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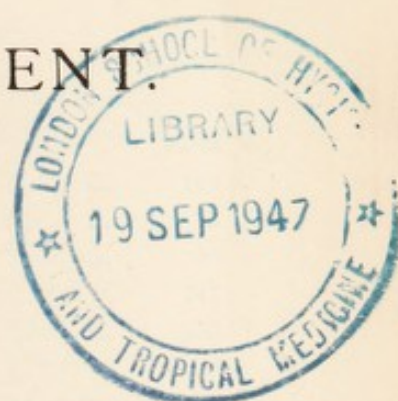
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HEALTH DEPARTMENT



REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING THE YEAR

1921

WITH OBSERVATIONS UP TO JUNE 30TH, 1922.

BY

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LIVERPOOL

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HEALTH DEPARTMENT
REPORT
CITY OF LIVERPOOL
1921

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Illustrations of School of Hygiene; New Dwellings, Penrhyn Street Area.

PREFACE.

The sanitary history of Liverpool constitutes so valuable and important a record of administrative progress, made under exceptional difficulties, that it will amply reward the time and attention of any person who may be moved to write it. The early part of the rapid growth which characterised Liverpool took place at a period when sanitation was imperfectly understood and little appreciated, at a time when men's minds and energies were wholly diverted to other objects. Disregard of the most elemental sanitary principles led to the concentration of large masses of the population within narrow compass, and under conditions which ensured the spread of many of the forms of infection which found a foothold in the Port; recurrent epidemics were frequent, sometimes developing into disastrous proportions with amazing rapidity, breaking through the barriers which seemed usually to confine them to the poorer classes of the inhabitants, and invading the better-conditioned districts of the town. One notable epidemic of typhus, in 1847, claimed 5,239 deaths in one year, the total mortality, fed by every form of sickness, reaching 17,280. It is recorded that, while benevolence did not altogether neglect this crowded wretchedness, "want, misery and sickness abounded in our streets." Outbreaks of cholera, although less frequent, proved almost as destructive, whilst the common infections, such as scarlet fever and measles, displayed singular virulence and destructiveness.

It would be a mistake to assume that the Town Council were indifferent to these conditions, or inactive in regard to them; on the contrary, such sanitary measures as were recognised at that time were pushed forward, and, impelled by the necessities with which they were confronted, the Town Council were then, as now, pioneers in sanitation; sympathetic anxiety to improve sanitation is as clearly shown as the want of knowledge to bring it about. They were the first amongst the Sanitary Authorities of the United Kingdom to recognise the necessity for medical advice in connection with public health, and, acting upon that recognition, they were the first to appoint a Medical Officer of Health. Deficient legislative powers which hampered their efforts explain the fact that from those days to these, Liverpool, fortified by

Sanitary progress hampered by defective legislation but stimulated by commercial needs.

intermittent manifestations of public concern, has been an active promoter of local Acts of Parliament, the experiences of which have proved their value and have led to their incorporation in the Public Health Acts applicable to the whole country. Although in those times, correlation of commercial prosperity with sanitation had not been foreseen, yet sanitation had found an unconscious ally in an important commercial necessity. It would appear that, in 1845, owing to the inadequate supply of water in the City, much mischief had been done to warehouses by fires, and this circumstance led to steps being taken to procure a better supply of water for the purposes of extinguishing fires. Whilst negotiations for this most desirable object were in progress, a memorial, signed by upwards of 5,000 people, was presented to the Highway Board (then the Board of Health), pointing out that it was extremely desirable that there should also be a constant and an abundant supply of water for purposes relating to the health, cleanliness, and comfort of the poorer classes of the community. It is interesting, however, to note that the impulse came from the destruction to property, and not from the destruction to life; similarly, the proposed amendments in Poor Law Administration, put forward by the Royal Commission appointed in 1834, were based originally upon the intention to lessen the cost upon the rates rather than to promote the welfare of the needy.

Condition
in 1883.

Writing from personal knowledge of the sanitary condition of Liverpool from 1883 onwards, it is interesting to institute a brief comparison between that year and the year 1921, to which this Report relates. One or two figures will assist in visualising the sanitary condition then prevailing. The population in the year 1883 was 540,000, and the deaths were 15,074. In 1921, the population had increased to 817,000, that is, by more than one half, whilst the deaths, namely, 11,666, had diminished by nearly one-fourth, and it will be remembered that every death implies ten cases of serious illness with attendant anxiety, suffering and loss. No exceptional circumstance characterised either year.

It will be interesting to summarise, however briefly, the condition in 1883, to note what it was that was then lacking, and what has been supplied in the intervening years to lead up to this change.

In 1883, there were approximately 19,900 houses, and 23,690 cellars exclusively occupied as dwellings, wholly unfit for human

habitation, many, or most of them, being acknowledged centres of degradation and disorder. Receptacles for refuse, and so-called sanitary conveniences in large numbers of streets, consisted of deep pits or trenches extending from one end of the street to the other, and it was unsafe to attempt to empty them during the summer months, since this process was invariably attended by an excessive destruction of infant life; consequently, they were allowed to remain full, possibly to overflowing, from June to September.

The duty of dealing with these unhealthy areas at that time devolved upon the Health Committee, but late in that year, viz., 1883, a special Committee, called the Insanitary Property Committee, was appointed to deal with dwellings which were unfit for human habitation. In 1900, approximately 12,400 of these houses had been demolished, and the necessity for re-housing the dispossessed forcing itself into prominence, the name of the Committee was changed from "Insanitary Property Committee" to "Housing Committee," with a view to giving greater emphasis to the need for reconstructing the unhealthy areas and erecting suitable dwellings for the dispossessed, since private enterprise was unable to provide the necessary dwellings in suitable parts of the City at sufficiently low rentals. The Housing of the Working Classes Act of that year has proved a valuable measure in facilitating this work. As each unhealthy area was dealt with, the grounds for the action, and the statistics brought forward, were subjected to the most rigid scrutiny by Counsel representing the owners of the property. The supreme importance of this is evidenced when the statistics relating to the same people housed under different circumstances, are considered. These show that when housed in sanitary houses on the same area after its transformation by the provision of wide streets, ample open space at the rear, suitable playgrounds, and so forth, the change in the habits of the people is not less remarkable than the fact that the death-rate was reduced by approximately one-half. The changed conditions can only be appreciated to the full by those who were conversant with the localities prior to the operations of the Housing Committee. These areas were the breeding places from which infection was carried to all parts of the City. A particular illustration of this may be noticed in connection with the Bevington Street Area, where the new dwellings were opened by the Countess of Derby in June, 1912.

No Hospital
accommoda-
tion.

In 1883 the City Council did not possess one single bed for the isolation of infection, no matter what were the necessities of the case, or the social position of the patient. Some of the Poor Law Guardians, to their credit, did their utmost to deal with this defect, and some of the Workhouse Hospitals were available for visitors to hotels, children in schools, young people in business houses, or passengers from ships, when suffering from an infectious illness.

Develop-
ment of
Hospitals.

Shortly after its initiation, the duty of the provision of appropriate hospital accommodation was transferred from the Health Committee to a special Hospitals Committee, and the Port Sanitary Administration was associated with the work of that Committee, an arrangement which has proved practical and sound, and which has enable a high standard of efficiency to be attained alike in the administration of the Port and the administration of the Hospitals. At present some 2,000 beds are available for the purposes of the City and Port.

Port
Sanitary
Administra-
tion.

In 1883, there was no Port Sanitary Administration nor any check nor hindrance on the importation of infectious disease. The total cost per annum expended on this service was approximately £500, a sum far less than the average expenditure for tug-hire for the purpose of visiting vessels, and the wages of rat-catchers in the plague-prevention service. At the present time the Port Sanitary organisation is as complete as careful organisation can make it, and thoroughly fulfills the needs of those important international obligations which have been entered into by most of the maritime nations who recognise that the public health is an important international matter and not a mere local affair. So far as the Port of Liverpool is concerned, the efficiency of the Port Sanitary Administration is fully recognised by the various Foreign Governments.

Inadequate
Staff;
absence of
Organised
Schemes.

There was no adequate staff for sanitary purposes, and such as there was had had no special training beyond the experience acquired in their routine duties. Female aid in the form of Health Visitors or Nurses for infectious cases, was unthought of. The highly developed schemes for the Welfare of Motherhood and Infancy had not yet been conceived; there were no Maternity Homes, Ante-Natal Centres, Welfare Centres or Clinics, nor Day Nurseries, and the training and the qualification of midwives were far removed from the present condition.

There was no scheme for dealing with Tuberculosis, no establishment of the nature of a hospital or sanatorium for the reception of sufferers, and no means of caring for them in their homes, other than relieving the destitution to which the disease gave rise.

The systematic medical inspection of school children was unknown, and the inestimable benefits to flow from it were for the future.

The present elaborate system of the supervision and control of food supplies, notably the check on the supply of tuberculous or unwholesome milk, did not exist. The condition of the Liverpool cowsheds was bad, but it may be said that that of the rural districts was worse.

There was no City Bacteriologist, nor were there Bacteriological Laboratories. The relationship between the Health Office and the medical profession was not harmonious, nor was there any real public sentiment supporting sanitary progress.

The filling in of the omissions, and the supply of the needs was not easy; successive advances were attended with greater difficulty than are encountered in pursuing further advances to-day.

The pitiable condition of the children had led Mr. Agnew and other philanthropists during that year to inaugurate an admirable Charity known as the Society for the Prevention of Cruelty to Children (since followed by the National Association, which operates in other parts of the Kingdom). The title of that Association, and the title of the Child Welfare Association of to-day, sufficiently indicate the advance in public opinion in regard to children, in the interval. The gulf between the prevention of actual cruelty, and the active promotion of child welfare is a wide one.

The special necessities of Liverpool have been recognised by the Local Government Board, Parliament, and the Ministry of Health, in a generous spirit. The long list of Acts of Parliament designed to secure protection from infection, to improve and cheapen the methods relating to unhealthy areas, to protect the milk-supply, and other food supplies, to minimise tuberculosis, and other measures which are wide, comprehensive, and of the highest importance from the health point of view, cannot now be referred to in detail.

Voluntary
Effort.

Promotion of
legislation.

Extension
of City
Boundaries.

One turning point in sanitary progress was the extension of the City Boundaries so as to include large adjoining areas in which the growing overflow population of Liverpool resided. This extension at once gave the opportunity for improvement in sanitation, and although at the time of incorporation the death-rate and sickness-rate of Liverpool, and of the incorporated areas alike, were still very high, yet the incorporation unquestionably gave a stimulus to progress, and the measures which it was possible to put gradually into operation had their effects.

Subsequent extensions on a minor scale have followed.

Other of the more outstanding health enterprises of the Corporation must be briefly alluded to.

The year 1892 marked the inauguration, by the Duke of Connaught, of the Vyrnwy water-supply, the value of which to the health of the City it would be an impossibility to over estimate. In 1905 the supply was augmented by means of a second pipe-line.

Women's
Service and
Public
Health.

In 1897, the valuable services which properly-trained women could render in sanitation received recognition, and a beginning was made in the establishment and organisation of a staff of suitably-trained and qualified women.

In 1901, depôts for the supply of food (either free or by payment) to infants whose mothers were unable to suckle them, were inaugurated in all parts of the City with strikingly beneficial results.

In 1904, arrangements were completed by which every midwife could secure medical aid for any patient in any emergency with which she was confronted, whether affecting the mother or the infant, and adjustments were made through the kindness of the Chief Constable and the Police, by which messages to secure such assistance could be readily transmitted by night. The importance of the midwifery service will be appreciated when it is known that approximately 70 per cent. of cases are attended by midwives, between whom and the Public Health Department the association is so close that they have virtually become an unofficial part of the health organisation of the City.

Medical
Inspection
of S-hool
Children.

The Medical Inspection of School Children was introduced in 1906 by the appointment of a medical assistant on the staff of the Public Health Department to specially deal with the health of school children.

The routine medical inspection was commenced in July, 1908, and the medical staff was subsequently increased to fourteen whole-time officers. The necessary attendant Nurses and Health Visitors were also appointed by the Health Committee in proportionate numbers.

In the opening comments the unhappy conditions prevailing in the absence of an educated public opinion in regard to health matters was alluded to. What has been done to supply this need? The fact was realised that Liverpool presented a field without an equal in this country for the application of sanitary measures.

The study and the teaching of Public Health as a science had already found sympathetic encouragement in three Universities, namely, Cambridge, Dublin, and Edinburgh. In Liverpool itself, the teaching of the subject of Public Health was introduced at the Medical School in 1886. The interest increased as the School itself increased, and a few years after the establishment of the University of Liverpool, an important section, known as the School of Hygiene, was devoted to the teaching of this subject, and an unendowed Professorial Chair of Public Health was established. An Exhibition designed with the object of assisting the teaching of Public Health to every person interested, whether the medical man, the medical officer of health, the health inspector or visitor, midwife or school teacher, as well as the general public, was formed. When the Civic and University conditions permitted, a highly important combination was effected by which the whole of the technical investigation in the interests of the Public Health carried on by the City Bacteriologist, and the City Analyst, as well as by the teachers of Hygiene, were incorporated in the one building* specially erected for the purpose by joint funds provided by the two bodies mentioned, and as far as the specific object of teaching is concerned, supplemented by generous benefactions. The University itself gave most sympathetic encouragement to this latter aspect and further recognised its importance by conferring not only a Diploma but a Degree also in the subject of Public Health. The work of this School has proved conspicuously successful; the Inspector appointed last year by the General Medical Council to attend and report upon the Examinations at the various Universities makes the following observation:—

“It may be added that the opportunities offered at Liverpool for practical instruction in public health and its administration are exceptionally good.”

* See photographs in Appendix.

Importance
of Education
in advancing
Public
Health.

Action of the
University.

Details of some of the present conditions indicated in the text of the Report.

The current problems connected with Liverpool's health administration are sufficiently indicated in the pages which follow. Mention may be made of two outstanding needs which have for so long discredited Liverpool; one is the need for suitable abattoir accommodation upon a suitable site, a need which met with opposition now happily at an end. There appears every likelihood that a solution of this question has now been found. The other point calling for comment is the question of housing; this, like the other subject, has been delayed by reasons of the war and the consequences which flowed from the war, but unlike the first-mentioned subject, the delay has accumulated difficulties. Great progress has been made in the outskirts of the City, and attention can now be turned to the unhealthy areas calling for attention within the City.

Grants in Aid.

The practice of the Government, initiated by the Local Government Board, and continued by the Ministry of Health, of encouraging work by grants in aid, unquestionably gives a stimulus from two points of view. The first is the financial aid itself, and the second is the moral effect which this expression of the practical sympathy of the Ministry gives rise to, and furthermore enables the Ministry to keep more closely in touch with the various works in progress.

It is perfectly true that sanitation is only effected at great cost: this truth is especially emphasised in Liverpool owing to the large sums which have been required to undo errors of the past. Housing and town-planning problems bear witness to this. The amount expended on sanitation to-day is largely in excess of what it was in 1883. On the other side of the scale, however, must be placed the fact that had the conditions of 1883 remained unaltered and the death-rate at the same figure, there would have been 22,630 deaths in the City in 1921, which is 10,964 more than actually took place.

Even to compare present conditions with the year 1895, when the death-rate was 24·8, shows a remarkable improvement. If the 1895 death-rate had continued there would have been 8,595 more deaths in 1921 than actually took place.

This shows what effect the diminishing death-rate has on the saving of life in each year, and it must be remembered that a lessening of the

number of deaths means a corresponding reduction, but to a much greater extent, of cases of serious illness.

The removal of the grosser conditions paved the way for the promotion of measures indicated in this Report for further improving the Health of the City.

The staff of the Public Health Department in 1883 consisted of—						Staff.—Past and Present
Medical Officer of Health	...	...	...	...	1	
Assistant Medical Officer of Health	...	...	...	...	1	
Lodging-house Inspectors	...	...	...	...	10	
Disinfecting Inspectors	...	...	...	...	4	
Inspector of Nuisances	...	...	...	...	1	
Deputy-Inspector of Nuisances	...	...	...	...	1	
Prosecuting Inspectors	...	...	...	...	5	
Sanitary Inspectors	...	...	...	...	18	
Smoke Inspectors	...	...	...	...	2	
Food Inspectors	...	...	...	...	8	
Diseases of Animals	...	...	...	...	2	
Clerks	...	...	...	...	15	
					—	
Total	...	...	...	...	68	

At present the number of Medical Officers giving their whole time and undivided attention to the work is as follows:—

Deputy Medical Officers of Health	...	...	2
Assistant Medical Officers (including one female)...			3
School Medical Officers (including two females) ...			14
Assistant Tuberculosis Officers	...	...	3

The part-time services of 25 male and female Medical Officers are devoted to the Welfare of Motherhood and Infancy, and of 12 to Venereal Disease.

The Port services comprise the service of two whole-time Medical Officers, and one part-time Medical Officer.

The numbers of the administrative, clerical, and inspectorial staff of the City Section are given on page 134. The Port Staff will be found in the Report to the Port Sanitary and Hospitals Committee.

Value of
Personal
relationships.

One result of, as well as an explanatory reason for the large staff is that in a great measure it counter-balances defective structural conditions of the City which admit only of a very gradual improvement; another and even more important one is that it affords opportunities for a close contact with the people themselves. The advantages of this are clearly shown by the measures adopted in regard to the welfare of mothers and infants, the prevention of tuberculosis, and in many other directions; whilst in regard to the Medical Inspection of School Children, doctor and nurse can give direct information and help to the parents; moreover, the neglected school child furnishes the quickest route to the home where neglected families, and neglected children below school age, are to be found.

Conclusions.

The magnitude and the consequent cost of Liverpool's health problems arise primarily from the neglect of sanitation during earlier periods of very rapid development of the City's commerce, a development which attracted unskilled labour from all parts; the importation of infection unrestricted by any adequate supervision, ensured the prevalence of infectious disease and this operating upon populations densely massed, and frequently indigent on account of precarious employment, explain why for many years Liverpool occupied a unique position as an insani-tary town.

No better object lesson could be found than that furnished by a study of the measures which have enabled the Council to place the City of to-day in so highly favourable a contrast with the City that was.

E. W. HOPE,

Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,

MUNICIPAL BUILDINGS,

LIVERPOOL, 1st July, 1922.



CENSUS 1921.

The Census was originally planned to be taken on 24th April, 1921, but was postponed until the 19th June, 1921, when the results showed a total population of 803,118 comprising 383,650 males and 419,468 females. The increase of the population for the City, as extended, during the last ten years was therefore 49,765 or 6.6 per cent.

The Registrar General, commenting on the postponement of the Census in a Memorandum issued in February, 1922, says "it is now clear that, while the latter date avoided the recognised programme of industrial holidays, some holiday movement was, largely owing to the abnormally fine weather, already then in progress. This is reflected in the Census returns by the inclusion in the case of the more popular holiday areas of varying and sometimes substantial proportions of visitors.

"The use of local population figures which depart materially from the figures of normal resident populations would, of course, be unsuitable in connection with statistics of births and deaths classified according to area of residence; and it has been deemed necessary to make an adjustment for these purposes by measuring the extent of the non-resident population in certain areas and by effecting its redistribution throughout the country.

"Such an adjustment has accordingly been made by means of the best data available in the preparation of the estimated mid-yearly populations for 1921."

The Registrar General therefore estimates that the population at the middle of the year 1921 should be 817,000.

The following table shows the populations of the Registration Districts at the Censal years 1911 and 1921, and the estimated mid-year population for 1921, based on the estimate of the Registrar General, of 817,000 for the whole City:—

DISTRICTS.	Census, 1911.	Census, 1921.	Estimated Population Mid-Year 1921.
SCOTLAND.....	46,576	45,136	45,919
EXCHANGE.....	37,370	34,850	35,455
ABERCROMBY.....	44,727	45,239	46,021
SOUTH EVERTON	66,629	61,148	62,148
NORTH EVERTON	54,236	63,407	64,556
KIRKDALE	67,463	69,860	71,067
WEST DERBY WEST	85,483	91,562	93,146
TOXTETH NORTH-WEST	21,994	23,077	23,475
TOXTETH SOUTH-WEST	35,757	37,574	38,222
TOXTETH CENTRAL.....	43,891	47,763	48,586
WALTON	75,591	83,289	84,730
WEST DERBY EAST	63,209	77,354	78,689
WAVERTREE	39,990	44,550	45,321
TOXTETH EAST	34,498	34,119	34,713
GARSTON.....	23,852	28,737	29,231
FAZAKERLEY.....	5,155	6,054	6,159
WOOLTON	6,932	9,399	9,562
Total	753,353	803,118	817,000

STATISTICS

RELATING TO

BIRTHS, DEATHS, AND CAUSES OF DEATH, &c.,

ZYMOTIC DISEASES AND THEIR INCIDENCE.

SUMMARY

OF

VITAL STATISTICS FOR 1921.

Area of City	21,219	Acres.
		(33 square miles)
Population (estimated to the middle of the year)	817,000	
Births	21,904,	Birth-rate 26·8.
Deaths	11,666,	Death-rate 14·3.
Infantile Mortality	2,339	Deaths under one year.
Infant Mortality Rate	107	per 1,000 Births.
Zymotic Death-rate (7 principal Zymotic Diseases)	1·3	per 1,000.
All forms of Tuberculosis (including Phthisis)	1·6	per 1,000.
Phthisis Death-rate	1·3	per 1,000.

BIRTHS.

The number of births recorded during the year 1921 within the City was 21,904, equal to a rate of 26·8 per 1,000 of the population, the average of the previous five years (1916-1920) being 24·9. Of the total births, 11,097 were males and 10,807 were females. The number of illegitimate births was 828, or 3·8 per cent. of the total births, 427 being males and 401 females.

The Registrar General intimated that 84 of the births registered in the City should be deducted as non-resident, and this has accordingly been done, the above figures being the net numbers after the deduction has been made.

The birth-rate in the City of Liverpool is considerably above the average of the great towns, which is 23·3 per 1,000 of the population, as well as of England and Wales taken as a whole, where the rate is 22·4 per 1,000, for the year 1921.

The following table shows the *natural* increase of population, that is, the excess in the number of births as compared with the number of deaths during the year 1921, in the several districts of the city. The net result in the city shows an increase of births over deaths of 10,238.

DISTRICTS.	Estimated Population.	Births.	Deaths.	Number of Births over Deaths.
Scotland	45,919	1,677	915	762
Exchange	35,455	1,134	849	285
Abercromby	46,021	1,206	771	435
Everton	126,704	3,899	2,057	1,842
Kirkdale	71,067	1,954	1,017	937
West Derby—West	93,146	2,613	1,313	1,300
Toxteth	110,283	3,216	1,603	1,613
Walton	84,730	1,721	955	766
West Derby—East	78,689	1,903	912	991
Wavertree	45,321	1,039	475	564
Toxteth-East	34,713	610	339	271
Garston.....	29,231	679	313	366
Fazakerley	6,159	100	60	40
Woolton	9,562	153	87	66
Total	817,000	21,904	11,666	10,238

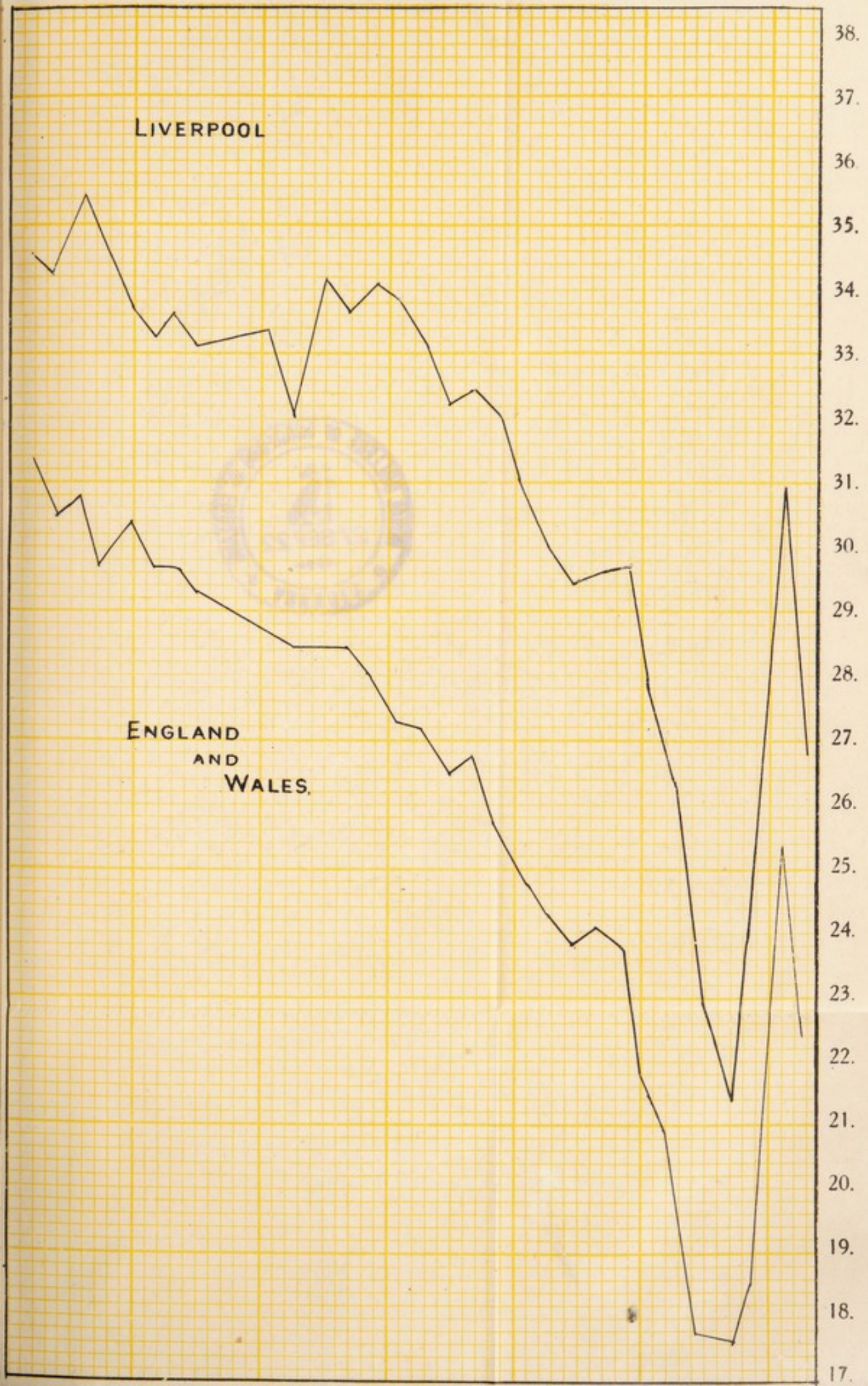
The following table shows the population, number of births and deaths, and the rates per 1,000 in each district of the City for the year 1921 :—

Districts.	Estimated Population	BIRTHS.		DEATHS.	
		Number of Births.	Rate per 1,000.	Number of Deaths.	Rate per 1,000.
SCOTLAND	45,919	1,677	36.5	915	19.9
EXCHANGE	35,455	1,134	32.0	849	23.9
ABERCROMBY	46,021	1,206	26.2	771	16.7
EVERTON	126,704	3,899	30.8	2,057	16.2
KIRKDALE	71,067	1,954	27.5	1,017	14.3
WEST DERBY (WEST) ...	93,146	2,613	28.1	1,313	14.1
TOXTETH	110,283	3,216	29.2	1,603	14.5
WALTON	84,730	1,721	20.3	955	11.3
WEST DERBY (EAST) ...	78,689	1,903	24.2	912	11.6
WAVERTREE	45,321	1,039	20.7	475	10.5
TOXTETH (EAST)... ..	34,713	610	17.7	339	9.8
GARSTON	29,231	679	23.2	313	10.7
FAZAKERLEY	6,159	100	16.2	60	9.7
WOOLTON	9,562	153	16.0	87	9.1
	817,000	21,904	26.8	11,666	14.3

BIRTH RATE, 1891-1921.

