,016, and the night visits 1,461.

Fifty-seven informations were laid against keepers of common lodging-houses during the year for the following offences:—

				1902.	1903.
Not sweeping floors	...	...	...	18	19
Not washing floors	...	...	...	31	13
Overcrowding	...	...	...	11	16
Receiving lodgers in unlicensed rooms	...			4	6
Not applying to register	...	...	...	1	—
Mixing sexes	...	...	...	4	2
Not limewashing	...	...	...	3	—
Neglecting to notify infectious disease	...			3	—
Refusing Admission	...	...	...	—	1
Total	...	...	...	75	57

Convictions followed in 53 cases, the total amount of fines amounting to £21 4s. 6d., and ranging from 1s. and costs to 40s. and costs. During the preceding year there were 73 convictions, and the fines amounted to £46 6s. 6d.

Three cases were withdrawn, and in one case the defendant was bound over and cautioned by the magistrate.

The number of lodging-houses found dirty was 83; in each case notices were served to limewash and cleanse.

The Bye-law requires that every case of infectious sickness in a lodging-house should be at once reported to the Medical Officer of Health. One hundred and forty-two cases of infectious sickness occurred in lodging-houses; 136 of the patients were at once sent to hospital; of the remaining six, two were members of the keepers' families, and four were lodgers and were not removed, the license being suspended until the recovery of the patients. Eighty-eight of the infectious cases were small-pox, and the patients were all removed to hospital. In all cases the bedding was removed to the disinfecting apparatus, and the rooms purified and cleansed. There were 43 deaths from non-infectious diseases in lodging-houses, 28 of the deceased persons belonging to the keepers' families, and 15 were lodgers.

### SEAMEN'S LICENSED LODGING-HOUSES.

The Corporation have made bye-laws, with the sanction of the President of the Board of Trade, for the licensing of Seamen's Lodging-houses, under the Merchant Shipping (Fishing Boats) Act, 1883, Section 48.

Applications from the keepers of Registered Common Lodging-Houses for licenses authorising the designation of such Registered Common Lodging-Houses as Seamen's Licensed Lodging-Houses, are infrequent, only nine such licensed lodging-houses now being on the register; these provide accommodation for 150 seamen. Three houses were given up during the year.

The number of licenses granted since the adoption of the Seamen's Licensed Lodging-House Bye-Laws is 28.

It has not been found necessary to institute proceedings under the bye-laws in question.

Some years ago the holders of licenses to keep Seamen's Lodging-Houses were authorised by the Board of Trade to board vessels and seek for lodgers, and while this privilege was granted there was an advantage in holding such a license, but that privilege being now withdrawn, it does not appear that there is any advantage to the keeper of a common lodging-house to have his premises registered as a Seamen's Lodging-House, and hence probably the small number upon the register.

### SUB-LET HOUSES.

These are houses, one or more rooms of which are let off in each case by the chief tenant or owner of the house to members of one or more other families. The Bye-laws provide for registration and inspection, in order to prevent overcrowding, and to ensure attention to cleanliness and sanitary requirements.

The number added to the register during 1903 was 1,956, making the total on the register on the 31st December, 21,719. In the newly added district of Garston a large number of houses were found to be sub-let, and were put on the register. The reasons for putting the houses on the register have arisen from various causes, some no doubt are owing

to persons who have come from insanitary property which has been demolished. Many of the houses dealt with by the Housing Committee, as unfit for human habitation were on the sub-let register. The number of visits paid to sub-let houses during the night was 18,438, and during the day 70,400, with the result of finding 1,568 rooms overcrowded. In addition to overcrowding, 324 cases of indecent occupation came under the notice of the inspectors, as against 295 last year. The character of the indecent occupation may be judged from the following facts:—In 147 instances one man and two women were found in the same bedroom; in 106 instances two men and one woman; in 27 instances two men and two women; in 9 instances one man and three women; in 20 instances three men and one woman; in 1 instance three men and two women; in 4 instances two men and three women; in 1 instance two men and four women; in 2 instances four men and one woman; and in 1 instance three men and four women; in 2 instances one man and four women; in 1 instance four men and two women; in 1 instance two men and seven women; in 1 instance twelve men and five women; and in 1 instance nine men and seven women. These cases appear to be the outcome of ignorance and indifference, and not of immoral intent. Under the new Bye-Laws a number of persons have been fined for mixing sexes, and a number, who cannot be reached under the bye-law, cautioned by the Inspectors.

Informations were laid against 1,947 chief tenants, "room-keepers," for breach of the bye-laws, viz.:—

Overcrowding	...	...	...	...	1,264
Floors not washed	...	...	...	...	152
Floors not swept	...	...	...	...	182
Not cleansing stairs, &c.	...	...	...	...	279
Mixing sexes	...	...	...	...	70
					<hr/>
Total	...	...	...	...	1,947
					<hr/>

One case was withdrawn; one case acquitted; and in one case the defendant was bound over and cautioned by the magistrate.

As the result of proceedings before the Stipendiary Magistrate, fines were inflicted as follows:—1,283 fined 1s. and 1s. costs; 316 fined 1s. 6d. and 1s. 6d. costs; 138 fined 2s. and 2s. costs; 91 fined 2s. 6d. and 2s. 6d. costs; 35 fined 5s. and 4s. 6d. costs; 1 fined 7s. and 4s. 6d. costs; 59 fined 10s. and 4s. 6d. costs; 1 fined 15s. and 4s. 6d. costs; 17 fined 20s. and 4s. 6d. costs; 3 fined 40s. and 4s. 6d. costs; making a total of fines levied during the year of £314 10s. 0d. Offences against the bye-laws have been more than in the preceding year. There were 1,164 more inspections by night than in the preceding year; the day visits were 10,078 more.

Fifty-two cases of overcrowding were in respect of premises in the newly incorporated district of Garston.

Night inspections of sub-let houses are for the purpose of detecting cases of overcrowding, or mixing of sexes. The Inspectors engaged upon this duty proceed in couples for the purpose of corroboration, and for protection in the rougher quarters of the City. The inspections are made during the night, generally between the hours of 11 p.m. and 2 a.m. Some localities are visited between 4 a.m. and 7 a.m. Prior to the night inspection, a careful house-to-house enquiry is made to ascertain particulars as to the number of inmates, the total number of rooms let in lodgings, the character of the probable overcrowding, and other information as prescribed by the Bye-Laws. In all cases, a copy of the Bye-Laws, and a notice indicating the number of persons who may occupy each room, are served upon the chief tenant, and these notices are renewed in the case of a new tenancy.

The gradual diminution in overcrowding led the Health Committee in 1901 to amend the bye-laws relating to sub-let houses, and the City Council, with the sanction of the Local Government Board and on the recommendation of the Health Committee adopted amended bye-laws, which amongst other important provisions contained clauses providing that every lodger above 10 years of age shall have not less than 400 cubic feet of air space, and every person below 10 years of age shall have not less than 200 cubic feet, but if the room is used as a day-room as well as a bedroom, then every inmate must have at least 400 cubic feet. Under the previous bye-law a space of 350 feet only was required, and two persons under twelve were regarded as one adult.

The new bye-laws came into operation on the 30th January, 1901. One result of these bye-laws—which required so relatively large an addition to the cubic space allowed for each lodger—was to put an entirely new definition upon the offence of overcrowding, and although the great majority of people quickly appreciated the effect of the new bye-laws, yet there was necessarily a considerable increase in the number of persons proceeded against for overcrowding amongst those who neglected to comply with the altered provisions.

BYE-LAWS AS TO HOUSES LET IN LODGINGS, OR OCCUPIED BY  
MEMBERS OF MORE THAN ONE FAMILY.

The Council, on the 5th day of December, 1900, in pursuance of the powers vested in them, made the following Bye-laws:—

BYE-LAWS made by the Mayor, Aldermen and Citizens of the City of Liverpool, acting by the Council with respect to Houses let in lodgings or occupied by members of more than one family in the City of Liverpool.

For fixing the number of persons who may occupy a house or part of a house which is let in lodgings, or occupied by members of more than one family:

For the registration of houses so let or occupied:

For the inspection of such houses:

For enforcing the provision of privy accommodation for such houses, and for promoting the cleanliness and ventilation in such houses:

For the cleansing and lime-washing at stated times of the premises, and for the paving of the courts and courtyards thereof:

For the giving of notices and the taking of precautions in case of any infectious disease.

1. In these Bye-laws, unless the context otherwise requires, the following words and expressions have the meanings hereinafter respectively assigned to them, that is to say—"Council" means the Mayor, Aldermen and Citizens of the City of Liverpool acting by the Council—"Lodging House" means a house or part of a house which is let in lodgings or occupied by members of more than one family—"Landlord," in relation to a house or part of a house which is let in lodgings or occupied by members of more than one family, means the person (whatever may be the nature or

extent of his interest in the premises) by whom or on whose behalf such house or part of a house is let in lodgings or for occupation by members of more than one family, or who, for the time being, receives, or is entitled to receive, the profits arising from such letting—"Lodger," in relation to a house or part of a house which is let in lodgings or occupied by members of more than one family, means a person to whom any room or rooms in such house, or part of a house, may have been let as a lodging or for his use and occupation—"Medical Officer of Health" means the Medical Officer for the time being of the Council, or any person duly authorised by the Council to act as his Deputy.

2. A lodging-house shall be exempt from the operation of the Bye-laws numbered 3, 4, and 7 to 17, all inclusive, until the landlord of such lodging-house shall have been required in pursuance of Byelaw 5 to furnish the particulars therein mentioned.
3. The landlord and a lodger as regards any room let to him in a lodging-house shall not, nor shall either of them, knowingly cause or suffer a greater number of persons than will admit of the provision of four hundred cubic feet of free air space for each person of an age exceeding ten years, and of two hundred cubic feet of free air space for each person of an age not exceeding ten years, to occupy, at any one time, as a sleeping apartment, a room which is used exclusively for that purpose, and which has been let in lodgings.
4. The landlord and a lodger as regards any room let to him in a lodging-house shall not, nor shall either of them, knowingly cause or suffer a greater number of persons than will admit of the provision of four hundred cubic feet of free air space for each person to occupy, at any one time, as a sleeping apartment, a room which is not used exclusively for that purpose, and which has been let in lodgings.
5. The landlord of a lodging-house forthwith after he shall have been required by a notice in writing, signed by the Medical Officer of Health, and duly served upon or delivered to such landlord, to supply the information necessary for the registration of such house by the Council shall himself or by his agent duly authorised in that behalf, sign and furnish to the Council a true statement of the following particulars with respect to such house: that is to say,

- (a) The total number of rooms in the house :
  - (b) The total number of rooms let in lodgings or occupied by members of more than one family :
  - (c) The manner of use of each room :
  - (d) The number, age and sex of the occupants of each room used for sleeping :
  - (e) The Christian name and surname of the lessee of each room ; and,
  - (f) The amount of rent or charge payable by each lessee.
6. The landlord of a lodging-house shall in the first week of the months of April and October in every year, and at such other times as may be necessary, cause every part of the premises to be thoroughly cleansed. He shall at the same time, and at such other times as may be necessary, except in such cases as are hereinafter specified, cause every area, the interior surface of every ceiling and wall of every water closet belonging to the premises, and the interior surface of every ceiling and wall of every room, staircase and passage in the house to be thoroughly washed with hot lime-wash.

Provided that the foregoing requirement with respect to the lime-washing of the internal surface of the walls of the rooms, staircases, and passages shall not apply in any case where the internal surface of any such wall is painted, or where the material of, or with which such surface is constructed or covered is such as to render the lime-washing thereof unsuitable or inexpedient, and where such surface is thoroughly cleansed and the paint or other covering is renewed, if the renewal thereof be necessary for the purpose of keeping the premises in a cleanly and wholesome condition.

7. Every lodger in a lodging-house shall cause the floor of every room which has been let to him to be thoroughly swept once at least *every day* before the hour of eleven o'clock in the forenoon, and to be thoroughly washed once at least in *every week*, viz., on every Saturday, before the hour of eleven o'clock in the forenoon.

8. In every case where a lodger in a lodging-house is entitled to the exclusive use of any staircase, landing or passage in such house, such lodger shall cause every part of such staircase, landing or passage, to be thoroughly cleansed from time to time as often as may be requisite.
9. In every case where two or more lodgers in a lodging-house are entitled to the use in common of any staircase, landing or passage in such house the landlord shall cause every part of such staircase, landing or passage to be thoroughly cleansed from time to time as often as may be requisite.
10. Every lodger in a lodging-house shall, except in such cases as are hereinafter specified, cause every window of every room which has been let to him, and which is used as a sleeping apartment, to be opened to its full width, and to be kept fully open for *one hour* at least before eleven o'clock in the forenoon, and for *one hour* at least between eleven o'clock in the forenoon and four o'clock in the afternoon of every day.

Provided that such lodger shall not be required, in pursuance of this Bye-law, to cause any such window to be opened or to be kept open at any time when the state of the weather is such as to render it necessary that the window should be closed, or when any bed in any such room may be occupied by any person in consequence of sickness or of some other sufficient cause.

11. The landlord of a lodging-house, immediately after he shall have been informed, or shall have ascertained, that any person in such lodging-house is ill of an infectious disease, shall give written notice thereof to the Medical Officer of Health.
12. In every case where a lodger in a lodging-house has been informed, or has ascertained, or has reasonable grounds for believing that an occupant of any room which has been let to such lodger is ill of an infectious disease, such lodger shall forthwith give written notice thereof to the landlord, and to the Medical Officer of Health, and verbal or written notice thereof to every other lodger in such lodging-house.
13. In every case where, in pursuance of the statutory provision in that behalf, an order of a justice has been obtained for the removal from a lodging-house to a hospital, or other place for the reception of the sick, of a person who is suffering from any

dangerous infectious disorder, and is without proper lodging or accommodation, or lodged in a room occupied by more than one family, the landlord of such lodging-house, and the lodger to whom any room whereof such person may be an occupant has been let shall, on being informed of such order, forthwith take all such steps as may be requisite on the part of such landlord, and of such lodger, respectively, to secure the safe and prompt removal of such person in compliance with such order, and shall, in and about such removal, adopt all such precautions as, in accordance with any instructions which such landlord and such lodger respectively may receive from the Medical Officer of Health, may be most suitable for the circumstances of the case.

14. No lodger shall suffer any person above the age of twelve years to occupy as a sleeping apartment any room let to such lodger if the room is occupied by more than one person above that age and of the opposite sex.
15. In every case where the landlord of a lodging-house does not occupy or reside in any part of the premises or retain a general possession or control of the premises, every lodger who is entitled to have or to exercise the control of the outer door of the premises shall at all times when required by the Medical Officer of Health, the Inspector of Nuisances, or the Surveyor of the Council, afford any such officer free access to the interior of the premises for the purpose of inspection.
16. Every lodger in a lodging-house shall, at all times when required by the Medical Officer of Health, the Inspector of Nuisances, or the Surveyor of the Council, afford any such officer free access for the purpose of inspection to the interior of any room or rooms which may have been let to such lodger.
17. In every case where the Medical Officer of Health, the Inspector of Nuisances, or the Surveyor of the Council has, for the purpose of inspection, obtained access to the interior of a lodging-house or to the interior of any room or rooms in such house, a person shall not wilfully obstruct any such officer in the inspection of any part of the premises, or, without reasonable excuse, neglect or refuse, when required by any such officer, to render him such assistance as may be reasonably necessary for the purpose of such inspection.

## PENALTIES.

18. Every person who shall offend against any of the foregoing Bye-laws shall be liable for every such offence to a penalty of forty shillings, and in the case of a continuing offence to a further penalty of ten shillings for each day after written notice of the offence from the Council.

Provided nevertheless that the justices or court before whom any complaint may be made or any proceedings may be taken in respect of any such offence may (if they think fit) adjudge the payment, as a penalty, of any sum less than the full amount of the penalty imposed by this Bye-law.

## REPEAL.

19. From and after the date of the confirmation of these Bye-laws, the Regulations and Bye-laws with respect to houses let in lodgings or occupied by members of more than one family, which were made by the Town Council of the City of Liverpool on the 10th day of March, 1869, and on the 7th day of October, 1885, respectively, and which were confirmed by one of Her Majesty's principal Secretaries of State and by the Local Government Board respectively, on the 23rd day of March, 1869, and on the 3rd day of December, 1885, shall so far as the same may be in force in the City of Liverpool be repealed.
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EXAMINATION OF CELLAR DWELLINGS.

	1902.	1903.
Number of Street Cellars inspected ... ..	6,698	6,921
"        "        "        found empty ... ..	1. 4	33
"        "        "        used for Lumber, &c. ...	2,545	1,765
"        "        "        found illegally occupied...	180	393
"        "        "        "        legally        "        ...	3,869	4,730
Notices issued to Owners... ..	216	460
"        "        "        Occupiers ... ..	152	394
Informations against Street Cellar Owners	9	11
Fined ... ..	6	4
of Informations against Street Cellar		
Occupiers .. ..	6	11
Fined ... ..	2	9
of Court Cellars inspected ... ..	338	200
"        "        "        found empty ... ..	12	26
"        "        "        used for Lumber, &c. ...	293	138
"        "        "        illegally occupied ...	—	3
"        "        "        legally        "        ...	33	33
"        "        and Street Cellars found dirty...	971	434
Informations against Court Cellar Owners	—	4
Fined ... ..	—	2
of Informations against Court Cellar		
Occupiers ... ..	—	1
Fined ... ..	—	—
Amount of Fines and Costs ...	£8 11 6	£13 5 0

The total number of cellars let as separate dwellings at present upon the register is 3,123, besides which there are 6,393 cellars used in conjunction with the dwelling-house above, but not let as separate dwellings.

The number of cellars filled in by the Health Committee, free of charge to the owners, during the year is 55 and the total filled in during the last ten years is 660.

About 9,200 people are at present housed in cellars.

Cellars occupied as dwellings must comply with certain requirements under the Liverpool Improvement Act of 1871, and the Public Health Act of 1875. The requirements of the Act specially relating to Liverpool may be summarised as follows, and any person who lets or suffers to be

occupied any cellar, in contravention of these requirements, is liable to a penalty not exceeding ten pounds:—

“For the purpose of this enactment, every room, the surface of the floor of which is more than four feet below the level of the nearest street, shall, if intended to be used as a separate dwelling, be deemed a cellar dwelling, and every cellar which any person shall at any time apparently inhabit or in which any person shall be found between the hours of eleven in the evening and five o'clock in the morning, shall be held and taken to be occupied as a separate dwelling.”

“Every cellar dwelling shall have a height from the floor to the ceiling in every part of such dwelling of not less than seven feet; no cellar dwelling shall have any part of its floor more than four feet below the surface of the footway of the adjoining street; every cellar dwelling shall have, both at the front and rear thereof, and for the full extent thereof, respectively, an area not less than two feet six inches wide in every part thereof, from six inches below the floor of the cellar to the surface of the ground adjoining the front and rear thereof respectively; if the cellar dwelling consists of two cellars back-to-back, it shall suffice if there be one area in front and one behind such two cellars; every area shall be protected by railings or gratings to the satisfaction of the Corporation; the steps for access to the cellar dwelling may be in the area, but shall not be opposite to the window of the cellar; the steps or access to the house above the cellar door may be across or over but not in such area, and shall not be over or opposite the window of the cellar; save as aforesaid the areas in the front and rear, respectively, shall be open and free from obstruction; every cellar or room in any cellar dwelling shall have an open fire-place, with a proper flue therefrom; every cellar dwelling shall have a water-closet, or other like convenience, and (if required by the Corporation) an ash pit or dust bin, to be built or placed in such situation as the Corporation think fit, and to their satisfaction; every cellar dwelling shall have at least one window in an outer wall, and not less than three feet square or nine square feet clear of the sash frame, and if such cellar dwelling consists of two or more cellars, each of such cellars shall have one such window; every such window shall either be a casement window, opening on hinges or pivots, or a sash window with double sashes opening at the top and bottom.”

The Building Surveyor has kindly supplied the following table:—

NUMBER OF HOUSES ERECTED AND TAKEN DOWN DURING THE YEAR ENDING  
DECEMBER, 1903.

DISTRICTS.							Number erected.	Number taken down
Scotland	...	...	...	...	...	...	1	239
Exchange	...	...	...	...	...	...	278	59
Abercromby	...	...	...	...	...	...	1	84
Everton...	...	...	...	...	...	...	12	10
Kirkdale	...	...	...	...	...	...	32	4
West Derby (West)	...	...	...	...	...	...	59	18
Toxteth...	...	...	...	...	...	...	22	101
Walton ..	...	...	...	...	...	...	432	—
West Derby (East)	...	...	...	...	...	...	471	9
Wavertree	...	...	...	...	...	...	641	—
Sefton Park	...	...	...	...	...	...	205	—
Garston...	...	...	...	...	...	...	299	4
Total ... ..							2,453	528

The City Engineer has kindly supplied the following:—

Number of cellars filled in during 1903	...	...	...	...	...	55
„ „ „ the last 10 years	...	...	...	...	...	660

SEWER VENTILATION TO END OF 1903.

Number of 9-inch by 6-inch, 9-inch, 6-inch, 6-inch by 4-in, 4-inch by 4-inch, 4-inch, and 3-inch Iron Pipe Ventilating Shafts	...	...	1,431
Number of Street Ventilating Manhole Covers and Gratings	...	...	6,725

## CANAL BOATS.

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The number of inspections of canal boats during the year was 4,239, and the condition of the boats and their occupants; as regards matters dealt with in the Acts and Regulations, is indicated by the following information :—

Twenty-four boats not registered by their present owners were found to be used as dwellings. Written notices were sent to the owners in 18 cases, and 6 verbal notices were given. The notices were complied with in 23 cases, and one boat has not been seen in the district since the notice was served.

Forty-four boats were found without certificates on board. Notices were sent to the owners in each case, and 39 were complied with; 5 have not been seen in the district since.

Thirty-three boats were found without the registered number painted on both sides of the boat. Notices were sent to the owners in each case, and the omission was rectified in 30 cases. Three have not been seen in the district since.

In 17 cases defective second bulkheads were reported. Notices were sent in each case, and all were complied with.

In 23 boats the cabins required re-painting. Notices were sent to the owners in each case, and 19 were complied with. Four boats have not been seen in the district since.

Dirty cabins were reported in 18 cases. In 4 cases verbal notice was given to the masters, and in the others written notices were sent to the owners. In 13 cases the notices were complied with, and 4 not being complied with informations were laid against the masters, and small fines inflicted. The cabins were subsequently cleaned. One boat has not been seen in the district since.

Besides the foregoing, there were 177 instances of infringements of the Acts and Regulations, caused by leaky decks (68), general leaky condition of boats (7), no doors to lockers (9), broken scuttle covers (6), defective ventilation (5), broken floors (26), no water casks on board (50), defective stoves (6). In each case notices were sent to the owners. One hundred and sixty-six of the notices were complied with, and eleven have not been re-inspected.

Informations were laid in 7 cases, viz., dirty cabins (4), not correctly marked (2), obstructing officers (1). In all cases fines were inflicted, varying from 1s. and 1s. costs, to 5s. and 4s. 6d. costs. The total amount of fines was £1 15s. 0d.

One case of smallpox, one case of scarlet fever, and one case of chicken pox occurred on board boats during the year. The patients were removed to hospital, and the cabins and bedding were disinfected. The usual certificates of disinfection were given to the masters.

In the case of smallpox, the boat was detained, and the occupants and several persons (about 10) with whom the patient was known to have been in contact were re-vaccinated.

On the 31st December, an intimation was received from the Medical Officer of Health of Burscough that a boy who had been staying on board a boat berthed in Liverpool had returned to his home at Burscough, and was suffering from scarlet fever. Prompt measures were taken for the disinfection of this boat, and the usual certificate given to the master.

The entire number of the infringements of the Acts and Regulations referred to in the report occurred on 193 boats, in several instances the offence being repeated on the same boat.

Twenty-seven notices were sent to the Education Committee of children living on canal boats and not attending any school.

The number of boats on the register is 612. Fifteen boats have been removed from the register, as it was ascertained that 14 had been broken up, and one has changed ownership, and is now registered in another district. It is probable that other boats have been broken up, or have left the district, but in the absence of definite evidence of this the boats remain on the register.

During the year 12 new boats were registered, 20 re-registered on account of changes of owners, and 3 re-registered on account of structural alterations. All boats re-registered on account of change of owners, or the name of the boat being changed, or on account of structural alterations, retain their original numbers.

Copies of the registration certificate were issued to the owners of 13 boats, owing to the original ones being worn out.

There were 93 changes of masters reported, and the fact duly recorded on the register.

In 1898 the Canal Boat Inspectors were appointed as Port Sanitary Inspectors, an appointment which authorised them to inspect all classes of boats, as a difficulty arose in regard to certain boats plying upon the canal, which were not registered under the Canal Boats Act, but which had been registered by the Board of Trade under the Merchant Shipping Act. Eight visits were made to boats of this class, and all were found correct.

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## SMOKE NUISANCES.

Proceedings for the abatement of Nuisances caused by the emission of excessive smoke from factory chimneys or from steamers, were taken under the Liverpool Sanitary Amendment Act, 1854, sections 24 and 25, the Liverpool Improvement Act, 1882, section 77, and the Liverpool Corporation Act, 1902, section 57, with the following results :—

	1902.	1903.
Number of reports of excessive smoke from Manufactories ...	323	313
"                    "                    "                    Steamers in river	376	317
"                    "                    "                    "                    dock	42	57
Total ... ..	741	687

Admonished by the Health Committee or written to in respect to nuisances caused by the emission of excessive smoke:—

Manufacturers	...	...	...	...	...	...	13	7
Steamers	...	...	...	...	...	...	6	3
							<hr/>	<hr/>
	Total	...	...	...	...	...	19	10

		<u>1902.</u>	<u>1903.</u>
Chief Inspector and Assistants gave M'facturers	505	Cautions	541
„ „ „ Steamers	64	„	70
Total...	569	„	611
Number of enquiries respecting Owners	379		361

					1902.	1903.
Informations against Manufactories	..	...	...	...	310	306
„ „ Steamers in river...		...	...	...	308	280
„ „ „ dock...		...	...	...	40	57
Total	...	...	...	...	658	643
Acquitted or withdrawn, Manufactories		...	...	...	3	5
„ „ Steamer cases		...	...	...	12	5
Total	..	...	...	...	15	10

							<u>1902.</u>	<u>1903.</u>
Fined, Manufactories	...	...	...	...	...	...	307	301
„ Steamers	...	...	...	...	...	...	336	332
Total	...	...	...	...	...	...	<u>643</u>	<u>633</u>

							<u>1902.</u>	<u>1903.</u>
Amount of Fines, Manufactories	...	£612	0	0	£589	0	6	
„ „ Steamers	...	599	10	7	675	8	9	
Total	...	<u>£1,211</u>	<u>10</u>	<u>7</u>	<u>£1,264</u>	<u>9</u>	<u>3</u>	

Nuisances arising from the firing of domestic chimneys are controlled by the Police.

#### SMOKE INSPECTION.

It will be noticed that the falling off in the number of reports referred to in previous years relating to excessive smoke from manufactories still continues. This is accounted for chiefly by the greater care exercised by the owners of furnaces, as well as by the heavier fines which are now imposed.

It is also owing to the fact that the system of concentrating the work in one large building, with all the newest appliances for smoke prevention, instead of having it carried on in a number of small factories scattered over the City, has been further adopted by manufacturers during the year.

Out of 317 cases of excessive smoke from Steamers in the river which were observed, 20 vessels were bound to foreign ports or passing through this port, the owners of 14 Steamers could not be traced, and consequently no proceedings were taken.

Complaints received of smoke from defective house flues, and from low chimneys	...	...	...	...	...	<u>1902.</u>	<u>1903.</u>
Visits relating thereto...	...	...	...	...	...	107	143
Chimneys raised in consequence of complaints	...	...	...	...	...	30	30
Flues altered and repaired	...	...	...	...	...	22	23
Attention promised	...	...	...	...	...	50	81
Referred to other departments	...	...	...	...	...	1	2
Frivolous complaints	...	...	...	...	...	4	7
Total complaints dealt with...	...	...	...	...	...	<u>107</u>	<u>143</u>

The smoke in our atmosphere is entirely produced by the combustion of coal in—

- (1) Domestic fire-grates ;
- (2) Steam boiler furnaces ; and
- (3) Other furnaces used for manufacturing processes.