6

1891 2. 3. 4. 5. 6. 7. 8. 9. 1900. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 1. 2. 3. 4. 5. 6. 7. 8. 9. 20. 1.



BIRTH RATE, 1890

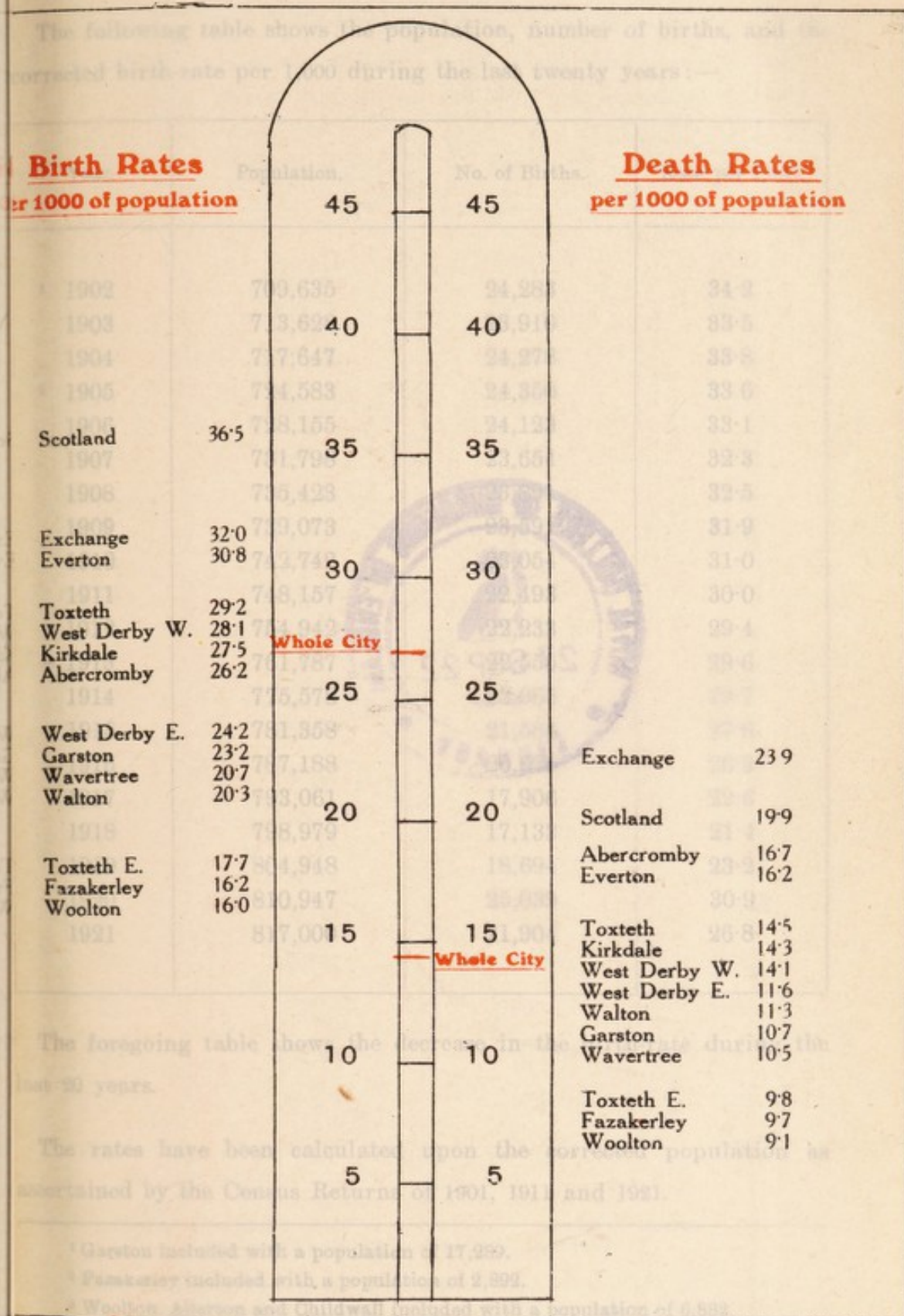
11 10 9 8 7 6 5 4 3 2 1 0



ENGLAND
AND
WALES

CITY OF LIVERPOOL.

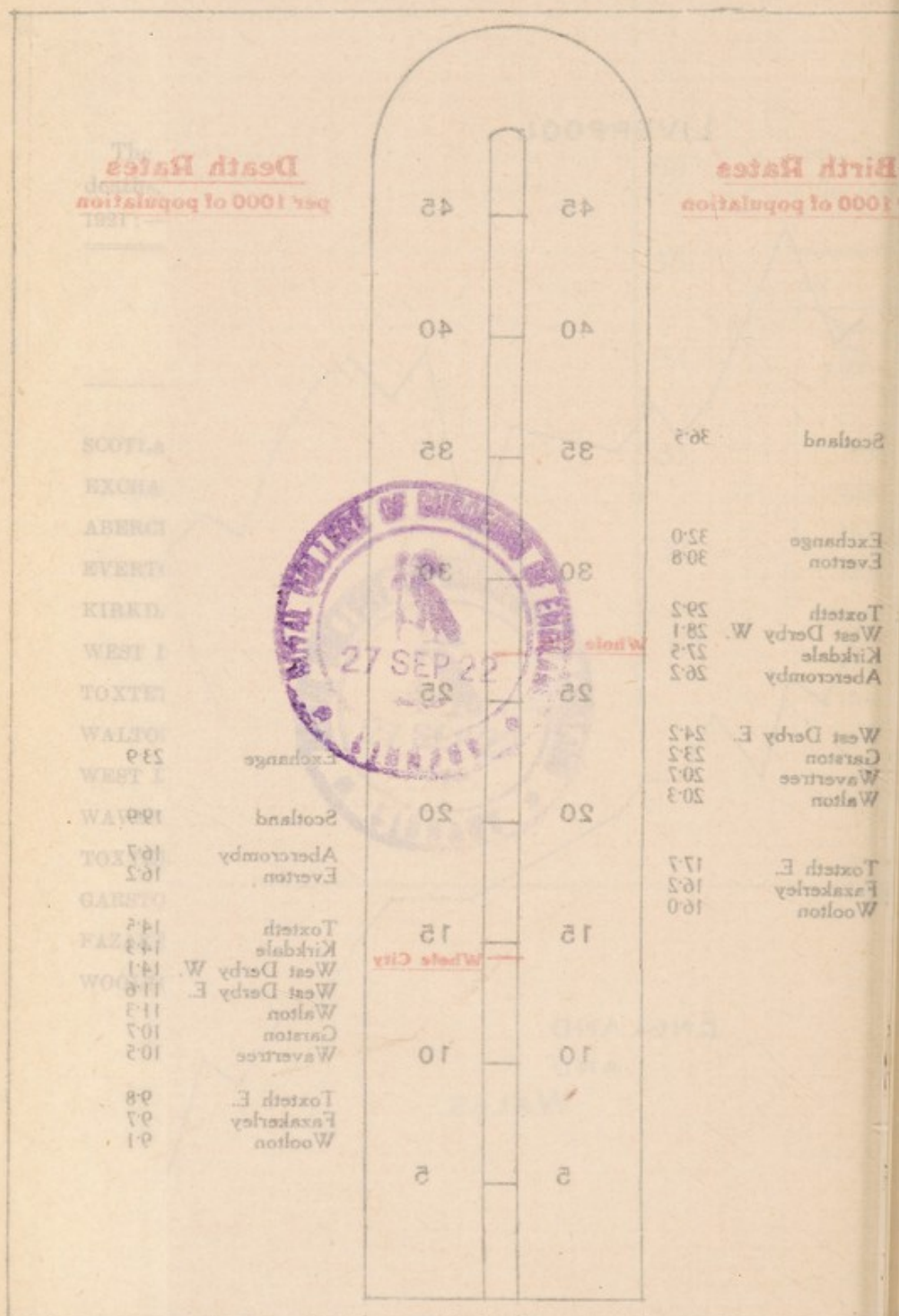
Comparative view of the Birth and Death Rates per 1,000 in the different districts of the City during the year 1921.



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

CITY OF LIVERPOOL

Comparative view of the Birth and Death Rates per 1,000 in the different districts of the City during the year 1921.



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

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

Year.	Population.	No. of Births.	Rate per 1,000.
¹ 1902	709,635	24,283	34·2
1903	713,628	23,910	33·5
1904	717,647	24,278	33·8
² 1905	724,583	24,350	33·6
1906	728,155	24,123	33·1
1907	731,798	23,654	32·3
1908	735,423	23,891	32·5
1909	739,073	23,591	31·9
1910	742,742	23,054	31·0
1911	748,157	22,493	30·0
1912	754,942	22,233	29·4
³ 1913	761,787	22,555	29·6
1914	775,578	23,065	29·7
1915	781,358	21,586	27·6
1916	787,188	20,679	26·3
1917	793,061	17,906	22·6
1918	798,979	17,133	21·4
1919	804,948	18,694	23·2
1920	810,947	25,039	30·9
1921	817,000	21,904	26·8

The foregoing table shows the decrease in the birth-rate during the last 20 years.

The rates have been calculated upon the corrected population as ascertained by the Census Returns of 1901, 1911 and 1921.

¹ Garston included with a population of 17,289.

² Fazakerley included with a population of 2,892.

³ Woolton, Allerton and Childwall included with a population of 6,882.

DEATHS.

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

Year.	Population.	No. of Deaths.	Rate per 1,000.
¹ 1902	709,635	15,396	21·7
1903	713,628	14,240	19·9
1904	717,647	15,851	22·1
² 1905	724,583	14,103	19·5
1906	728,155	15,001	20·6
1907	731,798	13,676	18·7
1908	735,423	13,930	18·9
1909	739,073	13,945	18·8
1910	742,742	13,343	17·9
1911	748,157	14,607	19·5
1912	751,942	13,364	17·7
³ 1913	761,787	13,658	17·9
1914	775,578	15,046	19·4
1915	781,358	14,478	18·5
1916	787,188	13,943	17·7
1917	793,061	13,093	16·5
1918	798,979	15,267	19·1
1919	804,948	13,283	16·5
1920	810,947	12,852	15·8
1921	817,000	11,666	14·3

¹ Garston included.

² Fazakerley included.

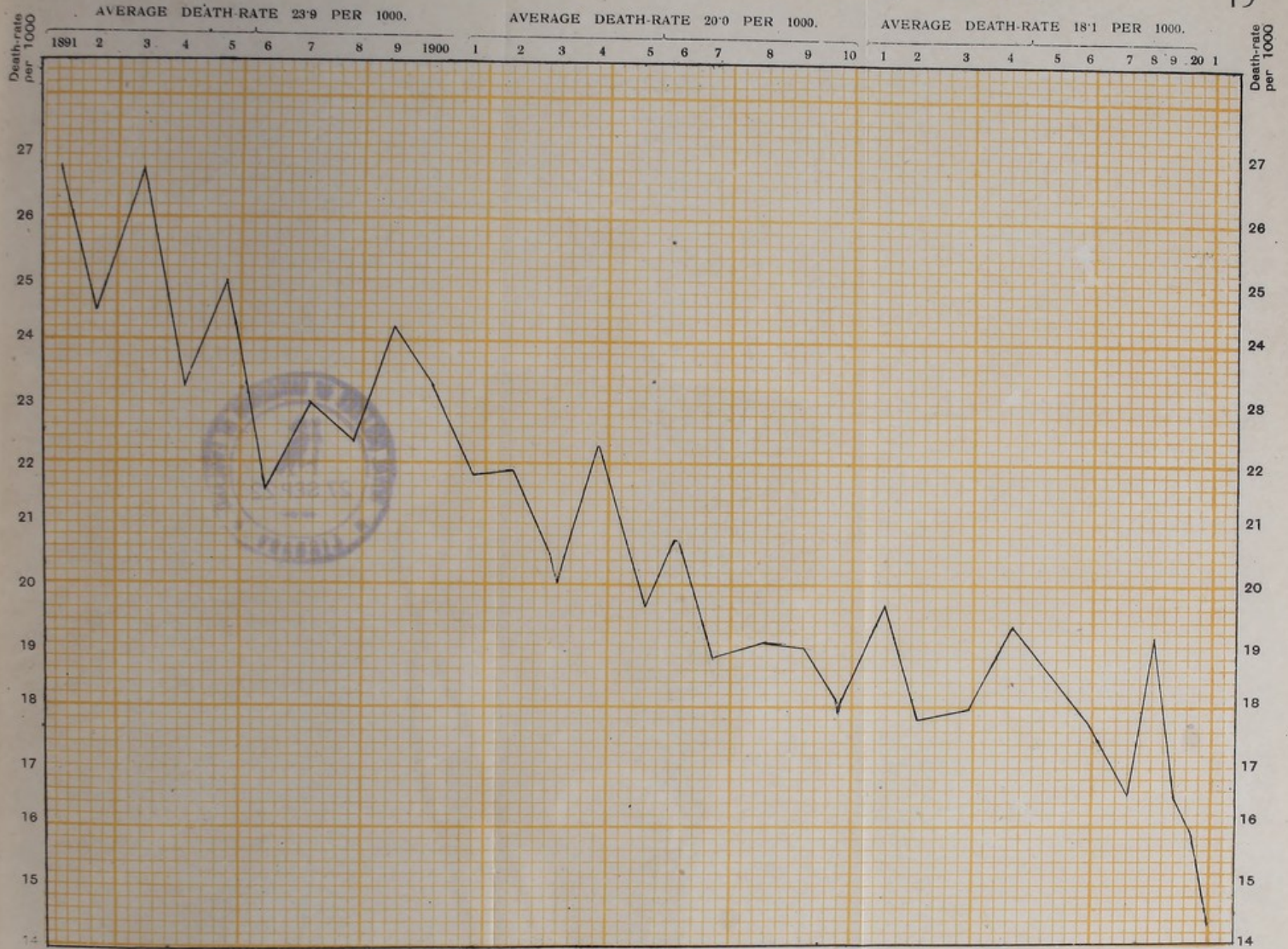
³ Woolton, Allerton and Childwall included.

NOTE.—The rates have been calculated upon the corrected population as ascertained by the Census Returns of 1901, 1911 and 1921.

CITY OF LIVERPOOL.

DEATH RATE, 1891-1921.

13



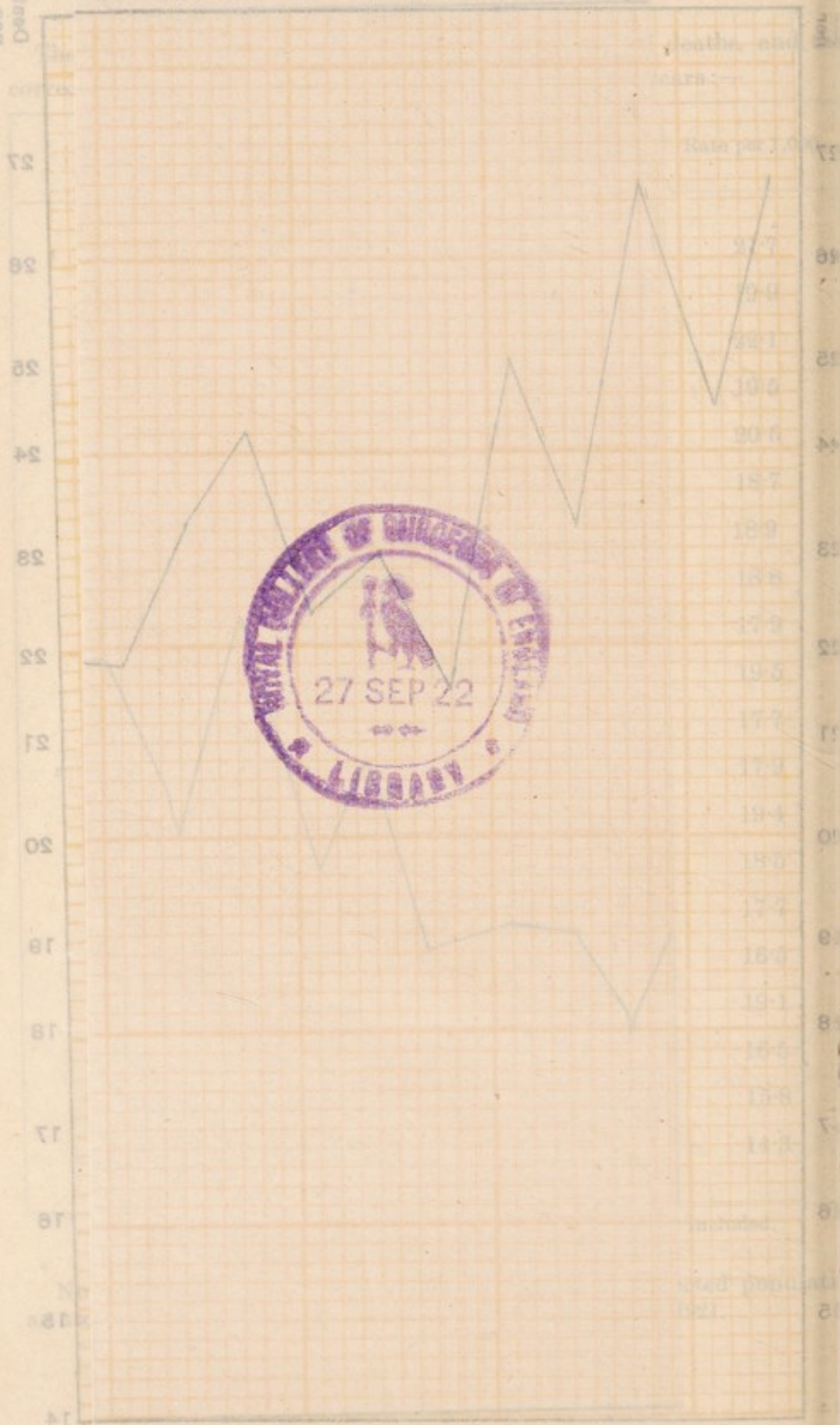
CITY OF BOSTON DEATH RATE

W. H. H. B. C.

AVERAGE DEATH RATE 23.9 PER 1000 BIRTHS

per 1000
Deaths

1891 2 30 4 5 6 7 8 9 10 11 12



The accompanying table (pages 10 and 11) shows the deaths that have occurred in the City of Liverpool during the past 51 years. These have been separated into five principal classes of disease that are likely to be affected by the activities of the Health and other Municipal Departments, namely, "Infective" Diseases, Tubercular Diseases, Respiratory Diseases (including Influenza), and Digestive Diseases (including Diarrhœa and Enteritis). These classes include practically all diseases of infective origin. The deaths from Cancer are placed in a separate column.

Despite the very great increase in population since 1871, the present population being approximately nearly double the 1871 population, the actual numbers of deaths per annum has fallen from an average of 14,700 in the decennium 1871-1880 to 12,852 in the year 1920. The death-rate has fallen from 28.5 to 14.3 per thousand, a fall of 50 per cent.

The greatest proportional decline has been experienced in the group of Infectious Diseases, which includes all the infectious diseases with the exception of Influenza; the decline has been steady and uniform, and the deaths now registered in this group exhibit a decline of no less than 79 per cent. during the 50 years.

A similarly steady decline has been shown by the Tubercular Diseases, which have fallen to 45.5 per cent. of the earlier figure.

In the group of Respiratory Diseases, although a decline has occurred, it has not been continuous, rises occurring in 1881-90 and in 1911-20, due in both cases to the prevalence of influenza. Although an actual decline in respiratory deaths has occurred this decline is not commensurate with that recorded in deaths from all causes, and the proportion of respiratory to total deaths rose from 20.2 to 27.3 per cent. during the period under review, and fell to 22.1 per cent. in 1921.

Digestive Diseases, of which the Diarrhœa and other Digestive Diseases of infants form by far the most important section, showed at first a slight decline from 1871 to 1890; in 1891-1900 there was a rise to 107 per cent. of the rate experienced in 1871-80. From that time on there has been a most marked and rapid decline from 107 to 56 per cent. of the 1871-80 mortality, and to 47.7 per cent. in 1921. This decline coincides in time with the great efforts that have been put forward in this City for the prevention of infantile mortality.

In marked contrast with the decline in these preventable diseases is the rise in Cancer mortality. As little is known of its causation it is not amenable to preventive measures.

CITY OF LIVERPOOL.

DEATHS FROM CERTAIN GROUPS OF DISEASES IN EACH DECADE FROM 1871 to 1920 and 1921.

Years.	(a) Infective diseases (less Diarrhoea and Influenza).	(b) Tubercular diseases.	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhoea).	Total Deaths from Classes (a),(b), (c) & (d)	(e) Cancer.	Total Deaths from all causes.
1871-1880	27,205	19,869	29,763	14,747	91,584	2,015	147,005
1881-1890	19,748	17,870	32,507	13,186	86,311	2,820	146,195
1891-1900	13,515	16,714	35,819	18,491	84,539	4,223	145,522
1901-1910	13,967	16,054	32,995	18,163	81,179	6,480	150,962
1911-1920	10,417	14,946	36,480	12,282	74,125	7,603	137,223
1921	882	1,342	2,683	1,803	6,810	890	11,666

DEATHS EXPRESSED AS A PERCENTAGE OF TOTAL DEATHS FROM ALL CAUSES (Proportionate Mortality).

1871-1880	19.2	13.5	20.2	10.0	62.3	1.4	100.0
1881-1890	14.1	12.7	23.2	9.4	59.4	2.0	100.0
1891-1900	9.3	10.8	24.6	12.7	57.4	2.9	100.0
1901-1910	8.6	10.6	21.8	12.0	53.0	4.3	100.0
1911-1920	7.9	10.9	27.3	8.9	55.0	5.5	100.0
1921	7.6	11.5	22.1	15.5	58.5	7.6	100.0

DEATH RATES PER 1000 POPULATION.

Years.	(a) Infective diseases (less Diarrhoea and Influenza).	(b) Tubercular diseases	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhoea).	Total Deaths from Classes (a), (b), (c) & (d)	(e) Cancer.	Total Deaths from all causes.
1871-1880	5.2	3.6	5.7	2.8	17.4	0.4	28.5
1881-1890	3.6	3.2	5.9	2.4	15.6	0.5	26.1
1891-1900	2.2	2.7	5.9	3.0	13.8	0.7	23.9
1901-1910	1.9	2.2	4.5	2.5	11.1	0.9	20.0
1911-1920	1.35	1.90	4.73	1.59	9.8	1.0	18.1
1921	1.08	1.64	3.29	2.21	8.3	1.09	14.3

DEATH-RATES EXPRESSED AS A PERCENTAGE OF THE RATES EXPERIENCED IN 1871-1880 (Index Numbers).

1871-1880	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1881-1890	69.0	88.0	104.0	85.7	89.1	125.0	91.0
1891-1900	42.0	75.0	104.0	107.2	79.3	175.0	84.0
1901-1910	36.0	61.0	79.0	89.3	64.3	225.0	70.0
1911-1920	26.0	50.0	83.0	56.7	56.0	250.0	67.0
1921	20.8	45.5	57.7	79.0	47.7	275.0	50.2

THE FOLLOWING TABLE SHOWS THE ANNUAL RATE OF MORTALITY PER 1,000 AS WELL AS THE TOTAL NUMBER OF DEATHS AT EACH OF TWELVE AGE-PERIODS DURING THE YEAR 1921 IN LIVERPOOL.