It is a common error to lay the blame of the pollution of the atmosphere by smoke entirely upon the factory chimney, and this is no doubt due to the fact that it is more easily noticeable than the individually small quantities of smoke which are emitted from the chimneys of dwelling-houses, and which reach a very large amount in the aggregate.

Much of the smoke from domestic chimneys is caused by the wasteful method of burning coal and is further intensified by the unscientific construction of the flues, which allows the cooled products of combustion to gather in large masses on the rough brickwork, in the form of soot, and thus to stop the draught by choking the outlet. This gives rise to the endeavour to clear the choked flue cheaply, and so make the "fire draw" by means of the filthy habit of "firing" the chimney, which is practised by a large number of householders, to the great discomfort of the rest of the community.

The use of mechanical stokers is increasing among steam-boiler owners, and there is a continual improvement in the construction of furnaces and their smoke-preventing appliances generally. It may be here mentioned that the great advance which has been made in furnace construction and management since the present time limit of four minutes was fixed for emissions of excessive smoke, makes it possible for that limit to be reduced, particularly with regard to smoke from steam-boilers.

Among the later improvements adopted in one of the sugar-refineries, there is one called the "Underfeed Furnace." In this furnace the fire-bars form two flat slopes rising upwards towards the centre of the grate; the general shape is not unlike a ship's skylight. The bars are flat and lie in position much like the slates of a roof, except that there is a space between each pair of bars through which the air can pass upwards from the ashpit below the fire. Small coal is fed into a hopper, which is necessarily placed low down on the front of the boiler (one of the Lancashire type). The fuel falls direct on to the back end of a conveyor worm at the bottom of the hopper. This worm is conical in shape, decreasing towards the back of the grate, the pitch also decreasing, it

lies in a conical space below the centre of the grate, the coal is carried along and made to rise upwards through a longitudinal slit which traverses the centre of the grate along its whole length. The graduated diameter and pitch of the worm cause the coal to rise uniformly throughout the whole length of the grate. As the fuel rises to the centre of the grate the heat starts the coking action, the volatile gasses pass upwards through the incandescent fire and are mixed with the air which is forced upwards by means of a fan between the bars. As combustion proceeds, the coked fuel falls down the bars to the ash trough at the side, where all the incombustible matter in the fuel is deposited. The worm is rotated by means of a small engine and a slight lateral movement is given to the bars. The furnace appears to act well and is said to be a smokeless one.

The inclusion of Garston has brought within the City boundaries several copper-rolling mills, for the manufacture of copper sheets and plates, about the smoke from which many complaints were received; but after the local requirements in regard to smoke prevention were explained, very slight difficulty was experienced in inducing the owners to comply with them; although it must be added several prosecutions have been undertaken.

From careful observations during the course of inspections, it has been found that the nuisance caused by the emission of excessive smoke from chimneys is due to the following causes:—

1. Improper construction of the furnaces, and the want of sufficient boiler room.
2. Inferior quality of the fuel used.
3. Improper firing and want of attention on the part of the stokers.

These causes are usually associated; even an improperly constructed furnace, if fed with a good quality of fuel and attended to by a careful and skilful man, can be so used as to avoid making unnecessary smoke, and, at the same time, the utmost amount of work of which it is capable can be obtained from it. A furnace of the best construction and fitted with the most approved appliances for preventing smoke, may, on the other hand, give rise to the greatest nuisance owing to improper attention and the use of poor fuel.

Mechanical stokers, many forms of which are now used by manufacturers, when properly used, effect a saving of 11 to 20 per cent. in the cost of the coal used, together with a considerable diminution of the quantity of smoke emitted from the chimney. It should be clearly understood that furnaces of this class must not be worked by hand if it is desired that they should be effective smoke preventers.

#### OFFENSIVE TRADES.

Applications for permission to carry on the following offensive trades were made during the year, and a report by the Medical Officer of Health on each application was submitted to the Health Committee:—

Premises.	Business.	Granted.	Refused.	Date, 1903.
10 & 12, Druid Street ...	Soft Soap Manufacture .....	1	—	28th May.
20, Westmoreland Street	Varnish Manufacture .....	—	1	24th Sept.
Henry Edward Street ...	Soap Manufacture .....	—	1	24th Sept.
2 & 4, Henry Edward St.	Liquid Soap Disinfectant Making	1	—	15th October.
139, Vauxhall Road .....	Soft Soap Manufacture .....	1	—	19th Nov.
1, Freemasons Row .....	Tallow Refining .....	1	—	19th Nov.
164, Boundary Street ...	Tripe Boiling.....	1	—	31st Dec.

In cases in which permission is granted, conditions are imposed requiring that the premises be put in proper order to the satisfaction of the City Engineer and the Medical Officer of Health, that no public nor private nuisance be caused, and that the business be discontinued whenever the Council shall so require.

The number of inspections of premises where offensive trades are carried on was 1,316, as against 1,041 in 1902.

					<u>1902.</u>	<u>1903.</u>
Total No. of Visits to Bone Boilers...	...	...	...	...	133	121
„ Fell Mongers	...	...	...	...	45	43
„ Soap Boilers	...	...	...	...	178	204
„ Fat and Tallow Melters	...	...	...	...	291	298
„ Tripe Boilers	...	...	...	...	240	209
„ Gut Scrapers	...	...	...	...	129	82
„ Fish Skin Dressers...	...	...	...	...	11	0
„ Fish and Oil Refineries	...	...	...	...	2	2
„ Tanneries	...	...	...	...	66	77
„ Knackers' Yards	...	...	...	...	88	186
„ Paint and Resin Works	...	...	...	...	17	18
„ Stearine Works	...	...	...	...	7	0
„ Palm Oil Works	...	...	...	...	53	46
„ Cotton Seed Oil Works	...	...	...	...	18	20
„ Bladder Dressers	...	...	...	...	0	3
„ Liver Boilers...	...	...	...	...	0	7

KNACKERS' YARD RETURNS.

	Horses Destroyed.	Horses taken in Dead.	Asses Destroyed.	Cows Destroyed.	Other Beasts.
Carruthers Street	123	1,549	21	50	—

MARINE STORES

					<u>1902.</u>	<u>1903.</u>
Number of Visits	...	...	...	...	606	657

MANURE YARDS AND WHARVES.

					<u>1902.</u>	<u>1903.</u>
Number of Visits	...	...	...	...	505	571

## STABLES

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The number of visits was 4,724. Conditions prejudicial to health arise from stables on account of defective construction, or of improper situation, or from neglect of lighting, ventilation and cleansing of the stables. Under existing legal powers, great difficulty is experienced in dealing with stables, and complaints are very frequent of nuisances occasioned by the causes indicated, the most frequent, perhaps, being neglect of cleanliness.

A large number of stables are either so defective, or so little care is taken of them, that the visits of the inspectors are necessary almost every day, in order that they may be under practically constant observation.

The Health Committee have endeavoured to procure adequate powers to enable them to make bye-laws to deal with stables (*a*) for regulating the lighting, ventilation, cleansing and draining of stables, whether erected before or after the passing of this Act; (*b*) for regulating the situation and mode of construction of stables to be erected within the city. Such bye-laws have now been drafted and approved by the Health Committee.

					<u>1902.</u>	<u>1903.</u>
Number of Visits to stables	...	...	...	...	5,980	4,724

## FEMALE SANITARY STAFF.

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The general work of the Female Sanitary Staff has been conducted on the same lines as in previous years, consisting primarily of house-to-house visitation, special attention being directed to domestic and personal cleanliness, the latter being frequently neglected owing to the apathy of the individual and the absence of facilities in the house. A number of women have been glad to avail themselves of the advantages offered by the baths, though there is room for further enlightenment on this subject. Persons too infirm, or ailing, to go to the baths, have been washed in their own homes. The teachers at the schools continue to appreciate and take advantage of the assistance given them by the Female Sanitary Inspectors on behalf of children who attend school in a filthy, verminous and ragged condition, their efforts being directed to encouraging the mothers to exercise greater cleanliness and care.

Infants fed on the Sterilized Milk prepared by the Corporation are under the observation of the staff, visits being paid to all cases requiring attention. In the ordinary course of the work, the Female Inspectors frequently recommend its use for delicate children, with excellent results.

During the outbreak of Whooping-cough, enquiries were made into all fatal cases, tracing the origin of the infection with a view to checking the spread of the disease by having sufferers either isolated or removed to the hospital.

The amount of Infantile Diarrhoea has been comparatively small, many of the deaths being the result of improper feeding, the long tube bottle being an important factor in that connection.

There has been a great increase in the number of notifications from the public of persons and dwellings requiring special attention. Many of these have occurred in streets of a better class than those usually visited by the Female Inspectors, and have included cases of sickness, dirt and neglect. In each instance the house has been cleaned, and the persons either removed to hospital, or dealt with in their own homes.

Workshops in which women are employed are inspected systematically and upon complaint.

STATISTICS OF WORK OF FEMALE SANITARY STAFF.

						<u>1902.</u>	<u>1903.</u>
Number of Street Houses examined ...	...	...	...	...	...	18,066	19,812
„ Court „ „ ...	...	...	...	...	...	2,496	2,422
„ Cellars ...	...	...	...	...	...	7,666	9,749
„ Families found dirty ...	...	...	...	...	...	1,321	1,529
„ Re-visits to Families ...	...	...	...	...	...	15,374	17,096
„ Houses found dirty...	...	...	...	...	...	6,531	7,533
„ Cellars „ „ ...	...	...	...	...	...	1,707	2,067
„ Notices issued to cleanse dirty premises...						390	350
„ „ „ floors and }						170	227
„ „ „ woodwork }							
„ References to Sanitary Inspectors ..						4,734	4,125
„ „ „ Lodging-house Inspectors...						140	147
„ „ „ Workshop Inspectors ...						19	37
„ „ „ Veterinary Department ...						2	12
„ „ „ City Engineer ...	...	...	...	...	...	340	212
„ „ „ Water Engineer ...	...	...	...	...	...	473	345
„ „ „ School Board ...	...	...	...	...	...	80	7
„ „ „ The Shelter, Islington ...	...	...	...	...	...	90	79
„ Sterilised Milk Dépôt Visits ..	...	...	...	...	...	924	378
„ Visits to Workshops ...	...	...	...	...	...	157	257
„ Workshops found incorrect ...	...	...	...	...	...	38	108
„ Special School Cases ...	...	...	...	...	...		378
„ Visits to Schools ...	...	...	...	...	...		30
„ „ Tents and Vans ...	...	...	...	...	...		53
„ Found incorrect ...	...	...	...	...	...	656	12
„ of Police Aided Association Visits ...	...	...	...	...	...		69
„ Visits in Diarrhoea Cases ...	...	...	...	...	...		559
„ „ Whooping Cough Cases ...	...	...	...	...	...		41

### BATHS AND WASH-HOUSES.

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As in the preceding year, the Report of the Superintendent Engineer of the Corporation Baths and Wash-houses furnishes ample evidence of the extent to which the advantages offered by these establishments are availed of by the public, more especially perhaps by those sections of it who have not washing facilities in their homes.

As regards the washing-baths, arrangements have been made by which free tickets are distributed by the Female Sanitary Staff, to be made use of by the poorer classes, both for themselves and for their children. Cases in which the practice has been resorted to have been very successful, the washing-bath being far more effectual than anything which can be adapted in the poorer classes of dwelling.

It would appear that there is a wide scope for the use of baths of this character by women and children in the lower districts of the City.

**FACTORY AND WORKSHOPS ACT, 1901.**

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**BAKEHOUSES.**

The sanitary control of Bakehouses is dealt with under the Factory and Workshop Act and Public Health Acts, which prescribe the following regulations:—

Every bakehouse must have the whole of the interior walls and ceilings, and all passages and staircases of the bakehouse, painted, varnished, or lime-washed; if painted or varnished they must be washed with hot water and soap at least once in every six months, and the paint or varnish renewed once at least in every seven years; if the walls, &c., are lime-washed, the lime-washing must be renewed once at least in every six months.

No sleeping-place shall be permitted on the same level as a bakehouse, and forming part of the same building, unless it is effectually separated from the bakehouse by a partition extending from floor to ceiling, and unless ventilated by an external glazed window of at least nine superficial feet in area, of which area at least one-half may be fully opened for ventilation.

No water-closet or ashpit shall be within or communicate directly with the bakehouse. The cistern for supplying water to the bakehouse shall be separate and distinct from any cistern for supplying water to a water-closet. No drain shall have an opening within the bakehouse.

All bakehouses must be kept in a cleanly state, free from effluvia arising from any drain, water-closet, or other nuisance; they must be properly ventilated, and possess at least 250 cubic feet of space for each person during ordinary working hours, and 400 cubic feet during overtime. A reasonable temperature must be maintained, and suitable sanitary conveniences provided for those employed in the bakehouse.

By Section 133 of the Workshop Act, 1901, if any child, young person, or woman is employed in a bakehouse, the Medical Officer shall, on becoming aware thereof, give a written notice to His Majesty's Inspector of Factories.

Where any room or place used as a bakehouse is in such a state as to be, on sanitary grounds, unfit for use as a bakehouse, the occupier is liable on summary conviction to a fine not exceeding forty shillings.

Thirteen bakehouses were added to the Register during 1903; about two-thirds of these are bread-bakers and confectioners, the remaining one-third are small pie and cake shops, which require supervision.

During the year two underground and two ground-floor bakehouses have ceased to be used for baking purposes, and the premises are now used for other purposes.

Number of Bakehouses on Register, 31st December, 1903..	...	1,028
„ Bakehouses added to Register during 1903	... ..	13
„ Bakehouses struck off Register during 1903	... ..	4
„ Visits paid to bakehouses	... ..	2,928
„ Bakehouses found dirty (walls and ceilings)	... ..	249
„ Notices issued for lime-washing	... ..	144
„ Bakehouses lime-washed without notice...	... ..	105
„ Notices issued for defective ventilation...	... ..	3
„ „ „ to cease to use bakehouses for the purpose of domestic washing	... ..	3
„ „ „ to repair defective drains and waste pipes	... ..	2
„ „ „ to repair defective floors and walls	... ..	2
„ „ „ to repair defective ceilings	... ..	1
„ „ „ to provide suitable water-closet accom- modation	... ..	1
„ „ „ to remove and cease to keep animals in bakehouse	... ..	1
„ „ „ to cleanse floors, windows, areas, tables and troughs	... ..	41
„ „ „ to cease to use as bakehouses places underground not in conformity with Act, 1901	... ..	5
„ „ „ to remove accumulations of trade refuse		5
„ „ „ for overcrowded condition of workroom		1
Number of References to Government Factory Inspector...	...	5

*All the above notices were complied with by the owners or occupiers.*

UNDERGROUND BAKEHOUSES.

At the beginning of the year the following notice was served upon the occupiers of all the underground bakehouses in the City, in order that they might be made aware of the provisions of the Factory and Workshop Act, 1901, respecting underground bakehouses, which are to come into force on 1st January, 1904:—

Notice is hereby given that by the Factory and Workshop Act, 1901, it is enacted as follows:—

Section 101.—(1) An underground bakehouse shall not be used as a bakehouse unless it was so used at the passing of this Act.

(2) Subject to the foregoing provision, after the first day of January one thousand nine hundred and four an underground bakehouse shall not be used unless certified by the district council to be suitable for that purpose.

(3) For the purpose of this section an underground bakehouse shall mean a bakehouse, any baking room of which is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room. The expression "baking room" means any room used for baking, or for any process incidental thereto.

(4) An underground bakehouse shall not be certified as suitable unless the district council is satisfied that it is suitable as regards construction, light, ventilation, and in all other respects.

(5) This section shall have effect as if it were included among the provisions relating to bakehouses which are referred to in section twenty-six of the Public Health (London) Act, 1891.

(6) If any place is used in contravention of this section it shall be deemed to be a workshop not kept in conformity with this Act.

(7) In the event of the refusal of a certificate by the district council, the occupier of the bakehouse may, within twenty-one days from the refusal, by complaint apply to a court of summary jurisdiction, and if it appears to the satisfaction of the court that the bakehouse is suitable for use as regards construction, light, ventilation and in all other respects, the court shall thereupon grant a certificate of suitability of the bakehouse, which shall have effect as if granted by the district council.

(8) Where any place has been let as a bakehouse, and the certificate required by this section cannot be obtained unless structural alterations are made, and the occupier alleges that the whole or part of the expenses of the alterations ought to be borne by the owner, he may by complaint apply to a court of summary jurisdiction, and that court may make such order concerning the expenses or their apportionment as appears to the court to be just and equitable, under the circumstances of the case, regard being had to the terms of any contract between the parties, or in the alternative the court may, at the request of the occupier, determine the lease.

Section 102.—As respects every retail bakehouse, the provisions of this Part of this Act shall be enforced by the district council of the district in which the retail bakehouse is situate, and not by an inspector; and for the purposes of this section the medical officer of health of the district council shall have and may exercise all the powers of entry, inspection, taking legal proceedings and otherwise of an inspector.

In this section the expression "retail bakehouse" means any bakehouse or place, not being a factory, the bread, biscuits, or confectionery baked in which are sold, not wholesale, but by retail, in some shop or place occupied with the bakehouse.

And notice is hereby further given that the foregoing provisions will come into operation on the 1st January, 1904.

### **Suggested Requirements for Underground Bakehouses.**

The Medical Officer drew up a series of suggested requirements for improving the sanitary condition of these premises, and in cases where it was thought possible to make such alterations as would enable a certificate for the use of the bakehouse to be granted in accordance with the Act, a copy of the suggested requirements was given to the owner and occupier, to guide them as to the methods to be adopted to put the premises into a sanitary condition. In no case were the suggestions insisted upon, provided that the requirements of the Act could be met in other ways.

### **Construction—**

The bakehouse to be in every part thereof at least 8ft. 6in. high, measured from the floor to the ceiling, and to have at least three feet of its height above the surface of the footway of the adjoining street, or

of the ground adjoining, or nearest to the bakehouse, unless provided with a suitable area or areas into which a window or windows of such underground bakehouse open.

All window areas to be provided with prismatic glass or suitable reflector.

The walls to be cemented, smooth, and impervious, and either painted with at least three coats of oil, or varnished with at least three coats of varnish, or limewashed (wholly or in part).

Ceilings to be in good sound condition, rendered smooth and impervious, and either painted, varnished, or limewashed, as in the case of the walls.

The floors to be made with at least 6in. concrete, rendered smooth in cement, or with other jointless, impervious paving.

The cubic capacity of the room to be not less than 1,200 cubic feet.

#### **Light—**

One, or if necessary, more windows opening directly into the external air, the windows to be at least 4ft. 6in. by 3ft. 6in. wide, and to be three feet above the level of the street, footway, or ground nearest the bakehouse, with at least the top half to open.

#### **Ventilation—**

The underground bakehouse to be properly and effectually ventilated to the satisfaction of the Health Committee.

An external entrance to be provided to the bakehouse.

No damp or ill-ventilated or badly lighted cellars to be allowed in direct communication with the bakehouse.

#### **Other requirements—**

Proper means of access to the bakehouse to be provided.

Provision for the proper storage of flour to be made elsewhere than in the underground bakehouse.

Nothing to be stored within the underground bakehouse itself, and all sweepings, ashes, and other refuse matter to be removed immediately from such underground bakehouse.

Dough troughs and tables to be provided with castors or wheels, so as to be readily moveable for cleansing purposes.

All utensils, troughs, &c., to be kept at all times scrupulously clean.

No animal to be kept in an underground bakehouse.

No overcrowding to be allowed at any time within an underground bakehouse, a minimum of 400 cubic feet of space being allowed for each person employed therein.

No openings in the ceiling to be directly over any table or trough in the bakehouse.

The floors to be laid with a fall to an external area, such area to be properly drained.

All statutory requirements to be complied with.

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The number of underground bakehouses in use in the city at the end of the year was approximately 365. Since the passing of the Act in 1901, fifty-nine underground bakehouses have ceased to be used for baking purposes.

During the year applications have been received by the Health Committee for certificates of suitability of underground bakehouses in 334 cases, and in all of these applications the premises have been visited and reported on.

One hundred and seventy-six plans have been submitted, showing proposed alterations, and 118 of these have been approved of, either after their first submission, or after numerous amendments, 58 have been declined. These plans refer to 146 premises.

Six ground-floor bakehouses have been erected.

Thirty ground-floor bakehouses are either in course of erection, or will shortly be proceeded with, and these will take the place of 40 underground bakehouses, which will be disused.

At the end of the year alterations to 42 underground bakehouses were in progress. It will be seen, therefore, that a considerable number of underground bakehouses still remain to be dealt with.

### SHOP HOURS ACT, 1892—5.

The object of the Act is to prevent the employment of young persons for such an excessive number of hours as will prejudice the health of these employés.

During 1903, under the above Act, there have been 3,992 visits paid to shops during the day, and 2,243 visits made after six o'clock; in 5,658 instances the shops were found to be correct, and 577 incorrect.

The persons concerned have generally evinced readiness to comply with the requirements of the Act, and have thus lessened the difficulties in its administration. The number of occasions in which it was necessary to take police proceedings during the last three years is small.

	<u>1901.</u>	<u>1902.</u>	<u>1903.</u>
Number of Shops visited (day) .. ..	3,889	3,845	3,992
„ „ found incorrect .. ..	347	324	360
„ „ visited after 6 p.m. ..	2,529	2,290	2,243
„ „ „ found incorrect ..	258	246	217
„ copies of Act distributed by the Inspectors .. ..	127	0	0
„ Informations for excessive hours .. ..	4	0	3
„ Convictions .. ..	3	0	3
„ Informations for not exhibiting Notice of Act and Require- ments as to hours of work ..	3	2	3
„ Convictions .. ..	3	2	3
Total number of Informations .. ..	7	2	6
„ „ Convictions .. ..	6	2	6
Total Amount of Fines and Costs...	£7 15s. 0d.	£2 9s. 0d.	£7 7s. 0d.

### SEATS FOR SHOP ASSISTANTS ACT, 1899.

The object of the Act is to provide seats for female shop assistants.

	<u>1901.</u>	<u>1902.</u>	<u>1903.</u>
Visits for the purposes of the Act ..	379	209	231
Found correct .. ..	344	203	227
Seats being provided .. ..	35	6	0

The above table relates to special visits for the purposes of the Act, but in administering the Shop Hours Act notice is also taken of the provision of seats for female shop assistants.

# FACTORY AND WORKSHOP ACT, 1901.

The Inspectors appointed under the above Acts for sanitary purposes have visited a large number of Workshops, the summary of which is appended :—

## SUMMARY OF VISITS PAID TO WORKSHOPS AND WORKPLACES.

Bamboo Workers.....	16	Milliners .....	118
Basket Makers .....	12	Mineral Water Manufacturers .....	14
Bootmakers .....	202	Musical Instrument Makers .....	5
Bottlers .....	13	Packers .....	12
Box Makers .....	14	Paper Cutters, &c. ....	35
Brush Makers .....	28	Paper Sorters .....	15
Cabinet Makers and Joiners .....	395	Photographers .....	14
Canned Goods .....	45	Pickle and Sauce Manufacturers ...	60
Cap Makers .....	9	Picture Framers .....	16
Carvers and Gilders.....	86	Pipe Mounters .....	19
Chair Makers .....	11	Plumbers .....	15
Chemists' Sundries' Manufacturers	10	Preserves .....	5
Coach Builders.....	44	Relief Stampers.....	5
Confectioners .....	64	Restaurants .....	68
Coopers .....	12	Rubber Goods Manufacturers .....	28
Cork Cutters.....	12	Sack and Bag Makers.....	43
Cotton Sorters .....	14	Saddlers .....	16
Cycle and Bassinette Makers .....	27	Sailmakers .....	7
Dressmakers .....	486	Skin Curers .....	9
Drysalts .....	13	Slipper Makers.....	6
Embroidery Makers .....	9	Smiths .....	97
Engravers.....	32	Tailors .....	1,853
Firewood Manufacturers .....	17	Tarpaulin Makers .....	16
Fish Curers .....	18	Toy Makers .....	5
French Polishers .....	84	Trunk and Portmanteau Makers ...	28
Furriers .....	16	Umbrella Makers.....	41
Image Makers .....	6	Underclothing Makers .....	247
Jewel Case Makers .....	6	Upholsterers .....	50
Knitters .....	5	Watchmakers and Jewellers .....	36
Laundries .....	438	Wheelwrights .....	7
Lead Light Makers.....	12	Wig Makers .....	13
Leather Goods Manufacturers .....	7	Wireworkers .....	8
Marble Masons.....	25	Various .....	118
Marine Stores .....	739		
Mattress and Bed Makers .....	29		
Metal Polish Makers .....	5		
		Total.....	5,993

The number of visits paid to workshops, &c., the number and character of the Sanitary defects found, and the action taken, are indicated in the following table:—

	1902.		1903.
Visits to Workshops and Workplaces ...	5,621	...	5,993
Workshops found incorrect .....	1,790	...	1,702
Number of Workrooms, dirty walls ...	474	...	332
„ „ „ ceilings ...	477	...	335
„ „ „ floors ...	46	...	42
„ „ „ urinals... ..	13	...	5
„ „ „ water-closets ...	84	...	59
„ „ „ lavatories ...	10	...	14
„ „ insufficiently ventila- ted, arising from structural defects or from want of attention ... ..	48	...	54
„ „ found overcrowded...	5	...	10
„ Defective Drains and Water- closets; also insufficient water- closet accommodation, and other nuisances... ..	511	...	273
„ Notices issued { upon Owners ...	187	592	173 } 572
„ „ „ { upon Occupiers ...	405		
„ „ not complied with ..	1	...	0
„ Informations ... ..	10	...	11
„ Fined ... ..	4	...	8
„ of References to Government Factory Inspector... ..	77	...	65
„ „ to Building Surveyor	0	...	1
„ of References to City Engineer ...	0	...	0
„ „ Water Engineer ...	0	...	0
„ Workshops inspected, protected ...	174	204	132 } 157
„ „ „ non-protected	30		
„ Workrooms measured ... ..	180	...	140
„ Workrooms closed owing to insani- tary conditions ... ..	5	...	8
Amount of Fines and Costs ...	£2 9 6		£6 10 6
Separate closet accommodation provided for females in workshops where both sexes are employed ... ..	19	...	38
W.C. accommodation provided for males ...	11	...	13
Total ... ..	30		51

## HOME WORK.

In accordance with Section 107 of the Factory and Workshop Act and the Home Work Order of December, 1901, 119 employers sent in lists of outworkers, giving the names and addresses of 455 employees. Of these 32 were resident outside the City, and their names and addresses were forwarded to the Medical Officer of Health of the respective districts in which they lived. The 423 within the City were visited by the District Sanitary Staff, and in 70 instances the premises were found to be Domestic Workshops, constituting the sole or principal means of existence of the workers. In the remaining 353 cases the home work was found to be an additional source of income only.

The following table denotes the results of the visits made under this section:—

				<u>1902.</u>	<u>1903.</u>
Number of Domestic Workshops	...	...	...	97	70
"        "        "	found dirty	...		3	7
"        "        "	sanitary defects	...		37	14
"        "        "	choked drains, &c....			2	3
"        "        "	visits paid	...	...	156	143
Number of other Outworkers' premises	...	...		255	353
"        "        "	found dirty	...		16	10
"        "        "	sanitary defects			95	106
"        "        "	choked drains, &c.			26	7
"        "        "	visits paid	...		409	1057

Notices were issued on the owners and occupiers to carry out the necessary work.

### EMPLOYMENT OF CHILDREN ACT, 1903.

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An Act, which, coming into force on January 1st, 1904, required preparatory action during the year, was the Employment of Children Act.

The Act is an outcome of an inquiry by a Committee appointed by the Secretary of State for the Home Department, and which consisted of representatives of the Home Office, the Board of Education, and of the Board of Trade. The main recommendation of that Committee was that the over-working of children in those occupations which are still unregulated by law should be prevented by giving powers to County and Borough Councils. Incidentally, the Committee point to the extreme importance of provision in the large towns of adequate means of physical recreation for children, and to systems of practical training in manual work.

The Act is manifestly in the interests of the health of the children, and is in no way in the financial interests of employers—nor, indeed, in the interests of parents of children.

From the systematic inspections which have been carried on for some years in this city, under the Shop Hours and Factory and Workshops Acts, it has been found that the large majority of children employed under 14 years of age have been what are termed week-end boys, that is, boys who are attending school in the usual way, and work from 5 p.m. until 10 or 10.30 p.m. on Fridays, and from 8 a.m. until midnight, or later, on Saturdays; whilst many of them again are also employed on Sundays between the hours of 8 a.m. and 2 p.m.