THE DIFFERENCES WHICH THE FIGURES SHOW ARE VERY STRIKING:—

1921.	* 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 up- wards.	Total at all Ages.
Rate of Mortality per 1,000 living at ages indicated.	107.0	51.2	8.1	3.4	2.6	3.7	5.9	12.2	23.6	45.9	117.3	226.6	14.3
Total Number of Deaths at each Age-Period.	2339	1020	468	296	428	578	694	1042	1332	1522	1403	544	11666
Approximate Population	23120	19911	57393	87827	162651	158591	117979	85695	56332	33129	11963	2399	817000

Column I. indicates the rate of mortality under one year per 1,000 births during the year.

The estimate of the population at each age period is based on the 1911 Census, as later figures were not available.

The total death-rate of the City during the year was 14·3 per 1,000 of the estimated population, the average rate of the preceding five years (1916-1920) being 17·4. Full statistical details in regard to the various causes of death are set out in the tables to be found in the Appendix.

The deaths in public institutions numbered 5,402, and included 695 persons who were non-residents in the City area, indicative of the large proportion of the people who in times of sickness have recourse to public and charitable institutions. The number of deaths in the various institutions are shown in the following table:—

					Total Deaths.	Deaths of non-residents.
Parish Institution (Brownlow Hill)	...	...	...	...	910	12
Royal Infirmary	...	...	...	...	279	109
Royal Liverpool Children's Hospital	...	...	...	...	246	36
Maternity Hospital	...	...	...	...	66	9
Consumption Hospital	...	...	...	...	22	8
Hahnemann Hospital	...	...	...	...	6	—
Samaritan Hospital	...	...	...	...	6	—
Eye and Ear Infirmary	...	...	...	...	12	2
David Lewis Northern Hospital	...	...	...	...	262	62
Stanley Hospital	...	...	...	...	126	31
Royal Southern Hospital	...	...	...	...	172	27
Mill Road Infirmary	...	...	...	...	852	60
Hospital for Women	...	...	...	...	16	10
City Hospital North	...	...	...	...	20	2
Do. South	...	...	...	...	40	—
Do. East, Mill Lane	...	...	...	...	87	—
Do. Fazakerley	...	...	...	...	125	6
Do. do. Annexe	...	...	...	...	21	
Do. Sparrow Hall	...	...	...	...	3	—
Do. Garston	...	...	...	...	9	—
Carried forward					3,280	374

Brought forward ...				3,280	374
Sanatorium Fazakerley ...	..	...	...	48	3
Do. Parkbill ...	...	...	...	86	—
Do. Highfield ...	...	...	...	71	—
Walton Institution (Rice Lane)	...	...	...	858	178
Belmont Road Institution	...	...	...	116	35
Cottage Homes, Wavertree	...	...	...	26	—
St. Joseph's Home	...	...	...	21	9
Toxteth Institution (Smithdown Road)	...	...	...	161	10
Home for Incurables	...	...	...	9	2
House of Providence	...	...	...	14	10
Tuebrook Villa Asylum	...	...	...	6	3
Turner Memorial Home	...	...	...	2	2
St. Augustine's Home	...	...	...	15	2
Alder Hey Hospital	...	...	...	323	36
H.M. Prison, Walton	...	...	...	2	2
Other Institutions	...	...	...	64	29
				—	—
				5,402	695
				<u> </u>	<u> </u>

INFECTIOUS SICKNESS.

Liverpool is closely associated with all parts of the world by reason of the large volume of shipping continually arriving in the port, and in consequence the City is peculiarly liable to the importation of various forms of infectious disease. The measures which have been adopted have been successful in preventing any outbreaks of a serious nature obtaining a footing in the City.

The following table shows the number of cases of Infectious Disease notified during 1921, the number of deaths registered from these diseases, the death rates per 100,000 of the population, and the percentage proportion of deaths to cases.

	Typhus Fever.	Enteric Fever.	Scarlet Fever.	Measles.	Diphtheria.	Puerperal Fever.	Erysipelas.	Cerebro-spinal Fever.	Poliomyelitis Polioencephalitis	Encephalitis Lethargica.	Trench Fever	Whooping Cough.
.....	1†	30	3,062	9,143	1,182	60	471	26	5	27	1	3,019
.....	—	8	45	328	97	34	18	19	4	5	—	210
Rate per 100,000	—	1.0	5.5	40.2	11.9	156*	2.2	2.3	0.5	0.6	—	25.7
Percentage of Deaths	—	26.6	1.5	3.6	8.2	56.6	3.8	76.0	80.0	18.5	—	7.0

* Death rate per 100,000 Births.

† Imported from Lithuania.

PLAGUE.

No case of human or rodent plague occurred in the City during the year.

SMALLPOX.

No case of Smallpox occurred in the City of Liverpool during the year 1921. With the exception of the year 1915 this is the only year since records were kept in which the City has been entirely free from this disease.

TYPHUS FEVER.

A case of Typhus occurring in the person of a Lithuanian woman in transit from Dantzic was removed to hospital in February. The contacts, who had been previously disinfected, were isolated and subjected to a fresh disinfection. No further case arose. No indigenous cases of Typhus have occurred in the past three years.

ENTERIC FEVER.

The decline in the prevalence of this disease which has been continuous for the past 25 years has now almost led to its extinction. The death-rate has fallen since 1894 from 46 to 1.0 per 100,000; of the eight deaths which occurred in the year, two occurred in seamen infected abroad, two were of persons infected by the consumption of shellfish, one ascribed to Enteric was probably a case of tuberculosis and not Enteric, another was probably Pneumonia, and two were indigenous cases; only four of the eight deaths were of persons infected in Liverpool, or a mortality of 0.4 per 100,000.

Only 43 cases of Enteric Fever (including two cases of Paratyphoid B.) were reported during 1921 in the City and Port of Liverpool, this being the lowest figure as yet recorded. Of these, 16 cases were imported from overseas (3 being Poles or Czecho-Slovaks in transit from Central Europe) and one was infected whilst residing away from Liverpool,

leaving 26 cases of indigenous origin. In the case of three of the latter infection followed the consumption of shellfish, mussels in two instances and cockles in one.

A small outbreak occurred in Everton, commencing in 17, A— Street, where two children were affected in September and October; a quantity of periwinkles were found stored in this home. Another child who took ill in October had visited this house. On January 8th, 1922, Mrs. H—, of 23, A—y Street, the next street to A Street, was taken ill with Enteric; enquiry showed that one of her children had been ill for over a month with symptoms of Pneumonia, but it seems probable that the case was one of Enteric.

On February 1st, Wm. O—, nephew of Mrs. H—, was taken ill with supposed Influenza, and his sister, Emma O—, and cousin, Frank O—, were taken ill on February 22nd and 24th, respectively; after removal to hospital these three cases were found to be Enteric Fever. It was then ascertained that Joseph O—, 16 years, had died on January 16th from Influenzal Pneumonia and that three other members of the O— family had suffered from Influenza. Four cases of Influenza, one complicated by Pneumonia, occurred in the family of Frank O—. Mrs. O— had nursed Mrs. H's baby during the latter's absence in hospital with Enteric, the baby having died from Diarrhoea and vomiting. All contacts of these cases were put under observation and no further cases have occurred. It is difficult to disentangle these cases, but it would appear that a mixed outbreak of Influenza and Enteric occurred in these two families. Altogether 8 cases of definite Enteric Fever occurred over a period of five months. The origin of the outbreak was probably the consumption of infected periwinkles in the first instance.

Two nurses who had been nursing cases that eventually proved to be Enteric Fever were infected in this way. All the remaining cases were isolated and sporadic in nature.

The results of inquiry into the probable causation of the reported cases is shown in the following table, the figures for the years 1913-14 and 1919-20 being shown for the purpose of comparison:—

CITY AND PORT OF LIVERPOOL. ENTERIC FEVER, 1913-1921 (OMITTING
1915, 1916, 1917, 1918).

	CASES.					PERCENTAGE.				
	1913.	1914.	1919.	1920.	1921.	1913.	1914.	1919.	1920.	1921.
Imported by sea	38	62	27	21	16	24.8	35.0	42.2	36.3	31.1
Imported by land	13	11	6	3	1	8.5	6.2	9.5	5.2	1.1
Shell-fish	15	9	2	4	3	9.8	5.0	3.1	6.9	2.2
Direct infection	24	9	5	2	4	15.6	5.0	7.8	3.5	4.4
Direct infection from missed cases	7	3	1	6	1	4.5	1.6	1.6	10.4	1.1
Chronic carrier	—	—	—	1	—	—	—	—	1.5	—
Probably not Typhoid	5	9	2	—	2	3.2	5.0	3.1	—	2.2
Total in which source was ascertained	102	103	43	37	27	66.4	57.8	67.2	63.8	51.1
Central area	16	50	12	4	11	10.4	23.3	18.8	6.9	11.1
Outer area	35	24	9	17	5	22.9	13.5	14.0	29.3	4.4
Total in which sources were not ascertained	51	74	21	21	16	33.3	41.8	32.8	36.2	25.5
Total for City and Port	153	177	64	58	43					

DIPHTHERIA.

During 1921, 1,182 cases of Diphtheria were reported giving an attack rate of 1.4 per 1,000 of the population. Of these cases 97 proved fatal, equal to a fatality rate of 8.2 per 100 cases, and a mortality rate of 11.8 per 100,000 population. The number of deaths was almost exactly half that recorded in the previous year.

Table 1.
DIPHTHERIA IN THE CITY OF LIVERPOOL, 1911-1921.

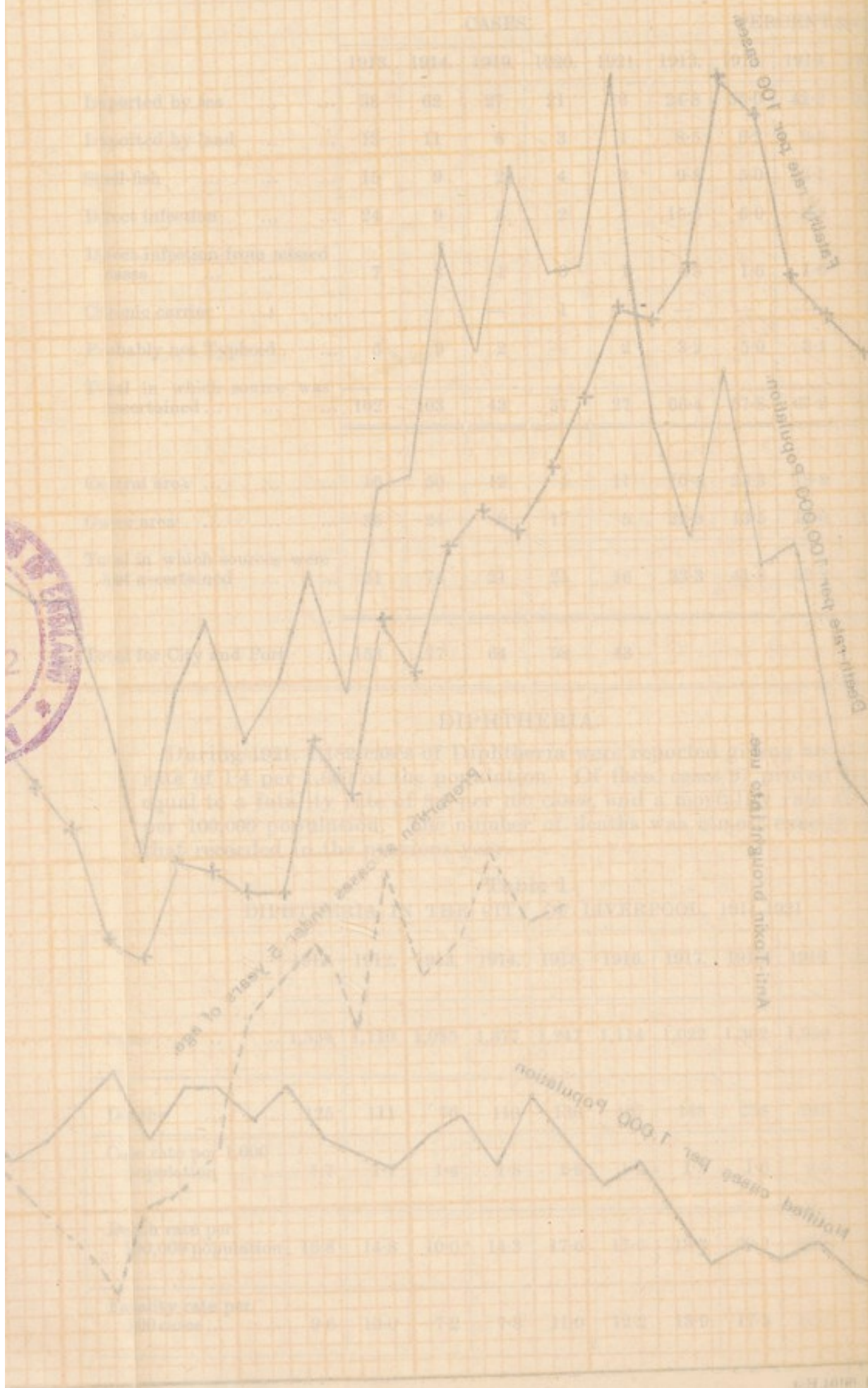
	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Cases	1,334	1,110	1,085	1,377	1,247	1,114	1,022	1,302	1,959	1,654	1,182
Deaths	125	111	76	110	136	137	143	228	212	188	97
Case rate per 1,000 population	1.7	1.7	1.4	1.8	1.6	1.4	1.3	1.6	2.5	2.1	1.4
Death rate per 100,000 population	16.8	14.8	10.0	14.3	17.6	17.6	18.3	29.2	27.1	24.0	11.8
Fatality rate per 100 cases	9.6	10.0	7.2	7.8	11.0	12.2	13.9	17.5	10.8	11.4	8.2

DEATH RATE PER 100,000 POPULATION, NOTIFIED CASES PER 1,000 POPULATION, FATALITY RATE PER 100 CASES NOTIFIED AND PROPORTION OF CASES UNDER 5 YEARS OF AGE TO TOTAL CASES.



DEATH RATE PER 100,000 POPULATION (NOTIFIED CASES PER 1,000 POPULATION, DATA
CASES NOTIFIED AND PROPORTION OF CASES UNDER 5 YEARS OF AGE TO TOTAL

1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030



Reference to the attached diagram will show that the outbreak of increased severity which occurred in Liverpool, and also affected other towns in the vicinity during the War period, reaching a maximum in 1918, has now come to an end.

The attached table (No. 3) shows that during 1921 the disease was most prevalent in West Derby. In 1920, the areas most affected, in addition to both the West Derbys, were Walton and Wavertree. In 1919, the Toxteths, West Derby West, Everton and Walton were principally affected, and in 1918 West Toxteth was especially heavily involved. The disease has therefore shown a tendency to spread outwards from the centre of the City.

The fatality rate was also greatest in the three central districts of the City. This is largely to be accounted for by the greater proportion of children of tender years infected in the central districts; two-thirds of the deaths in Diphtheria occur in children under five years of age.

The second table shows the deaths distributed according to age, sex and the quarter of the year. The last section shows the ages of notified cases and the fatality rate at the several age periods; from this it will be observed that while during the first year of life 36 per cent. of cases proved fatal, the fatality steadily diminishes with increasing age and no deaths occurred in persons between 20 and 30 years of age.

One school outbreak occurred in the year, an infants' department of a school in Toxteth being affected. Swabs were taken from a number of children, and one child with diphtheritic membrane on the throat was discovered in school and excluded. Other measures adopted were the removal of drinking cups used in common and the provision of pens, slate pencils, etc., by each child instead of the use of a common stock of these articles.

Bacteriological examinations were made in a number of schools and carriers, when found, were excluded from school until free from infection.

Of the reported cases, 1,027, or 86 per cent., were removed to hospital. As in previous years the value of prompt treatment with antitoxic serum was emphasised.

Table No. 2.
DEATHS FROM DIPHTHERIA.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	2	...	...	...	1	1	...	2	3	3	6
Exchange	3	...	...	1	...	1	...	2	3	4	7
Abercromby .....	...	2	2	...	...	...	...	1	2	3	5
Everton	4	...	4	3	1	...	...	5	9	8	17
Kirkdale .....	...	...	...	2	...	...	2	1	2	3	5
West Derby (West)	1	1	2	3	...	1	...	3	3	8	11
Toxteth	3	3	1	2	2	...	4	2	10	7	17
Walton	1	1	...	1	...	1	1	...	2	3	5
West Derby (East)	2	1	1	3	...	...	4	...	7	4	11
Wavertree	1	1	3	4	...	...	...	...	4	5	9
Toxteth (East) .....	...	...	...	...	...	...	...	...	...	...	...
Garston .....	...	...	...	1	2	...	...	...	2	1	3
Fazakerley .....	...	...	...	...	...	...	...	...	...	...	...
Woolton.....	...	1	...	...	...	...	...	...	...	1	1
City	17	10	13	20	6	4	11	16	47	50	97

AGES AT DEATH.													
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
12	25	8	9	9	28	3	1	...	...	1	...	1	97

AGES OF NOTIFIED CASES.											
34	91	82	76	120	392	152	77	65	62		1151

PERCENTAGE FATALITY AT EACH AGE.											
36	27	10	12	7.5	7.3	2.0	1.3	...	3.7		8.2

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

Table No. 3.
DIPHTHERIA, YEAR 1921.

District.	Population, 1921.	Cases. *	Deaths.	Attack Rate per 1,000.	Death Rate per 100,000.	Case Fatality Rate %.	Percentage Proportion of Secondary to Primary Cases.	Proportion of Children 0-2 years to Total Cases.	Proportion of Children 0-5 years to Total Cases.
1. Scotland	45,919	43	6	1.0	13.0	14.0	2.4	23	60
2. Exchange	35,455	26	7	0.8	20.0	26.9	4.0	21	54
3. Abercromby	46,021	59	5	1.3	10.9	8.5	3.5	21	46
4. Everton	126,704	101	17	0.8	13.4	16.8	9.8	10	35
5. Kirkdale	71,067	52	5	0.7	7.0	9.8	2.0	13	42
6. West Derby West	93,146	132	11	1.4	11.8	8.3	7.9	14	38
7. Toxteth	110,283	163	17	1.5	15.5	10.4	5.2	15	38
8. Walton	84,730	149	5	1.8	5.9	3.4	6.4	7	21
9. West Derby East	78,689	179	11	2.3	13.9	6.1	7.8	4	25
10. Wavertree	45,321	85	9	1.9	20.0	10.6	6.2	4	29
11. Toxteth E. (Sefton P.)	34,713	56	...	1.7	...	...	4.0	7	24
12. Garston	29,231	43	3	1.5	10.0	7.1	...	4	33
13. Fazakerley	6,159	7	...	1.2	...	...	...	...	22
14. Woolton	9,562	...	1	...	10.4	...	...	...	...
Institutions, &c. ....	...	14	...	...	...	...	7.7	...	27
Central Districts (1 to 3) ..	127,395	128	*18	1.0	14.1	14.1	3.2	25	53
Middle Districts (4 to 8) ..	485,930	597	55	1.2	11.3	8.4	6.5	12	37
Outer Districts (9 to 14, ...)	203,675	370	24	1.8	11.8	6.5	5.7	5	18
Whole City	817,000	1,100	97	1.5	11.9	8.2	5.9	10.7	32

* Cases are those with onsets in 1921.

SCARLET FEVER.

Scarlet Fever has shown a steady decline in mortality during the past 40 to 50 years. Whilst the number of cases has shown a distinct reduction, the fatality (or proportion of deaths to cases) has shown a very marked reduction and is now only 1·5 per cent., as against 19·2 in the year 1889. The fatality rate for 1921 is the lowest yet recorded in Liverpool. This decline in the severity of Scarlet Fever is well shown in the attached diagram.

The following table shows the incidence and mortality from Scarlet Fever during the past 12 years. It will be seen that during that period three years of increase, namely, 1910, 1914 and 1918, have been recorded, each separated by three years of diminution, and that the years showing an increased incidence also show an increased fatality.

Table I.
SCARLET FEVER IN THE CITY OF LIVERPOOL, 1910-1921.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Cases ...	4,202	3,641	2,867	2,187	3,712	2,984	2,148	2,277	3,020	2,735	3,230	3,062
Deaths ...	179	131	87	58	122	68	59	69	125	74	70	45
Case-rate per 1,000 inhabitants	5·7	4·9	3·8	2·9	4·9	3·9	2·7	2·9	3·8	3·1	4·1	3·7
Death-rate per 100,000 inhabitants	24·1	17·4	11·5	7·7	15·9	8·8	7·6	8·8	16·0	9·3	8·9	5·5
Fatality rate per 100 cases ...	4·2	3·5	3·0	2·7	3·3	2·3	2·8	3·0	4·1	2·6	2·2	1·5

During 1921, 3,062 cases and 45 deaths were recorded giving an attack-rate of 3·7 per 1,000 and a mortality rate of 5·5 per 100,000.

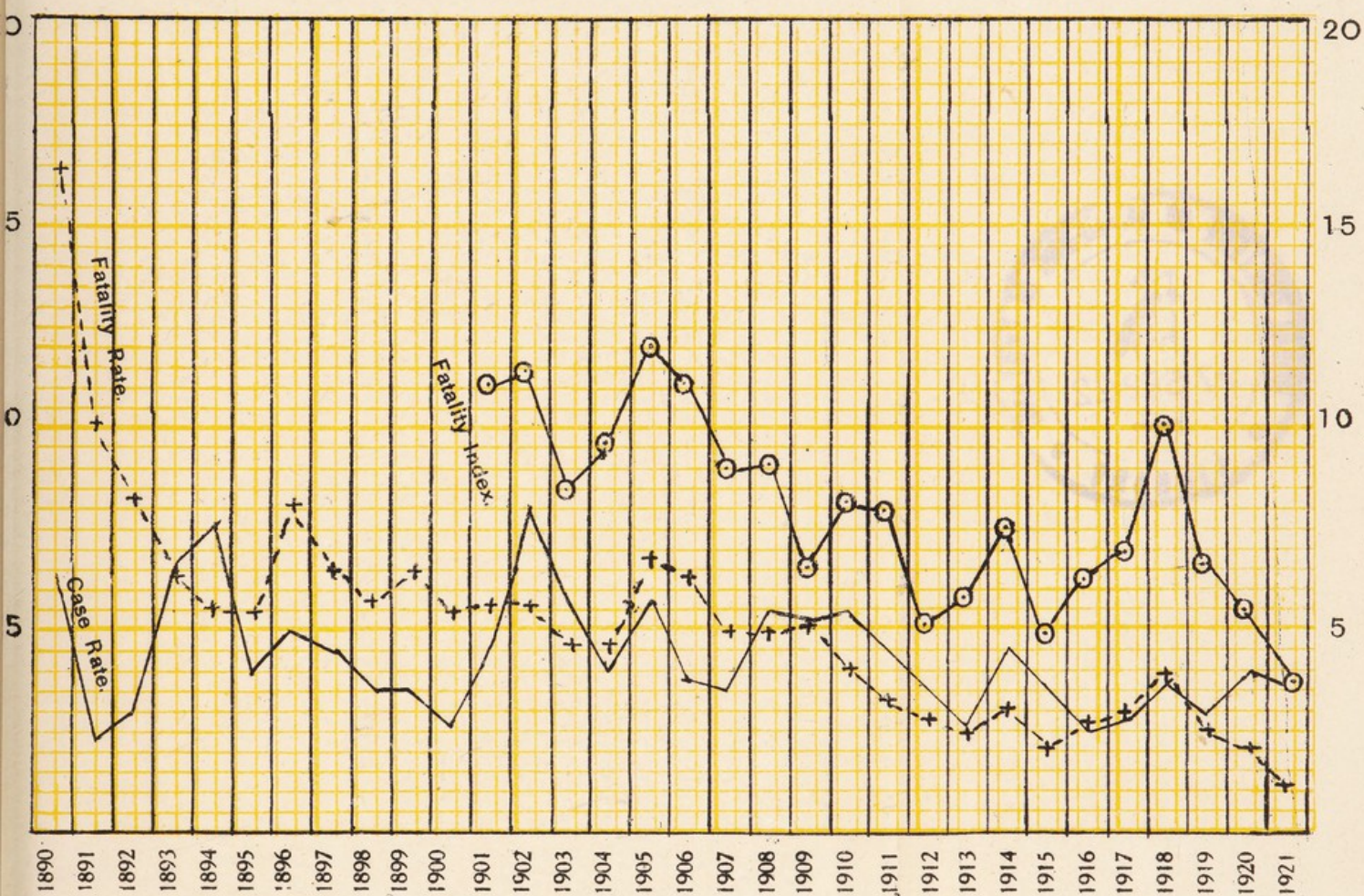
In the third table these cases and deaths are distributed into the several wards, which have also been aggregated into three zones, a central, a middle and an outer, comprising districts 1 to 3, 4 to 8, and 9 to 14, respectively. The middle zone was the most heavily attacked. Despite the variations in the age incidence of the cases the fatality rate was identical throughout the City.

CITY OF LIVERPOOL.

12

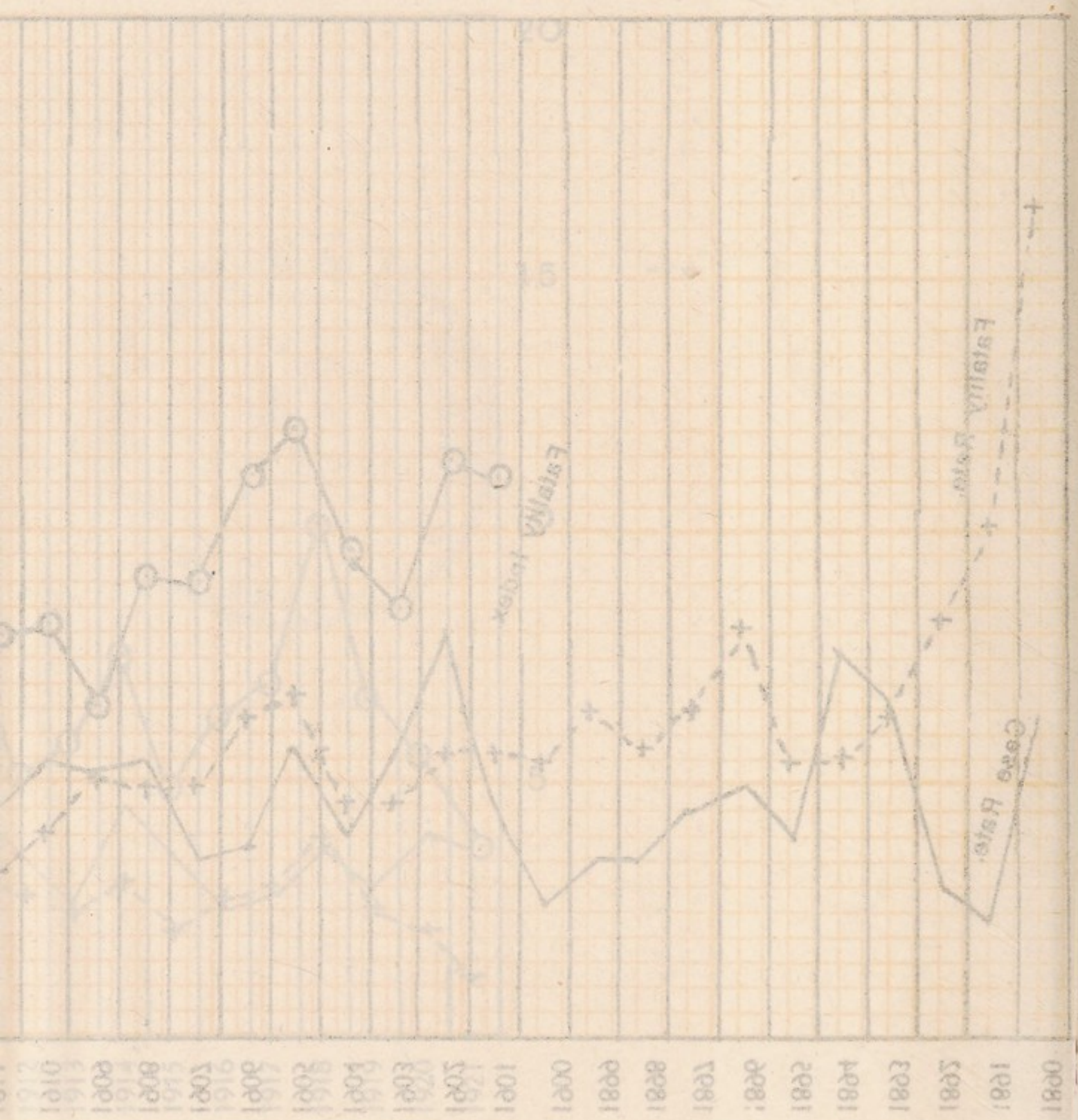
Scarlet Fever 1890-1921. Case Rate per 1000 Population,
Fatality Rate per 100 Cases & Fatality Index (corrected for age at attack of cases).

M. 49104 Est.



Scarlet Fever 1890-1921
Fatality Rate per 100 Cases & Fatality Index (corrected)

W. H. H. Est.



During the month of September the disease rapidly increased in certain districts of the City. Reference to Table 2 will show that this increase was not general, but began in the District of Kirkdale where one school was found to be largely affected. The mild type of the disease led to difficulty in diagnosis and failure to call in medical assistance; several children were found in school presenting evidence of a recent attack; others were visited in their homes and found to be suffering from Scarlet Fever, these being both of school age and younger. By excluding from school all children presenting symptoms indicative of Scarlet Fever the outlook rapidly subsided.

Table II.

SCARLET FEVER CASES ARRANGED BY WEEK OF ONSET.

	WEEK ENDING																
	September 3rd.	September 10th.	September 17th.	September 24th.	October 1st.	October 8th.	October 15th.	October 22nd.	October 29th.	November 5th.	November 12th.	November 19th.	November 26th.	December 3rd.	December 10th.	December 17th.	December 24th.
dale	5	6	16	12	9	12	5	5	7	6	10	8	5	7	...	4	1
on	8	7	10	8	12	29	7	14	12	16	13	10	16	16	8	10	9
on	8	6	20	15	28	18	17	16	7	15	14	12	9	9	7	8	13
Derby East .....	...	4	7	8	3	8	7	6	6	10	7	4	6	18	6	5	17
of four districts..	21	23	53	33	52	67	36	41	32	47	44	34	36	50	21	27	30
e City	45	45	78	68	76	93	57	63	72	80	62	74	77	85	54	55	74

The adjacent districts of Walton and Everton were affected simultaneously or slightly later and the crest of the wave was reached, respectively, 2 and 3 weeks later in these districts than in Kirkdale. But it was not till 9 weeks later that the number of cases in West Derby East, reached the maximum. It has been found that cases in the primary schools similarly reach a maximum some two months before the maximum numbers are reported among secondary school children.

Reference to Table II will also show that during this period the total numbers of cases in the City form a series of waves of three or four weeks duration.

Table No. III.
SCARLET FEVER, 1921.

District.	Population, 1921.	Cases.	Deaths.	Attack Rate per 1,000.	Death Rate per 100,000.	Case Fatality Rate %.	Percentage Proportion of Secondary to Primary Cases.	Proportion of Children 0-2 years to Total Cases.	Proportion of Children 0-5 years to Total Cases.
1. Scotland	45,919	103	2	2.2	4.4	2.0	7.3	10.4	34.9
2. Exchange	35,455	56	1	1.6	2.9	1.0	7.1	12.5	37.5
3. Abercromby	46,021	80	1	1.7	2.1	1.2	6.2	8.8	26.2
4. Everton	126,703	435	10	3.6	7.8	2.3	14.5	7.7	27.5
5. Kirkdale	71,067	244	5	3.4	7.0	2.0	11.5	4.8	22.4
6. West Derby West	91,145	283	3	3.1	3.3	1.1	11.6	4.2	22.5
7. Toxteth	110,283	296	7	2.7	6.4	2.3	13.8	7.1	24.1
8. Walton.....	84,730	574	5	6.7	5.9	0.9	17.1	4.2	20.8
9. West Derby East	78,689	321	5	4.1	6.4	1.5	18.0	2.1	22.1
10. Wavertree	45,320	174	2	3.8	4.4	1.1	20.0	2.8	22.2
11. Toxteth E. (Sefton Park)	34,713	117	2	3.4	5.7	1.7	20.6	3.6	23.4
12. Garston	29,231	125	1	4.3	3.4	0.8	17.9	2.3	20.6
13. Fazakerley	6,159	7	1	1.1	16.3	14.3	43.0	...	20.0
14. Woolton	9,562	10	...	1.1	0.0	...	...	...	...
Emigrants, etc. ....	...	91	...	...	...	...	160	2.0	16.3
Central Districts (1 to 3) ...	127,395	239	4	1.8	3.1	1.6	7.2	10.3	32.4
Middle Districts (4 to 8).....	485,928	1,832	30	3.8	6.2	1.6	15.4	5.5	22.9
Outer Districts (9 to 14) ...	193,724	654	11	3.9	5.7	1.6	19.0	2.5	22.8
Whole City	817,000	2,916	45	3.5	5.5	1.5	17.9	5.1	23.9

* Cases are those with onsets in 1921.

Table No. IV.
DEATHS FROM SCARLET FEVER.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
Scotland .....	...	...	...	...	1	...	1	...	2	...	2
Exchange .....	...	...	...	...	...	1	...	...	...	1	1
Abercromby .....	...	...	...	...	...	...	...	1	...	1	1
Everton	2	1	...	1	2	...	2	2	6	4	10
Kirkdale	1	...	1	1	...	...	1	1	3	2	5
West Derby West .....	...	...	1	...	...	...	...	2	1	2	3
Toxteth .....	...	3	...	...	1	...	1	2	2	5	7
Walton	1	...	...	...	...	1	2	1	3	2	5
West Derby East	1	...	...	...	...	...	1	3	2	3	5
Wavertree .....	...	...	...	...	...	1	...	1	...	2	2
Toxteth East .....	...	...	1	1	...	...	...	...	1	1	2
Garston .....	...	...	...	...	1	...	...	...	1	...	1
Fazakerley	1	...	...	...	...	...	...	...	1	...	1
Woolton .....	...	...	...	...	...	...	...	...	...	...	...
City	6	4	3	3	5	3	8	13	22	23	45

AGES AT DEATH.

Under year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60 and upwards.	All Ages.
2	6	5	3	5	20	1	3	45

AGES OF NOTIFIED CASES.

36	117	140	164	264	1324	618	181	115	59				3019
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PERCENTAGE FATALITY AT EACH AGE.

5.7	5.1	3.6	1.8	1.9	1.4	0.1	1.6	0.0	0.0				1.5
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--	--	--	-----

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

Table IV shows the deaths distributed according to age, sex and the quarter of the year. The last section shows the ages of notified cases and the fatality rate at the several age periods; from this it will be observed that while during the first year of life 5·7 per cent. of cases proved fatal, the fatality steadily declined with increasing age; only four deaths occurred in persons over 10, and none in persons over 20 years of age.

RETURN CASES.—Cases occurring within the outside margin of one month of the discharge of a case from hospital to the same house, were regarded as "return cases." Of the 2,475 cases admitted to hospital suffering from Scarlet Fever, 64, or 2·2 per cent., were associated with recurrent infection in this way. In only six houses did more than one "return case" arise. Investigation showed that in many cases the child after return from hospital had developed a nasal catarrh which would appear to have caused a temporary return of infectivity. This deduction is borne out by the seasonal distribution of return cases which bears a distinct relation to common experience as to the prevalence of nasal catarrhs in the community.

Table V.
SCARLET FEVER, RETURN CASES.

	1921.		Average of past 2 years.	
	No. of cases associated with return cases.	Expressed as a percentage of cases discharged from hospital.	No. of cases associated with return cases.	Expressed as a percentage of cases discharged from hospital.
January	8	2·7	6·0	1·8
February	11	4·5	9·5	3·1
March	7	2·9	6·5	2·2
April	5	2·3	4·5	1·8
May	9	4·0	7·0	3·1
June	1	0·6	3·5	2·0
July	2	1·2	1·5	0·6
August	1	0·6	1·5	0·7
September	—	—	1·0	0·3
October	1	0·7	1·0	0·3
November	3	1·3	1·5	1·1
December	16	5·6	12·5	3·6
WHOLE YEAR ...	64	2·2	56·5	1·9
December to June...	57	3·4	46·5	2·4
July to November...	7	0·9	10	1·0

The period of stay in hospital of these cases associated with return cases varied considerably; in the majority of instances, i.e., 56 per cent., the case was uncomplicated and returned home within 6 to 8 weeks; it is these cases that appear to become infective again when they develop a nasal catarrh. In other cases the stay in hospital was much more prolonged owing to their having suffered from conditions such as purulent discharges from the nose or ears which were recognised as being liable to give rise to prolonged infectivity. The period of stay in hospital is shown below:—

Less than 5 weeks.	5 weeks.	6 weeks.	7 weeks.	8 weeks.	9 weeks.	10 weeks.	11 weeks.	12 or more.
1	12	17	6	6	10	4	2	6

MEASLES.

The numbers of deaths from Measles has shown a tendency to decline of recent years. During 1921, there were 328 deaths, as against 405 deaths which was the average of the past ten years, and the mortality rate was 40 per 100,000.

Measles became a notifiable disease in 1915 by Order of the Local Government Board; the disease is no longer generally notifiable, but in Liverpool is notifiable on a voluntary basis. During the year, 9,143 cases came under the notice of the Medical Officer of Health, the sources of information being as follows:—

- (a) Notified by Medical Practitioners, 6,000.
- (b) Information from Schools, etc., 3,095.
- (c) Discovered by Health Visitors, 48.

The proportion of deaths to cases, or fatality rate, was 3·6, identical with the average of the past six years. The mortality in measles depends mainly upon the age at which infection occurs; as shown in Table III the great majority of the deaths occur in children under three years of age. Any increase in the proportion of cases among children under this age will be attended by a corresponding rise in fatality.

The experience of the past ten years is shown in the following table:—

Table 1.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Cases .....	...	...	...	3,049	14,732	9,230	9,268	3,983	11,448	9,143
Deaths	877	322	517	256	264	436	407	103	387	328
Case rate per 1,000 inhabitants ...	...	...	...	...	19.0	11.8	11.8	5.1	14.6	11.2
Death rate per 100,000 inhabitants ..	116	43	69	33	34	56	52	13	49	40
Fatality rate per 100 cases.....	...	...	...	...	1.1	4.7	4.3	2.6	3.4	3.6

The experience of many years has shown that Measles tends to occur in waves which follow each other at intervals of about 92 weeks. The diagrams numbered 14 and 15 show the number of deaths and the numbers of cases during the past ten and eight years, respectively. A similar diagram was published in the Annual report of the Medical Officer for 1911, and gave the deaths for the preceding decade. It will be seen that, especially in the cases, the periodic recurrences are very regular over considerable periods, but that when the epidemic is due to occur in one of the three Autumn months, August, September or October, it fails to materialise. The maximal points during the present outbreak occurred 92 and 94 weeks for cases and deaths, respectively, after the corresponding points in 1920.

The fourth table (page 33) shows the deaths from Measles in the several districts of the City during the past ten years. It will be seen that, while epidemics affect the City as a whole every second year, the different districts of the City are affected unequally and at different periods. The main weight of the epidemic affects the more central portions of the City; the out-lying portions are often most affected in the inter-epidemic period. It is clear that the epidemic comes to an end before the susceptible population has been exhausted; children who have not caught the infection during the time when one outbreak is present will probably escape for a further period of 92 weeks and they will then have a much better chance of recovery as the fatality (see Table III) rapidly diminishes with increasing age.

During the first quarter of 1921, Liverpool was comparatively free from the disease; the numbers of cases steadily rose during the second quarter, 312 cases being recorded during the week ending June 25th; at this time the fatality was low, being about 3·4 per cent. of recorded cases. During the late Summer the cases diminished and only 78 were recorded in the week ending August 27th. Thereafter the numbers of cases steadily rose; eight infants' departments in schools were closed during October and November on account of Measles, and early in December 60 infants' departments were closed until the Christmas holidays, 43 of these being closed on December 13th. All schools closed for the Christmas holidays on December 23rd. The effect was immediately felt; the number of cases which had been steadily rising reached 612 on the week ending December 17th; in the following two weeks the numbers fell to 436 and 292 respectively. The number of deaths which had risen to 30 on the week ending December 25th fell to 14 on the week ending January 7th. But with the decline in the number of cases the severity of the attacks increased and the fatality rate, which was

3.4 per cent. during the early period part of the epidemic rose to 9.9 per cent. for the months of January and February.

Apart from the school closure, referred to above, other measures to limit the ravages of the disease include efforts to secure the isolation of the patients; in view of the heavy mortality among children under three years of age parents are strongly urged to keep those of tender age apart from those already affected. Children coming from a house in which a case of measles has occurred are excluded from school for 16 days; children over 7 years of age who have already had measles are exempted.

The Order of the Ministry of Health authorises local authorities to provide medical assistance for the poorer inhabitants of their district, including nursing, and the Health Committee appointed four permanent nurses in 1916 to deal with such cases as were contemplated by the Order. This number has been increased in times of outbreak. In consequence of the visits of these nurses, not only have children benefited from the assistance and advice given, but many children have been removed for hospital treatment who would otherwise have been left at home without adequate care and attention. 13,374 visits were made by these nurses in the course of 1921, as follows:—

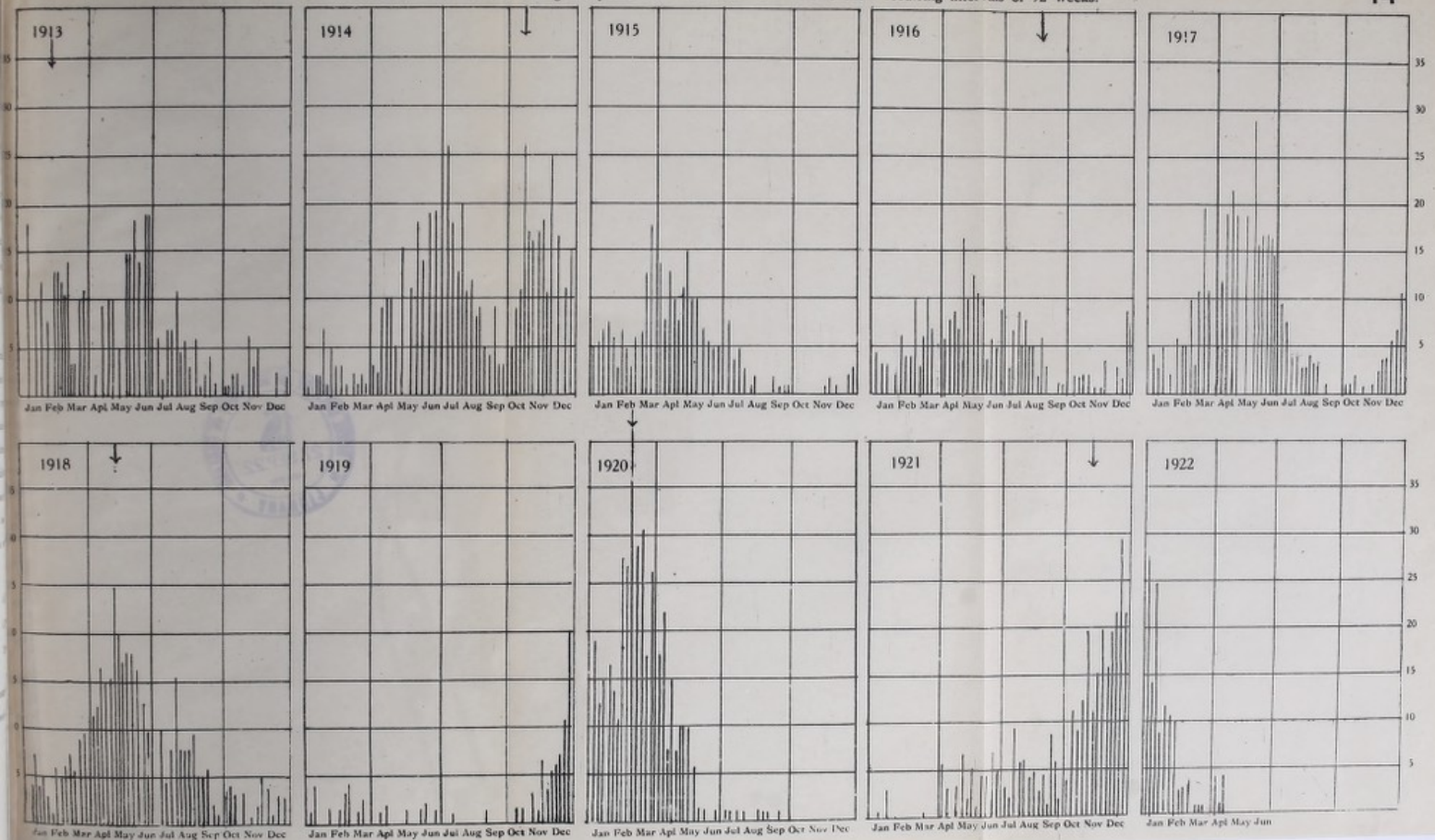
New cases visited during year 1921	...	...	6,106
Cases nursed	„	„	1,379
Revisits to cases	„	„	7,268

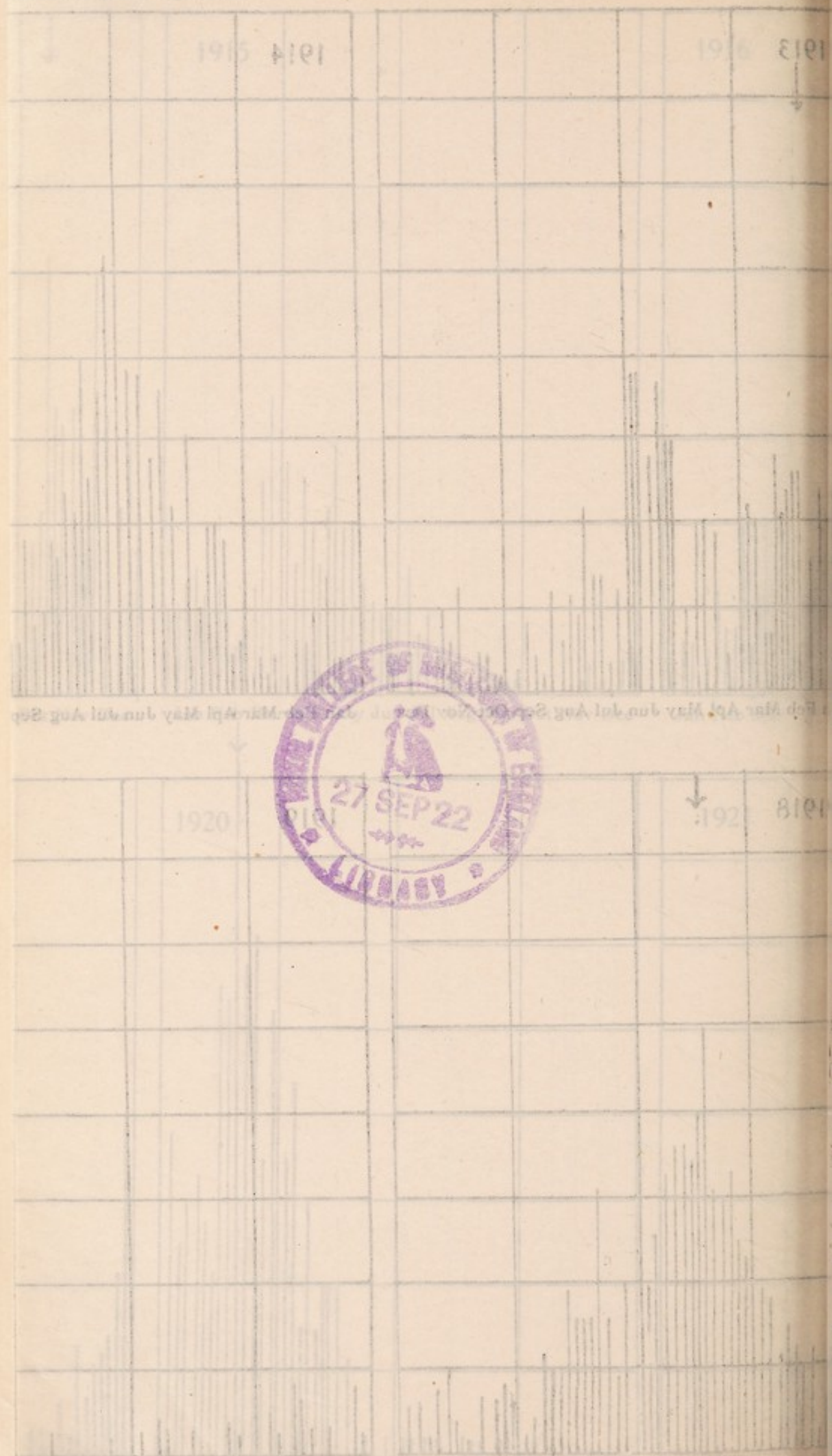
As 98 per cent. of deaths from Measles are due to complications, mainly Pneumonia, there can be little doubt that the work of these nurses resulted in much saving of life.

CITY OF LIVERPOOL.

Deaths from Measles during the years 1913 to 1922. The arrows show recurring intervals of 92 weeks.