There are also a few cases, which may be referred to here in which the children have obtained an exemption order from the Education Committee, owing to special circumstances (such as when the death of the father has made the earnings of the children a useful help in supporting the household.)

The general employment of children, however, as described, is chiefly in shops, and this employment appears to be a breach of the Act as it stands (Sec. 3, Clause 1), the Act requiring that all such employment should cease at 9 o'clock. The Local Authority may make bye-laws which vary these hours, either for general or for any specific occupation ; but the Medical Officer is quite unable to recommend any variation in the Act as it stands. There can be little doubt that the employment of a child until 9 o'clock is quite enough, and employment beyond those hours, more especially on Sundays, at barbers' shops for example, is objectionable and injurious.

Extreme cases in which the earnings of the child are imperatively necessary for the maintenance of the child's parents are relatively few, and it is better that the parents should, under such conditions, apply to the established channels of relief, rather than that the child's health should be endangered by its efforts to support its parents.

Section 3, Clause 2, which very properly prohibits a child trading in the streets under the age of eleven years, is dealt with by the Watch Committee.

The subsequent clauses of Section 3 are as follows :—

(3) No child who is employed half-time under the Factory and Workshop Act, 1901, shall be employed in any other occupation.

(4) A child shall not be employed to lift, carry, or move anything so heavy as to be likely to cause injury to the child.

(5) A child shall not be employed in any occupation likely to be injurious to his life, limb, health, or education, regard being had to his physical condition.

The above clauses should remain as they stand, unmodified by bye-laws.

Clause 6 is as follows :—

(6) If the local authority send to the employer of any child, a certificate signed by a registered medical practitioner, that the lifting, carrying, or moving of any specified weight is likely to cause

injury to the child, or that any specified occupation is likely to be injurious to the life, limb, health or education of the child, the certificate shall be admissible as evidence in any subsequent proceedings against the employer in respect of the employment of the child.

This clause is a useful one, although it is doubtful as to whether it could be put to any extended practical use. It does not impose any obligation upon the Local Authority to cause such certificates to be obtained, but merely to use them when they have been received.

It may be pointed out that the framers of the Act have, in defining the number of daily and weekly hours beyond which employment is illegal, made a very useful advance upon the Shop Hours Act. This latter Act is deprived of much of its usefulness by a want of such definition, and in fact it contains nothing to prevent an employer keeping a young person at work continuously for as much of the seventy-four hours as human endurance will stand, and there are many examples of protracted employment of young persons under the Shop Hours Act for many hours consecutively, which cannot be other than prejudicial.

The Medical Officer would recommend that bye-laws be drafted explaining in simple terms the objects of the Act, and also making the following provisions, namely:—

That employment below 12 years of age shall be illegal.

That between the ages of 12 and 14 years, the employment shall be limited to the hours specified in the Act, *i.e.*, between the period of 6 in the morning and 9 in the evening.

That the employment of children under 14 years of age on Sundays shall be illegal.

The bye-laws would also define or explain the restrictions on employment of a dangerous character, or involving the lifting of heavy weights, and would define or explain also the powers of the Officer or Officers whom the Committee would appoint to carry out the Act, and the penalties for breaches of the Act.

**MIDWIVES ACT, 1902.**

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Some exceptionally important measures are comprised in the Midwives Act, 1902, the object of which is to secure the better training of midwives, and to regulate their practice.

The Act provides that from the 1st April, 1905, no woman shall use the title of midwife, nor practice midwifery, unless she is certified under this Act, and no woman shall be certified under this Act until she has complied with the rules and regulations laid down under the Act.

Compliance with these rules comprises a course of training, an examination, and subsequent certification of the midwife.

The supervision of these details forms part of the duties and powers of the recently constituted Central Midwives Board.

The specific duties which fall upon the Health Committee, as representing the City Council, are shown in the following Section of the Act:—

8. Every Council of a County or County Borough throughout England and Wales shall, on the commencement of this Act, be the local supervising authority over midwives within the area of the said county or county borough. It shall be the duty of the local supervising authority—

- (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 practise 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 areas, 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 local supervising authority may delegate, with or without any restrictions or conditions as they may think fit, any powers or duties conferred or imposed upon them by or in pursuance of this Act, to a committee appointed by them, and consisting either wholly or partly of members of the Council, and the provisions of subsections one and two of section eighty-two of the Local Government Act, 1888, shall apply to every committee appointed under this section and to every Council appointing the same, and women shall be eligible to serve on any such committees.

Since 1895 the Medical Officer has kept a Register of the Midwives who have been connected with cases of Puerperal Fever, or suspected Puerperal Fever, and in this and other ways has become aware of the qualifications and status of the midwives employed in the city.

Under Section 10 of the Act, every woman certified under this Act must give notice to the local supervising authority of her intention to practice, and renew that notice in the month of January in every year.

It is the business of the secretary appointed by the Central Midwives Board to keep a roll of midwives, containing the names of (a) all midwives already holding certificates from the various qualifying bodies, and (b) the names of all other midwives who have been certified under this Act.

The remaining sections of the Act do not specially affect the Health Committee.

## INFECTIOUS DISEASE IN SCHOOLS.

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In only one instance was it found necessary to close a school on account of the prevalence of infectious disease.

The manner in which the spread of infection in schools is guarded against has been fully dealt with in former Annual Reports, but the subject is of sufficient importance to be again referred to.

In order to prevent the extension of infectious disease in schools, the earliest possible information must be given to the Head Master, the Head Mistress, or Principal, when sickness exists at the homes of the scholars.

Usually the first intimation of such sickness is received by the Medical Officer, under the terms of the Notification Act, which, however, does not include measles and whooping-cough, both of which are liable to spread extensively amongst children of school age; these cases are notified by the school attendance officers, by inspectors, by parents, by doctors, and others. It is part of the duty of the district inspector to forthwith warn the parents, or those in charge, that the children must be kept from school until fourteen days after the necessary disinfection has been carried out.

The information obtained is also sent by postcard the same day to the head master or principal of the school the children attend.

When the source of infection is removed (either by removal of the patient to hospital, or by the recovery or death of the patient), the house and bedding are disinfected by the officers of the Public Health Department. At the expiration of a fortnight from the date of disinfection, the school visitor is notified to visit the house, and if no sickness of

any kind has occurred in the interval intimation is sent to the head teacher of the school to re-admit the children.

In the case of measles and chicken-pox, disinfection is carried out with the consent of the occupier of the house; the children are not allowed to return to school until a fortnight after the sickness has ceased to exist.

In cases of whooping-cough, ringworm, &c., only the affected child is kept from school. Ringworm, scabies, and ophthalmia may last indefinitely unless properly dealt with, and no child with any trace of these diseases should be admitted to school.

The notices sent to the schools for the purpose of notifying the existence of infectious disease at the home of a pupil are accepted by the Education Department as a valid reason for the non-attendance of the children at school, and qualify them to receive any benefits which regular attendance would have entitled them to.

When necessary, a certificate is furnished to the school authorities, stating that the pupil was absent on account of infectious sickness at home.

It must be borne in mind that although the child may be free from infection, and, so far as the risk of infection is concerned, may with perfect safety return to school, yet the child may not be sufficiently recovered physically to undertake at once the full work and discipline which attendance at school entails.

The permission of the Health Department to return to school, therefore, implies nothing further than freedom from infection.

It may be regarded as a rule, that all children suffering from an infectious disorder should be excluded from school so long as they are likely to retain any infection; this condition is one which may involve exclusion for some time after the patient is apparently convalescent.

It is equally necessary that children coming from houses, any inmate of which is suffering from infectious sickness, should also be excluded, because in the great majority of instances, if not in all of them, it is impossible to effectually isolate a case of infectious sickness in an ordinary household, especially within the homes of children of the class who attend the public elementary schools.

Hardship really is minimised by a careful application of the powers to exclude individual scholars, because unless this is attended to it is quite possible that disease may rapidly spread to an extent which would render it necessary to close the school altogether.

#### NOTICES TO MASTERS OF SCHOOLS AND LIBRARIANS.

The arrangements have been continued with the Education Committee that postcards shall be sent to the Committee and to the Head Masters of the various schools informing them when children from infected houses attend their schools. 13,217 cards were sent last year, as against 11,361 in the preceding year.

Books borrowed from Lending Libraries which have been found in infected houses have been taken to the Disinfecting Station, and either destroyed or disinfected and returned. In the case of books which have been destroyed, compensation has been paid under the Public Health Act.

#### PUBLIC ELEMENTARY SCHOOLS.

##### VISITS MADE BY SANITARY INSPECTORS.

	<u>1902.</u>	<u>1903.</u>
No. of Visits to Schools ... ..	2,889	2,954
„ Waterclosets and Latrines found dirty or defective	150	113
„ Notices issued for defects .. ...	69	61
„ „ „ dirty closets ... ..	24	21

THE AMBULANCE AND DISINFECTING STAFF.

The following table shows the number of patients removed by Officers of the Ambulance Staff, and the Hospitals to which they were taken :—

City Hospital North, Netherfield Road.	City Hospital South, Grafton Street.	City Hospital, Park Hill.	Brownlow Hill.	City Hospital East, Mill Lane.	City Hospital, Priory Road.	David Lewis Northern Hospital.	Royal Infirmary.	Smithdown Road.	Southern Hospital.	Stanley Hospital.	City Hospital, Fazakerley.	Port Sanitary Hospital.	Hahnemann Hospital.	Garston Hospital.	Total.
975	550	1475	84	1011	185	65	36	12	13	101	629	6	16	75	5,233

For the removal of patients to hospital, and for the removal of infected bedding, and its return after disinfection, an adequate ambulance staff is maintained.

Four ambulance carriages are in use for the different forms of infectious disease. Bedding and clothing, after disinfection, are returned home by a staff and conveyance entirely distinct from that which removed them in the infected state. In all cases where it is found desirable to destroy infected articles full compensation is paid.

All cases of Smallpox and all cases of Typhus Fever, with very rare exceptions, are removed to hospital, and a special inspector revisits the house from whence the patient was removed to ascertain whether any further sickness has developed. These inquiries are made daily for 14 days and at intervals of a day or two during the following fortnight, and any case of sickness, however trifling it may appear to be, is at once reported and visited by a medical man. Friends of the patient, and others who are known to have been directly or indirectly in contact with him are also visited at their homes. By these inquiries, persons who may be incubating the disease are discovered and removed to the hospital at the earliest possible stage, and often before any

serious risk of infection has arisen. Without these inquiries, which have occasioned no inconvenience to anyone, the patients would have remained at home for a longer period, constituting centres of infection to the neighbourhood, and it is largely to systematic inquiry and supervision, and the promptness of action taken upon available information, that the city owes the continued immunity from formidable kinds of infectious disease. The absence of friction indicates the care and intelligence exercised by the inspectors in carrying out this system.

The collection, removal, disinfection and return of infected bedding has been carried on as hitherto by the ambulance staff.

It has been found that in many instances in which compensation for clothing had been given in money to the poorer classes of people, that the money was spent in drink, and the people left without clothing. As a consequence of this, an arrangement was made with a firm of repute, to supply articles equivalent in value to those which had been destroyed, thus preventing an improper use of the money. There were difficulties incidental to this method, and the present plan is to keep at the dépôt a stock of mattresses, bedding, &c., and to give it out to suitable applicants, whose clothing or bedding have been destroyed on account of infection, under the Public Health Act.

Owing to the delays and difficulties which arose from time to time in causing compliance with notices served upon owners to strip the wall-paper from the walls of infected rooms, this work has been undertaken by the disinfecting staff.

As soon as the infected wall-paper has been stripped, and the house ready for re-papering or other work, an intimation of the fact is sent to the owner.

In all cases of infectious disease the houses were disinfected by a trained staff, free of cost, with sulphurous gas; but whenever there was sickness in any room of the house, disinfectants were given to the tenants for use in the sick room until the sulphurous gas could be used safely. No house is considered properly disinfected until sulphurous gas has been used, and the wall-paper, previously sprayed with solution of perchloride of mercury, stripped. The wall-paper is conveyed in sacks, specially

provided for the purpose, to the refuse-destructor and burnt. The existence of infectious sickness necessitates many visits by the persons in charge of disinfection, as the householder frequently omits to send information when the premises are ready. There were in all 13,388 visits paid during the year to houses for the purpose of disinfection, the number of houses completely disinfected being 9,890.

INFECTED HOUSES.

		<u>1902.</u>	<u>1903.</u>
Number of Infected Street Houses Inspected	...	6,647	5,968
„ „ Court „ „	...	289	334
„ „ Cellars „ „	...	71	82
„ Notes to Owners after stripping and cleansing	... ..	6,430	5,384
„ Enquiries	... ..	57,694	130,288

There is a decrease of 623, compared with the preceding year, in the number of houses requiring to be dealt with on account of infection, and an increase of 72,594 enquiries relating to same, due to the measures taken to deal with the outbreak of smallpox.

INFECTED PREMISES STRIPPED AND DISINFECTED BY  
STRIPPING STAFF.

		<u>1902.</u>	<u>1903.</u>
Houses	... ..	10,839	11,856
Rooms	... ..	25,032	41,164

There is an increase of 16,132 rooms stripped by the disinfecting staff, as compared with the previous year, due mainly to the prevalence of smallpox, and to the action taken in regard to phthisis.

THE DISINFECTING APPARATUS.

The number of articles disinfected at the various Apparatus during the year amounted to 155,761.

DATE. 1903.	Number of Beds.	Number of Mattresses.	Number of Pieces of Bedding.	No. of Pieces of Wearing Apparel, &c.	Total Number of Articles.
January ... ..	1,342	966	9,500	4,516	16,324
February ... ..	1,324	1,158	10,294	11,293	24,069
March ... ..	1,190	1,071	10,194	9,654	22,109
April ... ..	988	953	7,205	5,502	14,648
May ... ..	1,212	1,140	9,077	8,467	19,896
June ... ..	706	588	4,688	5,722	11,704
July ... ..	659	396	4,299	2,340	7,694
August ... ..	669	396	4,296	1,358	6,719
September ... ..	498	270	8,231	1,380	10,379
October ... ..	720	276	8,300	2,266	11,562
November ... ..	475	188	3,166	677	4,506
December ... ..	396	182	2,720	2,853	6,151
Totals ... ..	10,179	7,584	81,970	56,028	155,761

The number of articles destroyed at the various Apparatus during the year amounted to 1,628, compensation being paid in conformity with the provisions of the Public Health Act.

DATE. 1903.	Number of Beds.	Number of Mattresses.	Number of Pieces of Bedding.	No. of Pieces of Wearing Apparel, &c.	Total Number of Articles.
January ... ..	45	112	82	21	260
February ... ..	42	88	54	26	210
March ... ..	62	133	129	1	325
April ... ..	28	97	45	—	170
May ... ..	45	85	91	—	221
June ... ..	20	69	35	—	124
July ... ..	15	30	46	8	99
August ... ..	18	47	15	—	80
September ... ..	11	30	11	—	52
October ... ..	2	13	—	—	15
November ... ..	6	7	15	—	28
December ... ..	10	16	17	1	44
Totals ... ..	304	727	540	57	1,628

### ARMY BLANKETS.

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At the beginning of the year a large number of soiled army blankets, which had been used in South Africa, and which were said also to be infected with typhoid fever, were reported to have been sold to various firms throughout the country.

Inquiries were immediately made, and in various premises in the city parcels containing army blankets were found.

All of them were removed for disinfection. The worst sample was found at one of the Industrial Schools; the blankets, fortunately, had not been in use, but when examined a number of them were found to be in a filthy condition, some being soiled with blood and excrement. These blankets were destroyed.

About five hundred similar blankets were found at one of the Railway Depôts, and were seized and destroyed.

As it appeared that in other similar blankets innumerable typhoid bacilli had been found, the question as to whether action could be taken under the Public Health Act against the firm guilty of transmitting the blankets was considered, but no prosecution was thought desirable.

PRINCE'S DOCK MORTUARY.

The Mortuary at the Prince's Dock is for the reception of the bodies of persons who have been drowned, killed, &c., and upon which the Coroner desires to hold inquests. Bodies are taken to this Mortuary by the police, and when it may be necessary to make post-mortem examinations, any medical gentleman may have the assistance of an inspector on sending a communication to the Ambulance Superintendent, 54, Gascoyne Street.

BODIES REMOVED TO THE PRINCE'S DOCK MORTUARY.	
Number from River.	Number from City.
20	220

FORD STREET MORTUARY AND DISTRICT MORTUARIES.

BODIES REMOVED TO MORTUARIES.						
Green Lane.	Lark Lane.	Wavertree.	Ford Street.	Park Hill.	Smithdown Road.	TOTAL.
5	11	...	248	...	...	264

The Mortuary in Ford Street is provided for the reception of bodies, which cannot be kept at the homes in which death had taken place, without injury to the health of the inmates. The address of the caretaker is 65, Gascoyne Street.

The District Mortuaries, it will be seen, are seldom used. For the convenience of juries, as well as for other reasons, it is preferable that bodies should be conveyed to the Central Mortuaries.

CREMATORIUM.

The Crematorium in Anfield Cemetery is availed of by an increasing number of persons as a means of reverent disposal of the dead by cremation, but the system has not yet found the favour which it does in many important centres of population throughout Europe. The building is of attractive appearance, and the surroundings are appropriate.

PROCEEDINGS UNDER THE DISEASES OF ANIMALS ACT, 1894.

The duties of the Inspectors under the Diseases of Animals Act, 1894, are to visit cattle steamers, both foreign and cross-channel, for the purpose of seeing that the provisions of the Foreign Animals Order, 1895, and the Animals Transit Order, 1895, are carried out.

Cattle steamers are examined as to fittings, ventilation, &c., and supervision is exercised in regard to cleansing and disinfection after animals are landed. Overcrowding or injury to animals is reported.

Cattle trucks and horse boxes are examined at railway stations, as to fittings, cleansing and disinfection, and the railway pens supervised.

Lairages and sale yards are visited to ascertain that they are cleansed and disinfected in accordance with the regulations of the City Council.

The Diseases of Animals Act relates in the main to certain diseases communicable amongst cattle, sheep and swine, and provides for the separation of diseased animals from healthy ones, for the disinfection and cleansing of vessels, trucks, &c., in which animals have been carried, and it defines the action to be taken to limit and prevent the extension of disease. It also deals with certain forms of disease communicable by animals to man.

The Board of Agriculture, under the powers of this Act, issue orders from time to time dealing with diseases of animals, or with their protection during transit. The Board also prescribes the manner under which animals may be imported or moved from place to place.

The Swine Fever Order, dated 28th August, 1901, made provision for the cleansing and disinfection of pig dealers' premises, and vehicles used by pig dealers for the conveyance of swine from steamers through the City to pig dealers' premises. The Order came into force on 14th October, 1901, and due notice was given of the date on which the Order would take effect.

The accompanying table gives the statistics of the proceedings taken under the Act or under the Orders of the Board of Agriculture:—

	<u>1902.</u>	<u>1903.</u>
Number of Visits to Railway Stations, including inspections made on Sundays ... ..	3,920	2,964
.. Inspections of pens ... ..	105,372	102,857
.. found clean ... ..	72,696	73,423
.. „ dirty and cleansed before being used.	32,676	29,434
.. Inspections of Trucks... ..	60,149	46,970

						<u>1902.</u>	<u>1903.</u>
Number found clean	...	...	...	...	...	54,090	39,879
"	"	dirty and cleansed before being used, or leaving the City dirty	...	...	...	6,059	7,091
"	Inspections of Horse Boxes	...	...	...	...	621	472
"	found clean	...	...	...	...	309	144
"	"	dirty and cleansed before being used, or leaving the City dirty	...	...	...	312	328
"	Inspections of Vessels...	...	...	...	...	9,089	9,066
"	found clean	...	...	...	...	3,792	3,932
"	"	dirty and cleansed before being used, or going to Sea without cattle or cargo	...	...	...	5,297	5,134
Number of Inspections of Gangways	...	...	...	...	...	9,206	9,280
"	found clean	...	...	...	...	7,738	8,236
"	"	dirty and cleansed before being used	...	...	...	1,468	1,044
"	Inspections of Lairage and Sale Yards	...	...	...	...	5,116	5,079
"	found clean	...	...	...	...	3,213	3,104
"	"	dirty and cleansed before being used	...	...	...	1,903	1,975
"	"	Carts used to convey Pigs	...	...	...	1,986	2,163
"	"	"	"	"	found clean	1,733	1,581
"	"	"	"	"	dirty	253	582
"	"	"	cleansed before being used	...	...	253	582

INSPECTION OF SLAUGHTER-HOUSES, &c.    1902.    1903.

Number of Visits to Slaughter-houses made by Meat Inspectors	...	...	...	...	...	9,260	8,998
Number of Visits to Butchers' Shops made by Meat Inspectors	...	...	...	...	...	65,176	63,976
Number of Visits to Fish and Fruit Shops made by Fish Inspectors	...	...	...	...	...	59,410	58,929
Number of Visits to Fruit Shops made by Fruit Inspectors	...	...	...	...	...	16,013	17,177
Number of Visits to Poultry Depôts made by Fish Inspectors	...	...	...	...	...	201	241

FISH PLATFORMS.

						<u>1902.</u>	<u>1903.</u>
Number of Visits	.	...	...	...	...	107	63

RETURNS OF ANIMALS KILLED IN THE CITY SLAUGHTER-HOUSES,AND OF MEAT IMPORTED FOR SALE.

The decrease in cattle slaughtered in the City in 1903, as against 1902, is probably due to the increased importation of States cattle, and also to the importation of frozen meat from the River Plate district.

There is a slight decrease in the number of sheep slaughtered, but there is a large increase in the number imported, as compared with the year 1902.

With regard to pigs, it will be noticed that there is an increase in the number killed in the City coincidentally with a decrease in the number imported.

STREET.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Dead Meat Imported for Sale.			
						Beasts.	Sheep.	Pigs.	Calves.
Abattoir.	3274	187120	—	14150	51505	52923	411352	35577	1171
Back Butler Street ...	239	1033	38	43	2	...	...	...	...
Back Castle Street ...	311	3	22	118	...	...	...	...	...
Back Mount Vernon Green...	317	3215	...	7	...	...	...	...	...
Bevington Hill ...	536	143	...	158	...	6	...	...	...
Cotter Street ...	44	2	...	28	...	...	...	...	...
Corlett Street ...	13	2839	258	3	...	...	...	...	...
Crown Street ...	227	1392	132	1	...	...	...	...	...
Darnley Street ...	...	...	...	...	188	...	...	...	...
Edgeware Street ...	...	...	...	...	...	...	...	...	...
Foley Street ...	...	...	...	...	9627	...	...	...	...
Peel Street ...	35	926	274	...	47	...	...	...	...
Carried forward ...	1722	9553	724	358	9864	6	...	...	...

**RETURNS OF ANIMALS KILLED IN THE CITY SLAUGHTER HOUSES**  
**AND OF MEAT IMPORTED FOR SALE—Continued.**

STREET.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Dead Meat Imported for Sale.			
						Beasts.	Sheep.	Pigs.	Calves.
Brought forward ...	1722	9553	724	358	9864	6	...	...	...
Allerton Road, Wavertree ...	636	5215	...	58	129	...	...	...	...
Byrom Street ...	...	...	...	...	1	...	...	...	...
Bolton Street ...	...	...	...	...	...	...	...	...	...
Back Commutation Row .....	83	1399	182	30	...	...	...	...	...
Copperas Hill.....	...	...	...	...	9848	...	...	...	...
Derby Lane, Old Swan.....	...	881	73	...	...	...	...	...	...
Finch Place .....	...	...	...	...	...	...	...	...	...
Frederick Street.....	3	52	18	...	7	...	...	...	...
101, High Street, Wavertree..	25	17	15	...	...	...	...	...	...
105, High Street, Wavertree.	24	61	8	11	9	...	...	...	...
St. Mary's Road, Garston ...	5	2	1	1	12	...	...	...	...
Upper Milk Street.....	...	...	...	...	7249	...	...	...	...
Norfolk Street .....	...	...	...	...	...	...	...	...	...
Norman Street .....	...	...	...	...	1386	...	...	...	...
Prescot Road, Knotty Ash ...	7	806	97	32	72	...	...	...	...
Sandown Lane, Wavertree ...	5	553	94	5	14	...	...	...	...
Sidwell Street, Garston .....	131	5	1	15	279	...	...	...	...
Soho Street.....	...	...	...	...	879	...	...	...	...
West Derby Road, Tue Brook	67	2078	285	2	176	...	...	...	...
Total in Private Slaughter-houses .....	2708	20622	1498	512	29935	6	...	...	...
Total in the City .....	5982	207742	<b>1498</b>	14662	81440	52929	411325	35577	1171

**PRECEDING YEAR.**

Total in Private Slaughter-houses .....	3547	19374	1909	873	27670	17	...	...	...
Total in the City .....	10362	218905	1909	15700	65404	44560	398296	37165	1245

## UNWHOLESOME MEAT, FISH, &amp;c., SEIZED AND DESTROYED.

DATE.—1903.		Beef.	Veal.	Mutton.	Pork.	Poultry.	Rabbits and Hares.	Fish.	Shell fish.	Oysters.	Miscellaneous, Fruit, &c.
		Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags		
MARKETS.	St. John's .....	6453	...	299	1710	864	332	182371	25	6500	6226 lbs. Fruit.
	St. Martin's .....	4131	5	50	10603	...	...	...	...	...	...
SLAUGHTER-HOUSES.	Abattoir .....	136908	9156	12917	63590	...	...	...	...	...	...
	Back Castle Street ...	16160	1002	67	...	...	...	...	...	...	...
	Bevington Hill .....	13988	1254	200	...	...	...	...	...	...	...
	Copperas Hill .....	305	...	...	866	...	...	...	...	...	...
	Norman Street .....	...	...	...	8841	...	...	...	...	...	...
	Soho Street .....	...	...	...	102	...	...	...	...	...	1300 lbs. Horse Flesh
	Bronte Street .....	2287	...	...	244	...	...	...	...	...	...
	Byrom Street .....	...	...	...	212	...	...	...	...	...	...
	Edge Hill Station.....	192	...	...	386	...	...	...	...	...	844 lbs. Fruit.
	Foley Street .....	55	...	...	800	...	...	...	...	...	...
	Great Charlotte Street	...	...	...	...	264	...	2107	...	...	1728 lbs. Fruit.
	London Road.....	119	...	92	101	...	...	...	...	...	...
	Lime Street Station...	...	...	...	...	...	...	4730	...	10000	...
	North Haymarket ...	...	...	...	...	...	...	...	...	...	87671 lbs. Fruit.
	Queen's Square .....	...	...	...	...	...	...	...	...	...	10849 lbs. Fruit.
	Roe Street .....	...	...	...	...	...	...	...	...	...	301 lbs. Fruit.
	Rose Street .....	...	...	...	...	222	502	56855	15	1000	...
	Scotland Road .....	527	...	684	140	...	...	...	...	...	...
Carried forward...		181125	11417	14309	87595	1350	834	246063	40	17500	

UNWHOLESOME MEAT, FISH, &c., SEIZED AND DESTROYED.—*Continued.*

DATE.—1903.	Beef.	Veal.	Mutton.	Pork.	Poultry.	Rabbits and Hares.	Fish.	Shell-Fish.	Oysters.	Miscellaneous, Fruit, &c.
	Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags		
Brought forward...	181125	11417	14309	8759	1350	834	246063	40	17500	
Albert Dock ..... (Cold Storage)	...	...	...	...	...	...	2519	...	...	...
Allerton Road .....	57	...	...	...	...	...	...	...	...	...
Back Butler Street ...	1426	117	41	...	...	...	...	...	...	...
Banastre Street.....	...	...	...	224	...	...	...	...	...	...
Currie Street.....	60	...	...	...	...	...	...	...	...	...
Central Station.....	40	...	...	...	...	...	...	...	...	401 lbs. Cherries.
Cotter Street .....	59	...	...	...	...	...	...	...	...	...
Crown Street.....	...	45	...	...	...	...	...	...	...	...
Dale Street .....	...	...	...	24	...	...	...	2	...	...
Daulby Street.....	34	...	34	...	...	...	...	...	...	...
Duke's Dock .....	70	...	...	...	...	...	...	...	...	...
Fox Street .....	20	...	...	...	...	...	...	...	...	...
Elliot Street .....	16	...	...	...	...	...	...	...	...	...
Gt. George Place .....	10	...	64	...	...	...	...	...	...	...
Gt. Homer Street.....	934	...	743	364	...	14	...	...	...	120 lbs. Fruit.
Gill Street .....	25	...	...	...	...	...	...	...	...	...
Islington.....	20	...	...	...	...	...	...	...	...	...
King Street, Garston..	6	...	...	...	...	...	...	...	...	...
Kensington .....	...	...	...	...	...	...	...	...	...	145 lbs. Potatoes.
Knotty Ash.....	...	...	...	160	...	...	...	...	...	...
Manesty Lane .....	...	...	...	...	...	...	...	...	...	...
Mere Lane .....	...	...	...	...	...	...	...	...	...	...
Mill Street.....	40	...	...	...	...	...	...	...	...	...
Carried forward...	183942	11579	15191	88367	1350	848	248582	42	17500	

UNWHOLESOME MEAT, FISH, &c., SEIZED AND DESTROYED.—*Continued.*

DATE.—1903.	Beef.	Veal.	Mutton.	Pork.	Poultry.	Rabbits and Hares.	Fish.	Shell-Fish.	Oysters.	Miscellaneous, Fruit, &c.
	Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags.		
Brought forward...	183942	11579	15191	88367	1350	848	248582	42	17500	
Naylor Street .....	...	...	...	...	...	...	1680	...	...	...
Park Road .....	...	74	...	...	...	...	...	...	...	...
Picton Road .....	...	...	...	...	...	85	...	...	...	...
Prescot Street .....	40	...	...	...	...	...	...	...	...	...
Scotland Place .....	170	...	...	...	...	...	...	...	...	...
St. James Street .....	15	...	...	150	...	...	392	...	...	...
St. James Place .....	70	...	...	...	...	...	...	...	...	...
Stanley Road .....	28	...	...	...	...	...	...	...	...	...
Sidwell St., Garston...	97	...	...	6	...	...	...	...	...	...
St. Mary's Road, Garston	396	...	...	31	...	...	...	...	...	...
School Lane .....	...	...	...	...	...	...	...	...	...	2464 lbs. Potatoes
Tue Brook .....	...	...	...	140	...	...	...	...	...	...
Upper Hill Street.....	...	...	...	170	...	...	...	...	...	...
Upper Milk Street.....	...	...	...	444	...	...	...	...	...	...
West Derby Road.....	50	...	...	850	...	...	...	...	...	...
Whitefield Road .....	...	...	39	...	...	...	...	...	...	...
William Henry Street	196	...	100	...	...	...	...	...	...	...
Williamson Square ...	...	...	...	...	842	549	56	...	...	...
Window Lane, Garston	...	...	...	...	...	...	...	...	...	1½ lbs. of Fruit
Total .....	185004	11653	15330	90158	2192	1482	250710	42	17500	

The total amount of Meat and Fish found to be unfit for human food is equivalent to—

			Tons.	Cwts.	Qrs.	Lbs.
Meat	...	...	134	17	2	25
Fish	...	...	111	18	1	26

and this does not include Fish removed as refuse by Officers of the Cleansing and Scavenging Department under the City Engineer.