14

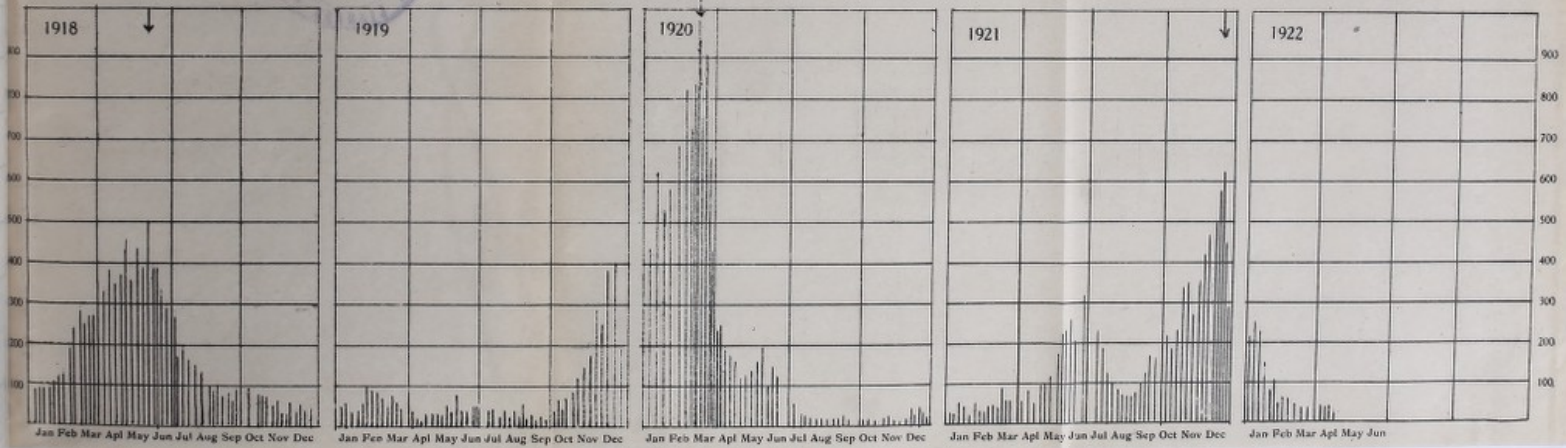
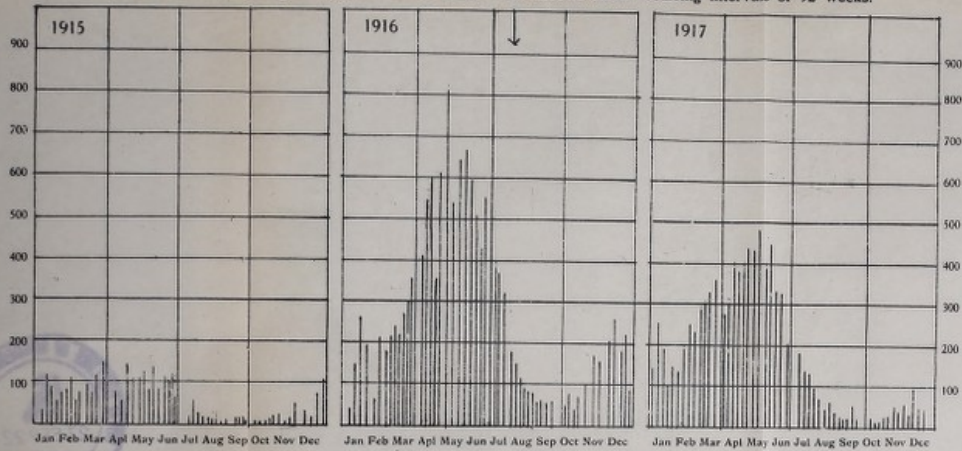




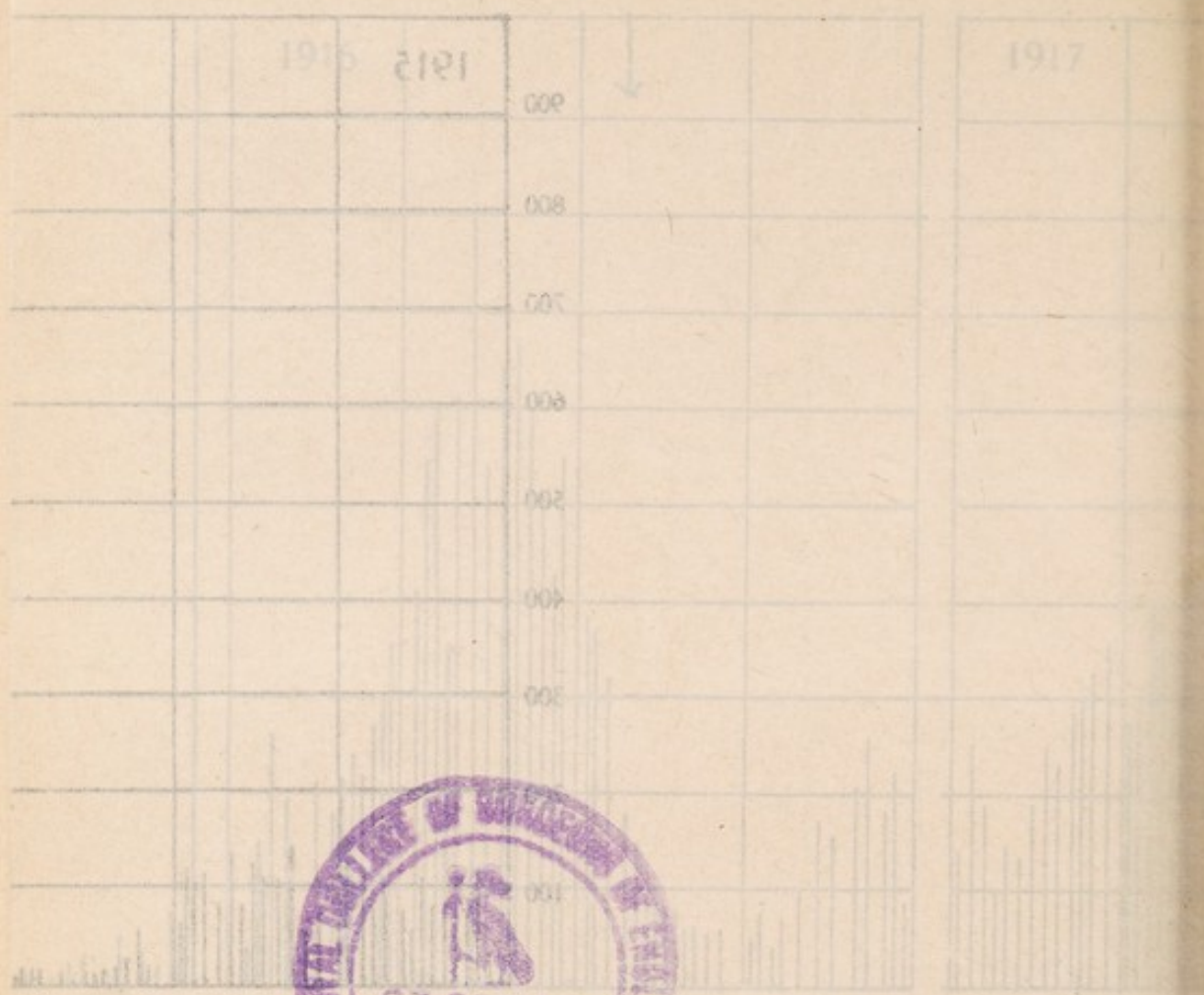
CITY OF LIVERPOOL.

Cases of Measles during the years 1915 to 1922. The arrows show recurring intervals of 92 weeks.

15



...The arrows show recurring intervals...



May June July Aug Sep Oct Nov Dec Jan Feb Mar Apr

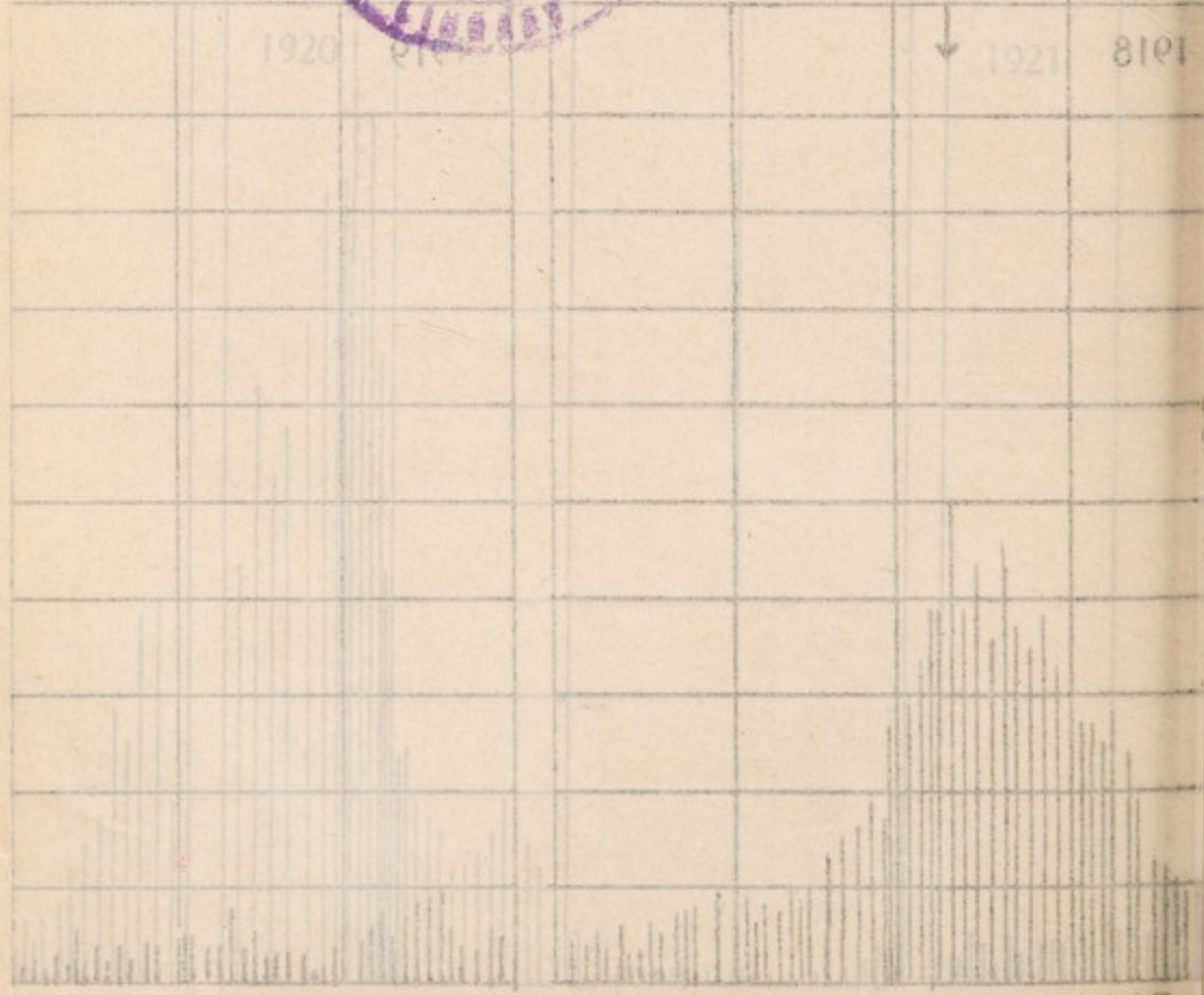


Table II.

DEATHS FROM MEASLES.

DISTRICTS.	QUARTERS.								YEAR		
	March		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland .....	...	...	2	1	3	2	6	8	11	11	22
Exchange .....	...	...	1	...	3	5	9	8	13	13	26
Abererromby .....	...	1	1	2	4	2	...	5	5	10	15
Everton .....	...	...	4	2	6	7	46	35	56	44	100
Kirkdale	1	.	...	...	5	1	16	8	22	9	31
West Derby (West) .....	...	...	2	1	1	2	12	7	15	10	25
Toxteth	2	...	13	16	4	5	7	10	26	31	57
Walton .....	...	...	1	1	3	2	7	1	11	4	15
West Derby (East)	1	...	...	...	1	3	7	6	9	9	18
Wavertree .....	...	...	...	...	...	...	5	2	5	2	7
Toxteth East .....	...	...	...	1	...	...	...	...	...	1	1
Garston .....	...	...	...	...	...	...	3	5	3	5	8
Fazakerley .....	...	...	...	...	...	...	...	...	...	...	...
Woolton .....	...	...	...	2	...	...	...	1	...	3	3
City	4	1	24	26	30	29	118	96	176	152	328

AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
65	171	56	18	5	12	1	...	...	...	...	...	...	328

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

Table III.

MEASLES DURING THE YEAR 1921.

Statement showing the total numbers of cases brought under the notice of the Medical Officer from schools, and those notified by Medical Practitioners:—

Age	Cases occurring in Children of School Age.	Cases notified by Medical Practitioners.	Number of Deaths.	Fatality Rate per 1,000 cases
0—1	...	477	65	136.3
1—2	...	983	171	174.0
2—3	...	690	56	81.2
3—4	...	603	18	30.0
4—5	...	595	5	8.4
5—6	2,005	1,086	} 12	4.9
6—7	1,483	870		
7—8	468	293		
8—9	194	116		
9—10	99	72	} 1	9.2
10—11	57	38		
11—12	52	27		
12—13	35	19		
13—14	14	12	} ...	...
14—15	9	12		
15—16	8	} 107	...	...
16 upwards	...			
	4,424	6,000	328	54.6

	Scotland.	Exchange.	Abercromby.	Everton.	Kirkdale.	West Derby West.	Toxteth.	Walton.	West Derby East.	Wavertree.	Sefton Park.	Garston.	Fazakerley.	Woolton.	Institutions.	Total.
1912.....	113	35	22	141	52	82	126	14	17	12	5	11	1	...	256	877
1913.....	26	12	9	68	25	18	13	13	7	6	1	15	...	...	109	322
1914.....	53	31	18	84	53	26	60	8	10	13	5	15	...	...	141	517
1915.....	38	18	6	59	15	11	25	16	11	...	...	8	4	...	45	256
1916.....	26	14	4	10	18	15	28	12	14	6	1	8	3	...	75	264
1917.....	56	39	7	128	22	13	23	13	6	1	2	3	...	2	121	436
1918.....	44	12	13	33	28	26	94	13	8	2	1	6	1	...	126	407
1919.....	3	7	4	27	6	9	1	5	3	3	1	...	...	...	34	103
1920.....	31	15	4	44	30	18	27	8	11	10	4	12	...	1	172	387
1921.....	10	12	3	54	18	13	21	11	13	1	1	7	...	3	107	328
TOTAL.....	400	195	90	648	267	231	418	113	100	54	21	85	9	6	1,186	3,897
Average	40	20	9	65	27	23	42	12	10	5	2	8	1	1	119	390

The excess or defect of the above deaths from the average for the Ward for the ten years.

	Scotland.	Exchange.	Abercromby.	Everton.	Kirkdale.	West Derby West.	Toxteth.	Walton.	West Derby East.	Wavertree.	Sefton Park.	Garston.	Fazakerley.	Woolton.	Institutions.	Total.
1912.....	+73	+15	+13	+76	+25	+59	+84	+2	+7	+7	+3	+3	...	...	+137	+487
1913.....	-14	-8	...	+3	-2	-5	-29	+1	-3	+1	-1	+7	-1	...	-10	-68
1914.....	+13	+11	+9	+19	+26	+3	+18	-4	...	+6	+3	+7	-1	...	+22	+127
1915.....	-2	-2	-3	-4	-12	-12	-17	+4	+1	-5	-2	...	+3	...	-74	-134
1916.....	-14	-6	-5	-55	-9	-8	-14	...	+4	+1	-1	...	+2	-1	-44	-126
1917.....	+16	+19	-2	+63	-5	-10	-19	+1	-4	-4	...	-5	-1	+1	+2	+46
1918.....	+4	-8	+4	-32	+1	+3	+54	+1	-2	-3	-1	-2	...	-1	+7	+17
1919.....	-37	-13	-5	-38	-21	-14	-41	-7	-7	-2	-1	-8	-1	-1	-85	-287
1920.....	-9	-5	-5	-21	+3	-5	-15	-4	+1	+5	+3	+4	-1	...	+53	-3
1921.....	-30	-8	-6	-11	-9	-10	-21	-1	+2	-4	-1	-1	-1	+2	-12	-62

The same deaths for the years 1919 to 1921 after distribution of the institutional deaths according to the place of residence.

	Scotland.	Exchange.	Abercromby.	Everton.	Kirkdale.	West Derby West.	Toxteth.	Walton.	West Derby East.	Wavertree.	Sefton Park.	Garston.	Fazakerley.	Woolton.	Institutions.	Total.
1919.....	4	13	8	34	6	15	3	9	4	6	1	...	...	...	...	103
1920.....	41	36	14	77	43	37	51	19	21	18	4	22	2	2	...	387
1921.....	22	26	15	99	31	25	58	15	18	7	1	8	...	3	...	328

WHOOPIING COUGH.

The number of cases coming to the notice of the Medical Officer during 1921 was 3,019, and the number of deaths 210, corresponding to a death-rate of 26 per 100,000 inhabitants, which is slightly below the average of the past ten years. The number of deaths in 1919 was 53, corresponding to a death-rate of 7 per 100,000, the lowest within the records of the City. The average death-rates from Whooping Cough during the past 70 years is as follows:—

1850-59	...	...	...	...	...	...	103·6
1860-69	...	...	...	...	...	...	107·3
1870-79	...	...	...	...	...	...	86·8
1880-89	...	...	...	...	...	...	72·9
1890-99	...	...	...	...	...	...	56·3
1900-09	...	...	...	...	...	...	45·0
1910-19	...	...	...	...	...	...	32·6
1920	...	...	...	...	...	...	29·2
1921	...	...	...	...	...	...	25·6

This shows a very considerable decline in mortality. Whether this decline is due to lessened prevalence, to alterations in the age-incidence, or to lowered virulence cannot be ascertained from the figures. The following table shows for the past ten years the numbers of cases coming to the notice of the Medical Officer, the numbers of deaths, the death-rate per 100,000 inhabitants, and the fatality rate per 100 cases:—

Years.	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Cases	1567	2486	1642	2303	2020	1524	3056	4244	788	2804	3019
Deaths	246	272	232	248	259	235	132	364	53	228	210
Death Rate per 100,000 of the population	33	36	31	32	33	30	17	46	7	29	26
Fatality Rate (Percentage of deathstocases) ...	15·7	10·9	14·1	10·3	12·8	15·3	4·3	8·6	6·7	8·1	8·1

The most salient feature is the decline in the proportion of deaths to cases during the past four years. As the disease is not compulsorily notifiable, caution is necessary in drawing conclusions from these figures. The probability is that information in the later years has been more complete than formerly.

The third table shows the deaths during the past 20 years distributed according to sex and age. The great preponderance of deaths in the first two years of life is clearly seen. If infection could be delayed till this critical period of life is past there would be very few deaths recorded from this disease. More females than males die in the proportion of 6 to 5. Whooping Cough was most prevalent in April and May, when 504 and 415 cases were reported. The maximum number of deaths, namely, 18, was recorded in the week ending May 14th.

WHOOPIING COUGH DEATHS (20 years), 1902-1921.

			M.	F.	AGES.								Total.
					1	2	3	4	5	10	15	20	
1902...	...	...	188	217	163	128	51	31	20	12	—	—	405
1903...	...	...	154	164	143	104	27	24	11	8	1	—	318
1904...	...	...	194	232	183	127	53	28	17	18	—	—	426
1905...	...	...	67	83	60	47	14	15	7	7	—	—	150
1906...	...	...	165	197	141	125	43	21	14	16	2	—	362
1907...	...	...	153	171	130	106	38	26	11	13	—	—	324
1908...	...	...	156	190	130	117	43	32	17	7	—	—	346
1909...	...	...	92	136	82	80	29	21	8	8	—	—	228
1910...	...	...	206	244	203	140	47	28	19	13	—	—	450
1911...	...	...	109	137	88	96	28	20	9	5	—	—	246
1912...	...	...	119	153	116	77	41	16	12	10	—	—	272
1913...	...	...	109	123	100	66	34	14	11	7	—	—	232
1914...	...	...	110	138	88	100	28	17	9	6	—	—	248
1915...	...	...	113	146	97	91	35	26	5	5	—	—	259
1916...	...	...	107	128	88	79	34	22	3	9	—	—	235
1917...	...	...	52	80	33	53	21	12	9	4	—	—	132
1918...	...	...	162	202	112	127	61	38	13	12	1	—	264
1919...	...	...	24	29	24	16	6	4	—	3	—	—	53
1920...	...	...	96	132	86	78	28	12	11	12	—	1	228
1921...	...	...	101	109	68	98	19	15	3	7	—	—	210
Total ...			2,477	3,011	2,135	1,855	676	422	209	182	4	1	5488
			—100:121										
Ratio of Female deaths to Male in U.S., Re- gistration Area 1890- 1918 ...					108.5	140.8	144.4	155.7	157.8	147.2	150.9	146.4	120.1

ENCEPHALITIS LETHARGICA.

This disease was first brought prominently into notice about the year 1916. It was made notifiable in 1919 when two cases were recorded in Liverpool; 17 cases were reported in 1920, and 27 in 1921, of which latter 5 or 18·5 per cent, proved fatal.

The months of onset were as follows, the cases enclosed in brackets being reported on in the previous year:—

1920.			1921.			
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1	2 (3)	7	15	—	1	1

These were distributed as follows:—

October: Toxteth, 1.

November: Exchange, 1; Abercromby, 1.

December: Toxteth, 3; Abercromby, 1; Everton, 2; West Derby West, 1.

January: Toxteth, 5; Garston, 2; West Derby West, 3; West Derby East, 1; Everton, 2; Walton, 1; Fazakerley, 1.

March: Toxteth, 1.

April: West Derby, East, 1.

It will be observed that the disease began in Toxteth, reached the eastern districts of the City in December, and was widely spread through the City in January. Ten of the 27 cases were in the Toxteth district.

THE DISTRIBUTION BY AGE was as follows:—

0—5	5—10	10—15	15—20	20—30	30—40	40—50	50—60	60—70	Over 70
—	—	5	7	5	3	5	1	—	1

The majority of cases were therefore among adolescents; eight cases were among males and nineteen were among females.

A number of cases were reported as suffering from Encephalitis who upon further examination were found to be suffering from other conditions, *e.g.*, Miliary Tuberculosis in 2 cases, Cerebral Tumour, Cerebral Abscess, Cerebro-Spinal Syphilis and Polio-Encephalitis.

Four cases were brought into Liverpool after the onset of the disease from Bootle, Birkenhead, St. Helens and Llangollen, respectively.

As in previous years it was found that in most cases the prospects of ultimate and complete recovery were unfavourable; many cases, that appeared to have recovered, gradually developing a progressive mental degeneration.

CEREBRO-SPINAL FEVER.

Twenty-six cases of Cerebro-Spinal Fever occurred during 1921, of which 19 (or 73·1 per cent.) proved fatal, making a death-rate of 2·3 per 100,000 of the population. The cases during the years 1914 to 1920 were 24, 26, 45, 37, 22, 26 and 27 respectively.

The diagnosis was confirmed by the finding of the causal organism (the meningococcus) in the cerebro-spinal fluid after lumbar puncture in 19 cases, and by post-mortem examination in one case; in three cases lumbar puncture was performed, and the fluid showed evidence of meningitis but no organisms were isolated. For the remaining seven cases lumbar puncture was not performed, and the anti-meningococcal serum was not administered. The mortalities in these three classes were:—

	Cases.	Deaths.	Fatality per cent.
Lumbar puncture and diagnosis confirmed bacteriologically ...	19	14	74
Lumbar puncture but diagnosis not confirmed	3	1	33
No lumbar puncture and diagnosis not confirmed	3	3	100
No lumbar puncture and diagnosis only confirmed after death ... (Mixed Meningococci and Pneumococci).	1	1	100

All but one of the cases were removed to hospital, nine of these being to the City Hospital, Fazakerley.

The ages of the cases and the fatal cases were as follows:—

Ages.	0-1	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-30	30-40
Cases	6	3	1	2	—	6	2	1	4	1
Deaths	6	3	1	1	—	5	—	1	2	—
Fatality rate per cent ...	100	100	100	50	—	83	—	100	50	—

POLIOMYELITIS AND POLIOENCEPHALITIS.

Six cases were notified, of which 3 were Polioencephalitis. Five of the cases, or 83 per cent., proved fatal; all the cases notified as Polioencephalitis proved fatal.

ANTHRAX.

No case of Anthrax occurred amongst the population of the City during the year.

BACTERIOLOGICAL EXAMINATION OF SHAVING BRUSHES.

During the year 102 shaving brushes (39 imitation badger and 63 coloured hair) were submitted to the City Bacteriologist for examination, and none of these brushes were found to be infected with Anthrax.

INFLUENZA AND OTHER RESPIRATORY DISEASES.

Respiratory diseases cause an increasing proportion of the total deaths from all causes. In the decennial period 1871-80 the proportion of deaths certified as due to Respiratory diseases was 20·2 per cent. of all deaths; in 1911-1920 it was 27·3 per cent. of all deaths; in 1921 it had fallen to 22·1 per cent. of all deaths. The table below shows for deaths due to Respiratory diseases the actual numbers, the percentage proportion to all deaths, the death-rates per 100,000 population, and the death-rates expressed as a percentage proportion of the rates experienced in 1871-80 (index figures):—

CITY OF LIVERPOOL: DEATHS FROM RESPIRATORY DISEASES.

	Actual numbers of deaths.	Percentage proportion to all deaths.	Death-rate per 1,000 population.	Death-rates as a percentage proportion of rate experienced in 1871-80.
1871-80 ...	29,763	20·2	5·7	100
1881-90 ...	32,507	23·2	5·9	104
1891-1900	35,819	24·6	5·9	104
1901-10 ...	32,995	21·8	4·5	79
1911-20 ...	36,480	27·3	4·73	83
1921 ...	2,683	22·1	3·29	57·7

The rate per 1,000 population has therefore declined in 1921 to 57·7 per cent. of the 1871-80 rate. The decline, however, has not been steady; a rise occurred in 1881-90, and continued into the following decennium. A later rise occurred in 1911-20 owing to the virulent Influenza pandemic of 1918-19. It is somewhat remarkable that the respiratory death-rate was rising during 1881-90, although only nine deaths from Influenza were recorded in those ten years; in 1891, Liverpool was affected by the prevailing pandemic of Influenza, and 247 deaths were attributed to that cause.

During the prevalence of Influenza this disease plays a predominant part in the causation of respiratory mortality; but a very large number of deaths are attributed to Pneumonia and Bronchitis, diseases which are undoubtedly of infective origin in a large proportion of cases. Much research work is at present being carried out for the elucidation of the causes of these diseases, and it is to be hoped that it will eventually prove of value for their treatment, and possibly for their prevention. During the year 1,325 deaths were attributed to Pneumonia and Broncho-Pneumonia, and 1,080 to Bronchitis.

One hundred and six deaths were returned as due to Influenza, but there is reason to believe that this figure very considerably understates the actual mortality, deaths actually caused by Influenza failing to be recorded under that heading.

Two outbreaks of Respiratory Mortality occurred in 1921. The first reached its height in the week ending May 7th. In this week 100 respiratory deaths were recorded and the proportion of respiratory deaths to that of deaths from all causes was 34·5 per cent. This was undoubtedly due to the prevalence of Influenza, 10 deaths being recorded as from this cause. When the respiratory diseases exceed the proportion of one-third of the deaths it is usually, though not invariably, due to the prevalence of Influenza. Several schools were affected by Influenza, not however to a serious degree.