The great bulk of this meat was not exposed for sale, and did not require a Justices' order for its destruction.

The quantity of fish seized includes both fresh fish and salt fish which had become tainted during transit or storage, a regrettable waste of food.

ANIMALS SMOTHERED AND INJURED IN TRANSIT ON BOARD SHIP.

Beasts.	Sheep.	Pigs.	Goat.	Number found good.	Number found bad.	Weight of bad in pounds.
44	93	127	1	202	63	47,368

The Animals (Transit and General) Order compels the master of the vessel to slaughter all seriously-injured animals forthwith. Such animals are slaughtered on board the vessel, and the carcasses removed to the abattoirs.

Police proceedings in respect to meat and fish and fruit were as follows:—

	<u>1902.</u>	<u>1903.</u>
Number of informations in respect to Diseased Meat	5	8
"                    "                    "                    Fish, &c.	2	1
"                    "                    "                    Fruit	2	10
" Fined ... ..	9	2
" Sent to Gaol ... ..	—	—
Amount of Fines and Costs ... ..	£171 0 0	£38 19 0

	<u>1902.</u>	<u>1903.</u>
Number of carcasses seized during the year by Medical Officer of Health and Inspectors under section 116 of the Public Health Act, 1875 ..	935	854
	{ 252 Cattle { 254 Calves { 220 Sheep { 171 Pigs. { 38 Goats	{ 211 Cattle { 169 Calves { 252 Sheep { 222 Pigs { — Goats
* Number of such carcasses condemned by Justices under section 117 of the Public Health Act, 1875 ... ..	4	4
Number of carcasses so seized in consequence of the animal having suffered from Tuberculosis ... ..	136	90
Amount of Fines and Costs ...	£71 11 0 —	£7 10 0

\*The remainder were dealt with under a Local Act, which does not require a Justices' Order.

## GLANDERS AND FARCY.

Early in 1896, under the Diseases of Animals Acts and the Glanders and Farcy Order, the Health Committee made regulations which were circulated amongst horsekeepers, together with a notice indicating general precautions against glanders.

The number of cases of glanders which were brought to light during each of the eight years, 1896 to 1903, is as follows:—

CASES.				
1896	...	40	...	5 brought into the city from outside.
1897	...	18	...	2       "       "       "
1898	...	9	...	1       "       "       "
1899	...	20	...	4       "       "       "
1900	...	5	...	1       "       "       "
1901	...	5	...	—
1902	...	9	...	3       "       "       "
1903	...	21	...	1       "       "       "

In giving effect to the Act the following procedure is usually adopted:—

Information of actual or suspected disease is usually received, under the terms of the Order

- (A) from the owner;
  - (B) from the Police;
  - (C) from the proprietor of the registered knacker's yard.
- (There is only one in the city.)

Action is taken immediately upon receipt of such information, and the requirements of the Order given effect to. Details of the action have been given in previous reports.

The Board of Agriculture, on account of the prevalence of glanders throughout the country, and also to insure that horses imported from the North American Continent were free from the disease, requested the Local Authority in 1896 to cause these imported horses to be subjected to veterinary examination. This inspection has been continued since.

During the year 1903, 1,187 horses were examined, principally at the Canadian Horse Repository, Stanley, but also at various other depôts throughout the city and elsewhere, and their condition was very satisfactory.

In addition to the above-mentioned, 3,251 horses (some of which were landed beyond the city boundaries) have been examined and re-examined at the various sale yards, with a view to the maintenance of the general health of the animals in the city.

The imported animals were on the whole in a very good condition, and the mortality small; no evidence of contagious disease was found.

The number of cases of glanders detected in 1903 was 21, showing that the disease is not yet entirely exterminated. Although there is an increase over the previous year, the number is very small considering the number of animals there are in the city, and compared with London the disease is very low indeed.

Glanders and farcy have been found to exist on ten premises. Numerous reports of suspected cases were received, and 218 animals were examined. Of this number 21 were condemned and destroyed as being affected with glanders and farcy.

Total Number of Animals in Stables, &c., where the Disease occurred.	SLAUGHTERED.		Died.
	By Order of Owner.	By Order of Local Authority.	
218	1	18	*2

Animals Examined and Re-examined.	Affected.	Suspicious.	Not Affected.
997	21	—	976

\* The carcasses of these animals were found at the Knacker's Yard, Carruthers Street.

LUNGS OF HORSES EXAMINED AT KNACKER'S YARD,  
CARRUTHERS STREET.

As in previous years, so in the year 1903, the Veterinary Superintendent has caused the lungs of all horses sent to the above premises to be examined. In every instance where there was evidence of the disease manifested in the lungs, the owners of the animals were notified, and if within the city boundaries, the remainder of their studs were subjected to veterinary examination. In cases where the existence of Glanders or Farcy is capable of detection during the life of the animal, proceedings are taken against the responsible persons.

If the carcase of the animal was brought from outside the city boundaries, and the disease was thought to have been discernible during the life of the animal, notice is given to the necessary Local Authority, and the persons dealt with as the Act directs.

Six cases of anthrax were also detected, two of which were brought into the city from outside.

Lungs Examined.	Glandered.	Not Affected.
1,843	...	1,843

During the year 1903 the Veterinary Superintendent made the following inspections at the Liverpool Cattle Markets:—

Cattle ...	...	...	...	...	52,825
Sheep ...	...	...	...	...	383,361
Pigs ...	...	...	...	...	354
Other Animals	...	...	...	...	67

No symptoms of disease were manifest.

ANTHRAX.

There were 12 cases of Anthrax reported during the year. In three of the cases the carcasses were found at the Abattoir, three at the slaughter-house, Back Castle Street, five at the Knacker's Yard, Carruthers Street, and one in a field, Lark Hill Lane.

A portion of the spleen was in eight cases submitted to Professor Boyce, who certified that the animals from which they were taken were affected with Anthrax. The remaining four were examined at the Knacker's Yard, and certified by the Veterinary Inspector (the spleens in these cases had been inadvertently destroyed before being submitted to Professor Boyce). Of the twelve cases, two were brought into the city from outside the city boundaries. The Local Authorities were communicated with.

The usual disinfection was carried out in the cases which occurred within the city.

Date. 1903.	Total number of Animals on premises where disease occurred.	Died.	Killed by order of owner.	Locality.	Remarks.
Feb. 5th...	15	—	1	Torr Street .....	
Mar. 14th..	10	1	—	West Derby Village .....	
July 2nd...	7	1	—	Sudley Road, Aigburth...	
„ 14th .	—	—	1	Speke ... ..	Outside the city.
Aug. 11th..	10	—	1	Birchfield Road ... ..	
Oct. 31st...	10	—	1	Tulloch Street ... ..	
Nov. 9th...	1	1	—	Rugby Road, Aintree ...	
„ 21st..	7	1	—	Chancel Street ... ..	
„ 26th..	1	1	—	Wadham Road, Bootle ...	Outside the city.
Dec. 7th...	20	1	—	Field, Larkhill Lane ...	1 in a lot of 20 from Dublin.
„ 18th..	20	1	—	Prince Edwin Street ...	
„ 28th..	10	1	—	April Grove ... ..	

# SWINE FEVER.

The following table shows the number of animals affected with swine fever and the number in the herds slaughtered under the Swine Fever Order.

Total Number in Herds.	HEALTHY.		DISEASED.		Died.	Locality.	Remarks.
	Slaughtered.		Slaughtered.				
	By Order of Owner.	By Order of Board of Agriculture.	By Order of Owner.	By Order of Board of Agriculture.			
2	...	...	...	...	1	Rice Lane, Walton .....	1 remaining healthy when ultimately declared free.
19	...	...	2	...	...	Aigburth .....	17       "       "       "
17	...	2	...	...	3	Newhall Lane, Clubmoor...	12       "       "       "
32	...	...	...	...	1	Belmont Road Workhouse	31       "       "       "
5	...	...	...	...	1	Church Road, Garston .....	4       "       "       "
101	54	...	...	46	1	West Derby Rd., Tuebrook	
4	...	...	...	...	1	Knotty Ash .....	3 remaining healthy when ultimately declared free.

RABIES.

In conformity with the requirements of the Board of Agriculture, reports were sent to the Board in respect of nine suspected cases of rabies. Bacteriological examination was made in all the cases, and *post mortem* examinations were made by the Veterinary Inspectors. There were no signs that any of the animals had been affected with rabies.

SHEEP SCAB.

No trace of this disease has been discovered during the year by the Veterinary Inspector at Stanley Cattle Market, or at any place within the city boundaries.

PLEURO-PNEUMONIA.

There was no case reported during the year.

PIGGERIES.

						<u>1902.</u>	<u>1903.</u>
Number of applications to keep pigs	...	..				18	30
"        "        granted	...	...	...			9	10
"        "        refused	...	...	...			2	16
"        "        in abeyance	...	...	...			7	4
"    Pigs applied for	...	...	...			325	658
"        "        granted	...	...	...			156	135
Total number of licensed piggeries...	...	...				62	68
"        pigs	...	...	...			905	978
Number of visits to piggeries	...	...	...			372	595
"    Informations	...	...	...	..	..	1	2
"    Fined	...	...	...	...	...	1	2
Amount of Fines and Costs	...	...	...	...	...	£1 4 6	£10 9 0

## DAIRIES, COWSHEDS AND MILKSHOPS.

There is no change in the method of procedure respecting the licensing of cowsheds and the registration of dairies, milkshops and milkstores.

STATISTICS RESPECTING COWSHEDS.

	<u>1903.</u>
Number of applications to keep cows on premises not previously licensed .. ...	12
"    "    granted .... ..	7
"    cows applied for on above applications .. ...	129
"    granted .... ..	97
"    applications in abeyance pending alterations ... ..	3
"    "    refused .... ..	2
Twelve applications standing over from last year now granted ...	11
"    "    "    "    "    "    refused ...	1
Number of applications for transfer to fresh tenants of cowsheds previously licensed ... ..	32
"    "    granted ... ..	31
"    "    in abeyance ... ..	1
"    "    to keep more cows than the number for which the license was originally granted ... ..	2
"    "    granted ... ..	2
"    additional cows applied for . ... ..	4
"    "    granted ... ..	4
"    Cowsheds existing within the City during 1902 ...	442
"    "    now existing ... ..	447
Number of cows licensed to be kept within the city area ... ..	6,214

COWSHED INSPECTION.

					<u>1902.</u>	<u>1903.</u>
Number of Inspections of Cowsheds	...	...	...	...	4,183	4,358
„ found Incorrect	...	...	...	...	123	*329
„ of Informations	...	...	...	...	3	6
„ Fined	...	...	...	...	3	5
„ Withdrawn	...	...	...	...	—	1
Amount of Fines and Costs	...	...	...	...	£4 13 6	£7 3 6

Fifty-one notices have been issued to occupiers directing their attention to contraventions of the regulations.

Number of cowsheds in the city during the years 1894 to 1903 inclusive, together with the number of cows licensed to be kept, and the number of applications for new cowsheds :—

		Cowsheds.		Cows.		Applications.
1894	...	304	...	4,005	...	2
1895	...	325	...	4,311	...	20
1896	...	404	...	5,393	...	129
1897	...	453	...	5,650	...	33
1898	...	435	...	5,695	...	13
1899	...	434	...	5,851	...	2
1900	...	437	...	5,905	...	5
1901	...	443	...	5,909	...	6
1902	...	442	...	6,068	...	16
1903	...	447	...	6,214	...	12

\*The increase in the number of inspections found incorrect is due to visits made to various premises undergoing alterations in Garston.

MILKSHOPS.

Number of Applications for registration	...	...	...	...	107
of which transfers were	.	...	...	..	70
„    above Applications granted	...	...	...	...	102
„    „    „    in abeyance	...	...	...	..	4
„    „    „    refused	.	...	...	..	1

Eighteen applications standing over from 1902 have now been granted.

Number of Milkshops on the register at the end of 1899	...	...	830
„    „    „    „    1900	...	...	869
„    „    „    „    1901	...	...	898
„    „    „    „    1902	..	...	802
„    „    „    „    1903	...	...	812

DAIRIES AND MILKSHOPS INSPECTION.

	<u>1902.</u>	<u>1903.</u>
Number of Inspections of Dairies and Milkshops	6,386	5,999
„    found incorrect ... ..	116	*285
„    of Informations ... ..	8	6
„    Fined ... ..	8	6
Amount of Fines and Costs	£12 8 6	£9 18 0

Twenty-four caution notices have been issued to occupiers of milkshops for contravention of the Regulations.

\*The increase in the number of inspections found incorrect is due to visits made to various premises undergoing alterations in Garston.

LEAVELOOKERS' VISITS TO SHIPPONS FOR THE PURPOSE OFEXAMINING COWS.

No. of Visits.	No. of Examinations of Cows.	No. found Healthy.	No. found ill and referred to the Veterinary Inspector.
1,896	22,842	22,798	49

ICE CREAM MAKERS AND VENDORS.

The usual inspections have been made of the premises utilised by the street traders solely for manufacturing ice cream.

The dwellings which these street traders occupy have also been kept under observation, and in no instance during the past year have they been found to make or store ice cream in or about the said dwellings.

A systematic inspection has also been made of shopkeepers' premises which are used for the manufacture and sale of ice cream.

					<u>1902.</u>	<u>1903.</u>
Number of premises under Inspection	...	...	...	...	477	475
„ visits made	...	...	...	...	2,616	2,210
„ caution notices issued	...	...	...	...	29	13
„ Informations	...	...	...	...	1	1
„ Fined	...	...	...	...	1	1
Amount of Fines and Costs	...	...	...	...	£2 4 6	£1 4 6

## LIVERPOOL CORPORATION ACT, 1900.

**MILK SUPPLY AND TUBERCULOSIS.**

The routine examination of cows and cowsheds within the city is carried out by the Meat Inspectors, who report all cases of sickness amongst the cows.

Under this Act the Medical Officer of Health has requested the Veterinary Superintendent to visit and specially examine the various animals suspected of being affected with tuberculosis of the udder in town shippons supplying the city with milk. Where an animal is suspected of being affected with tuberculosis of the udder, she is either at once sent out for slaughter, or is isolated pending the application of the tuberculin test, and her milk is thrown away. Animals re-acting to the test, and having lesions of the udder, are, with the consent of the owner, slaughtered.

The following table indicates the number of visits made, and the animals examined:—

	1902	1903
Visits to Town Shippons ... ..	12	61
Cows examined ... ..	13	121
Not affected ... ..	7	97
Cows found to be suspicious of Tuberculosis of the Udder ...	6	24
Convictions for Offences under the Act ... ..	1	7

MILK SUPPLIED FROM OUTSIDE THE CITY BOUNDARIES.

Under the Liverpool Corporation Act, 1900, the Inspectors visit the various railway stations and take samples of milk forwarded from cows outside the city boundary. (See page 191.) The samples are submitted to bacteriological analysis, and if found contaminated with Tuberculosis, the Veterinary Superintendent, accompanied by a representative of the Medical Officer of Health, visits the cowsheds and examines the whole of the cattle contained therein, after obtaining the necessary authority as prescribed by the Act.

The majority of the cowsheds visited are situated in the county of Cheshire; there are also some in Wales, Shropshire and other counties. The cowsheds, taken as a whole, are not in a satisfactory condition, and fall very far short (from a sanitary point of view) of those within the city. The herds are, as a rule, much larger than those existing within the city, and consequently a considerable amount of time and trouble is taken in making the examinations. The animals are not up to the standard of city cattle, nor are they kept as well groomed. The proceedings adopted with suspected or affected animals are much the same as with those within the city. Samples of milk are taken from suspected animals, and forwarded to the Medical Officer of Health. Pending the result of the bacteriological examination, the animal is isolated, and the milk from the particular cow or cows is not allowed to be sent into the city. In many cases of suspected animals, definite information was lacking, owing to the animals having been slaughtered by their owner, or sold to dealers; in these latter cases it was frequently found to be impossible to trace the animal, which had been re-sold for milking purposes.

The following table gives statistical details:—

	1902	1903
Number of Farms visited ... ..	22	15
Number of Shippons examined ... ..	66	32
Number of Cows examined ... ..	760	364
Number of Cows found to be suspicious of Tuberculosis of the Udder ... ..	18	10
Number of convictions for offences under the Act ... ..	3	3
Number of Orders prohibiting the sale of contaminated Milk within the City ... ..	3	2

The shippens are far from being in the satisfactory condition of those to be found in Liverpool; want of sanitary conditions both inside and outside the buildings being inimical to the health of the animals. The animals themselves also lack the well-groomed and well-fed appearance that ought to exist.

When an animal suffering (or suspected to be suffering) from Tuberculosis of the udder is found in a herd, the owner is requested to isolate the animal, and not to send any more of her milk to Liverpool. He is liable to be summoned before the Liverpool Health Authorities to show cause why he should not be prohibited from sending milk to the city, and he is also liable to prosecution for not reporting the case. Samples of milk are taken from affected and suspected animals, and submitted to bacteriological examination. In many cases the difficulty of finding the animal from which the infected milk was derived is increased owing to the fact of some of the animals having been sold after analysis of the bulk of the milk was made.

There can be no doubt that the operations of the Liverpool Corporation Act, 1900, is tending to improve the condition of cowsheds in various parts of the country from which milk is sent into Liverpool; the applications of the Act, however, in country districts are defective and expensive, and involve a considerable amount of the time of Liverpool officials. So far as Liverpool itself is concerned, the milk clauses of the Act unquestionably result in giving a measure of protection to the city, but there is nothing whatever to prevent a milk dealer who is prohibited from sending diseased milk to Liverpool sending it to another part of the country which is less adequately protected.

There are grounds for thinking that Sanitary Authorities in country districts do, owing to the action of the Liverpool Corporation, realise the necessity for putting into operation available powers to insure the sanitation of country cowsheds, and there is no reason to doubt that cowkeepers themselves, when the matter has been pointed out to them by officers of the corporation, realise that advantages will accrue from keeping the cowsheds in a sanitary condition, and from keeping the animals clean.

The inclusion *mutatis mutandis* of the provisions of the Liverpool Act in a General Act, applicable to the whole country, would be most beneficial.

### HUMANISED STERILIZED MILK

For the use of Infants whose Mothers are unable to Suckle them.

During the year 1903, a year characterised by having the lowest death-rate ever recorded in Liverpool, the rate of mortality amongst infants (which was also the lowest ever recorded) indicated that out of every 1,000 born 159 deaths occurred. The relatively greater loss of life below 12 months of age, as contrasted with the loss of life amongst those living above 12 months of age, is forcibly indicated in the table.

	DEATH RATE PER 1000.	
	Below One Year of Age.	Above One Year of Age.
Average of the last 3 Years.	178	16·7
During 1903 .....	159	15·0

The most frequent among the causes which contribute to this high infant mortality are shown by medical certificate to be "atrophy" "diarrhœa," "diarrhœa and convulsions," and similar causes, all pointing to the fact that from some reason or another nutrition is interfered with, and that the infant is unable to live upon the food given it.

The object of the present Report is to review the results of the special methods adopted by the Health Committee to meet this difficulty, always remembering that the natural guardian of the infant is the mother, and that it is only with extreme caution that the efforts of the Municipality can be specially directed to the preservation of infant life.

For various reasons it is necessary to make, however briefly, a few general observations upon the subject, and what has been previously done to deal with it. The loss of life from diarrhœa and kindred ailments is greatest in the summer and autumn months, and it was found, as the result of careful personal observations, carried out by the Medical Officer

of Health, in conjunction with other members of the Liverpool Medical Institution, and extending over several years—inquiries which involved the circumstances of upwards of one thousand deaths of infants—that amongst infants below three months of age, either wholly or partially fed during this season on artificial foods, the deaths are fifteen times as great as they are amongst an equal number of infants fed upon breast milk, in other words, out of every 1,000 infants under three months of age, naturally fed upon breast milk alone, 20 died of autumnal choleraic disease; but of the same number of infants at the same age, artificially fed, then instead of 20 dying, as many as 300 died from this cause.

Similarly between 3 and 6 months, and 6 and 9 months of age, there was an immensely larger proportion of deaths amongst the artificially fed than amongst the breast fed, although this proportion diminished as the age increased. Details of these facts were laid before the Medical Institution some years ago. Then, as now, one of the most discouraging features was found to be the lamentable want of maternal care, or of intelligence, or of capability to follow out instructions when they were given by the medical adviser.

The food given to the artificially-fed was almost invariably found to be unsuitable, stale, or even putrescent, and given from a dirty and foul-smelling, long-tubed feeding bottle.

As it is obvious that the staple food of artificially-fed infants must be cows' milk modified in some form or another, it may be well now to recapitulate the steps taken in the city to ensure that the milk supply shall be pure, at least until it is delivered at the house. Nearly 30,000 gallons of milk are consumed in Liverpool every day, but as the Liverpool cows only provide half this quantity, it is necessary to deal also with the sources of supply of the other half, which comes from country districts. The following is an outline of the steps taken:—

With regard to cows kept within the city, closest attention has been paid for the past ten or twelve years, to the condition of the cowsheds and the health of the animals.

In 1897, with the sanction of the Local Government Board, a fresh series of regulations was made, providing for the routine inspection of the cattle, and, what is of equal importance, providing for the proper lighting, ventilation, cleansing, drainage and water-supply for the cow-

sheds within the city, and for securing cleanliness of stores, shops and vessels, and for precautions against infection or contamination. This close supervision has resulted in bringing the Liverpool cowsheds up to their present standard.

With regard to milk imported from other districts, a Local Act was obtained in 1900, which enabled the Health Authorities to prohibit the importation into the city of milk from any outside dairy or cowshed, if, in the opinion of the Medical Officer of Health, such milk were contaminated in a manner likely to cause tuberculosis—a provision which, whilst guarding specifically against tuberculosis, should incidentally result in ensuring healthy cows living under healthy conditions. The investigations undertaken at the instance of the Liverpool Corporation by Professors Boyce, Delepine, Hamilton and Woodhead, contributed to the passing of this salutary Act, and although the application of it is tedious, difficult and cumbersome, it has done a great deal of good, not only for Liverpool, but for the surrounding country also.

The staff employed in dealing with the milk-supply comprises five Inspectors conversant with the Diseases of Animals, and also a Veterinary Surgeon, to whom reference can be made; three Inspectors, who inspect and report upon the structural and sanitary condition of the cowsheds, and three Inspectors whose business it is to procure samples under the Food and Drugs Act for chemical and bacteriological analysis; about 1,000 samples of milk are taken for chemical analysis annually, and about 600 for bacteriological examination; they are taken from dairies, shops, street carts in the act of delivering, and also from railway stations. It must be added that every cowkeeper receives careful instructions, and a printed copy of all requirements and regulations affecting his trade. The Cowkeepers' Association, realising the advantages to their own trade of attention to these matters, co-operate with the Health Authorities.

Nothing is omitted which can lessen the dangers of contamination to the milk in its many vicissitudes on its way from the cow to the consumer. But it must be remembered that milk, as nature intended it to be given, is never once exposed to the air, that it passes directly at the time of the manufacture in the glands to the stomach; its composition, temperature and mixture adapt it to the needs of the offspring; it has neither abstractions, adulterations, preservatives nor uncleanness; it is, moreover, bacteriologically clean and pure. Nothing the municipality can do can equal this.

It must be added that there has been no relaxation in the efforts to improve the methods of domestic sanitation. It is not necessary to enter into their details, although it may be mentioned that one of the functions allotted to the staff of female inspectors was to supplement the work of medical and other charitable institutions in giving instructions to mothers upon the care and management of infants, whilst a wide circulation was given by placards in the poor districts, and by cards of instructions, to information supplementing that given in the case of infants by the medical staff of the Children's Infirmary. As already stated, all of these measures failed to prevent the domestic contamination of milk after delivery; they made little or no impression upon parents, who either failed to realise the necessity of giving pure food, or if they did realise it, they were unable to act upon it.

In France—where the subject of infant life is one of such supreme importance—certain quantities of food are given, at the cost of some municipalities, to mothers for their own nourishment, upon the condition that they will suckle their offspring, whilst steps were taken to find some substitute for mother's milk for those infants whose mothers were unable to suckle them.

It may be well to refer to an interesting report recently presented to the French Academy of Medicine by Professor P. Budin, showing the result of observations upon a number of specially fed infants. The observations extended over a period of two years, and dealt with 712 infants treated at the Clinique Tarnier, all of whom were born in the hospital. As a result of carefully supplementing the mother's milk in cases of insufficiency, or giving sterilized humanised milk solely when the mother was absolutely unable to nurse the child, the mortality was reduced to 36·5 per thousand, as against 178 per thousand below twelve months of age in Paris generally. In the cases dealt with at this Clinique Tarnier the infants were under constant medical supervision. They were periodically weighed, and were most closely and most carefully watched. Particular attention was drawn to the fact that the mother's milk and the sterilized humanised cows' milk do not clash in any way, nor give rise to digestion trouble. The almost universal practice in this country of consuming raw milk is not adopted on the continent, but the milk is usually boiled.

The problem of finding a complete substitute for the milk of a healthy mother has not been solved, and probably never will be solved. As the

infant grows, there may no doubt be variation in the quality of mother's milk which specially adapt it to the infant's need—niceties in nature which cannot be approached artificially.

The use of artificial food is unavoidable under the existing social conditions; the nearest approach to the natural food is derived from cows' milk, which can be so altered as to closely imitate human milk in its composition, and it can also be made to resemble it in another important particular, viz., it can be sterilized, and given whilst so sterilized.