In December a further outbreak occurred attaining a maximum in the weeks ending December 3rd and 10th, when 73 deaths from respiratory disease were recorded, a proportion of 25·4 per cent. of the total deaths. This wave was the forerunner of a much more serious outbreak, which reached its maximum in the week ending February 18th, 1922; in this week 520 deaths were recorded, of which number 215, or 42·5 per cent., were from respiratory diseases; 51 deaths were reported in that week as caused by Influenza. A third minor wave reached its height in the week ending April 8th, when 83 deaths, forming 29·9 per cent. of all deaths, were recorded as being caused by respiratory diseases.

This outbreak affected London and certain other parts of the country at a much earlier date than in Liverpool, the height of the outbreak being reached in London in the week ending January 14th, and in the country generally in the week ending January 28th.

Experience has shown that outbreaks of Influenza recur, approximately, at intervals of 33 weeks, or multiples thereof. The accompanying diagrams show that the recent epidemics have come at, or very close to, the expected intervals; it will be seen that there are a number of outbreaks of respiratory disease which fit in closely with the 33 weeks recurrence of Influenza. These are indicated by a cross. There are also a number of outbreaks which clearly do not correspond to this periodicity and are not Influenzal in origin. One such occurred in December, 1920, reaching its maximum in the week ending December 18th. This was mainly an outbreak of primary (non-Influenzal) pneumonia; a number of the outbreaks of respiratory disease, which do not correspond to the periodicity of 33 weeks of Influenza, occur at intervals of 39 weeks, dating from the week ending December 18th, 1920. These recurring intervals of 39 weeks are indicated on the diagrams by an asterisk.

Two principal factors, therefore, appear to be operative in causing respiratory mortality. The one is Influenza, with its attendant sequelae of Bronchitis and Pneumonia; the other associated with primary Pneumonia, the disease being often localised in one lung or part of a lung, but by no means always confined to this localised type. In either case the diseases occur in recurring epidemics; when the two recurrences are simultaneous, as occurred in March, 1916, the mortality is usually exceptionally heavy.

One of the salient features of the recent pandemic of Influenza was the change in the age at which the maximum mortality occurred, which in 1891 had been at ages 50 to 60 years, and in 1900, 60 to 70 years. In 1918 the age at which the greatest number of deaths occurred suddenly changed to age 20 to 30 years, and a much smaller proportion of deaths occurred in the later age periods. These features continued during 1920, from which it may be inferred that the type of Influenza was the same as that prevalent in 1918-19, although the virulence has been very much less. In 1921 the maximum mortality again reverted to the age-period 70 to 80 years, and this continued during the first quarter of 1922. The mortality at ages 5 to 10 and 30 to 40 remain, however, somewhat higher than in the pre-war years.

The accompanying table, which shows the numbers and percentages of deaths divided in 12 age periods for 1891, 1900, 1919 to 1921, and the first quarter of 1922, exhibits these facts.

CITY OF LIVERPOOL.

DEATHS FROM INFLUENZA ARRANGED BY AGES AND SEXES DURING THE YEARS 1891, 1900, 1919
TO 1921 AND THE FIRST QUARTER OF 1922.

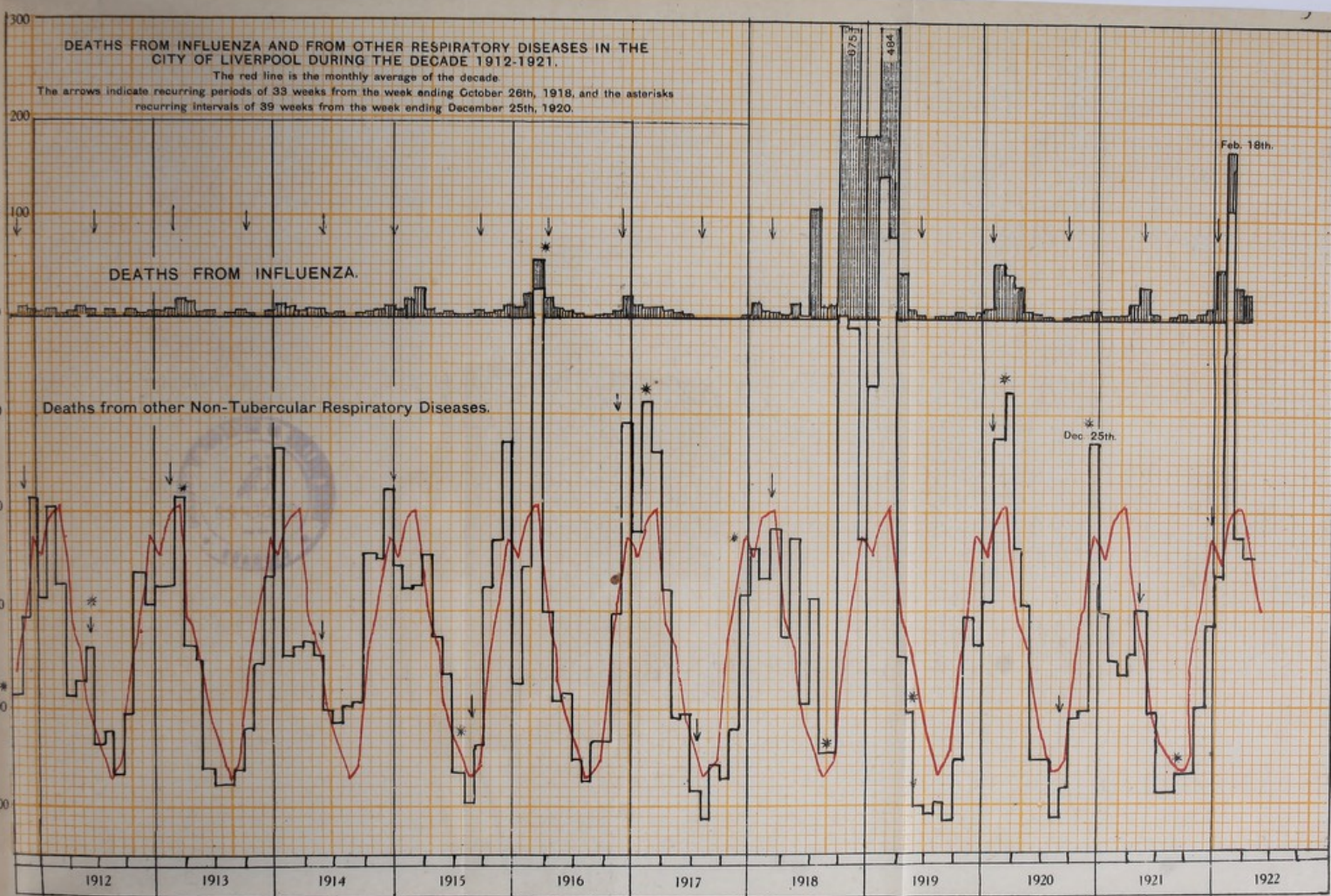
	Under 1	5	10	15	20	30	40	50	60	70	80	Over 80	Males.	Females.	TOTAL.
1891 ...	...	8	8	3	8	11	33	41	55	48	20	2	132	115	247
1900 ...	...	8	1	1	4	18	29	37	43	59	30	7	114	134	248
1918 ...	...	162	87	60	87	304	242	152	130	90	35	6	583	805*	1,338
1919 ...	...	102	50	26	66	225	203	155	133	105	40	17	539	624*	1,163
1920 ...	...	4	3	1	6	44	36	24	24	21	20	2	97	94	191
1921 ...	...	6	1	3	2	10	10	18	17	19	8	5	51	55	106
1922 (1st quarter)	6	24	3	1	3	22	41	30	38	49	40	18	98	177	275
The above deaths expressed as a percentage of the total deaths in each year :—															
1891 ...	4.0	3.2	3.5	1.2	3.5	4.4	13.6	16.6	22.7	19.4	8.1	0.8			100
1900 ...	4.4	3.2	0.2	0.2	1.6	7.3	11.7	14.9	17.3	23.8	12.1	2.8			100
1918 ...	2.4	12.1	5.4	4.4	5.4	22.0	18.0	11.3	9.7	6.7	2.7	0.5			100
1919 ...	3.7	8.6	4.3	2.2	5.7	19.7	17.8	13.6	11.6	9.2	3.5	1.5			100
1920 ...	2.5	2.1	1.4	0.4	3.1	23.0	18.3	12.5	12.5	11.0	10.9	1.1			100
1921 ...	6.6	5.6	1.0	2.8	1.9	9.3	9.3	17.0	16.4	17.9	7.5	4.7			100
1922 (1st quarter)	2.2	8.7	1.8	0.3	1.8	8.0	14.9	10.9	13.7	18.9	14.5	6.5			100

*The excess of female over male deaths in 1918 and 1919 was due to the absence of many men on military service. In 1920 the proportion had returned to the normal.

DEATHS FROM INFLUENZA AND FROM OTHER RESPIRATORY DISEASES IN THE CITY OF LIVERPOOL DURING THE DECADE 1912-1921.

The red line is the monthly average of the decade.

The arrows indicate recurring periods of 39 weeks from the week ending October 26th, 1918, and the asterisks recurring intervals of 39 weeks from the week ending December 25th, 1920.



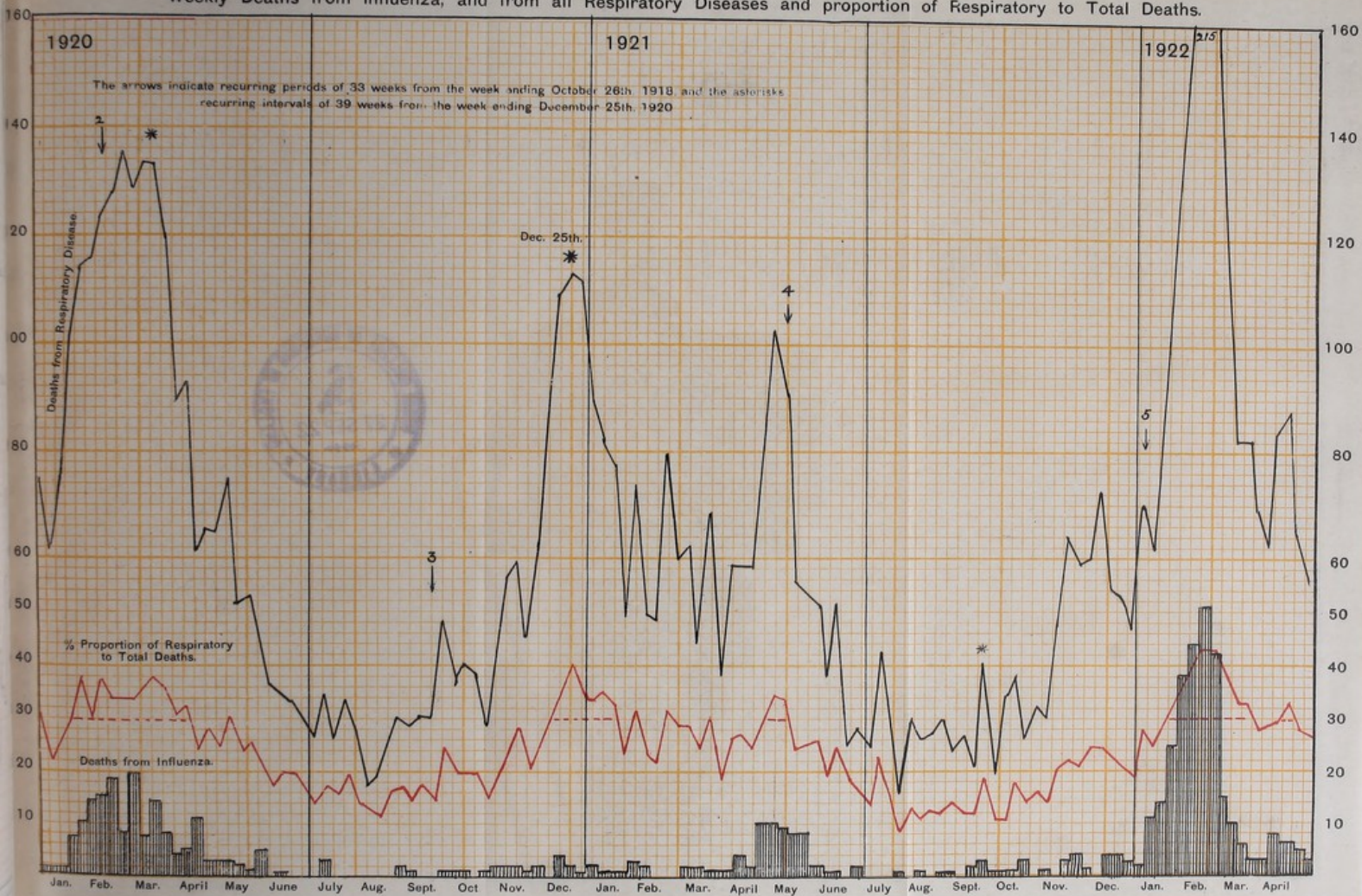
DEATHS FROM INFLUENZA AND FROM OTHER RESPIRATORY DISEASES IN LIVERPOOL DURING THE DECADE

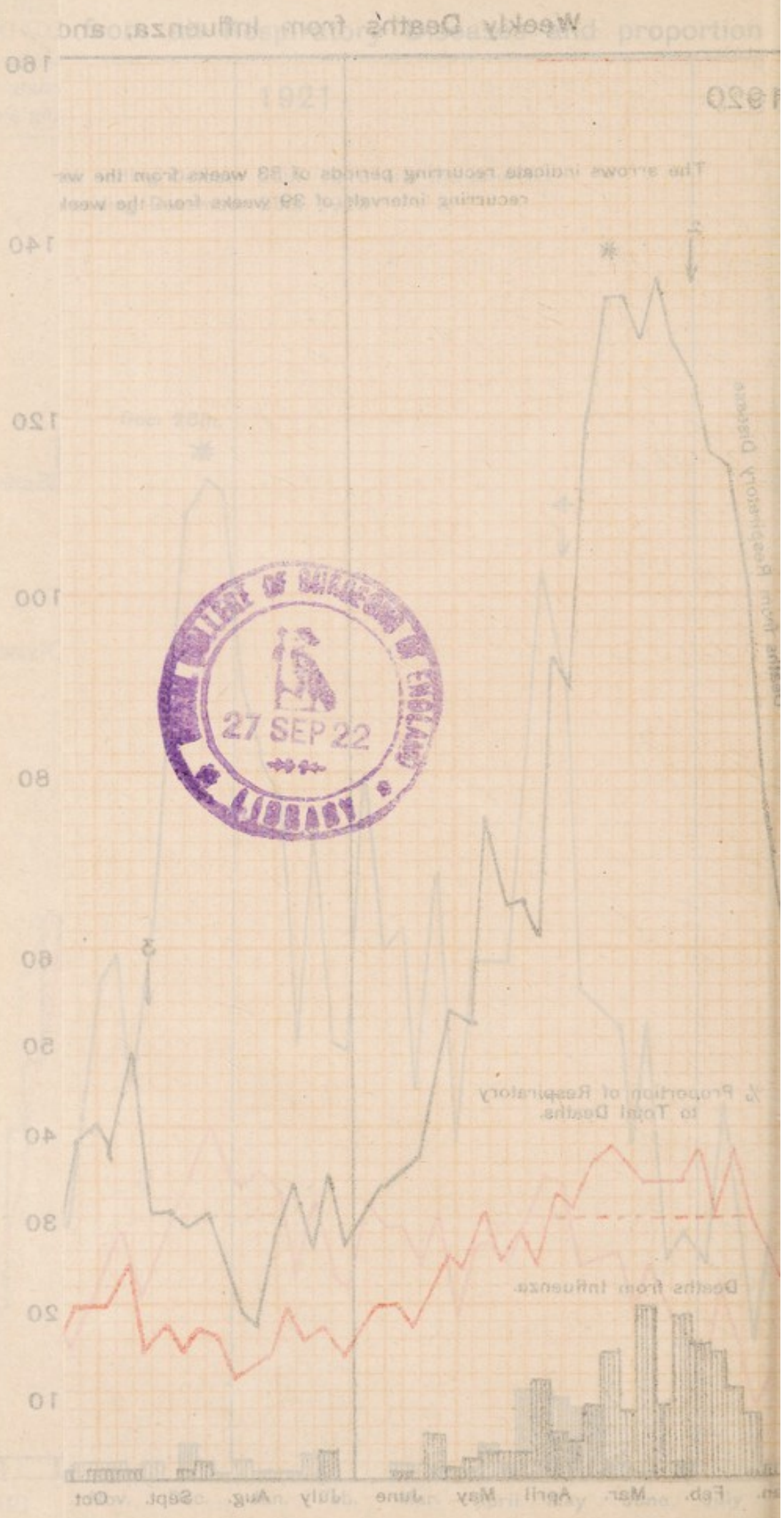
The red line is the monthly average of these deaths.
The arrows indicate recurring periods of 38 weeks from the week ending 2nd Dec recurring intervals of 38 weeks from the week ending 2nd Dec



CITY OF LIVERPOOL.

Weekly Deaths from Influenza, and from all Respiratory Diseases and proportion of Respiratory to Total Deaths.





The following table shows week by week the total number of deaths from all causes, the general death-rate, and the number of deaths from Influenza, Pneumonia, Bronchitis.

These figures do not include the deaths of Liverpool residents which occurred outside the City.

1921. Week ending.	Total Deaths.	Weekly Death Rate per 1,000 of Estimated Population	NUMBER OF DEATHS FROM			Total Respira- tory Deaths.	Percentage Proportion of Respira- tory to Total Deaths.
			Influenza.	Pneumonia and Broncho- Pneumonia	Bronchitis.		
JANUARY 1 (1 day)	19	—	—	3	1	4	—
8	261	17.4	3	50	34	89	34.1
15	230	15.3	1	40	38	82	35.6
22	231	15.4	1	32	39	77	33.3
29	205	13.7	—	22	21	49	23.9
FEBRUARY 5	217	14.5	3	32	41	73	33.5
12	211	14.1	2	20	26	49	23.2
19	221	14.7	—	20	28	48	21.7
26	240	16.0	—	31	43	79	32.9
MARCH 5	205	13.7	—	31	24	59	28.8
12	214	14.3	2	27	31	62	29.0
19	174	11.6	2	22	19	43	24.7
26	226	15.1	1	34	29	71	30.9
APRIL 2	204	14.4	1	15	21	38	18.6
	2,858	14.2	16	379	395	823	28.8
MAY 9	223	14.8	1	32	23	59	26.3
16	219	14.6	4	37	20	58	26.3
23	234	15.6	2	27	28	58	24.8
30	260	17.3	10	41	37	82	31.4
JUNE 7	289	19.3	10	57	33	100	34.5
14	294	19.6	8	57	33	91	34.0
21	220	14.7	8	40	16	56	25.5
28	218	14.5	8	34	18	53	24.3
JULY 4	206	13.7	2	27	23	51	25.3
11	198	13.2	1	22	13	38	19.1
18	208	13.9	1	33	14	52	25.0
25	175	11.7	—	12	11	24	14.3
AUGUST 2	159	10.6	2	18	9	28	17.4
	2,903	14.4	57	437	278	750	25.8
SEPTEMBER 9	170	11.3	—	14	11	25	14.1
16	185	12.3	—	22	15	42	22.9
23	224	14.9	—	15	12	29	12.9
30	175	11.7	—	10	5	16	9.1
OCTOBER 6	201	13.4	1	19	9	30	14.4
13	234	15.6	1	11	11	26	11.1
20	208	13.5	—	14	11	27	12.9
27	235	15.3	1	18	10	30	12.7
NOVEMBER 3	202	13.1	3	14	9	24	14.4
10	203	13.2	—	9	15	26	12.4
17	172	11.2	1	8	11	21	12.1
24	207	13.4	—	20	18	40	19.3
DECEMBER 1	173	11.2	1	12	7	20	11.6
	2,589	12.9	8	186	144	356	13.7

1921. Week ending.	Total Deaths.	Weekly Death Rate per 1,000 of Estimated Population	NUMBER OF DEATHS FROM			Total Respira- tory Deaths.	Percentage Proportion of Respira- tory Deaths
			Influenza.	Pneumonia and Broncho- Pneumonia	Bronchitis.		
OCTOBER 8	204	13·2	1	19	13	34	11
15	197	12·8	1	24	13	38	12
22	177	11·5	3	14	11	26	14
29	197	12·8	—	17	13	32	16
NOVEMBER 5	203	13·2	1	21	8	30	14
12	212	13·8	—	24	21	48	21
19	281	18·2	3	35	25	63	22
26	232	15·1	4	35	22	59	21
DECEMBER 3	232	15·1	1	27	32	60	25
10	287	18·6	—	36	35	73	25
17	236	15·3	4	22	29	54	22
24	230	14·9	4	27	19	50	21
31	257	16·7	3	22	22	47	18
	2,945	14·6	25	323	263	614	20
Total for the year 1921.....	11,295	14·1	106	1,325	1,080	2,543	22

DIGESTIVE DISEASES AND DIARRHŒA.

The following table shows the mortality from Digestive Diseases—including diarrhœa—in the City of Liverpool during the last 50 years:

	Actual Deaths.	Deaths expressed as a percentage of deaths from all causes.	Death-rate per 1,000 population.	Death-rates as a percentage of the 1871-80 rate.
1871-1880	14,747	10·0	2·8	100·6
1881-1890	13,186	9·4	2·4	85·7
1891-1900	18,491	12·7	3·0	107·2
1900-1910	18,163	12·0	2·5	89·3
1911-1920	12,282	8·9	1·59	56·7
1921	1,803	15·5	2·21	79·0

It will be observed that the deaths from digestive diseases, which had been very numerous prior to 1871, fell in the penultimate decade of last century, but rose again in the last decade. Since the early years of the present century there has been a marked decline in the number of deaths. This was especially marked during the latter years of the war.

Diarrhœa and Enteritis form the greater part of the deaths from digestive diseases. Of these deaths approximately two-thirds occur in infants under one year of age. The age distribution of deaths from diarrhœa and enteritis during the past 50 years is shown in the next table.

AVERAGE NUMBERS.						PER CENT.			
	1	2	5	Over 5 years	Total	1	2	5	Over 5 years
1871-1880 ...	559.9	170.4	36.3	79.4	846.0	66.2	20.1	4.3	9.4
1881-1890 ...	361.5	121.0	35.2	58.0	575.7	62.7	21.0	6.1	10.1
1891-1900 ...	577.4	167.7	40.8	60.1	846.0	68.0	19.8	4.8	7.2
1901-1910 ...	591.7	207.9	45.3	35.3	880.2	67.2	23.6	5.2	4.0
1911-1915 ...	619.6	285.4	58.6	43.2	1006.8	61.3	28.3	5.8	4.3
1916-1919 ...	312.2	104.5	31.2	63.5	511.5	61.0	20.4	6.1	12.4
1920 ...	382	61	17	29	489	79.1	12.5	3.5	5.9
1921 ...	514	169	33	66	782	65.7	21.7	4.2	8.4

It will be observed that down to 1915 there was a decline in the proportion of deaths from diarrhœal diseases in persons over five years of age, but that otherwise there was very little variation in the ages at death. During the war period, however, owing to the fall in the birth-rate, the proportions varied somewhat. Owing to the rapid rise in the birth-rate in 1920 the proportions at different ages were quite abnormal. In 1921, however, the proportions of death at different ages returned to the normal pre-war distribution.

Diarrhœa and Enteritis took a heavy toll of infant life during the year under report, the number of infant deaths being 683. Mortality from Diarrhœa is always heavier in dry and hot summers, and 1921

was exceptional in both respects. When comparison is made with earlier epidemic years during which the climatic conditions were favourable to the development of the disease it will be seen that the mortality has been very much reduced. In 1911, there were recorded 1,645 deaths from Diarrhœa and Enteritis, and in 1906 there were 1,298 deaths from Diarrhœa alone. There is every reason to suppose that the work of the Health Visitors and the establishment of Infant Welfare Clinics have contributed largely to this reduction. The accompanying diagram shows the mortality rates from Diarrhœa and from Diarrhœa and Enteritis during the past 26 and 11 years, respectively.