It is the polluted cows' milk and the unsuitable artificial foods which cause the mischief, and as it is impossible by municipal administration to reach and deal with all the sources of pollution, the justification for the present undertaking arises. The municipality has spared no efforts to ensure a pure milk-supply.

It must not be lost sight of that in preparing infants' food in the homes of the poor, the contamination of milk is not the only source of mischief; even the sugar with which the milk is sweetened may be, and has been seen to be, taken from a sugar basin black with flies, which would be likely to leave filthy contamination of any kind.

In this country the project of humanising the milk, that is to say, making it, by the additions of milk-sugar, water and cream, as nearly as possible of the same chemical composition as human milk, and sterilizing it, and adopting such methods as will enable the infants to receive this milk pure and without contamination, was first carried into effect on a small scale at St. Helens. In Liverpool the project received warm and continuous support from Councillor Shelmerdine, who consented to act as Chairman of the Sub-Committee having control of the introduction of the system into the city.

This Committee had many difficulties to encounter, which happily were overcome, and need not be further alluded to now.

It cannot be too strongly emphasised that the milk is intended solely for the use of those infants whose mothers are unable to suckle them, or who can only partially suckle them. This fact is stamped upon every

card of instructions, and is placed into prominence at every opportunity. There must be no misunderstanding upon this point.

The first Liverpool effort was made at Netherfield Road, in the centre of a very populous district, where during the hot weather the deaths from diarrhœa were always very numerous. When ordering the plant for this dépôt, the best was done to find some firm with experience in this class of work, but as no such firm existed a large part of the work was experimental, and had subsequently to be altered. Nevertheless, valuable service has been done by it.

Some two months after, the Cazneau Street Dépôt was opened. This is about three-quarters of a mile from Netherfield Road, and is used merely as a distributing dépôt.

The number of people anxious to obtain the milk had now increased so much that the committee opened another dépôt in the south end, in Earle Road, and also a distributing dépôt in Park Road. Many of the difficulties encountered in the former attempt were avoided, and the work at Earle Road is carried out conveniently and expeditiously.

The sale and distribution of the milk from dairies was allowed partly on grounds of economy, and with the hope of interesting the trade in the undertaking.

The advantage is that it saves the expense of opening shops and dépôts in all parts of the town; but the disadvantages are that the same close supervision cannot be kept over the customers receiving the milk from the dairies as is kept over those supplied from our own dépôts. In the case of the dairies there is also a likelihood that the bottles are tampered with, or kept too long; and, as a matter of fact, the only complaints which have arisen have been in connection with milk supplied from the dairies.

The milk is supplied by contract from both town and country shippens, and samples of it are taken on delivery from time to time for chemical and bacteriological analysis. When it arrives at the dépôt, as a routine practice, a sample is taken for the purpose of estimating the amount of fat by Gerber's test; a sample is also examined in the cream-tube.

As to details, a mixture is prepared consisting of cows' milk, water, cream, salt, and sugar, in such quantities as to make the liquid practically the same as human milk; a sufficient amount for one feed for an infant of stated age is put into each bottle, and the bottle and contents are then sterilized.

The method of use is carefully explained verbally to the person having charge of the infant, and from time to time visits are paid to see that the milk is being used intelligently and in a proper manner. Owing to a common prejudice amongst the more ignorant classes, it is difficult to induce the mothers to bring the infant to the *depôt* from time to time to be weighed.

It is not necessary to recapitulate the difficulties with which the committee had to contend in bringing the milk-supply to its present state of suitability. The successive steps have already been reported upon, and a description, together with photographs of the premises and sterilizing apparatus, have been given in the Annual Report of the Medical Officer for 1901. What it is desired now to show is how far the experiment has succeeded: how far the corporation has been successful in the rôle of a foster mother.

The recent reduction in the rate of infant mortality in the city depends upon many causes. It is not for one moment claimed that it is altogether brought about by the Sterilized Milk. Some of the improvement must clearly be assigned to other causes; on the other hand, there are facts now to be considered which will enable an opinion to be formed upon the part played by the milk.

From the date of the initiation of this scheme, viz., early in 1901, until 31st December, 1903, 6,295 infants have been fed upon this milk, supplied either at the *depôts* or through dairies, the average age at the commencement of the feeding being  $3\frac{1}{2}$  months, very few (367) were, from one cause or another, admitted after twelve months of age. In the great majority of instances the infants thrived, increasing in weight and remaining perfectly healthy.

It was possible to keep a much closer supervision over cases supplied from the *depôts* than over those supplied by the dairies. Of the former, viz., 4,453 in number, there were 350 cases in which the infant died, but of these 49 had been fed on the milk for less than one week, and

18 had been irregularly fed on it; 228 were ill, some of them hopelessly ill, when the milk was first supplied. Each death formed the subject of a careful inquiry, and it was found that out of the total number of infants who died, only 55 were fairly healthy at the time of admission, and had been properly fed since. In these 55 cases the registered causes of death were as follows:—

Convulsions .....	5
Diarrhœa .....	6
Bronchitis .....	4
Pneumonia .....	2
Wasting .....	4
Teething .....	2
Inflammation of Stomach .....	1
Whooping Cough .....	1
Blood Poisoning .....	1
Effect of Operation on Throat .....	1
Disease of Leg .....	1
Croup .....	1
Inflammation of Lungs .....	1
Various other causes .....	25
	<hr/>
	55
	<hr/>

Of those deaths attributed to diarrhœa or convulsions, in several cases the milk had been discontinued prior to the commencement of the fatal illness. Incidental circumstances in connection with one or two of the others may be quoted: In one instance the infant and another were the only survivors out of a family of ten; in another, it was the sole survivor of a family of six; in another instance, in which death took place at one month of age, there had been within the preceding fortnight deaths of two other elder children in the same family; several, delicate from birth, were tried with the milk as a last resort.

In the appendix will be seen the form of instructions as to the line of inquiry in these cases which is given to the female inspectors.

A study of the case-books, in which the particulars of each case are entered, and in which the progress of the child, so far as can be ascertained, is recorded, reveals many interesting facts. The first thing that strikes one is the very large number of children who are described as

suffering from some form of sickness on admission; in fact, over 50 per cent. of those entered are stated by the mothers to be ill. A history that is frequently given is that almost everything in the way of infants' food has been tried without any satisfactory result, and they have come to the dépôt as a last resource. A large number of these infants are recommended to try the milk by the medical attendants, both in hospital practice and private practice, and they report excellent results in cases where it is used. The committee are especially indebted to the members of the staff of the Children's Infirmary for their hearty co-operation and many valuable suggestions that they have made from time to time. The distributing dépôts are made known at the out-patients' department of the Children's Infirmary, so as to bring the two institutions into closer contact with each other, and to be a source of mutual assistance.

When the mother, or the person in charge, brings the infant with her, it is weighed.

If the child is not brought on the first visit, the milk is supplied on condition the mother brings it to be weighed at the earliest opportunity. The mother, or guardian, is told how to feed the child, and the card of instructions is explained to her. Every effort is made to induce the mothers to bring their children to be weighed at least once a fortnight. It is difficult, however, for some to do so, owing to the distance at which they live from the dépôt, and some are indifferent. A considerable number, however, take a keen interest in their children's progress, and bring them more or less regularly to be weighed.

Trouble is occasionally experienced with the very ignorant class, who will persist in decanting the milk out of the sterilized bottle into one with a long tube. For the purpose, therefore, of seeing that the milk is properly used, the female inspectors visit from time to time the houses where it is likely that the milk is misused. Also in cases where the mother says the child does not like the milk, or does not appear to be thriving on it, a visit is paid, and if a doctor is not in attendance the mother is advised to call one in.

It will be readily understood that under these circumstances it is a difficult matter to compile statistics that will give a correct idea of the value of the results obtained. Dr. Mussen has carefully followed up a number of the infants using the milk, for a period of three months and

upwards. The total number of children included in his observations is 360. No attempt has been made to select the cases, which were taken consecutively, and all have been included whose progress, whether good or bad for that time, could be ascertained. It may, therefore, be considered a fair indication of the general progress. When one considers that the average weights of the infants when admitted were far below the average of healthy infants of the same age, and also that a considerable percentage of them were seriously ill when admitted, the results are very satisfactory, showing as they do in the large proportion of cases an approximation to the normal standard.

Now let us consider the whole of the figures for what they are worth.

Without attempting to draw too close deductions, the fact stands out that out of the 4,453 infants coming very promiscuously to the depôts, at varied ages and in conditions of health below the average, the mortality was 78\* per 1,000, as against 159 per 1,000 for the whole City, and 88 to 118 for the best districts, and 212 to 215 for the worst.

But it must be remembered that in that 159 per 1,000 for the whole City, and 88 to 118 for the best districts and 212 to 215 for the worst districts, are included also breast-fed infants; clearly if breast-fed infants were excluded and artificially-fed infants only taken into account, the rate of mortality amongst them would be enormously higher, and would show even more forcibly the advantages of the sterilized food, which, of course, is an artificial food, over other methods of artificial feeding.

The figures are very valuable, and are clearly and strongly in favour of persevering with the supply of this milk. But the figures are by no means the only evidences of the value of the milk; there is the evidence of parents, of medical men, and of personal observation, all strongly pointing to instances repeated over and over again in which to the use of the milk has been attributed the saving of the child's life. The question

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\* The death rate is based upon the number of infants supplied direct from the Corporation Depôts only, as some difficulty was experienced in ascertaining the correct number of deaths amongst those supplied by the dairies, but there is no reason to suppose that this rate was exceeded amongst those obtaining milk from the dairies.

appears to narrow itself down to: What would these infants be fed on if they did not get this milk?

There are certain descriptive or statistical details, but these can be best shown in tabular form.

Number of infants fed on the milk since operations were started, to December 31st, 1903 .....	6295
Approximate average age .....	3½ months
Number under 12 months .....	5928
Number over 12 months .....	367
Number of children who have died, having had Sterilized Milk .....	350

Of these there were:—

Ill when admitted .....	228
Irregular customers .....	18
Had less than one week's supply .....	49
Total number of infants admitted healthy and properly fed...	55

The infants fed on Sterilized Milk were supplied from the following:—

Netherfield Road Dépôt .....	1519
Earle Road Dépôt .....	674
Park Road Dépôt .....	777
Cazneau Street Dépôt .....	1483
<hr/>	
Total supplied from dépôts .....	4453
Supplied by Dairies .....	1842

The following are the regulations which control the sale of the milk:—

1. The milk is supplied in baskets of nine, seven or six bottles, each bottle containing sufficient milk for one feed, according to the age of the child.

2. When all the milk in one bottle is not used, the remainder must not be warmed up again for the infant, but a fresh bottle opened for its next meal.

3. The person using the milk must guarantee to continue its use regularly during the needs of the child, and to send for it at the stated hours.

4. Should the milk not be agreeing with the child, the matter should be reported at once.

5. Every person using the milk will be supplied with two teats, which must be kept clean, and brought to the Dépôt for inspection at least once a week. Extra teats will be charged for at the rate of 3d. each.

6. Just before using, each bottle should be placed unopened in a jug or basin of hot water, and warmed to the proper temperature. The bottle should then be opened and the teat inserted. It is recommended that at first the infant should be fed every two hours during the day, and every four hours during the night; and after four months of age the intervals of feeding should be gradually lengthened.

7. After using, the bottle should be thoroughly rinsed in cold water.

8. If children are sent for the milk, they must be warned not to tamper with the stoppers of the bottles.

9. All bottles, stoppers, baskets and rubber rings not returned to the Dépôt, will be charged full value.

10. The cost of the full weekly supply is 1s. 6d., payable in advance.

NOTE.—The Dépôts are open daily (Sundays and Bank Holidays excepted) from 11 a.m. till 6 p.m.

Sundays and Bank Holidays, 11 a.m. to 1 p.m.

Depôts for the sale of the milk are situated at—

No. 251, Netherfield Road North.

No. 47, Cazneau Street.

No. 52, Earle Road.

No. 37b, Park Road.

And the milk is also supplied on special terms to a number of dairies in various parts of the city.

## Formula used for Modification of Milk.

Age.		Quantity of Pure Milk for Twenty-four Hours.	Water.
		Ounces.	Ounces.
* {	One to two weeks .....	6 $\frac{3}{4}$	6 $\frac{3}{4}$
	Two to eight weeks.....	13 $\frac{1}{2}$	13 $\frac{1}{2}$
	Two to three months .....	20 $\frac{3}{4}$	10 $\frac{1}{2}$
	Three to five months.....	30	15
† {	Five to seven months .....	34	13 $\frac{1}{2}$
	Seven to eight months .....	36	12
	Over eight months .....	40	10

\* 4 $\frac{1}{2}$  ounces of cream, 2 $\frac{1}{2}$  ounces of sugar, and  $\frac{1}{8}$  ounce of salt, to be added to each gallon of mixture.  
† 4 ounces of cream, 2 $\frac{1}{2}$  do. do. do. do. do.

## Staff employed at the various Depôts.

The management of the depôts is under the supervision of a Lady Superintendent, who was for some years on the Sanitary Staff.

## Netherfield Road—

Staff, seven females and two boys. Hours, 7.30 a.m. to 5.30 p.m.; Sundays and Bank Holidays, 7.30 a.m. to 1 p.m.

Apparatus consists of two Sterilizers—Jackson's, 440 bottles at one operation; "Wyvern," 405 bottles at one operation.

The sterilizers can be raised to a temperature of 210°, and are kept at this temperature between twenty minutes and half-an-hour.

Six operations are performed daily, giving an available total of 5,070 bottles.

## Earle Road—

Staff, five females, two boys and one man (engineer). Hours, 8 a.m. to 6 p.m.; Sundays and Bank Holidays, 8 a.m. to 1 p.m.

One sterilizer—Lister's, 960 bottles at one operation.

The temperature can be raised to 210°, and is kept at this temperature between twenty minutes and half-an-hour.

Six operations are performed daily, giving an available total of 5,760 bottles.

The salaries are as follows, viz. :—Females, from 15s. to 30s. per week; boys, from 8s. to 10s. 6d. per week; Engineer, 35s. per week.

## Expenditure and Income for Years 1900 to 1903.

	1900.	1901.	1902.	1903.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Wages and Clothing.....	...	277 11 9	856 4 3	1,093 9 9
Rents .....	10 3 6	69 2 0	141 18 1	128 4 1
Rates and Taxes .....	...	20 13 4	46 15 6	65 9 0
Water Rent .....	...	...	...	...
Gas ....	...	39 10 4	100 17 7	79 16 6
Coal .....	...	3 12 0	18 6 10	30 8 7
Printing and Stationery .....	...	1 19 0	6 2 4	19 11 1
Disbursements .....	...	7 3 6	12 18 9	12 13 6
Cleaning Premises, Windows, &c. ....	...	3 10 0	10 10 0	29 0 10
Travelling and Inspection Expenses.....	1 2 2	1 14 0	...	27 12 4
Stores (Milk, &c.) .....	...	303 19 10	1,427 2 10	1,604 12 1
Telephone Rent.....	...	3 8 0	6 16 0	13 16 10
Furniture and Fittings .....	...	333 8 3	84 16 5	9 9 11
Machinery .....	114 4 3	101 13 10	673 14 1	120 0 10
Bottles, Stoppers, &c. ....	...	425 19 0	459 16 8	645 9 0
Building Repairs, Alterations, &c.....	...	275 12 0	278 8 5	74 0 10
Horsing Vans, and Hire of Float .....	...	5 12 0	179 16 0	267 13 3
Electric Light Installation...	...	...	27 16 7	10 5 9
Insurance .....	...	...	2 18 7	2 9 3
Medical Attendance— Scalding Case.....	...	...	...	25 0 0
	125 9 11	1,874 8 10	4,334 18 11	4,259 3 5
Sale of Milk .....	...	518 0 2	1,534 13 7	2,230 11 1

The following is the form adopted in making inquiries in cases in which infants using the milk have died:—

### Sterilized Milk Enquiries.

---

- 1.—Date of Death .....
- 2.—Name .....
- Address .....
- 3.—Age .....
- 4.—Cause of Death .....
- 5.—Previous feeding and health .....
- 6.—Date or age at which Sterilized Milk was first given, and where obtained :  
.....  
.....
- 7.—Length of time on Milk .....
- 8.—Was it given regularly, or with any addition? .....
- 9.—Did Milk suit the Child? If not, in what way did it disagree?  
.....
- 10.—When was it discontinued? : .....
- 11.—Duration of fatal illness.....
- 12.—Any complaints as to Milk .....
- 13.—Condition of House, &c. ....
- Remarks :—  
.....  
.....  
.....  
.....  
.....

PROCEEDINGS UNDER THE FOOD AND DRUGS  
AND MARGARINE ACTS.

All samples of food or drugs are taken either by, or under the superintendence of Inspectors of the Health Department. It is of the greatest consequence that trained and practised persons should be employed for this purpose. It is necessary from time to time to employ women or young lads as agents, to go into the shop to ask for the articles, and as soon as the agent receives them, the Inspector enters the shop and completes the formalities which the Act requires. The following is a list of the

SAMPLES TAKEN FOR CHEMICAL ANALYSIS.

No. of Samples Purchased.	Description of Samples.	Adulterated.	Informations.
10	Arrowroot ... ..	...	...
1	Almonds, Ground ... ..	...	...
6	Baking Powder ... ..	...	...
1	Beef and Tongue ... ..	...	...
68	Beer ... ..	...	...
24	Bitter Beer ... ..	...	...
2	Black Currant Wine ... ..	...	...
1	Blancmange Powder ... ..	...	...
1	Boiled Rabbit ... ..	...	...
2	Brandy ... ..	1	1
10	Bread ... ..	...	...
6	Bread and Butter ... ..	1	...
175	Butter... ..	34	17
2	Buttermilk ... ..	1	1
4	Camphorated Oil ... ..	2	...
2	Carbonate of Soda ... ..	...	...

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No. of Samples purchased.	Description of Samples.	Adulterated.	Informations.
1	Carraway Seeds ... ..	...	...
2	Castor Oil ... ..	...	...
25	Cheese... ..	...	...
2	Chocolate Powder ... ..	...	...
13	Cocoa ... ..	...	...
5	Cod Liver Oil ... ..	...	...
5	Cod Liver Oil Emulsion ... ..	...	...
32	Coffee ... ..	1	...
2	Coffee Essence ... ..	...	...
4	Coffee and Chicory ... ..	...	...
19	Coffee and Chicory Essence ... ..	...	...
1	Corned Beef ... ..	...	...
3	Cornflour ... ..	...	...
2	Cove Oysters ... ..	...	...
1	Cowslip Wine ... ..	...	...
16	Cream... ..	3	...
17	Cream of Tartar ... ..	1	1
8	Dripping ... ..	2	2
1	Elder Wine ... ..	...	...
1	Elderberry Squash ... ..	...	...
2	Epsom Salts ... ..	...	...
1	Essence of Lemon ... ..	...	...
1	Essence of Vanilla ... ..	...	...
14	Flour ... ..	...	...
6	Gin ... ..	1	1
1	Ginger Ale (dry) ... ..	...	...
14	Ginger (Ground and Whole) ... ..	...	...
4	„ Wine ... ..	...	...

## SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No. of Samples purchased.	Description of Samples.	Adulterated.	Informations.
6	Glycerine ... ..	...	...
1	Honey... ..	...	...
28	Infants' Food ... ..	2	...
21	Jams ... ..	...	...
27	Lard ... ..	...	...
1	Lemonade Powder ... ..	...	...
1	Lemon Punch ... ..	1	...
27	Lime Juice Cordial ... ..	6	2
2	Mace, Ground ... ..	...	...
14	Margarine ... ..	3	...
7	„ Cheese ... ..	...	...
5	Marmalade ... ..	3	1
21	Meat Extracts ... ..	4	2
6	Medicine Prescriptions ... ..	1	...
3	Mercury Ointment ... ..	...	...
909	Milk (new) ... ..	101	65
48	„ (skimmed) ... ..	4	4
8	Milk (Machine Skimmed) ... ..	1	1
13	„ (condensed) ... ..	1	...
11	Mixed Spice ... ..	...	...
2	Mustard ... ..	...	...
1	Olive Oil ... ..	...	..
2	Olives ... ..	...	...
2	Orange Wine... ..	...	..
1	Ox Tail Soup... ..	...	...
5	Ox Tongues ... ..	...	...
3	Pepper, cayenne ... ..	...	..
24	„ white ... ..	8	1

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No of Samples purchased.	Description of Samples.	Adulterated.	Informations.
3	Piccalilli ... ..	...	...
4	Pickles ... ..	...	...
3	Port Wine ... ..	...	..
2	Preserved Apricots ... ..	...	...
1	„ Beans ... ..	...	...
1	„ Cherries ... ..	...	...
1	„ Damsons ... ..	...	...
1	„ Greengages ... ..	...	...
2	„ Mixed Fruit ... ..	...	...
2	„ „ Vegetables ... ..	1	...
4	„ Pears ... ..	...	...
7	„ Peas ... ..	4	...
1	„ Peaches ... ..	...	...
2	„ Pineapple ... ..	...	...
3	„ Raspberries ... ..	...	...
2	„ Red Currants ... ..	...	...
1	„ Tomatoes ... ..	...	...
3	Raisin Wine ... ..	...	...
2	Raspberry Wine ... ..	...	...
1	„ Vinegar ... ..	...	...
2	Rice, ground ... ..	...	...
5	Rum ... ..	1	1
1	Salmon ... ..	...	...
1	Sausages ... ..	...	...
1	Seidlitz Powder ... ..	...	...
3	Sherry... ..	...	...
3	Shrimps, Potted ... ..	2	...
1	Smoked Cods Roe Cream ... ..	...	...

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No. of Samples purchased.	Description of Samples.	Adulterated.	Informations.
1	Stout ... ..	...	...
1	Strawberry Wine ... ..	...	...
6	Sugar ... ..	...	...
8	Sweet Cake ... ..	...	...
44	Sweetmeats ... ..	...	...
1	Sweet Spirit of Nitre ... ..	...	...
15	Syrups ... ..	...	...
4	Tartaric Acid ... ..	...	...
34	Tea ... ..	...	...
2	Vegetable Butter ... ..	...	...
6	Vinegar ... ..	...	...
16	Whisky, Irish ... ..	...	...
13	„ Scotch ... ..	...	...
3	Yeast ... ..	...	...
Total <u>1934</u>	1903	190 <i>Adulterated.</i>	100
1787	preceding year.	183 preceding year.	106

			<u>1902.</u>	<u>1903.</u>
Number of Informations—Food and Drugs Acts	...	...	106	100
„ „ —Margarine Act	...	...	—	10
„ Fined	...	...	93	91
Acquitted or Withdrawn	...	...	15	19
<hr/>				
Amount of Fines and Costs	...	...	£363 15 0	£456 13 0

DETAILS OF SAMPLES OF MILK OBTAINED FOR CHEMICAL ANALYSIS.

	<u>1902.</u>	<u>1903.</u>
Number of Samples purchased on Week-days in Town..	477	418
„ Informations ... ..	60	31
„ Samples taken at Railway Stations on Week-days ... ..	140	79
„ Informations ... ..	0	13
„ Samples purchased on Sundays in Town ...	125	221
„ Informations ... ..	13	27
„ Samples taken at Railway Stations on Sundays	89	139
„ Informations ... ..	1	0
„ Samples taken at City Hospitals ... ..	97	87
„ Informations ... ..	2	0
„ Samples taken at Corporation Milk Depôts...	—	21
„ Informations ... ..	—	0

The amount of fines for offences under the Sale of Food and Drugs Act have increased during the past twelve months as compared with the preceding twelve months.

MARGARINE ACT.

	<u>1902.</u>	<u>1903.</u>
Number of Visits to Wholesale Dealers in Margarine	303	933
„ Visits to Shops ... ..	5346	6488
„ Informations ... ..	2	10
„ Fined ... ..	2	2
Amount of Fines and Costs ...	£2 15s.   £2 19s.	

## ANALYSES OF COFFEE AND CHICORY ESSENCE.

No. of Sample.	Brand.	Result of Analysis.
428 N	SYMINGTON'S.....	Approximately 3 parts of sweetened coffee essence or less, and 7 parts of sweetened chicory essence, or more. In each case the essence is nearly half sugar.
429 N	PATERSON'S .....	Ditto                ditto                ditto
432 N	LIPTON'S .....	Genuine sweetened essence of coffee.
433 N	LIPTON'S .....	One part of sweetened coffee essence and six parts of sweetened chicory essence.
446 N	PEGRAM'S .....	Approximately 1 part of coffee extract to 4 parts of chicory extract thickened with glucose syrup.
448 N	BROMLEY'S .....	Approximately 1 part of sweetened coffee essence to 3 parts of sweetened chicory essence.
450 N	SHEILDHALL'S...	Approximately 1 part of sweetened coffee essence and 4 parts of sweetened chicory essence.
1174 S	BARBER'S .....	One part of sweetened coffee essence and 9 parts of sweetened chicory essence.
1784 C	EMANON'S .....	1 part of sweetened coffee essence, 5 parts of sweetened chicory.
1785 C	SMITH'S .....	Approximately 1 part of sweetened coffee essence and 9 parts sweetened chicory essence.
1797 C	BRANSON'S .....	1 part of sweetened coffee essence, 2 parts sweetened chicory essence and an unknown quantity of treacle.
1798 C	HARRIS .....	1 part of sweetened coffee essence and 3 parts of sweetened chicory essence.

### Analyses of samples of Infants' Patent Foods now on the Market.

- No. 504 N. (Neave's)—Consists chiefly of wheat flour, baked, and partly rendered soluble.
- No. 509 N (Dr. Gordon's)—Is made from wheat flour, partly baked, and very imperfectly soluble.
- No. 1,827 C. (Benger's)—Is made from wheat flour, digested by pancreatic extract, when the instructions on packages are carried out.
- No. 1,828 (Mellin's)—Is made from wheat, and rendered entirely soluble.
- No. 1,829 (Allenbury's)—Is made from wheat flour slightly baked, and rendered slightly soluble by malt, when the instructions on the package are carried out.
- No. 1,830 (Dr. Ridge's)—Is flour very slightly baked, and not rendered soluble.
- No. 1,831 (Angell's)—Is wheat flour with milk, rendered partly soluble.
- No. 1,832 (Savory & Moore)—Is made from flour rendered partly soluble.
- No. 1,833 C. (Hovis)—Is wheat flour rendered entirely soluble.
- No. 1,254 S. (Barco)—Is simply barley flour not altered.
- No. 1,266 (Frame)—Is cooked flour.
- No. 1,267 S. (Nestle's Milk Food)—Is cooked flour with milk, and rendered half soluble.
- No. 1,835 C. (Burnett's)—Is unbaked wheat flour.
- No. 1,837 C. (Dr. Allinson's)—Is wheat flour very slightly baked.
- No. 533 N. (Robinson's)—Is barley, with a little wheat, and not cooked.
- No. 517 N. (Digestive Food)—Is wheat flour very slightly baked.
- No. 534 N. (Nichol's)—Is a mixture of wheat flour and bran; not cooked.
- No. 1,291 S. (Dr. Jenner's)—Is wheat flour, slightly cooked only, with a little malt.
- No. 1,865 C. (Carnick's)—Is flour rendered half soluble with a little skim milk.

### Summary of samples taken for Special Analysis during 1903.

Bologna Sausage	...	...	...	...	...	1
Compressed Milk Tablets	...	...	...	...	...	1
Crushed Oats	...	...	...	...	...	8
Imported Kidney	...	...	...	...	...	1
Minced Meat	...	...	...	...	...	2
Mykrol	...	...	...	...	...	1
Pure Milk	...	...	...	...	...	1
Sausage Skins (Imported)	...	...	...	...	...	1
Sterilized Milk Powder	...	...	...	...	...	1
Water	...	...	...	...	...	2
Total	...	...	...	...	...	19

## BACTERIOLOGICAL EXAMINATIONS AND ANALYSES.

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The work of the Bacteriologist comprises :—

- (a) Examination of food stuffs of various kinds.
- (b) Regular examination of water supplied to the City.
- (c) Examinations into suspected cases of rabies, anthrax, glanders, &c.
- (d) Examination for diagnostic purposes in suspected cases of diphtheria, typhoid fever, tubercular sputum, &c.
- (e) Special investigations.

Every food-stuff and every sample of water is analysed for the presence of (1) *Bacillus coli* ; (2) *Bacillus enteritidis sporogenes*.

Every sample of milk is, in addition, examined for the presence of the *Bacillus tuberculosis* by inoculation.

In every sample of water the number of bacteria present in the cubic centimetre is also noted.

To facilitate these operations special apparatus has been constructed in the laboratory, and many of the operations have been simplified by their use.

The total number of samples of food-stuffs taken for bacteriological examinations during the year 1903 was as follows :—

SUMMARY.

SAMPLE.	No.	SAMPLE.	No.
Anchovy ... ..	1	Olives and Anchovies ...	1
Brawn ... ..	2	Oysters ... ..	34
Butter ... ..	39	Periwinkles ... ..	6
Cheese... ..	13	Pork and Beans ... ..	1
Chicken and Ham ... ..	3	Pork Pie ... ..	7
Chicken, Ham and Tongue ...	3	Potted Beef ... ..	7
Cockles ... ..	30	„ Ham ... ..	3
Coffee and Chicory Essence...	1	„ Herrings ... ..	3
Corned Beef ... ..	2	„ Game... ..	1
Cove Oysters ... ..	1	„ Salmon and Shrimp..	1
Cream ... ..	18	„ Tongue ... ..	2
Cream Cheese ... ..	3	Preserved Pineapple ...	2
Currie Powder ... ..	1	Rabbit ... ..	1
Fish Patties ... ..	17	Roast Beef ... ..	1
Fried Fish ... ..	6	„ Mutton ... ..	1
Ham and Tongue ... ..	2	Salmon ... ..	17
Herrings with Tomato Sauce	1	Sardines ... ..	18
Honey ... ..	4	Sausage ... ..	3
Ice Cream ... ..	3	„ Roll ... ..	3
Infants' Food... ..	2	Sauces ... ..	21
Jams ... ..	23	Sheep's Trotters ... ..	1
Jellies ... ..	23	Soups ... ..	3
Lemon Curd ... ..	7	Suet ... ..	2
Lobster ... ..	9	Syrup ... ..	2
Margarine ... ..	16	Tomato ... ..	1
Marmalade ... ..	9	Tongue ... ..	2
Meat Extracts ... ..	10	Turkey and Tongue...	4
Milks ... ..	582	Veal and Ham ... ..	4
„ Condensed ... ..	44	Water ... ..	1
„ Sterilized ... ..	1		
Mussels ... ..	32	TOTAL ... ..	1061

SUMMARY.

Foods	...	...	...	...	...	1061
Waters	...	...	...	...	...	70
Typhoid	...	...	...	...	...	164
Diphtheria	...	...	...	...	...	143
Rats ...	...	...	...	...	...	583
Miscellaneous	...	...	...	...	...	95
						<hr/> 2116 <hr/>

A very large number of bacteriological examinations were made of suspected Tubercular, Typhoid, and Diphtheria cases, for the medical practitioners of the districts. Total number of examinations made amounted to 1,129.

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**MILK ANALYSES FOR THE YEAR.**

The total number of milks examined was 582. These were examined for the presence of—

1. The *Bacillus tuberculosis*.
2. The *Bacillus coli communis*.
3. The *Bacillus enteritidis sporogenes*.
4. Other bacteria.

The *Bacillus tuberculosis* indicates that the animal from which the milk was taken was tubercular, or that the pails into which the milk was received, or the hands of the milker were infected from previous contact with a diseased cow.

The *Bacillus coli* indicates contamination with dirt, of an intestinal origin, or possibly that the cow was suffering from inflammation of the udder.

The *Bacillus enteritidis sporogenes* indicates dust or intestinal contamination.

**Presence of the Tubercular Bacillus.**

Of the 582 samples examined for tubercle 18 guinea pigs died before the tubercular test was completed, leaving 564 samples for the completion of the investigation. Of this number 21 proved tubercular, 12 were found in railway borne milks, 2 in town milks, 6 in hospital milks (railway borne), and 1 in milk obtained from a Sterilized Milk Depot (railway borne).

The greater frequency of tubercle in railway borne milks has been noted in previous years. The percentage this year is 5.6 per cent. as compared with .8 per cent. in town milks. It is a very serious matter that tubercle is still so wide spread in milk. When it is remembered that one tubercular cow may be the means of infecting the milking utensils, the hands of the milker, and even the teats of the other healthy animals, regulations to deal with infected animals cannot be too stringent.

#### Presence of the *Bacillus Enteritidis Sporogenes* and the *Bacillus Coli*.

The *Bacillus enteritidis sporogenes* was found 50 times in a total of 336 railway borne samples of milk, and 4 times in a total of 246 samples of town milk.

The *Bacillus coli* was present 138 times in 336 railway borne milks, and 35 times in 246 town milks.

This is an exceedingly interesting and important result, for it shows that less care is taken in handling the country milk, and therefore that contamination much more frequently occurs.

With regard to the relationship of the *Bacillus coli* to the *Bacillus enteritidis sporogenes*, it has been found that very frequently the two organisms do not occur together. The significance of this is important as throwing light upon the significance of the *Bacillus enteritidis sporogenes* as an index of pollution. Where the *Bacillus coli* and *Bacillus enteritidis sporogenes* occur together this would be strong evidence that the *Bacillus enteritidis sporogenes* was of recent intestinal origin.

Table showing the number of milks examined Bacteriologically for Tubercle Bacilli from August, 1896, to 31st December, 1903.

Year.	Total Number of Samples Taken.	Town Samples.		Country Samples.	
		No. taken.	Tubercular.	No. taken.	Tubercular.
1896	119	83	4	36	5
1897	150	63	4	87	5
1898	112	84	7	28	5
1899	352	167	1	185	15
1900	560	255	4	305	5
1901	566	254	2	312	20
1902	595	213	1	382	32
1903	582	231	2	351	19
Totals.....	3,036	1,350	25	1,686	106

1903. Month.	RAILWAY.			TOWN.			HOSPITAL.			STERILIZED MILK DEPOT.			Total No. Received each Month.	TUBERCULAR.				NEGATIVE.					
	No.	B. Coli Com.	B. Ent. Spor.	No.	B. Coli Com.	B. Ent. Spor.	No.	B. Coli Com.	B. Ent. Spor.	No.	B. Coli Com.	B. Ent. Spor.		Rail.	Town.	Hospital.	Depot.	Total No.	Rail.	Town.	Hospital.	Depot.	Total No.
January .....	20	14	3	20	1	1	10	6	1	—	—	—	50	—	1	3	—	4	1	—	—	—	1
February .....	30	25	5	20	11	—	7	3	—	—	—	—	57	3	—	—	—	3	—	1	—	—	1
March .....	22	19	9	22	5	2	9	7	1	—	—	—	53	3	—	—	—	3	1	—	—	—	1
April .....	20	16	5	21	4	—	9	7	1	2	2	—	52	1	—	—	—	1	1	—	1	—	2
May .....	18	4	5	21	2	1	5	5	—	—	—	—	44	—	—	—	—	—	—	—	—	—	—
June .....	25	11	1	10	—	—	9	7	1	—	—	—	44	2	—	1	—	3	—	—	—	—	—
July .....	18	11	5	20	—	—	5	—	2	5	—	—	48	—	—	—	—	1	1	—	—	1	1
August .....	16	5	4	19	2	—	8	3	1	—	—	—	43	—	1	—	—	1	—	1	—	—	1
September ...	25	11	4	9	—	—	9	6	1	2	1	—	45	2	—	—	—	2	1	—	1	—	2
October .....	24	1	5	22	3	—	6	1	—	1	—	—	53	1	—	—	—	1	—	—	1	—	1
November ...	11	7	4	17	6	—	6	5	—	3	1	—	37	—	—	1	—	1	1	1	1	—	3
December .....	23	5	—	30	1	—	3	1	—	—	—	—	56	—	—	1	—	1	4	—	1	—	5
Total .....	252	138	50	231	35	4	86	51	8	13	4	—	582	12	2	6	1	21	9	3	5	1	18

RESULTS OF ANALYSES OF BUTTER, CREAM, STERILIZED MILKS,  
HUMANIZED MILKS, CHEESE AND MARGARINE.

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**Butter.**—Thirty-nine samples were analysed, *Bacillus coli* was present in 11 samples, and the *Bacillus enteritidis sporogenes* was absent in all of the samples.

**Creams.**—Eighteen samples of cream were examined; *Bacillus enteritidis sporogenes* being absent in all cases, and *Bacillus coli* present in 12 samples.

**Condensed Milks.**—Forty-four samples were examined, only one being sterile. There is no doubt that condensed milk is a most unsatisfactory product. Bacteria are usually present, and the milk, which was originally condensed, might have contained various products of the decomposition of bacteria. These products are masked subsequently by the large quantity of sugar present, but their irritant properties are not destroyed.

**Cheese.**—Thirteen samples were examined. *Bacillus coli* was present only in four samples, and *Bacillus enteritidis* was absent in all the samples.

**Cream Cheese.**—Three samples were examined. *B. coli* was present in one of the samples, while *B. enteritidis sporogenes* was absent in all.

**Margarine.**—*Bacillus coli* was present in two of 16 samples of Margarine examined, while *Bacillus enteritidis* was absent in all of the samples.

**Tinned Meats and Pastes.**—Forty-five samples were examined, of which 31 were sterile. *Bacillus coli* was found in 3 samples of Chicken and Ham.

**Preserves.**—These have shown a freedom from dangerous or danger indicating bacteria. Five out of the 23 samples examined were sterile. Those which are not sterile only contain a few bacteria. There is no doubt that the greatest care must be used in the boiling and subsequent distribution of the jam into the pots to ensure sterility and keeping properties.

**Jellies.**—Nineteen out of the 23 samples examined were proved to be not sterile.

**Bacteria present in Shell Fish.**—As in the case of milk and milk products, some kinds of shell fish are for the most part eaten uncooked; they are in consequence liable to convey infection if they become contaminated with pathogenic bacteria. Contamination may occur in the transit and storing of the shell-fish, but more especially in the collecting grounds. It is not uncommon to find that sewage has access to oyster, mussel and cockle beds. 102 samples were examined for evidence of the *Bacillus coli* and *Bacillus enteritidis sporogenes*. The *Bacillus coli* was present 39 times, the *Bacillus enteritidis* 24 times. The *Bacillus coli* was more frequently present in oysters and mussels, the *Bacillus enteritidis* in periwinkles, cockles and mussels. In the early part of the year investigations upon *Bacillus coli* were limited to ascertaining its presence in the various samples; more recently it has been tried to estimate the number of *Bacillus coli* in one cubic centimetre of oyster juice. It appears to be clear that a quantitative estimation of the *Bacillus coli* is necessary, and also that a far more thorough estimation of the distribution of the *Bacillus coli* group in sea-water is imperative.

**Sausages.**—As in the case of sterilized milk, condensed milk, and raw foods generally, so in the case of sausages, it is all important that the ingredients should be pure, otherwise the spice simply masks the bacterial changes, and does not destroy the ptomaines or, indeed, injurious bacteria. Three samples were examined, and the *Bacillus coli* and *Bacillus enteritidis sporogenes* were found to be present in two samples.

During the year 7 samples of Pork Pie were examined. Analyses were made especially to ascertain the presence of the *Bacillus coli* and the *B. enteritidis sporogenes*, and of other pathogenic organisms.

Total number of samples of Food taken for Bacteriological purposes.

1896	...	...	...	...	...	...	122
1897	...	...	...	...	...	...	162
1898	...	...	...	...	...	...	311
1899	...	...	...	...	...	...	505
1900	...	...	...	...	...	...	1,067
1901	...	...	...	...	...	...	1,055
1902	...	...	...	...	...	...	1,097
1903	...	...	...	...	...	...	1,061

**Plague Observations and Rats.**—During the year a careful watch has been kept over the rats in the ships entering the Port, and over those found in warehouses, stables, dwellings, &c. This has been done because of the well known fact that rats suffer from Plague, and that they very probably assist to spread the disease. By the systematic examination of these rats we may be put in a position to forestall cases of plague.

The total number of rats which were examined during the year was 583. In no case was any rat found to be infected with Plague. The total number of live rats from board ship was 517, and from town 23. There were also 43 dead rats taken from ships for examination.

The total number of Special Examinations made during the year was—

Rabies	...	...	...	...	...	9
Anthrax	...	...	...	...	...	41
Tubercle	...	...	...	...	...	25
Actinomycosis	...	...	...	...	...	2
Miscellaneous	...	...	...	...	...	18
Total	...	...	...	...	...	<u>95</u>

#### RABIES.

During the year 9 dogs were examined for rabies, but fortunately in no case was rabies shown to be present.

The following specimens were examined for Anthrax:—

Nature of Specimen.	Total Number Received.	B. Anthracis.	
		Present in.	Absent in.
Cow's Spleen .....	11	9	2
Cow's Gland .....	1	—	1
Meal, various kinds of.....	17	—	17
Dust .....	2	—	2
Bran .....	1	—	1
Linseed .....	1	—	1
Sugar Beet.....	1	—	1
Oil Cake .....	1	—	1
Hay .....	6	—	6
Total.....	41	9	32

The following specimens were examined for Tubercle :—

Nature of Specimen.	Number Received.	Tubercle Bacilli.		Chronic Mastitis.
		Present in.	Absent in.	
Udders .....	22	7	10	5
Gland .....	1	1	—	—
Lungs .....	2	2	—	—
Total.....	25	10	10	5

The following specimens were examined for Actinomycosis :—

Nature of Specimen.	Number Received.	Report.
Udder .....	1	Actinomycosis.
Ox Tongue .....	1	Not Actinomycosis.
	2	

List of Miscellaneous samples examined during the year.

Nature of Specimen.	Number.	Report.
Lung .....	1	Pneumonia.
Beef .....	1	Perivascular, Fatty and Fibroid Degeneration.
Smoked Haddock .....	1	A minute Parasite was found scattered throughout the Muscular Tissue.
Rabbit's Liver.....	1	Multiple Abscess
Pig's Liver .....	1	„ „
Rabbit .....	1	„ „
Pieces of Blanket .....	12	B. Coli present in all the samples.
Total.....	18	

### Bacteriological Analyses of cases of Typhoid and Diphtheria in the City Fever Hospitals.

During the year the Fever Hospitals have availed themselves of the facilities of the Municipal Bacteriological Department, and 307 specimens have been examined.

The following is a summary of the results:—

Cases of Diphtheria	...	...	...	143	
„ Typhoid	...	...	...	164	
Total	...	...	...	307	
<hr/>					
<u>DIPHTHERIA.</u>					
Positive	...	...	...	56	
Negative	...	...	...	85	
No Growth	...	...	...	2	
				<hr/>	143
<hr/>					
<u>TYPHOID.</u>					
Positive	...	...	...	112	
Negative	...	...	...	52	
				<hr/>	164
					<hr/>

### WATER ANALYSES.

By means of regular periodical analyses the whole of the water supply is kept under constant bacteriological supervision. This is attained by analysing the filtered water taken from the mains and cisterns, the water supplied from the wells, and the Rivington and Vyrnwy supplies. The unfiltered water is analysed by samples taken from the reservoirs and lakes, from the streams of the watersheds, and from the fissures in the wells. In this manner only is it possible to detect contamination throughout such a vast system of water supply as that of the city of Liverpool. The degree of purity of the water supplied to the city is shown from the following figures, indicating the average:—

Year 1900.—19	Bacteria present per c.c.
„ 1901.—22	„ „ „
„ 1902.—39	„ „ „
„ 1903.—53	„ „ „

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CLEANSING AND SCAVENGING.

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## CLEANSING AND SCAVENGING.

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The extension of the practice of washing streets, courts, back passages, &c., and the improvement in scavenging, prove markedly beneficial. During the hot weather of last year, the extended street washing was continued; 240 streets were washed once a week, 66 streets twice a week, 15 streets three times a week, and all passages and tunnel entrances to courts are also regularly washed. The substitution of electric cars for horse cars and omnibuses has removed one of the greatest causes of street contamination. Improvements in the details of the methods of cleansing and scavenging the streets have been effected with corresponding advantages to the health and comfort of the inhabitants.

Owing to the difficulties arising from bad planning of many of the streets of smaller houses, and the absence of adequate back passages, many obstacles have yet to be overcome before the collection and removal of domestic refuse can be regarded as satisfactory; but a most important advance was made when the Health Committee decided to give facilities for the substitution of sanitary ashbins for the old insanitary ashpits.

Down to the end of 1903, 8,939 Improved Fixed Sanitary Ashbins have been placed in properties assessed at £10 per year and under, and 10,009 in premises assessed at over £10 per year. The number of brick ashpits in the city has been reduced from 65,000 to 55,750 approximately. Bye-laws, recently sanctioned by the Local Government Board, applying to newly-constructed houses, will avert any extension of the mischief which results from defective ashpits.

All private, domestic, and office drains are flushed by the City Engineer's staff twice a year, and there can be no question that a more frequent and very thorough flushing would be attended with great advantage. The City Engineer has kindly supplied the following tables, which indicate the operations carried out by that portion of the staff under his control:—







TABLE No. 4.

## SERVICE FOR FLUSHING AND CLEANSING TROUGH WATER-CLOSETS, &amp;c.

The frequent flushing of trough water-closets is essentially a sanitary measure, this form of closet being provided principally in the more densely-populated portions of the City.

A large number of the public urinals and trough water-closets are cleansed and disinfected twice daily in the Summer months, and once daily during the remaining part of the year.

Underground Urinals.	Overground Urinals.	Trough Water-Closets.	Average Working Staff per day.	
			Trough W. C. Men.	Urinal Men.
No.	No.	No.	No.	No.
23—184 Stalls	184—513 Stalls	1,703	30	15

TABLE No. 5.

SERVICE FOR THE CLEANSING OF STREETS, COURTS, AND PASSAGES, AND THE COLLECTION OF REFUSE

THEREFROM.

Total Quantity of Refuse Removed.	Depots at which Refuse was Deposited.						Average Daily Staff.				Average Number of Loads Removed Daily per Cart.
	Chisenhale Street.	Sandhills.	Waverree.	South Depot.	Destructors.	Tips.	Sweeping Machines per day.	Average Number of Men Employed per day.	Carts.	Horses.	
Loads, 69,449	Loads, 29,870	Loads, 7,265	Loads, 3,488	Loads, 6,592	Loads, 2,866	Loads, 19,368	7.62	486	70.6	70.6	3.1



TABLE No. 7.

SERVICE FOR STREET WATERING.

In connection with Street Watering approximately 40 million gallons of Water were distributed during the season, in addition to which a great quantity was used for street washing under certain conditions of the weather.

Number of Days on which Carts were out during year.	Quantity of Water Distributed.		Average Daily Staff employed during the Season.		Average No. of Loads distributed Daily per cart.
	Large Loads.	Small Loads.	Watermen.	Carts and Horses.	
		Day.			
148	123,378	21,539	17	26.6	31.34

In addition to the figures in above table 5,037 loads of water were distributed on the drives of Newsham and Sefton Parks.

TABLE No. 8.

REMOVAL OF GARBAGE FROM ABATTOIR.

Loads Removed during year.	Where Deposited.		
	Chisenhale Street.	Sandhills.	Canning Dock.
1,247	1,247	—	—

TABLE No. 9.

RETURN OF HORSE MANURE COLLECTED FROM FIRE STATIONS AND CORPORATION STABLES,  
 AND DELIVERIES TO CHISENHALE STREET DEPÔT.

TOTAL QUANTITY DEALT WITH DURING THE YEAR.	DEPÔTS AT WHICH MANURE WAS DEPOSITED.		
	CHISENHALE STREET.	SANDHILLS.	WAVERTREE.
Loads.	Loads.	Loads.	Loads.
1,299	1,172	33	94

Of the above loads 460 were collected by the Department from various Fire Stations.

TABLE No. 10.

## DESPATCHES OF MANURE AND REFUSE.

DEPÔTS.	Quantity of Saleable Refuse.			Quantity of Unsaleable Refuse.							Grand Total in Tons.	Average Daily Staff.	
	Street Sweepings	Mixture.	Total.	Con-tractors	Farmers.	Depôts.	Sea.	Des-tractors.	Sundry Tips.	Total.		Foremen.	Labourers
Chisenhale St., by Flats...	Tons. 88	Tons. 4,233	Tons. 4,321	Tons. ...	Tons. 33,899	Tons. ...	Tons. ...	Tons. ...	Tons. ...	Tons. 33,899	38,220	1	20.5
Sandhills by Rail ...	90	...	90	...	9,348	...	...	...	...	9,348	9,438	...	2.0
Wavertree do. ...	3,582	...	3,582	...	...	...	...	...	...	...	3,582	...	...
Chisenhale Street and Sandhills, vid Stanley D'k per Steam Hopper Barges "Alpha" and "Beta" ...	...	...	...	...	...	...	36,071	...	...	...	...	...	...
Clinker per "Beta" ...	...	...	...	...	...	...	17,334	...	...	68,718	68,718	...	2.2
South Depôt—per Steam Hopper Barges "Alpha" and "Beta" ...	...	...	...	...	...	...	15,313	...	...	...	...	...	14.0
Charters Street Destructor.	...	...	...	...	...	...	...	67,995	...	67,995	67,995	...	...
Rathbone Road	...	...	...	...	...	...	...	16,537	...	16,537	16,537	...	...
Smithdown Road	...	...	...	...	...	...	...	25,730	...	25,730	25,730	...	...
St. Domingo	...	...	...	...	...	...	...	36,281	...	36,281	36,281	...	...
Garston	...	...	...	...	...	...	...	7,383	...	7,383	7,383	...	...
Lavrock Bank	...	...	...	...	...	...	...	6,302	...	6,302	6,302	...	...
Sundry Tips.....	...	...	...	...	...	...	...	...	54,430	54,430	54,430	...	4.0
	3,760	4,233	7,993	...	43,247	...	68,718	160,228	54,430	326,623	334,616	1	42.7

The foregoing Table shows that not less than 334,616 tons of Town's refuse have been disposed of, and this large total does not represent the actual quantity collected and carted to the Wharves, as during the Winter months a proportion of the street sweepings is in a liquefied condition, and drains away before despatch of the refuse from the Wharves.

TABLE No. 11.

HORSES.

DAILY AVERAGE NUMBER EMPLOYED ON THE WORK OF THE CLEANSING DEPARTMENT.

Night Ashes.	1.5	Dry Ashes.	53.3	Bell Ashes.	31.45	Street Cleansing.	70.6	Sweeping Machines.	7.62	Wharves.	—	Markets.	2.0	Watering.	11.64	Abattoir.	1.2	Canals.	2.86	Destructors.	4.28	Various.	4.9	Total Daily Average.	191.35
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**TABLE No. 12.**  
**AVERAGE DAILY STAFF OF MEN EMPLOYED.**

General.	Night Service.				Day Service.														Wharves, Depots, &c.								Grand Total.				
	Inspectors.	Timekeepers.	Clerks.	Office Boy.	Total.	Inspectors.	Storekeepers.	Watermen.	Barrow Men.	Sweepers and Casual Men.	Cart Followers.	Passage Men.	Washing.	Gully Men.	Washing Courts.	Trough Closet Men.	Orderly Boys.	Ash Men.	Boat Men.	Hopper Barge Crew.	Total.	Inspectors & Foremen, &c.	Labourers.	Inspector.	Labourers.	South Depot.	Foreman.	Labourers.	Various Tips.	Labourers.	Stanley Dock.
9	9	4	4	57	16-75	42	4	32-8	35-75	210-62	97-50	40-01	21-67	9-75	2-16	30	50	112-79	10-2	15	703-78	1	50-5	14	1	4	4	4	2-2	43-7	703-65



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INSANITARY PROPERTY.

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## INSANITARY PROPERTY.

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There was no further Presentment of insanitary property during the year, but the Medical Officer certified that the following premises were unfit for human habitation and ought to be demolished; this property was purchased by the Housing Committee and demolished:—

The court known as No. 4 court in LIONEL STREET, in the City of Liverpool.

The dwelling-house numbered 9 in the said No. 4 court.

Further progress was made in dealing with two areas of insanitary property, viz.: the two areas reported as insanitary on the 19th July, 1901, under the Housing of the Working Classes Act, 1890. These are the Hornby Street and the Mann Street areas. The first-named is in the north part of the city and is approximately bounded, on the north side by Tatlock Street and Tenterden Street, on the south by Green Street, on the east by Scotland Road, and on the west by the lower ends of Hornby Street and Tatlock Street. The Mann Street area is in the south side of the city, being part of Upper Mann Street together with the houses fronting Northumberland Street.

Five houses which had been ordered to be demolished by the Grand Jury in 1901 under the seventeenth Presentment, were purchased and demolished.

The Corporation Surveyor has kindly supplied the following table :—

# LIVERPOOL SANITARY AMENDMENT ACT, 1864.

## INSANITARY PROPERTY.

### INSANITARY PROPERTY PURCHASED, 1903—

Number of houses purchased by Housing Committee included in	
Reports referred by Council to Committee ... ..	1

### INSANITARY PROPERTY DEMOLISHED, 1903—

Number of houses included in 17th Presentment ... ..	5
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## HOUSING OF THE WORKING CLASSES ACT, 1890.

Number of houses purchased under Liverpool (Hornby Street and Upper Mann Street) Improvement Scheme, 1902, during 1903 .....	247
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Number of houses demolished under Liverpool (Hornby Street and Upper Mann Street) Improvement Scheme, 1902, during 1903 .....	152
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Number of notices served during the year on owners to cease to let insanitary houses .....	21
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Number of notices served on occupiers to cease to occupy insanitary houses .....	9
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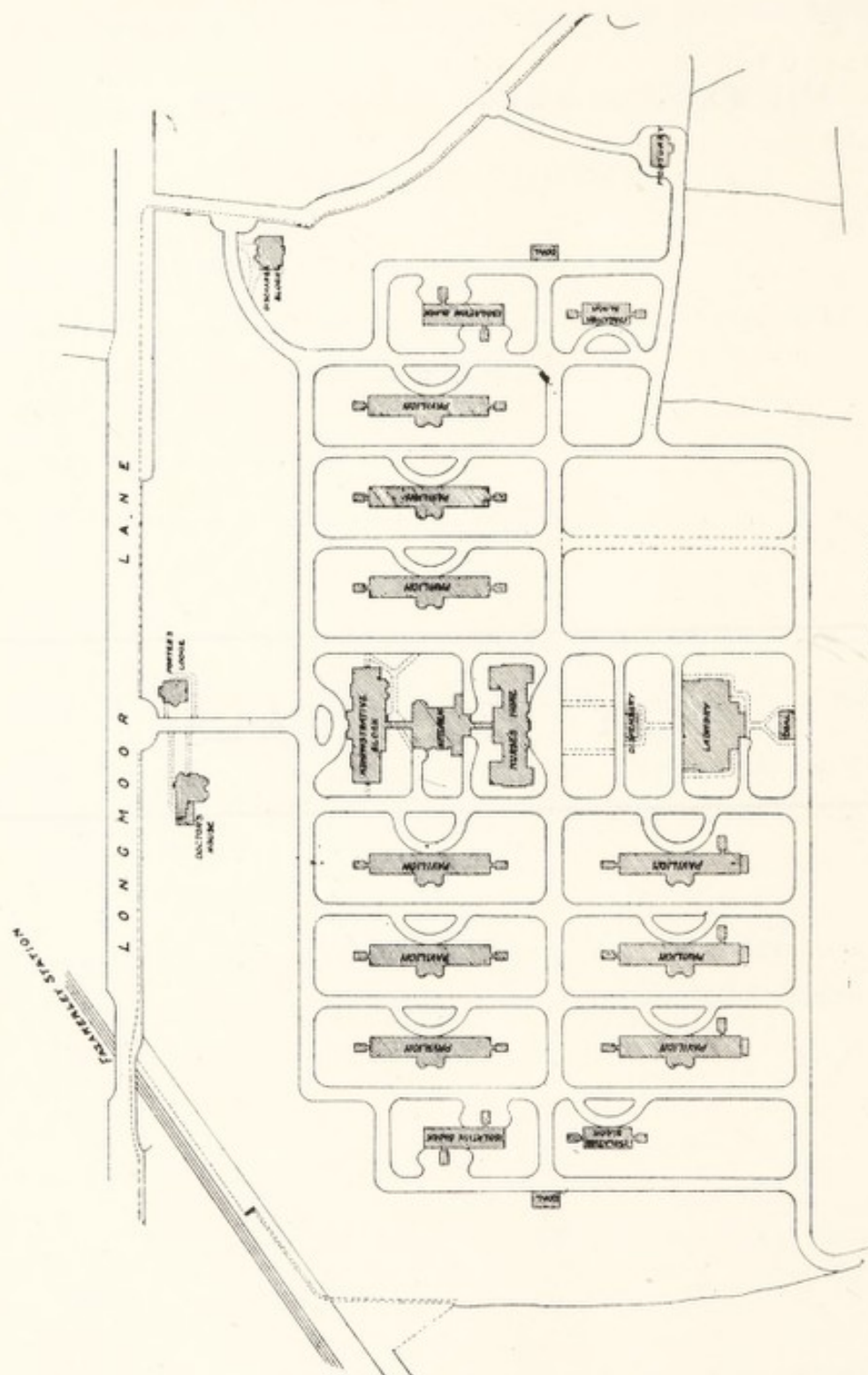
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CITY HOSPITALS.