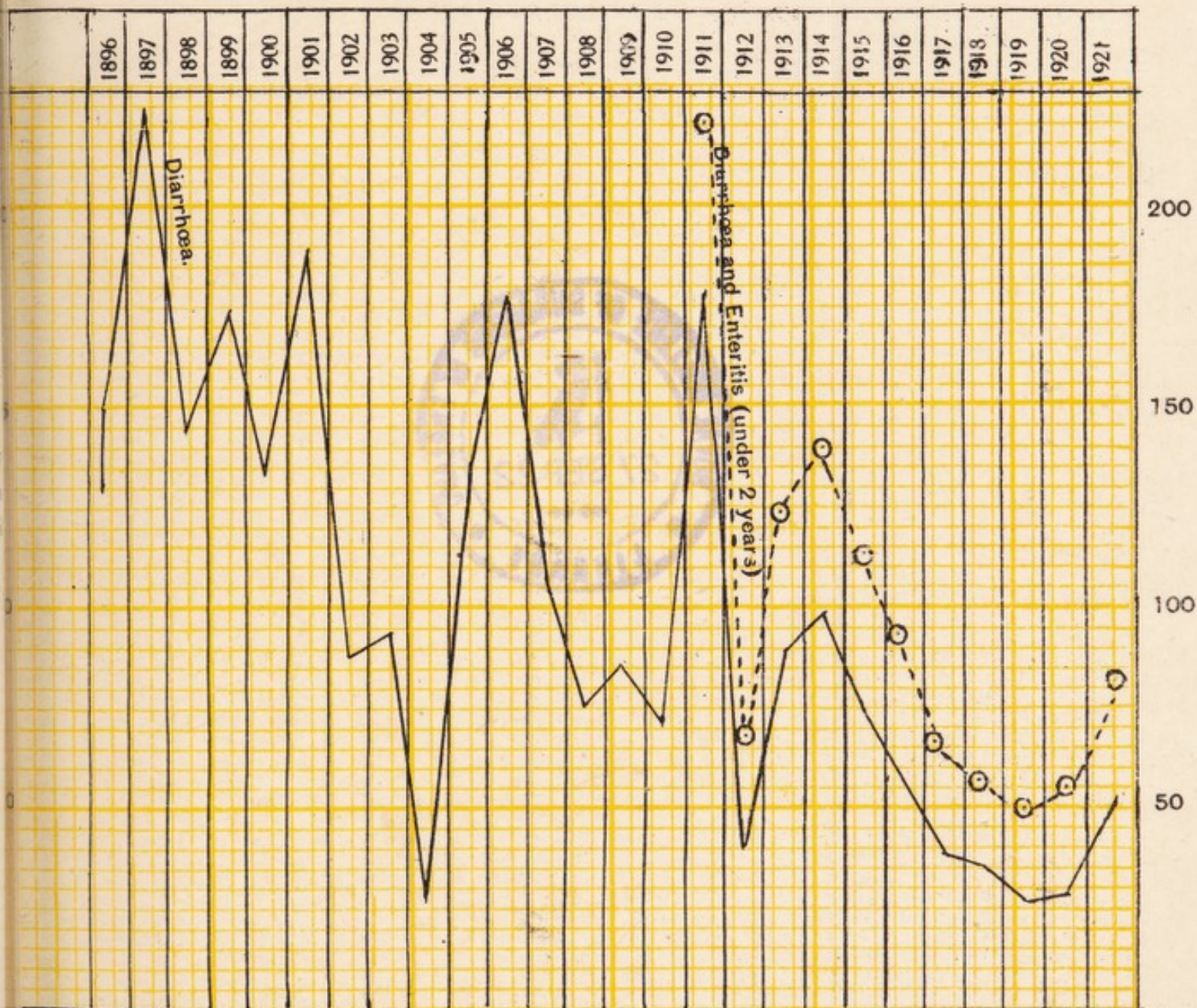
The diarrhœal mortality began to rise in the week ending July 16th, when 8 deaths were recorded. The numbers of deaths (under 2 years of age) in succeeding weeks were 18, 24, 29, 54, 53, 60, 43, 31, 25, 28, 24, 17, 21 and 15. The heaviest mortality was experienced in the week ending August 27th. The principal agent in the dissemination of diarrhœa has been shown to be the domestic fly. As in previous years, the outbreak occurred earliest and with greatest severity in the more crowded central parts of the City.

The mortality rate per 1,000 of the Births registered in the City during the last two years from Diarrhœa and Enteritis (under 2 years of age) was 14·6. The mortality in the several districts of the City is shown in the subjoined table:—

	Deaths.	Death Rate per 1000 births occurring during last two years.
Scotland	71	20·0
Exchange	88	37·1
Abercromby	41	16·5
Everton	133	15·8
Kirkdale	42	9·8
West Derby, West	72	12·8
Toxteth	103	15·2
Walton	30	7·8
West Derby, East	30	7·5
Wavertree	7	3·3
Sefton Park	7	4·8
Garston	11	7·6
Fazakerley	1	4·8
Woolton	2	6·2
Institutions, etc.	45	—

CITY OF LIVERPOOL.

Diarrhoea Death, Rates (all ages), per 100,000 Population, 1896-1921,
together with the combined rate from Diarrhoea
and Enteritis (under 2 years), for 1911-1921.



CITY OF LIVERPOOL.

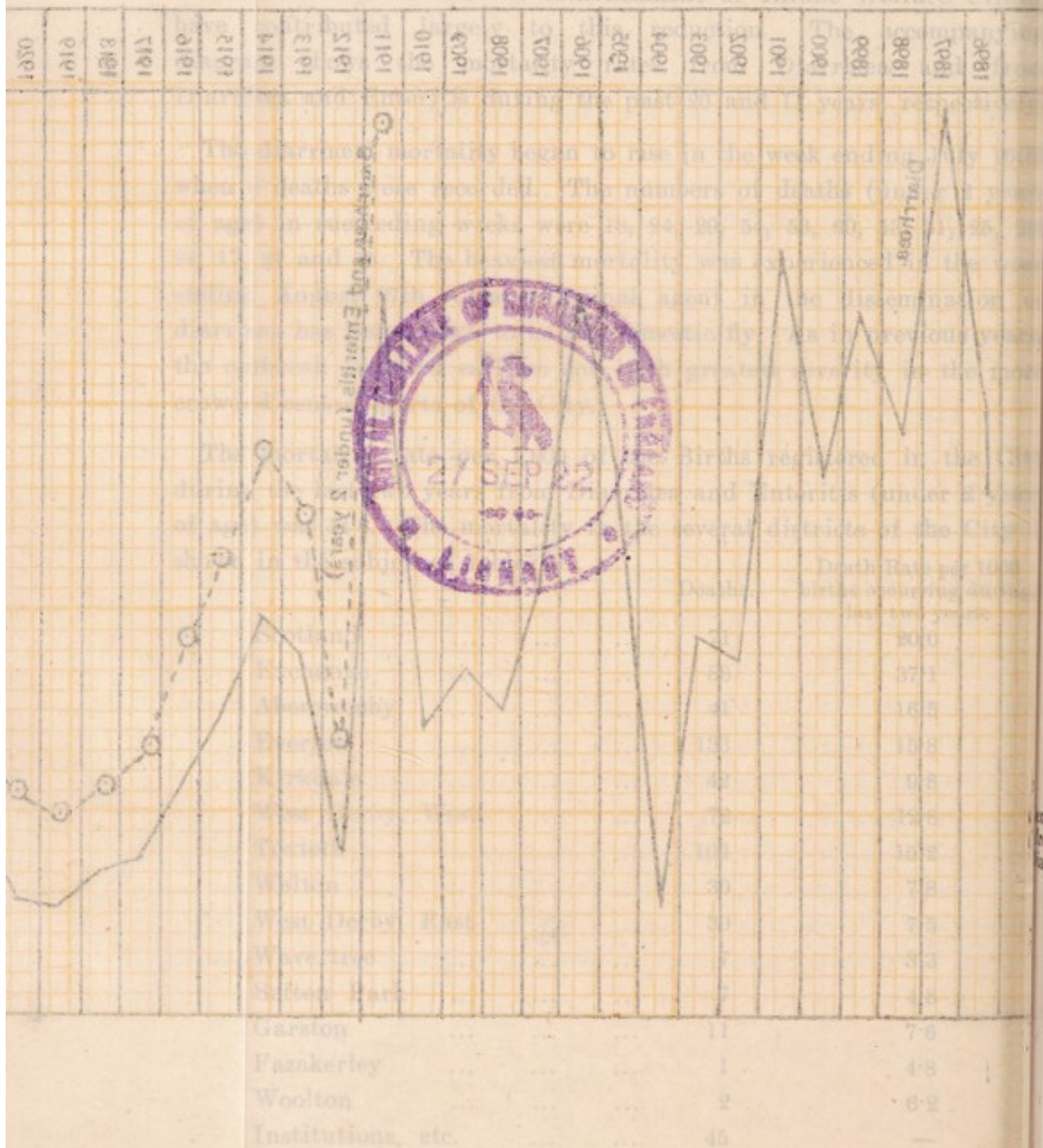


DIAGRAM shewing the number of each of two species to the total number of flies caught at the 46 centres in successive weeks from 2nd July to 29th October, 1921.

M. 49323 (1888) Est.

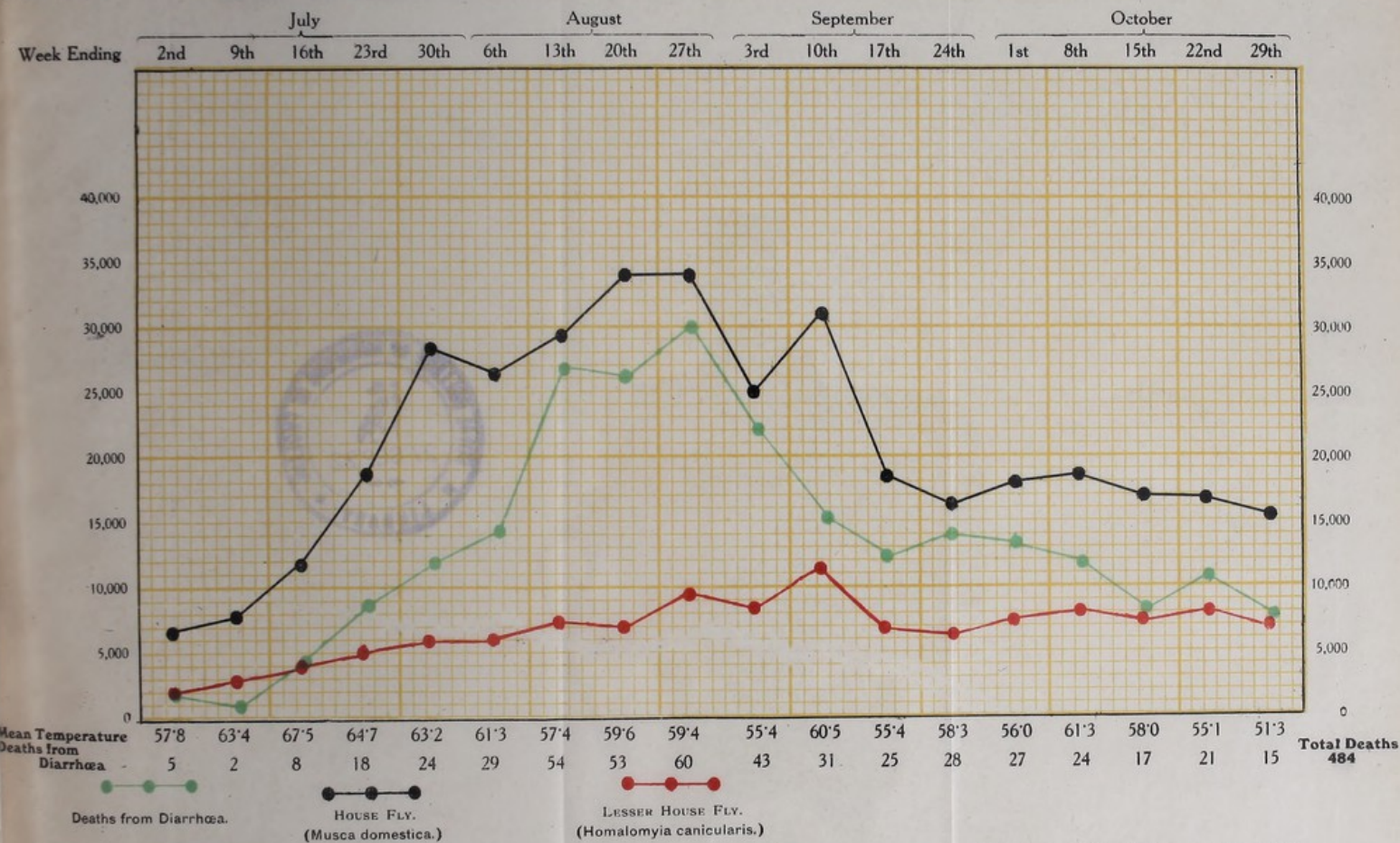


Chart illustrating the relation of the numerical abundance of house-flies to summer diarrhoea in the City of Liverpool in 1921.

DIAGRAM showing the number at the 46 centres in success

(1888) Est.

August
September
1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th

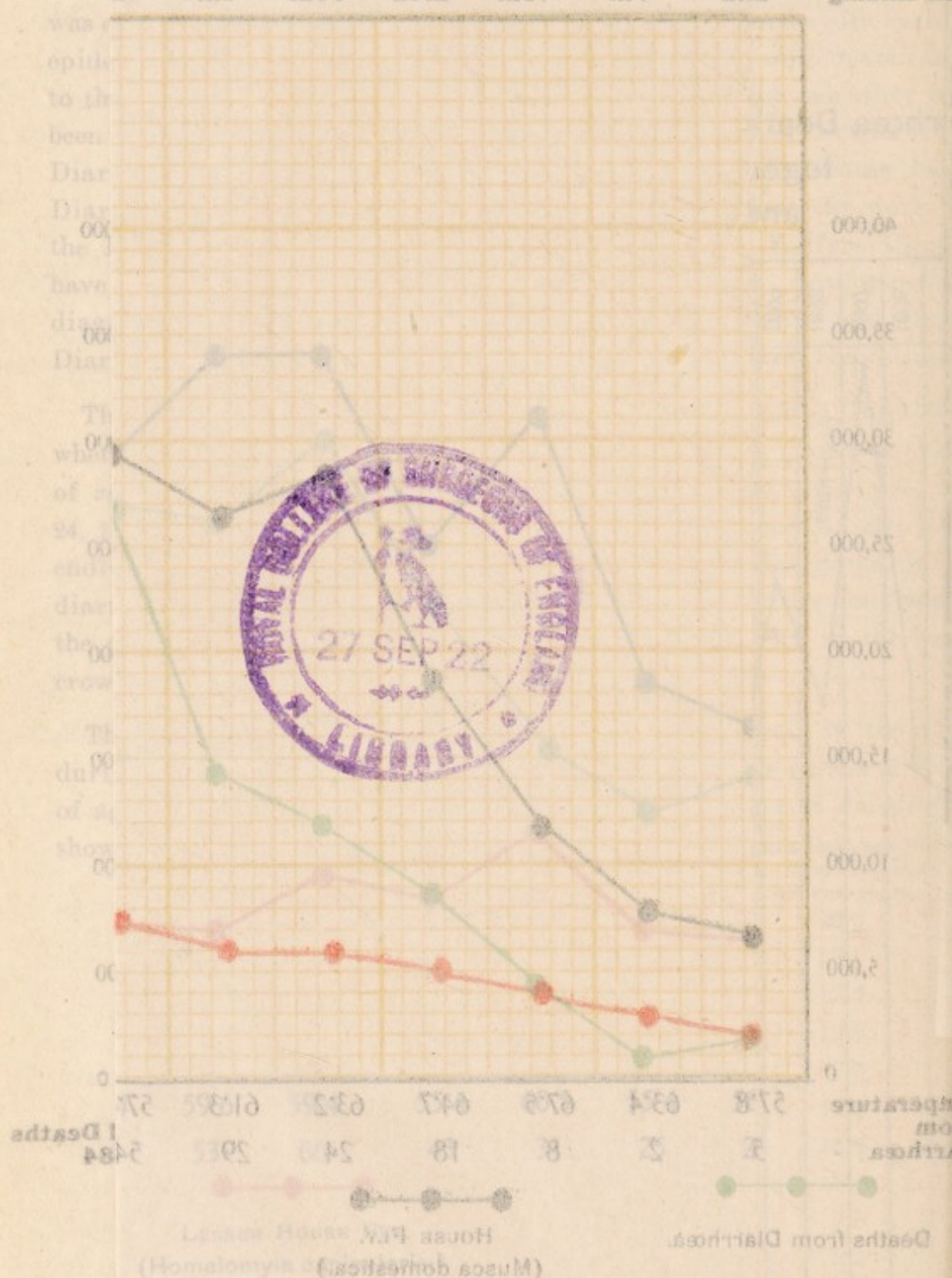


Chart illustrating the relation of the number

The accompanying diagram shows the relationship between the prevalence of flies and the mortality from diarrhœa for the months of June, July, August and September, and also the average weekly temperatures for the same period. The deaths recorded are those from Diarrhœa and Enteritis in children under two years of age. The prevalence of flies was observed by recording the numbers of flies caught on fly papers in a number of stations in various parts of the City. The fly-papers used were all of the same pattern and were renewed daily.

As soon as it became apparent that the conditions were present which are conducive to diarrhœa, the following measures were adopted. All houses where a death had occurred were visited by a health visitor and in this way many other cases were brought to light; advice as to the protection of milk and other foodstuffs was given and where other children were found to be sick the parents were advised to seek medical assistance.

Enquiries were also made as to the prevalence of flies and where these were found to be present in excessive numbers efforts were made to ascertain the breeding place; in several instances this was found to be in collections of stable manure and in one case in a quantity of damaged grain, which was fermenting owing to water having fallen on it in the course of a fire, conditions which were at once remedied. Regular visits of inspection were paid to stables and the occupiers informed as to the desirability of regular weekly removals of manure. The following notice has been issued to the owners of stables in recent years with the object of securing the frequent removal of manure from the latter:—

NOTICE.

REMOVAL OF MANURE FROM STABLES.

The Health Committee are very desirous that Manure from Stables should be removed with as little delay as possible, and with this object in view, arrangements have been made with the City Engineer for its speedy removal.

On application to the City Engineer, Municipal Offices, Dale Street, Manure will be removed from stable yards as often as required, free of charge.

The following table shows the number, monthly distribution, and nature of cases of Infectious Disease coming under the notice of the Medical Officer of Health during the year 1921:—

YEAR— 1921.	Enteric Fever.	Typhus Fever.	Scarlet Fever.	Measles and German Measles.	Diphtheria and Croup.	Puerperal Fever.	Erysipelas.	Cerebro-spinal Fever.	Polionyelitis and Polioencephalitis.	Ophthalmia Neonatorum.	Pneumonia & Influenza Pneumonia.	Malaria.	Whooping Cough.	Dysentery.	Encephalitis Lethargica.	TOTAL.
January ...	2	...	323	143	131	7	42	2	...	47	226	10	279	4	10	944
February	4	1	279	182	109	...	24	1	...	58	157	4	239	1	14	833
March ...	7	...	242	228	98	3	25	1	...	60	127	9	210	1	...	800
April .....	...	...	219	326	135	6	42	4	1	51	253	8	504	1	1	1070
May	3	...	193	656	100	2	33	1	1	65	270	7	415	...	2	1333
June	1	...	202	1033	65	4	34	3	...	66	170	9	356	4	...	1593
July .....	...	...	164	544	83	5	33	1	1	47	92	3	29	...	...	972
August ...	1	...	142	344	40	1	33	1	1	59	89	3	231	...	...	713
September	2	...	221	683	68	5	32	3	...	64	87	4	144	...	...	1160
October ...	4	...	382	1141	129	13	40	1	...	49	164	15	160	1	...	1940
November	4	...	297	1680	98	7	58	5	1	48	142	8	254	...	...	2340
December	2	...	368	2183	126	7	75	3	1	46	231	10	198	...	...	3050
TOTAL...	30	1	3062	9143	1182	60	471	26	6	660	2007	90	3019	12	27	16770
Removed to hospital	25	1	2475	1027	1040	50	152	25	4	60	1145	46	85	10	19	6070

The number of patients removed to hospital includes those admitted to the general hospitals, as well as those admitted to the city infectious diseases hospitals.

NOTIFICATION OF INFECTIOUS DISEASE.

The following is a list of the diseases notifiable in the City of Liverpool during 1921:—

Anthrax	Ophthalmia Neonatorum
Anterior Poliomyelitis	Paratyphoid Fever
Cerebro-spinal Fever	Plague
Cholera.	Pneumonia, Acute Influenzal
Continued Fever	Pneumonia, Acute Primary
Diphtheria	Polioencephalitis, Acute
Dysentery	Puerperal Fever
Enteric	Relapsing Fever
Erysipelas	Scarlet Fever or Scarlatina
Encephalitis Lethargica, Acute	Smallpox
German Measles	Tuberculosis (all forms)
† Measles.	Trench Fever
Malaria	Typhoid Fever
Membranous Croup	Typhus Fever.

The numbers of notifications received by the Medical Officer during the past three years, were as follows:—

	1919.	1920.	1921.
January	548	2,604	898
February	493	3,093	796
March	917	2,733	896
April	620	1,198	937
May	772	1,103	1,272
June	706	1,073	1,280
July	653	800	859
August	554	567	668
September	736	739	966
October	1,105	816	1,379
November	1,389	825	1,761
December	1,997	856	2,145
	<u>10,490</u>	<u>16,407</u>	<u>13,857</u>

† Measles ceased to be compulsory notifiable on 31st October, 1920, but a system of voluntary notification has been continued.

The diseases were certified as follows:—

			<u>1919.</u>		<u>1920.</u>		<u>1921.</u>
Smallpox ...	...	...	8	...	10	...	1
Scarlet Fever ...	...	...	2,592	...	3,040	...	2,786
Enteric Fever ...	...	...	68	...	71	...	50
Paratyphoid Fever ...	...	...	—	...	4	...	1
Relapsing Fever ...	...	...	—	...	—	...	1
Typhus Fever ...	...	...	3	...	3	...	—
Puerperal Fever ...	...	...	60	...	60	...	46
Continued Fever ...	...	...	—	...	2	...	3
Diphtheria and Croup ...	...	...	1,807	...	1,527	...	1,090
Erysipelas... ...	...	...	564	...	519	...	486
Anthrax ...	...	...	18	...	10	...	5
Cerebro-spinal Fever ...	...	...	45	...	31	...	25
Acute Poliomyelitis ...	...	...	5	...	5	...	3
Measles and German							
Measles ...	...	...	2,953	...	7,110	...	6,000
Ophthalmia							
Neonatorum ...	...	...	672	...	766	...	660
†Pneumonia and							
Influenzal Pneumonia			1,269	...	2,165	...	2,011
†Malaria ...	...	...	395	...	169	...	99
†Trench Fever ...	...	...	2	...	1	...	1
†Dysentery... ...	...	...	26	...	17	...	17
Encephalitis Lethargica...			3	...	22	...	34
Chickenpox ...	...	...	—	...	874	...	538
Plague ...	...	...	—	...	1	...	—
			<u>10,490</u>		<u>16,407</u>		<u>13,857</u>

† Notifiable as from 1st March, 1919.

The following table gives a summary of cases of Infectious Disease coming under the notice of the Medical Officer of Health during the last six years:—

DISEASE.	1916	1917	1918	1919	1920	1921
Smallpox	—	2	—	13	9	—
Plague	6	—	—	1	1	—
Typhus Fever	2	1	2	—	—	1
Enteric Fever	76	54	65	39	44	30
Scarlet Fever	2,148	2,277	3,020	2,797	3,230	3,062
Measles and German Measles	14,732	9,230	9,268	3,983	11,448	9,143
Diphtheria	1,106	1,117	1,494	1,959	1,654	1,182
Puerperal Fever.....	52	33	28	55	69	60
Erysipelas	579	383	454	564	505	471
Cerebro-Spinal Fever	37	34	17	26	27	26
Poliomyelitis and Polioen- cephalitis	9	4	6	2	6	6
Ophthalmia Neonatorum ...	515	516	587	672	766	660
Anthrax	15	7	10	14	4	—
Encephalitis Lethargica	—	—	—	2	17	27

DEATHS FROM INFECTIOUS DISEASE.

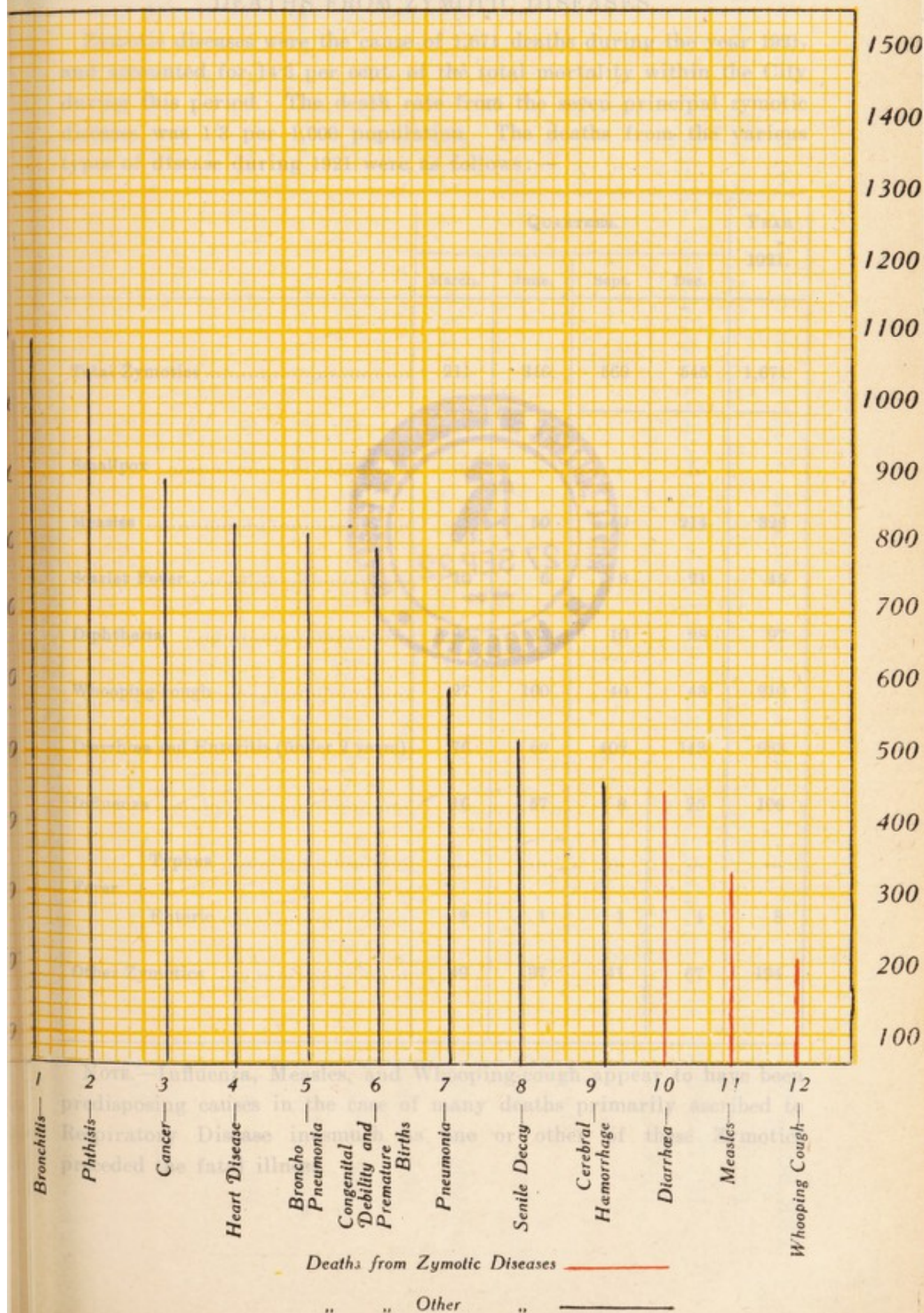
Table shewing the deaths from Infectious Disease occurring during the last six years:—

DISEASE.	1916	1917	1918	1919	1920	1921
Smallpox	—	1	—	1	2	—
Plague	4	—	—	1	1	—
Typhus Fever.....	2	—	—	—	—	—
Enteric Fever	11	15	13	7	8	8
Scarlet Fever	63	71	133	74	70	45
Measles and German Measles	264	436	407	103	387	328
Diphtheria	137	143	228	212	188	97
Puerperal Fever.....	22	16	17	20	37	34
Erysipelas	15	14	15	23	26	18
Cerebro-Spinal Fever	4	23	12	22	18	19
Poliomyelitis and Polioen- cephalitis	4	3	5	—	—	4
Anthrax	3	1	—	3	1	—
Encephalitis Lethargica	—	—	—	—	2	5
Whooping Cough	235	132	364	53	228	210

CITY OF LIVERPOOL.