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FAZAKERLEY HOSPITAL.

## HOSPITAL ACCOMMODATION.

Last year's Report contained a brief history of the steps taken to make provision of hospital accommodation for the city, and it need not be again referred to here.

The scheme of hospital accommodation for infectious diseases is making rapid strides towards completion. The progress of the work at Fazakerley gives promise that the new hospital will be in all particulars one of the best-arranged institutions of the kind in this country. At the present time the number of beds available is as follows:—

City Hospital North	...	...	...	147	beds
„ South	...	...	...	88	„
„ East	...	...	...	140	„
„ Parkhill	...	...	...	350	„
„ Priory Road	...	...	...	40	„
„ Fazakerley	...	...	...	160	„
				925	„

The approximate apportionment of beds is as follows, but the arrangement is modified as circumstances necessitate:—

Smallpox	...	...	...	...	160	beds
Typhus Fever	...	...	...	...	40	„
Typhoid Fever	...	...	...	...	140	„
Scarlet Fever	...	...	...	...	463	„
Diphtheria	...	...	...	...	62	„
Isolation	...	...	...	...	60	„
					<hr/>	
					925	„

The Council on the 2nd day of December, 1903, in pursuance of the powers vested in them, made the following Bye-laws:—

Whereas by Section 62 of the Liverpool Corporation Act, 1902 (2 Ed. VII. Ch. ccxl.) the Corporation may make bye-laws for regulating the admission to and discharge of patients from any hospital temporarily or otherwise provided by them for infectious diseases and the conduct of patients therein and for preventing persons from entering such hospitals or the grounds thereof except with the consent of and subject to such conditions as may be imposed by the Corporation,

1.—In the construction of these bye-laws, the following words and expressions shall have the meanings hereinafter respectively assigned to them, unless such meanings be repugnant to or inconsistent with the context or subject matter in which such words or expressions occur, that is to say,

“The Corporation” means the Mayor, Aldermen and Citizens of the City of Liverpool acting by the Council;

“The Medical Officer” means the Medical Officer of Health of the said City, the Resident Medical Officer of the Hospital, or the Visiting Physician of the Hospital;

“The Hospital” means any Hospital temporarily or otherwise provided by the Corporation for infectious diseases.

2.—No patient shall climb or scale any wall, railing, or fence enclosing the Hospital or shall approach such wall, railing, or fence in such a manner as to cause a risk of the spreading of any infectious disorder.

3.—No person shall enter the Hospital or the grounds thereof by climbing or scaling any wall, railing or fence.

4.—No person shall enter the Hospital or the grounds thereof unless authorised by the Corporation or by the Medical Officer, and any authority given by the Medical Officer shall be in writing and must be produced by the person seeking admission.

5.—Every person who enters the Hospital or the grounds thereof shall take such precautions in order to guard against the risk of carrying infection as shall be considered necessary by the Medical Officer.

6.—No patient shall to the annoyance of any person make use of abusive, obscene, or indecent language, or behave in a disorderly manner in the Hospital.

7.—Every person who shall offend against any of the foregoing bye-laws shall be liable for every such offence to a penalty of Five Pounds, provided, nevertheless, that the Justices or Court before whom any complaint may be made or any proceedings may be taken in respect of any such offence may, if they think fit, adjudge the payment, as a penalty, of any sum less than the full amount of the penalty imposed by this bye-law.

## INFECTIOUS DISEASE.

The following table shows the number and nature of cases of Infectious Disease coming under the notice of the Medical Officer of Health during 1903, including those reported under the Notification Act.

YEAR—1903.	FEVER.				Small Pox.	Scarlatina.	Measles.	Diphtheria.	Membranous Croup.	Puerperal Fever.	Erysipelas.	Chicken-pox.	TOTAL.
	Typhus.	Typhoid.	Simple.	Relapsing.									
January .....	15	63	...	...	300	555	736	87	6	3	116	164	2,045
February ...	10	58	2	...	266	385	582	95	3	5	103	178	1,687
March.....	33	70	2	1	356	388	353	82	2	2	83	223	1,595
April .....	31	60	4	1	320	322	163	60	3	9	77	212	1,262
May.....	32	49	1	...	213	368	216	54	2	4	103	310	1,352
June .....	10	55	2	...	124	319	226	65	...	8	77	394	1,280
July .....	34	64	1	...	74	264	93	61	1	5	56	358	1,011
August .....	29	55	3	...	32	284	47	57	3	2	75	121	708
September...	29	43	2	...	21	371	54	66	2	4	74	121	787
October .....	16	65	1	...	13	355	101	80	3	5	109	207	955
November ...	18	58	7	...	...	241	111	82	2	2	82	180	783
December ...	15	41	1	...	1	201	46	62	...	2	82	157	608
TOTAL.....	272	681	26	2	1720	4,053	2,728	851	27	51	1,037	2,625	14,073
Removed to hospital	266	462	3	...	1719	2,145	114	405	7	20	283	72	5,496

The number of patients removed to hospital includes those taken to general hospitals, as well as those taken to the City Hospitals. (See page 138).

### THE INFECTIOUS DISEASE (NOTIFICATION) ACT.

The numbers of notifications received by the Medical Officer under the above Act, during the past five years, were as follows:—

	1899.	1900.	1901.	1902.	1903.
January ... ..	617	464	482	828	1,288
February ... ..	475	344	355	707	1,115
March ... ..	459	364	360	690	1,221
April ... ..	446	382	304	813	1,072
May ... ..	471	436	435	837	1,128
June .. ...	495	369	477	791	1,082
July ... ..	414	322	459	727	940
August ... ..	348	313	507	779	632
September ... ..	482	456	713	1,016	743
October ... ..	562	573	905	1,210	884
November ... ..	513	519	820	1,093	691
December ... ..	460	525	841	1,220	561
	<u>5,742</u>	<u>5,067</u>	<u>6,658</u>	<u>10,711</u>	<u>11,357</u>

The diseases were specified as follows:—

	1899.	1900.	1901.	1902.	1903.
Smallpox ... ..	17	167	26	429	1,548
Chickenpox ... ..	—	—	—	883	2,631
Scarlet Fever ... ..	2,451	2,008	3,376	5,885	4,110
Typhoid Fever ... ..	1,064	828	1,016	1,069	740
Typhus Fever ... ..	52	27	66	104	177
Continued Fever..	84	54	33	52	56
Remittent Fever..	—	—	1	—	—
Relapsing Fever .	—	2	—	2	7
Fever ... ..	19	2	1	2	2
Puerperal Fever..	57	54	73	79	62
Diphtheria ... ..	798	710	872	1,052	876
Membranous Croup. 53	51	61	65	...	39
Erysipelas ... ..	1,145	1,163	1,132	1,086	1,107
Anthrax ... ..	2	—	—	2	2
Choleraic Diarrhœa —	...	1	—	1	—
	<u>5,742</u>	<u>5,067</u>	<u>6,658</u>	<u>10,711</u>	<u>11,357</u>

NUMBER OF CASES REPORTED AND NUMBER REMOVED TO HOSPITALS, 1889-1903.

	SMALLPOX.		SCARLET FEVER.		TYPHOID.		TYPHUS.		MEASLES.	
	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.
1889 ..	9	8	1,832	533	670	302	158	124	3,175	104
1890 ..	2	2	3,520	938	506	296	103	87	4,013	152
1891 ..	21	21	1,176	448	588	350	175	156	2,262	160
1892 ..	177	177	1,554	603	699	345	73	70	3,376	150
1893 ..	75	73	3,538	1,380	1,396	728	183	168	2,316	94
1894 ..	229	226	3,963	1,415	1,350	745	325	312	2,494	122
1895 ..	130	127	2,710	1,039	1,306	662	162	158	3,462	93
1896 ..	8	8	3,584	1,589	1,063	539	305	298	2,930	138
1897 ..	6	6	3,001	1,641	991	559	158	156	4,389	94
1898 ..	17	16	2,424	1,467	863	585	92	84	2,458	105
1899 ..	10	10	2,416	1,537	988	668	70	64	5,107	140
1900 ..	156	154	1,968	1,198	731	450	42	41	2,372	108
1901 ..	37	37	3,310	1,814	864	567	55	54	6,766	185
1902 ..	560	559	5,914	2,994	1,026	670	155	155	7,141	177
1903 ..	1,720	1,719	4,053	2,145	681	462	272	266	2,728	114

The following tables, prepared by the Medical Staff of each Hospital, show the number of patients, the nature of the illness, and the results, at each of the seven City Hospitals during the year 1903:—

CITY HOSPITAL NORTH, NETHERFIELD ROAD.

*Visiting Physician, Dr. R. I. RICHARDSON.*

*Resident Physician, Dr. E. THURLOW POTTS.*

DISEASES.	Remaining Dec. 31st, 1902.	Admitted during 1903.	Transferred from other City Hospitals.	Total under Treatment, 1903.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining Dec. 31st, 1903.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever	66	741	16	823	230	29	438	96	4	30	4.0
Enteric Fever	8	11	—	19	—	15	3	—	—	1	9.0
Typhus Fever	21	217	3	241	57	15	120	10	3	39	17.9
Diphtheria ...	—	1	—	1	—	—	—	—	—	1	100.0
Smallpox .....	—	1	—	1	—	1	—	—	—	—	—
Other Diseases	—	54	1	55	—	—	39	7	2	9	16.6
Totals .....	95	1025	20	1140	287	60	600	113	9	80	7.8

SCARLET FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases .....	236	321	143	32	8	1	—	741
No. of Deaths .....	21	6	2	—	—	1	—	30
Percentage of Deaths	8.8	1.8	1.4	—	—	100.0	—	4.0

## ENTERIC FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases .....	2	1	1	1	5	1	—	11
No. of Deaths .....	—	—	—	—	1	—	—	1
Percentage of Deaths	—	—	—	—	20·0	—	—	9·0

## TYPHUS FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases.....	14	19	72	45	33	27	7	217
No. of Deaths .....	—	—	1	5	14	15	4	39
Percentage of Deaths	—	—	1·3	11·1	42·4	55·5	57·1	17·9

## OTHER DISEASES.

Disease.	Admitted.	Died.
Influenza .....	2	—
Febricula .....	4	—
Pneumonia.....	9	3
Typhus Fever Contacts .....	11	—
Erythema .....	2	—
Diphtheria .....	1	1
Meningitis .....	2	2
Bronchitis .....	2	—
Tonsillitis .....	3	—
Injury to Knee .....	1	—
Injury to Thumb .....	1	—
Syphilis .....	2	—
Bursitis .....	1	—
Pregnancy .....	1	—
Bright's Disease .....	1	1
Asthenia .....	1	1
Parpura .....	—	1
Measles .....	5	1
Unclassified ..	5	—
	<u>55</u>	<u>10</u>

—18·1 % mortality.

CITY HOSPITAL SOUTH, GRAFTON STREET.

*Visiting Physician, Dr. N. E. ROBERTS.*

*Resident Physician, Dr. L. HAMILTON.*

DISEASES.	Remaining Dec. 31st, 1902.	Admitted during 1903.	Transferred from other City Hospitals.	Total under Treatment, 1903.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining Dec. 31st, 1903.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever...	67	474	20	561	214	—	298	31	—	18	3·8
Enteric Fever..	12	103	10	125	—	8	71	34	1	12	11·6
Typhus Fever..	—	2	—	2	—	—	1	—	—	1	50·0
Diphtheria.....	—	7	—	7	—	1	3	—	—	3	42·8
Measles .....	—	1	—	1	—	—	—	—	—	1	100·0
Other Diseases.	—	10	—	10	—	—	7	—	—	3	30·0
Totals.....	79	597	30	706	214	9	380	65	1	38	6·3

SCARLET FEVER.

	AGE PERIODS.						
	Under 5	5—10	10—20	20—30	30—40	40—50	Total.
No. of Cases .....	211	176	64	20	2	1	474
No. of Deaths .....	16	2	—	—	—	—	18
Percentage of Deaths.....	7·5	1·1	—	—	—	—	3·8

## ENTERIC FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases .....	5	18	33	31	8	7	1	103
No. of Deaths.....	2	2	4	1	2	—	1	12
Percentage of Deaths..	40·0	11·1	12·1	3·2	25·0	—	100·0	11·6

## TYPHUS FEVER.

	AGE PERIODS.					
	5—10	10—20	20—30	30—40	40—50	Total.
No. of Cases .....	—	2	—	—	—	2
No. of Deaths .....	—	1	—	—	—	1

## DIPHTHERIA.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases.....	4	3	—	—	—	—	—	7
No. of Deaths.....	2	1	—	—	—	—	—	3
Percentage of Deaths	50·0	33·3	—	—	—	—	—	42·8

## OTHER DISEASES.

Disease.	Admitted.	Died.
Lumbar Abscess .....	1	—
Ptomaine Poisoning .....	4	—
Meningitis and Broncho Pneumonia .....	1	1
Phthisis Pulmonalis .....	1	1
Lymphatic Leuchæmia .....	1	1
Unclassified .....	2	—
	<u>10</u>	<u>3</u>

=30 % mortality.

# CITY HOSPITAL, PARK HILL.

Visiting Physician, Dr. N. E. ROBERTS.

Resident Physicians, { Dr. A. B. DUNNE,  
Dr. P. G. MARSHALL.

DISEASES.	Remaining Dec. 31st, 1902.	Admitted during 1903.	Transferred from other City Hospitals	Total under Treat- ment, 1903.	Transferred to Con- valescent Hospital.	Transferred to other City Hospitals	Discharged Cured.	Remaining Dec. 31st., 1903.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever ..	127	264	154	545	—	51	367	113	2	14	5.3
Enteric Fever..	—	8	—	8	—	7	—	—	—	1	12.5
Typhus Fever ..	—	41	—	41	—	14	19	—	1	8	19.5
Diphtheria.....	39	82	—	121	—	24	45	40	4	12	14.6
Smallpox .....	—	975	—	975	—	293	608	—	4	74	7.5
Measles .....	7	5	—	12	—	7	5	—	—	—	—
Isolation and Observation Cases	19	241	34	294	—	4	268	16	—	6	2.4
Totals .....	192	1616	188	1996	—	400	1312	169	11	115	7.1

## SCARLET FEVER.

	AGE PERIODS.							
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	Total.
No. of cases.....	70	118	58	13	4	1	—	264
No. of deaths .....	9*	3	1	1	—	—	—	14
Percentage of deaths.....	12.8	2.5	1.7	7.6	—	—	—	5.3

\* Including one case admitted as Smallpox, and certified as dying of (i) Scarlet Fever and (ii) Smallpox.

## ENTERIC FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of cases.....	—	2	2	3	—	1	—	8
No. of deaths .....	—	—	—	1	—	—	—	1

## TYPHUS FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of cases .....	3	9	12	6	6	3	2	41
No. of deaths .....	1	—	1	2	2	—	2	8

## DIPHTHERIA.

	AGE PERIODS.							Total.
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of cases .....	32	16	19	8	7	—	—	82
No. of deaths .....	10	1	—	—	1	—	—	12
Percentage of deaths.....	31·2	6·2	—	—	14·2	—	—	14·6

## SMALL POX.

	AGE PERIODS.							
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	Total
No. of cases.....	81	45	168	297	224	98	62	975
No. of deaths .....	25	3	6	6	15	11	8	74
Percentage of deaths .....	30.8	6.6	3.5	2.0	6.7	11.2	12.9	7.5

## OTHER DISEASES.

Disease	Admitted	Died
Isolation .....	164	—
Marasmus .....	2	2
Varicella .....	33	—
Syphilis .....	5	—
Pneumonia .....	5	1
Measles .....	4	—
Impetigo .....	3	—
Eczema .....	3	—
Pemphigus.....	1	—
Acne .....	1	—
Meningitis .....	1	1
Mixed Infection .....	19	2
	—	—
	241	6
	<u>        </u>	<u>        </u>

= 2.4 % mortality.

# CITY HOSPITAL EAST, MILL LANE.

Visiting Physician, DR. H. A. CLARKE.

Resident Physician, DR. J. M. CLEMENTS.

DISEASES.	Remaining Dec. 31st, 1902.	Admitted during 1903.	Transferred from other City Hospitals.	Total under Treatment 1903.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining Dec. 31st, 1903.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever...	110	684	—	794	—	71	629	58	5	36	5.3
Enteric Fever..	5	12	—	17	—	—	9	5	1	3	25.0
Typhus Fever..	—	2	—	2	—	—	—	2	—	—	—
Diphtheria .....	—	283	18	301	—	—	246	7	8	48	16.9
Measles .....	—	3	—	3	—	—	2	—	—	1	33.3
Other Diseases.	—	40	—	40	—	—	28	3	—	9	22.5
Isolation and Observation Cases.....	5	13	4	22	—	—	19	3	—	—	—
Totals.....	120	1037	22	1179	—	71	933	78	14	97	9.3

## SCARLET FEVER.

	AGE PERIODS.							
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	Total.
No. of Cases.....	200	324	119	34	5	2	—	684
No. of Deaths.....	27	7	1	1	—	—	—	*36
Percentage of deaths	13·5	2·2	0·8	2·9	—	—	—	5·3

\* Three of these were within 3, 9 and 12 hours respectively of admission.

## ENTERIC FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of Cases.....	1	1	5	4	1	—	—	12
No. of Deaths.....	—	1	—	1	1	—	—	*3

\* One case within 4 hours of admission.

## TYPHUS FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of Cases.....	—	—	—	—	1	1	—	2
No. of Deaths.....	—	—	—	—	—	—	—	—

## DIPHTHERIA.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of Cases .....	97	97	46	32	8	2	1	283
No. of Deaths.....	32	16	—	—	—	—	—	*48
Percentage of Deaths .....	32.9	16.4	—	—	—	—	—	16.9

\* Four of these died within 4 hours of admission.

## OTHER DISEASES.

Disease.	Admitted.	Died.
Double Infection (Diphtheria and Scarlet Fever)...	31	9
Isolation.....	13	—
Dentition .....	1	—
Tonsillitis .....	4	—
Influenza .....	1	—
Appendicitis .....	1	—
Pneumonia .....	1	—
Phthisis .....	1	—
	53	9
	= 16·9 % mortality.	

CITY HOSPITAL, PRIORY ROAD.

Visiting Physician, DR. R. S. ARCHER.

DISEASES.	Remaining Dec. 31st, 1902.	Admitted during 1903.	Transferred from other City Hospitals.	Total under Treatment, 1903.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining Dec. 31st, 1903.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent of Admissions.
Scarlet Fever...	—	3	245	248	—	—	225	23	—	—	—
Typhus Fever..	—	2	—	2	—	2	—	—	—	—	—
Chickenpox ...	—	2	—	2	—	—	2	—	—	—	—
Smallpox .....	44	173	—	217	—	31	168	—	1	18	10
Measles .....	—	1	—	1	—	1	—	—	—	—	—
Other Diseases.	—	1	—	1	—	1	—	—	—	—	—
Isolation and Observation Cases.....	2	9	—	11	—	5	6	—	—	—	—
TOTALS .....	46	191	245	482	—	40	401	23	1	18	9·4

## SCARLET FEVER.

	AGE PERIODS.							Total.
	Under 5	5-10	10-20	20-30	30-40	40-50	50 upwards.	
No. of Cases .....	—	—	2	1	—	—	—	3
No. of Deaths .....	—	—	—	—	—	—	—	—

## TYPHUS FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of Cases.....	—	—	1	—	1	—	—	2
No. of Deaths.....	—	—	—	—	—	—	—	—

## CHICKENPOX.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 up- wards	
No. of Cases.....	1	—	1	—	—	—	—	2
No. of Deaths.....	—	—	—	—	—	—	—	—

## SMALLPOX.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 upwards	
No. of Cases .....	5	13	44	56	30	12	13	173
No. of Deaths.....	4	—	—	2	7	—	5	18*
Percentage of Deaths.....	80·0	—	—	3·5	23·3	—	38·4	10·4

\*NOTE.—Four of these deaths were in unvaccinated persons, and three deaths occurred in infants whose mothers had smallpox when they were born. There were three deaths of persons aged 73, 64 and 69. One woman died 48 hours after admission, having aborted.

## OTHER DISEASES.

Disease.	Admitted.	Died.
Measles .....	1 .....	—
Pemphigus.....	1 .....	—
Observation.....	9 .....	—

CITY HOSPITAL, FAZAKERLEY.

*Consulting Physician, DR. N. E. ROBERTS.*

*Resident Physician, DR. J. R. PRIOR.*

Diseases.	Remaining Dec. 31st., 1902	Admitted during 1903	Transferred from other City Hospitals	Total under Treatment, 1903	Transferred to Convalescent Hospital	Transferred to other City Hospitals	Discharged Cured	Remaining Dec. 31st., 1903	Died within 48 hours of Admission	Total Deaths	Total Mortality per cent. of Admissions
Smallpox .....	120	607	289	1016	—	—	969	—	3	48	7·9
Other Diseases.....	—	37	3	40	—	3	33	—	3	4	10·8
Isolation and Observation Cases, and Contacts .....	8	83	—	91	—	8	83	—	—	—	—
Totals .....	128	727	292	1147	—	11	1085	—	6	52	7·1

## SMALLPOX.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 upwards	
No. of Cases .....	28	41	135	171	136	71	25	607
No. of Deaths.....	13	4	2	7	10	9	3	48
Percentage of Deaths .....	46.6	9.7	1.4	4.0	7.3	12.6	12.0	7.9

## OTHER DISEASES.

Disease.	Admitted.	Died.
Chickenpox .....	28	—
Syphilis .....	2	—
Heart Disease .....	1	1
Herpes .....	1	—
Measles .....	1	—
Iodide Rash .....	1	—
Premature Birth and Convulsions .....	3	3*
Contact Cases .....	63	—
Isolation and Observation .....	20	—
	<u>120</u>	<u>4</u>

=3.3 % mortality.

\* Died within 48 hours of birth.

CITY HOSPITAL, GARSTON.

Visiting Physician, DR. E. MOLYNEUX.

Diseases.	Remaining Dec. 31st., 1902.	Admitted during 1903.	Transferred from other City Hospitals	Total under Treatment, 1903.	Discharged Cured.	Remaining Dec. 31st., 1903.	Died within 48 hours of Admission.	Total Deaths.
Scarlet Fever .....	12	74	—	86	85	1	—	—

## SCARLET FEVER.

	AGE PERIODS.							Total
	Under 5	5-10	10-20	20-30	30-40	40-50	50 upwards	
No. of Cases .....	7	17	32	16	2	—	—	74
No. of Deaths.....	—	—	—	—	—	—	—	—

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## APPENDIX.

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The following tables I, II, III, IV, and marked also A, B, C, D, are prepared pursuant to an instruction of the Local Government Board.

TABLE I.

YEAR.	Population estimated to Middle of each year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.					TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT.	Deaths of non-residents registered in Public Institutions in the District.	Deaths of residents registered in Public Institutions beyond the District.	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
		Number.	Rate.*	Under 1 year of age.		At all ages.						Number.	*Rate.
				Number.	Rate per 1000 Births regist'd.	Number.	Rate.*						
1	2	3	4	5	6	7	8	9	10	11	12	13	
1893.....	520882	18328	35.2	3863	210	13919	26.7	2723	427	247	13739	26.3	
1894.....	522178	17893	34.3	3210	179	12073	23.1	2663	434	250	11889	22.7	
†1895.....	652523	22006	33.7	4441	202	16624	25.5	3441	409	...	16215	24.8	
1896.....	658050	21943	33.3	3833	175	14476	22.0	3457	416	...	14060	21.4	
1897.....	663633	22280	33.6	4488	201	15590	23.5	3604	473	...	15117	22.8	
1898.....	669243	22227	33.2	4111	184	15380	23.0	3812	527	...	14853	22.2	
1899.....	674912	22488	33.3	4481	199	16861	25.0	4278	592	7	16276	24.1	
1900.....	680628	22762	33.4	4247	186	16393	24.0	4257	616	8	15785	23.1	
1901.....	686332	21980	32.0	4138	188	15493	22.5	4231	618	4	14879	21.6	
†1902.....	710337	24283	34.2	3936	162	15994	22.5	4564	602	4	15396	21.6	
Averages for years 1893-1902.	643871	21619	33.6	4074	188	15280	23.7	3703	511	52	14820	23.0	
1903.....	716810	23910	33.3	3815	159	14848	20.7	4549	685	77	14240	19.8	

\* Rates in Columns 4, 8, and 13 calculated per 1000 of estimated population. † City Boundaries extended. ‡ City Boundaries extended.

NOTE.—The deaths to be included in Column 7 of this Table are the whole of those registered during the year as having actually occurred within the district or division. The deaths included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums.

Area of District in acres (exclusive of area covered by water).  
 Total population at all ages.....702,247  
 Number of inhabited houses .....126,541  
 Average number of persons per house .....5.5

**A—Continued.**

I. Institutions within the District receiving sick and infirm persons from outside the District.	II. Institutions outside the District receiving sick and infirm persons from the District.	III. Other Institutions, the deaths in which have been distributed among the several localities in the District.
<p>Parish Workhouse, Brownlow Hill. Royal Infirmary.</p> <p>Children's Infirmary.</p> <p>Lying-in Hospital.</p> <p>Consumption Hospital.</p> <p>Hahnemann Hospital.</p> <p>David Lewis Northern Hospital. Stanley Hospital.</p> <p>Royal Southern Hospital.</p> <p>Mill Road Infirmary.</p> <p>Hospital for Women.</p> <p>City Hospital North.</p> <p>„ South.</p> <p>„ Parkhill.</p> <p>„ East.</p> <p>Walton Workhouse.</p> <p>Belmont Road Workhouse.</p> <p>Toxteth Workhouse.</p> <p>Home for Incurables.</p> <p>Turner Memorial Home.</p> <p>St. Augustine's Home.</p> <p>Kirkdale Home.</p> <p>Grove Mount Home.</p> <p>House of Providence.</p> <p>Tuebrook Villa Asylum.</p> <p>St. Joseph's Home.</p> <p>Samaritan Hospital.</p> <p>Eye and Ear Infirmary.</p> <p>Cancer Hospital.</p>	<p>Infectious Diseases Hospital, Fazakerley.</p>	<p>City Hospital, Priory Road.</p> <p>Walton Gaol.</p> <p>Parish Industrial Schools.</p> <p>Children's Rest.</p> <p>Epileptic Hospital.</p> <p>Garston Accident Hospital.</p> <p>Mary Clarke Home.</p> <p>Leyfield Poor Law Schools.</p> <p>St. George's Industrial Schools.</p>

The three Union Workhouses are situated within the District.

TABLE II.

NAMES OF LOCALITIES.	1.—Scotland District.				2.—Exchange District.				3.—Abercromby District.				4.—Everton District.			
	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.
YEAR.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.
1893.....	53553	2027	1834	471	46382	1387	1688	325	54814	1691	1384	267	112672	4105	2957	910
1894.....	53481	2041	1628	452	45792	1302	1495	298	54499	1671	1102	205	113673	4233	2410	690
1895.....	53409	2144	1836	506	45209	1325	1670	314	54186	1676	1381	251	114074	4287	3059	858
1896.....	53336	2053	1609	417	44634	1433	1451	291	53874	1740	1127	203	114964	4335	2637	778
1897.....	53264	2122	1711	475	44065	1381	1495	348	53564	1711	1216	233	116534	4441	2875	902
1898.....	53192	2111	1825	460	43505	1310	1557	316	53256	1633	1242	245	117647	4304	2729	807
1899.....	53121	2125	1865	509	42951	1278	1634	314	52950	1695	1258	229	118940	4328	3143	880
1900.....	53049	2166	1830	521	42405	1332	1549	347	52645	1633	1303	252	120904	4442	2896	846
1901.....	52934	2044	1694	455	41831	1180	1299	285	52301	1565	1039	245	121953	4216	2902	819
1902.....	52876	2225	1745	492	41332	1216	1432	298	52004	1757	1155	220	122964	4627	2735	731
Averages of Years 1893 to 1902.	53221	2105	1757	475	43810	1314	1527	313	53409	1677	1226	235	117432	4331	2840	822
1903.....	52834	2267	1578	489	41332	1230	1244	261	51742	1713	1141	227	123521	4342	2656	768

Note.—Population of each district corrected as per Census Returns of 1891 and 1901.

TABLE II.—*continued.*

NAMES OF LOCALITIES.	5.—Kirkdale District.				6.—West Derby (West) District.				7.—Toxteth District.			
	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 Year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 Year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 Year.
YEAR.	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
1893 .....	66849	2479	1579	465	79059	2852	1791	566	107047	3787	2345	701
1894 .....	67170	2308	1317	391	80005	2894	1569	412	103916	3444	2118	602
1895 .....	67493	2411	1657	487	80207	2858	1918	536	106786	3746	2652	746
1896 .....	67818	2359	1333	400	81311	2950	1698	486	106555	3522	2231	550
1897 .....	68144	2423	1509	457	82434	3040	1827	557	106525	3527	2456	712
1898 .....	68472	2377	1368	408	83670	3099	1783	538	106396	3493	2308	626
1899 .....	68801	2361	1578	434	84907	3086	1841	566	106268	3545	2678	711
1900 .....	69132	2408	1552	470	85924	3019	1836	507	106393	3429	2496	681
1901 .....	69410	2292	1438	448	86882	2921	1736	522	105922	3356	2349	632
1902 .....	69798	2396	1494	402	87751	2986	1729	450	105636	3671	2421	630
Averages of Years 1893 to 1902.	68308	2381	1482	436	83215	2970	1772	514	106454	3552	2405	659
1903 .....	69984	2352	1301	338	88295	2996	1640	463	105532	3405	2141	573

NOTE.—Population of each district corrected as per Census Returns of 1891 and 1901.

B—*Continued.*

**B—Continued.**

TABLE II.—*continued.*

NAMES OF LOCALITIES.	8.—Walton District.				9.—West Derby (East) District.				10.—Wavertree District.				11.—Sefton Park District (late Toxteth Rural).			
	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each Year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.
YEAR.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.
1893.....	Statistics not available															
1894.....																
1895.....	45856	1439	821	258	39431	1099	681	141	17830	405	245	63	24532	616	295	83
1896.....	47270	1542	704	200	40166	951	685	162	18949	460	226	63	25433	598	299	60
1897.....	48728	1552	756	230	40914	991	677	180	20138	451	259	77	26367	641	336	91
1898.....	50230	1639	736	200	41677	1024	684	139	21402	588	297	97	27336	649	324	79
1899.....	51779	1686	873	273	42454	1035	697	169	22746	704	372	114	28340	645	330	87
1900.....	53376	1754	855	245	43245	1161	749	155	24174	820	396	115	29381	598	315	63
1901.....	54977	1742	824	270	44016	1162	763	192	25670	888	411	147	30436	614	364	74
1902.....	56379	1897	887	250	44872	1302	721	146	27304	962	399	118	31579	603	397	93
Averages of Years 1895 to 1902.	51074	1656	807	241	42097	1091	707	160	22277	660	326	99	27925	620	332	79
1903.....	58032	1912	812	228	45736	1426	718	177	29018	980	414	116	22189	630	296	56

NOTE.—Population of each district corrected as per Census Returns of 1891 and 1901.

TABLE II.—**B** *continued.*

NAMES OF LOCALITIES.	8.—Garston District.			
YEAR.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 Year.
	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
1893..... 1894..... 1895..... 1896..... 1897..... 1898..... 1899..... 1900..... 1901..... 1902.....	    Statistics 15733 16133 16544 16966 17398 17842	    not available 494 485 530 544 562 641	    247 280 268 268 340 277	    82 91 92 91 104 69
Averages of Years 1897 to 1902...	16769	543	280	88
1903.....	18295	657	290	79

NOTE.—Population corrected as per Census Returns of 1891 and 1901.

C

TABLE III.  
Cases of Infectious Disease notified during the Year 1903.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.							TOTAL CASES NOTIFIED IN EACH LOCALITY.																	NO. OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.																	Public Institutions (Workhouses and Hospitals).	Emigrants, Seamen, &c., passing through the City.
	At all Ages.	At Ages—Years.						Scotland.	Exchange.	Abercromby.	Everton.	Kirkdale.	West Derby (West).	Toxteth.	Widton.	West Derby (East).	Wavertree.	Sefton Park (date Toxteth Rural).	Garsdon.	Public Institutions (Workhouses and Hospitals).	Emigrants, Seamen, &c., passing through the City.	Scotland.	Exchange.	Abercromby.	Everton.	Kirkdale.	West Derby (West).	Toxteth.	Widton.	West Derby (East).	Wavertree.	Sefton Park (date Toxteth Rural).	Garsdon.	Public Institutions (Workhouses and Hospitals).	Emigrants, Seamen, &c., passing through the City.								
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.																																				
Small-pox .....	1720	40	81	248	474	859	18	242	182	118	(w) 285	109	121	417	(w) 109	45	27	(w) 28	9	11	17	242	181	118	285	109	121	417	109	45	27	28	9	11	17								
Cholera .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...						
Diphtheria .....	851	34	373	293	91	59	1	33	26	53	136	81	116	140	104	36	28	56	31	8	3	15	6	35	65	34	51	82	46	21	8	16	15	8	3								
Membranous croup .....	27	5	15	7	...	...	...	3	...	3	7	5	3	2	2	...	...	1	1	...	...	1	...	2	...	...	1	2	1	...	...	...	...	...	...	...							
Erysipelas .....	1037	32	37	64	122	727	55	107	68	75	178	108	119	151	64	31	35	21	25	55	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...						
Scarlet fever .....	4053	128	1758	1905	181	81	...	194	183	183	727	497	518	482	512	225	143	167	94	122	6	105	110	98	414	243	267	251	245	99	73	69	69	96	6								
Typhus fever.....	272	1	24	85	66	95	1	111	32	5	87	12	2	12	3	...	1	4	...	3	...	108	32	5	87	11	2	11	3	...	...	4	...	3	...								
Enteric fever.....	681	6	50	201	178	246	...	80	33	32	111	69	77	98	46	44	14	23	8	15	31	23	4	2	15	15	9	24	3	8	...	2	1	...	14								
Relapsing fever.....	6	...	3	3	...	...	...	...	...	...	1	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...							
Continued fever ...	22	...	3	15	1	3	...	3	1	1	6	...	...	5	...	2	3	...	1	...	...	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...							
Puerperal fever.....	51	...	...	...	16	35	...	5	2	3	6	4	11	5	8	2	2	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...						
Plague .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...						
*Chicken-pox.....	2625	454	1427	714	21	9	...	235	145	113	422	217	349	352	281	146	131	74	87	58	15	3	...	...	5	1	3	5	1	1	...	...	...	...	...	...	6						
†Tuberculosis.....	1874	8	36	114	312	1377	27	274	288	191	393	132	192	208	94	38	13	12	9	30	...	157	222	112	273	71	102	106	50	16	7	4	7	...	...	...							
Totals .....	13219	708	3807	3649	1462	3491	102	1287	960	777	2359	1234	1508	1872	1223	574	397	388	266	302	72	656	555	372	1144	484	556	899	458	190	115	123	101	118	46								

(H) The localities in which the Isolation Hospitals are situated. There is also an Isolation Hospital at Fazakerley, outside the District.  
(w) The localities in which Workhouses are situated.  
\* Notification compulsory since April, 1902.  
† Notification voluntary since February, 1901.



TABLE IV.  
Causes of, and ages at, Death during Year 1903.

CAUSES OF DEATH.	DEATHS IN OR BELONGING TO WHOLE DISTRICT AT SUBJOINED AGES.							DEATHS IN OR BELONGING TO LOCALITIES (AT ALL AGES).												TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT
	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Scotland	Ex. change.	Aber-cromby	Ever-ton.	Kirkdale	West Derby. (West).	Toxteth.	Walton.	West Derby. (East).	Waver-tree.	Sefton Park.	Garston.	
Small-pox .....	137	23	17	7	12	73	5	19	16	11	18	16	3	40	6	5	3	...	...	92
Measles .....	126	33	89	2	1	1	...	18	15	23	21	6	7	13	4	7	11	1	...	40
Scarlet fever .....	191	11	124	49	5	2	...	9	7	8	35	33	24	26	21	9	11	6	2	106
Whooping-cough .....	314	140	165	9	...	...	...	38	17	17	84	18	33	54	7	24	9	4	9	37
Diphtheria and membranous croup .....	164	11	115	35	...	3	...	7	6	13	35	19	14	26	17	7	5	5	10	73
Croup .....	12	1	10	1	...	...	...	...	1	1	1	2	3	2	...	...	1	...	1	1
Fever { Typhus .....	57	...	2	3	8	44	...	17	6	...	22	4	1	5	...	...	1	1	...	51
Enteric .....	104	1	8	17	25	52	1	13	7	5	19	10	13	15	4	12	3	1	2	71
Other continued .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic influenza .....	59	4	6	2	2	30	15	2	1	7	11	4	6	13	1	8	...	4	2	3
Cholera .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea .....	664	463	172	6	1	17	5	119	68	31	147	55	75	99	27	24	7	3	9	30
Enteritis .....	340	228	64	9	1	24	14	70	24	17	59	28	42	33	15	24	11	5	12	25
Puerperal fever .....	22	...	...	...	8	14	...	2	1	1	3	1	5	2	3	...	2	1	1	8
Erysipelas .....	26	7	...	...	1	14	4	2	1	1	4	3	3	4	1	3	...	1	3	12
Other septic diseases .....	10	4	1	...	1	3	1	1	1	3	4	...	...	1	...	...	...	...	...	5
Phthisis .....	1172	6	20	48	169	897	32	121	159	123	207	92	141	153	55	52	23	27	19	596
Other tubercular diseases .....	405	116	133	74	37	43	2	46	31	36	68	34	57	45	27	17	27	9	8	125
Cancer, malignant disease .....	585	...	3	3	9	419	151	37	47	50	90	52	87	92	52	27	23	17	11	267
Bronchitis .....	1627	415	187	14	12	569	430	237	140	117	317	173	175	257	84	53	29	20	25	423
Pneumonia .....	1197	273	326	33	39	425	101	142	121	86	229	99	172	149	70	43	34	23	29	264
Pleurisy .....	57	3	7	5	4	27	11	6	7	3	8	9	5	6	4	4	2	3	...	19
Other diseases of Respiratory organs .....	153	22	38	4	8	54	27	10	17	11	26	13	15	26	14	8	3	6	4	17
Alcoholism and Cirrhosis of liver... ..	269	...	...	2	4	243	20	23	34	28	51	18	34	43	16	10	9	1	2	117
Veneral diseases .....	64	46	9	1	1	7	...	10	7	2	15	5	8	11	2	1	1	1	1	34
Premature birth .....	436	436	...	...	...	...	...	39	25	21	99	35	65	71	31	23	13	7	7	23
Diseases and accidents of parturition .....	40	...	...	...	7	33	...	5	3	...	10	1	5	6	3	4	...	1	2	14
Heart diseases .....	968	1	6	44	54	594	269	86	96	90	159	82	110	162	51	48	32	22	30	385
Accidents .....	557	121	66	49	30	231	60	87	59	57	102	45	53	86	20	21	5	12	10	295
Suicides .....	56	...	...	1	9	43	3	1	6	10	8	2	7	6	4	2	4	3	3	23
All other causes .....	4428	1410	371	140	133	1327	1047	411	321	369	804	442	477	695	282	282	145	112	88	1393
All causes .....	14,240	3775	1939	558	581	5189	2198	1578	1244	1141	2656	1301	1640	2141	821	718	414	296	290	4549

NOTE.—The deaths of residents occurring in Public Institutions beyond the limits of the City have been included in this table, and the deaths of non-residents occurring in Public Institutions in the City have been excluded. This note does not apply to the column of deaths in Public Institutions.







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

in each of the Districts of the City during 1903.

# CITY OF LIVERPOOL.

POPULATION - 716,810.

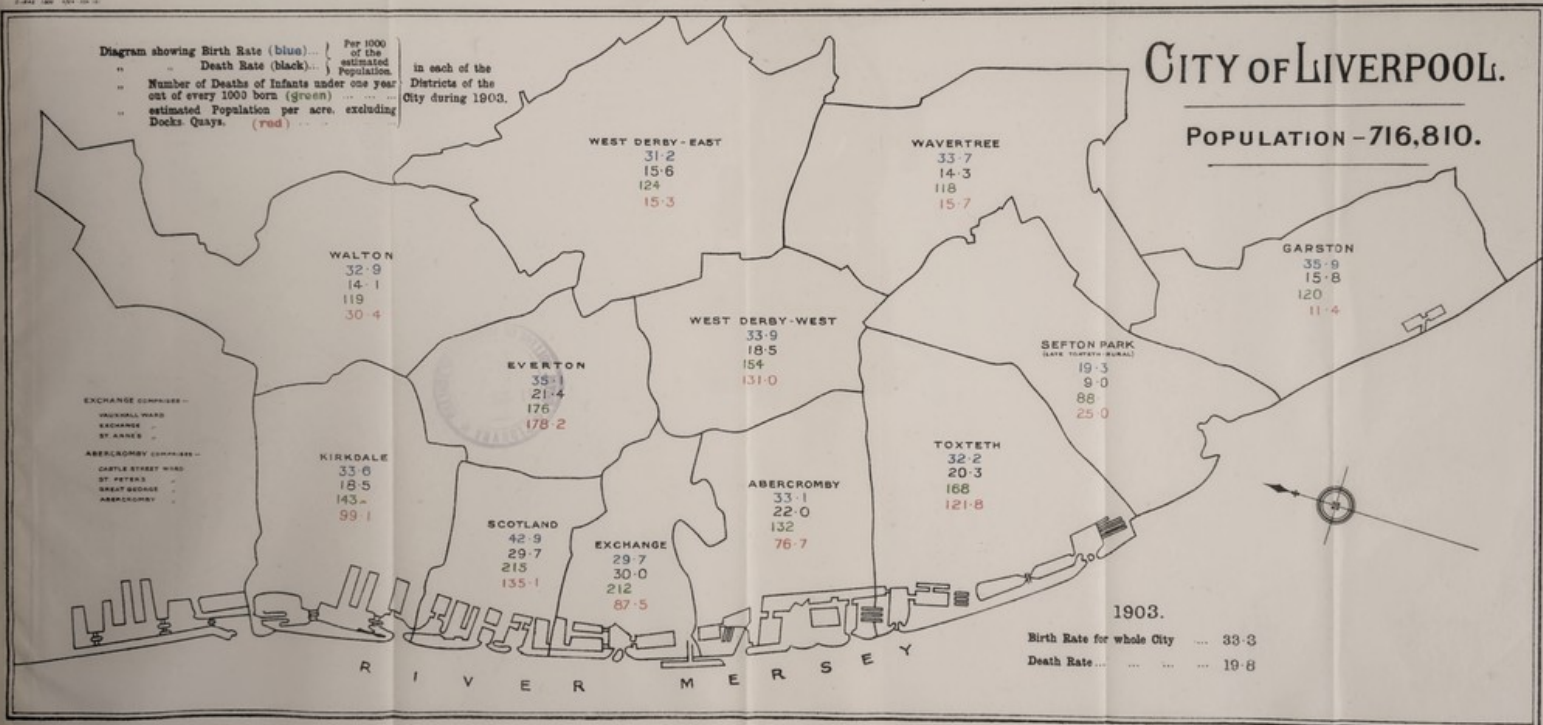
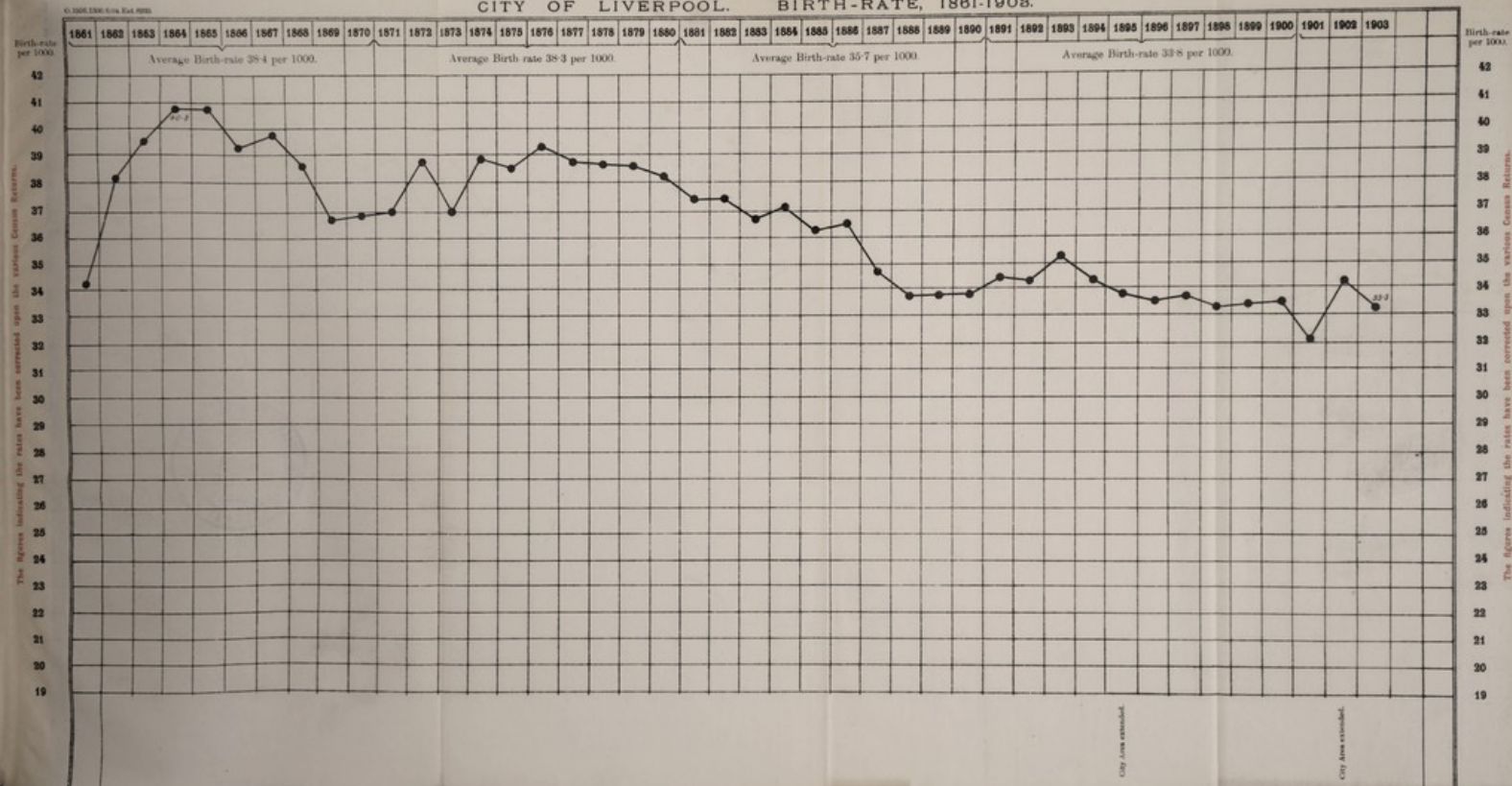


Diagram showing Birth Rate (blue) ...  
 Death Rate (black) ...  
 Number of Deaths of Infants under one year  
 out of every 1000 born (green) ...  
 estimated Population per acre, excluding  
 Docks & Quays (red)



# CITY OF LIVERPOOL. BIRTH-RATE, 1861-1908.



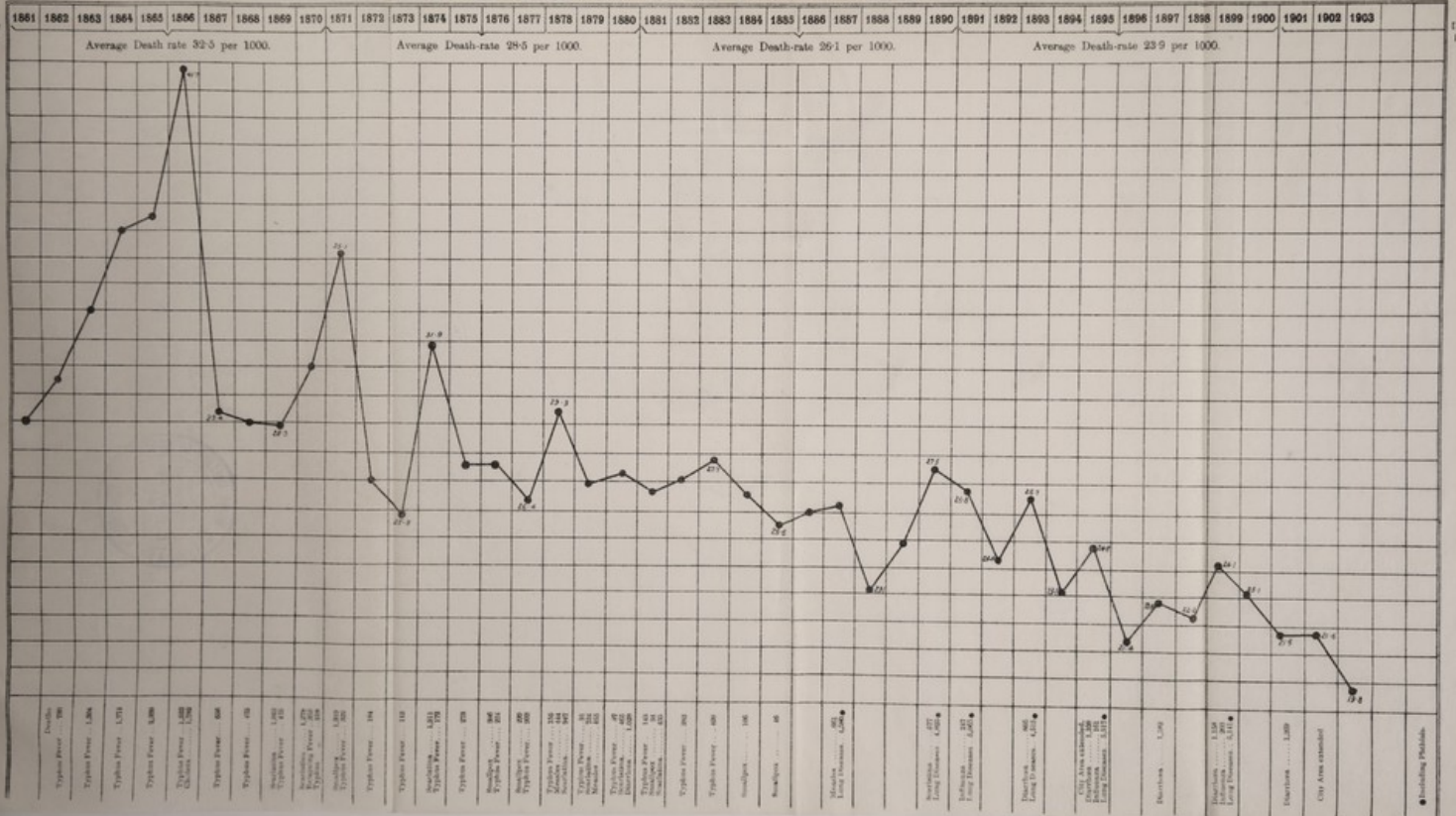


# CITY OF LIVERPOOL. DEATH-RATE, 1861-1903.

C. 7285, 1896, 1/20, Part 7/2, 4.

Death-rate per 1000.

Death-rate per 1000.

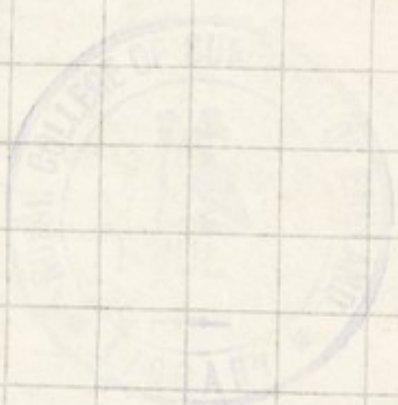
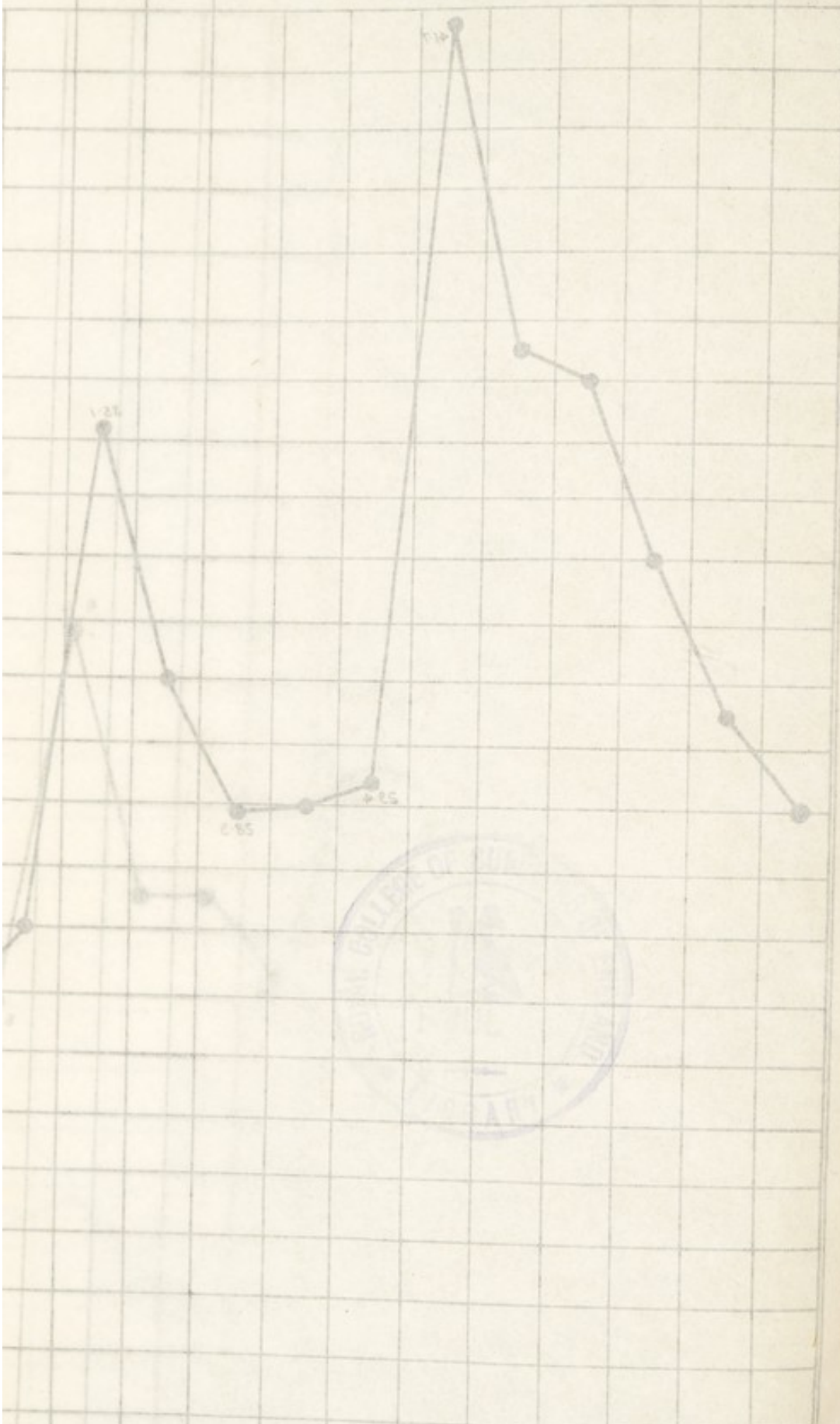


The figures indicating the rate have been corrected upon the various Census Returns.

● Including Philanth.

1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873

Average Death rate 32.5 per 1000



1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873