COMPARATIVE VIEW OF TWELVE OF THE PRINCIPAL CAUSES
OF DEATH DURING THE YEAR 1921.

M. 49104 Est.



CITY OF LIVERPOOL.

COMPARATIVE VIEW OF TWELVE OF THE PRINCIPAL CAUSES
OF DEATH DURING THE YEAR 1881.

DEATHS FROM ZYMOTIC DISEASES.

Zymotic diseases were the cause of 1,671 deaths during the year 1921, and accounted for 14·3 per cent. of the total mortality within the City during this period. The death rate from the seven principal zymotic diseases was 1·3 per 1,000 population. The deaths from the various types of disease during 1921 were as follows:—

	QUARTERS.				YEAR 1921.
	March.	June.	Sept.	Dec.	
Total Zymotics	211	346	569	545	1,671
Smallpox .....	...	...	...	...	...
Measles	5	50	59	214	328
Scarlet Fever.....	10	6	8	21	45
Diphtheria	26	33	10	28	97
Whooping-cough	27	100	40	43	210
Diarrhœa and Enteritis (under 2 years)	76	62	402	143	683
Influenza	16	57	8	25	106
Fever {	Typhus .....	...	...	...	...
	Enteric	2	1	4	8
Other Zymotics	49	37	41	67	194

NOTE.—Influenza, Measles, and Whooping-cough appear to have been predisposing causes in the case of many deaths primarily ascribed to Respiratory Disease inasmuch as one or other of these Zymotics preceded the fatal illness.

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

Years.	Small Pox.	Typhus.	Enteric.	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	126.4	421.2	517.8	472.3	658.4
1886 to 1895	8.8	37.1	153.0	257.5	399.5	322.4	600.6
*1896 to 1905	19.5	25.1	134.4	201.3	329.0	330.4	1,061.9
1906 to 1915	0.04	5.7	50.3	141.6	438.0	296.7	848.0
Year 1921.....	—	—	8	45	328	210	451

* Including extended City area.

† Records not available.

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

YEARS.	SMALLPOX.		TYPHUS.		ENTERIC.		SCARLET FEVER.		MEASLES.		WHOPPING COUGH.		DIARRHEA.	
	Above 5.	Below 5.	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	+190.0	+5.1	+110.3	+12.1	137.0	284.2	35.4	482.4	18.6	453.7	61.9	596.5
1886 to 1895	6.2	2.6	36.2	.9	142.0	11.0	87.6	169.9	28.3	371.2	15.1	307.3	60.2	540.4
**1896 to 1905	14.5	5.0	24.2	.9	128.4	6.0	61.7	139.6	17.1	311.9	11.9	318.5	53.6	1,008.3
1906 to 1915	.04	—	5.5	.2	49.0	1.3	50.9	90.7	23.9	414.1	9.2	287.5	30.8	817.2
1921	—	—	—	—	8	—	24	21	13	315	7	203	23	428

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

† During the six years, 1880-1885.

** Including extended City area.

The following table shows the number of deaths, the annual average death-rate per 100,000 of the population from the undermentioned forms of disease during the last six decades, 1856 to 1915, and during 1921:—

DISEASE.	Average Population	1856 to 1865.	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896† to 1905.	1906‡ to 1915.	1921
		443,938.	493,405.	538,651.	536,974.	691,351.	747,015.	817,411.
Scarlet Fever	Total Deaths ...	5,994	7,894	4,212	2,575	2,013	1,416	
	Rate per 100,000 per annum.	135.0	159.9	78.1	47.9	29.1	19.0	
Typhus Fever	Total Deaths ...	7,482	6,528	2,380	371	251	57	
	Rate per 100,000 per annum.	168.5	132.2	44.1	6.9	3.6	0.8	
Enteric Fever	Total Deaths ...	*	*	1,264	1,530	1,344	503	
	Rate per 100,000 per annum.	—	—	21.5	28.4	19.3	6.7	
Measles	Total Deaths ...	3,215	4,257	5,178	3,995	3,290	4,380	4
	Rate per 100,000 per annum.	72.4	86.2	96.1	74.3	47.5	58.6	4
Whooping Cough	Total Deaths ...	4,779	4,968	4,723	3,224	3,304	2,967	5
	Rate per 100,000 per annum.	107.6	100.6	87.6	60.0	47.7	39.7	2
Smallpox	Total Deaths ...	1,673	2,374	908	88	195	3	0
	Rate per 100,000 per annum.	37.6	48.1	16.8	1.6	2.8	0.4	0.0
Phthisis	Total Deaths ...	15,572	16,476	13,754	11,436	12,632	12,010	1,0
	Rate per 100,000 per annum.	350.7	333.9	255.3	212.9	182.7	160.7	128

† City Boundaries extended in 1895, 1902, 1905.

* Records not available.

‡ " " " 1913.

DIABETES.

The following table shows the incidence of fatal cases of Diabetes in Liverpool since 1890:—

	Actual Numbers.			Average for 5 years.			Rate per 100,000	Ratio of Males to Females.
	Males.	Females.	Total.	Males.	Female.	Total.		
90-1894	55	45	100	11.0	9.0	20.0	3.8	1.22
95-1899	99	76	175	19.8	15.2	35.0	5.3	1.30
00-1904	132	100	232	26.4	20.0	46.4	6.5	1.32
05-1909	153	124	277	30.6	24.8	55.4	8.4	1.23
1910	37	30	67	32.4	30.6	63.0	8.4	1.06
1911	28	30	58					
1912	33	33	66					
1913	26	32	58					
1914	38	28	66					
1915	33	26	59	30.6	27.4	58.0	7.4	1.12
1916	33	36	69					
1917	23	27	50					
1918	33	18	51					
1919	31	30	61					
1920	25	41	66	27.0	38.5	65.5	8.0	0.70
1921	21	36	65					

It will be seen that the death-rate from Diabetes rose steadily up till 1910-14. It is probable that this rise was largely due to improved diagnosis. During the War the number of deaths showed a distinct fall, especially in 1917 and 1918; this was a real fall and not merely due to the absence of males on military service as, on the average of five years, females were equally affected with males. Since the War the figures have again risen, but are slightly below the average for the decade 1910-19. The disparity, in the incidence, between the two sexes, previously in favour of the females, has since 1904 tended to disappear. In 1890-1894, 55 per cent. of the deaths were of males; but in 1920-21 the position was reversed and only 41.2 per cent. were of males.

CANCER.

DEATHS FROM CANCER, AND THE PART OF THE BODY AFFECTED. DURING THE YEARS 1916 TO 1921.

Part of the Body affected.	1916.			1917.			1918.			1919.			1920.			1921.		
	1916.			1917.			1918.			1919.			1920.			1921.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Buccal Cavity	61	8	69	61	8	69	76	9	85	63	6	69	67	5	72	79	7	86
Stomach, Liver, etc	117	139	256	120	112	232	122	110	232	131	121	252	152	129	281	123	122	245
Intestines, etc.	84	99	183	83	70	153	84	82	166	77	81	158	88	80	168	78	87	165
Breast	1	63	64	1	62	63	1	51	52	—	68	68	—	75	75	1	72	73
Female Genitive Organs ...	—	103	103	—	113	113	—	101	101	—	107	107	—	90	90	—	107	107
Parts not specified	77	39	116	77	40	117	72	42	114	81	48	129	102	58	160	148	66	214
Totals.....	340	451	791	342	405	747	355	395	750	352	431	783	409	437	846	429	461	890

DEATHS FROM EXCESSIVE DRINKING, &c.

The number of deaths from drink is still very low when compared with pre-war years, but during the year 1921 they numbered 24 as against 14 in the previous year, 1920, which latter figure is the lowest number which has ever been recorded in the City from this cause. The increase appears to be chiefly amongst the males, the female deaths being only three during the year.

The deaths of infants under one year of age from suffocation, however, still shows a welcome decline, being only 12 as against 23 in the previous year.

Improved habits and conditions, wider educational influences and other agencies, including those associated with the welfare of motherhood and infancy have all played their part in promoting a more temperate use of alcoholic drinks with results which are eminently satisfactory.

Housing operations so far as they have gone have unquestionably contributed towards improving the general conditions of life and social habits of the people formerly housed in insanitary surroundings in slum areas.

The improved conditions of the children is especially noticeable; the reports in connection with Medical Inspection of School Children in the poorer localities show welcome improvement, the details in reference to this subject being given in the Annual Report to the Education Committee.

The following tables give the actual figures for the past eight years of the deaths from excessive drinking, and the deaths of infants under one year of age from suffocation. The appended chart shows the deaths from excessive drinking since the year 1901:—

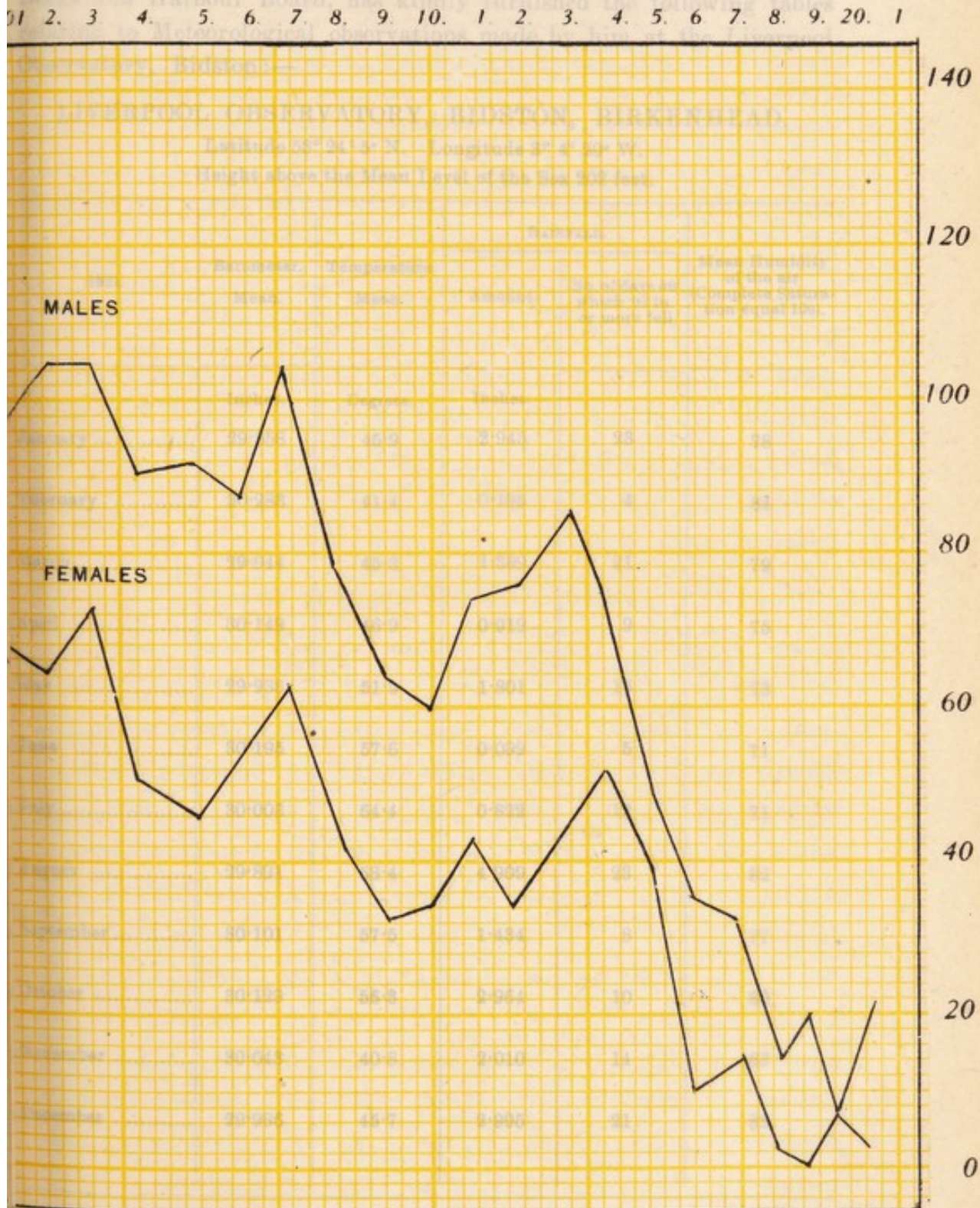
YEAR.	MALES.	FEMALES.	TOTAL.
1914	73	52	125
1915	48	38	86
1916	35	9	44
1917	33	15	48
1918	14	2	16
1919	19	—	19
1920	7	7	14
1921	21	3	24

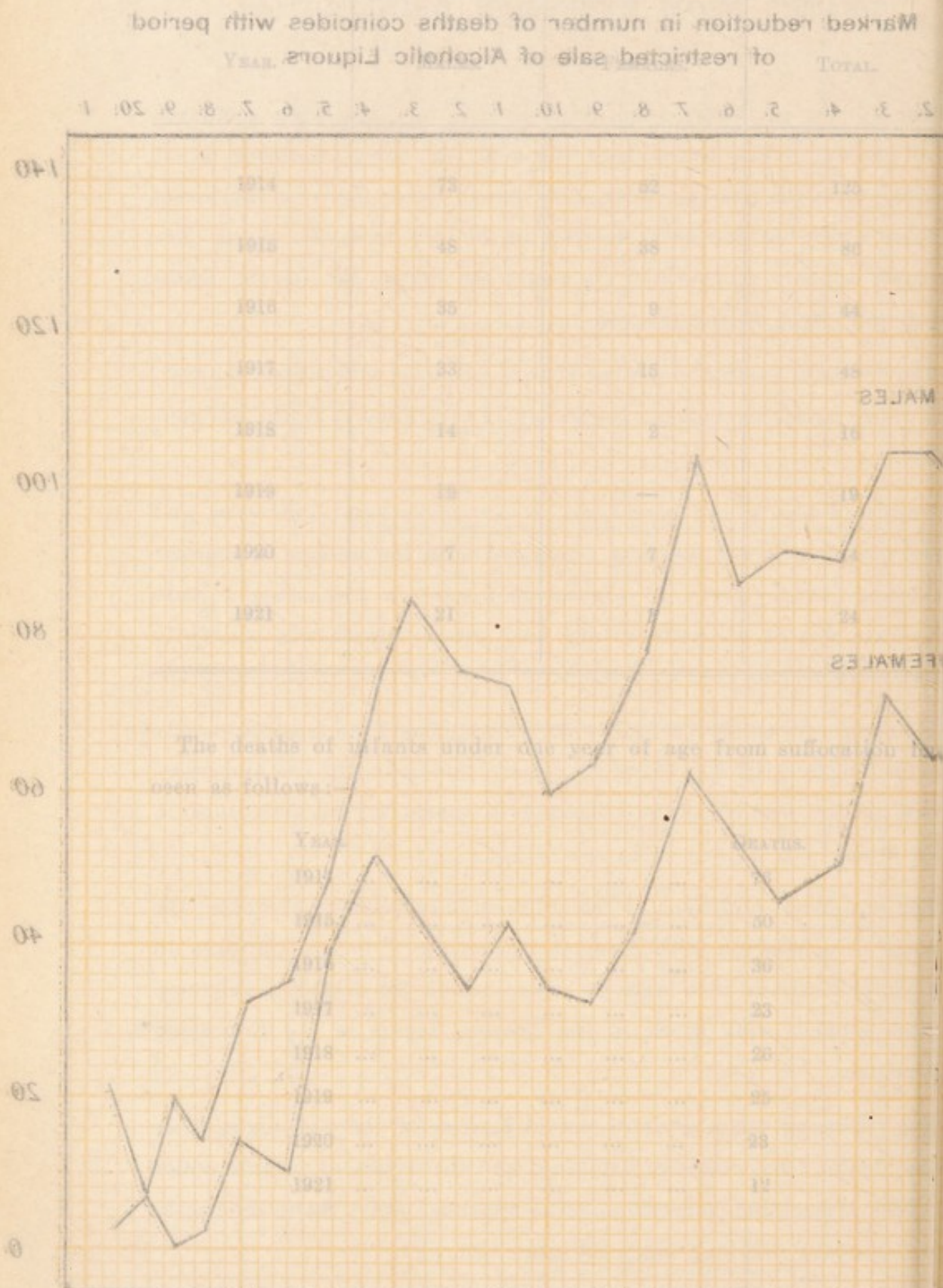
The deaths of infants under one year of age from suffocation have been as follows:—

YEAR.	DEATHS.
1914	76
1915	50
1916	36
1917	23
1918	26
1919	25
1920	23
1921	12

Deaths from excessive drinking during the 21 years 1901 to 1921.

Marked reduction in number of deaths coincides with period
of restricted sale of Alcoholic Liquors.



Deaths from excessive drinking during the 21 years
1901 to 1921

METEOROLOGY.

Mr. W. E. Plummer, M.A., F.R.A.S., Astronomer to the Mersey Docks and Harbour Board, has kindly furnished 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.

1921.	Barometer. Mean.	Temperature. Mean.	RAINFALL.		Mean Humidity of the air (Complete Saturation equal 100).
			Amount.	No. of days on which ≥ 1 in. or more fell.	
	Inches.	Degrees.	Inches.		
January	29.858	45.9	2.943	23	78
February	30.283	41.4	0.185	4	84
March	29.944	45.3	1.389	21	79
April	30.149	46.9	0.919	9	75
May	29.933	51.9	1.801	15	73
June	30.195	57.6	0.099	5	71
July	30.003	64.4	0.822	12	71
August	29.891	58.4	4.909	23	82
September	30.101	57.5	1.434	8	77
October	30.129	56.3	2.964	10	80
November	30.043	40.8	2.010	14	83
December	29.986	45.7	2.995	21	83

DIFFERENCE FROM THE AVERAGE QUANTITIES OBSERVED DURING THE
LAST 50 YEARS.

1921.	BAROMETER.		TEMPERATURE.		RAINFALL.	
	Above Average.	Below Average.	Above Average.	Below Average.	Above Average.	Below Average.
	Inches.	Inches.	Degrees.	Degrees.	Inches.	Inches.
January .....	...	0.079	6.7	...	0.803	...
February	0.354	...	0.1	...	...	1.495
March	0.065	...	3.1	...	...	0.504
April	0.239	...	...	0.4	...	0.736
May .....	...	0.036	0.1	...	...	0.141
June	0.201	...	0.1	...	...	1.959
July	0.081	...	3.6	...	...	1.835
August .....	...	0.027	...	2.1	1.862	...
September	0.131	...	1.3	...	...	1.309
October.....	0.245	...	6.7	...	...	0.415
November	0.147	...	...	2.4	...	0.464
December.....	0.141	...	5.8	...	0.246	...

OBSERVATIONS OF VELOCITY OF WIND.

1921.	Average Hourly Velocity for Month.	Maximum Hourly Velocity.	Date.	Minimum Hourly Velocity.	Date.
	Miles.	Miles.		Miles.	
January	22.4	64	Jan. 18	0	January 14, 27.
February....	14.1	43	Feb. 15	0	February 1, 8, 18.
March.....	19.1	46	Mar. 4	0	March 7, 22.
April	13.3	46	April 14	0	April 1, 2, 3, 7, 12, 18, 21, 25, 28.
May	11.7	35	May 31	0	May 3, 10, 12, 16, 22, 24, 28.
June	15.1	51	June 10	0	June 16, 17, 24, 29.
July	12.3	34	July 22, 23, 29	0	July 3, 5, 8, 9, 10, 11, 12, 17, 23.
August	12.8	40	Aug. 6	0	August 5, 10, 12, 19, 22, 23, 29.
September..	11.6	39	Sept. 14	0	Sept. 4, 5, 6, 7, 9, 19, 21, 22, 23, 24, 25, 26, 29.
October.....	12.9	46	Oct. 29	0	October 6, 8, 12, 15, 20, 23, 26.
November...	15.5	56	Nov. 6	0	November 11, 12, 18.
December...	23.8	62	Dec. 30	0	December 4.

ATMOSPHERIC POLLUTION.

The analyses of the deposits collected from the atmospheric pollution gauge at the North Tuberculosis Dispensary in Netherfield Road, are shown in the table below. This is the first complete year's record since the gauge was reinstalled at the end of the war. It will be seen that deposits of soot and other material fall on every square mile of that part of the City in amounts averaging 46 tons per month.

An interesting feature of the records is the effect on them of the coal strike, which, it will be recollected, occupied the whole of the second quarter of the year. Of the matter collected in the gauge, some is mineral matter, such as is liable to be carried by high winds from road surfaces, etc., some is organic matter which may be similarly derived, but which is also, and in no small degree, sooty or tarry in nature and derived from the incomplete combustion of coal. It is the latter which darkens the sky and, in winter, promotes the formation of fogs. The effect of the coal strike was largely to diminish this latter, as will be seen from reference to the table of Analyses (page 64) showing each month separately and to the table below in which are shown the monthly average amounts of several substances for the four quarters of the year:—

	MONTHLY AVERAGE OF DEPOSITS IN TONS PER SQUARE MILE.				
	First Quarter.	Second Quarter.	June.	Third Quarter.	Fourth Quarter.
Undissolved tarry matter and bitumen...	0.464	0.251	0.079	0.278	0.393
Dissolved Organic matter	6.054	3.205	1.340	4.686	5.887
Sulphate as SO ₃	6.365	2.887	1.820	4.958	5.090

There was a marked and progressive reduction in the quantity of these suspended matters with the progress of the strike. There was also a corresponding and remarkable increase in the clarity of the atmosphere. This was mainly due to a diminished production of smoke by domestic coal consumers, as there was little, if any, reduction in the amount of smoke given off from commercial chimneys. There is no reason why this improvement in the amount of atmospheric impurities which resulted from lack of coal should not be attained voluntarily by the increased use of gas, electricity and anthracite coal, and the various smoke-consuming devices. There can be little doubt that this would be of great benefit to the health, as well as the amenities of the community.

ATMOSPHERIC POLLUTION, 1921.

RESULT OF ANALYSES BY THE CITY ANALYST (RESULTS CALCULATED IN TONS PER SQUARE MILE).

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Totals for 12 months.
Sum Total Solids	52.474	35.674	40.239	60.596	46.100	60.209	46.286	50.870	38.425	35.679	37.040	54.950	558.542
UNDISSOLVED MATTER—													
Tarry Matter and Bitumen	0.507	0.364	0.520	0.234	0.440	0.079	0.252	0.323	0.260	0.239	0.320	0.620	4.158
Other Organic Matter	7.124	4.700	7.879	11.074	9.790	13.320	9.012	8.630	7.074	7.229	6.480	9.700	102.012
Mineral Matter	17.880	11.730	15.470	38.130	25.050	40.780	24.694	21.860	20.550	14.591	16.120	22.310	269.165
Total Undissolved Matter ...	25.511	16.794	23.869	49.438	35.280	54.179	33.958	30.813	27.884	22.059	22.920	32.630	375.335
DISSOLVED MATTER—													
Organic Matter by Ignition	7.703	5.970	4.490	4.495	3.780	1.340	2.868	7.524	3.667	4.420	5.080	8.160	59.497
Mineral Matter	19.260	12.910	11.880	6.663	7.040	4.690	9.460	12.533	6.874	9.200	9.040	14.160	123.710
Total Dissolved Matter	26.963	18.880	16.370	11.158	10.820	6.030	12.328	20.057	10.541	13.620	14.120	22.320	183.207
Alkalinity as NH_3	—	0.017	—	0.084	0.130	0.175	0.239	—	0.038	0.060	—	—	0.743
Acidity as H_2SO_4	0.512	—	0.194	—	—	—	—	0.336	—	—	0.206	0.260	1.508
Chlorine as Cl	5.296	1.716	1.874	1.417	1.489	0.805	1.066	1.774	1.464	1.310	1.599	3.860	23.670
Ammonia as NH_3	0.461	0.154	0.130	0.311	0.499	0.130	0.499	0.637	0.331	0.460	0.390	0.690	4.692
Sulphate as SO_3	7.104	6.650	5.340	3.690	3.150	1.820	3.595	6.579	4.700	4.360	4.550	6.360	57.898
Lime as CaO	1.920	0.930	1.580	1.828	1.210	1.250	0.930	1.568	1.147	1.100	1.550	1.630	16.643
RAINFALL { Millimetres ...	94.4	7.9	51.8	32.7	53.1	6.3	28.1	122.9	44.9	72.2	55.4	106.8	676.5
{ Inches	3.72	0.31	2.04	1.29	2.09	0.24	1.11	4.84	1.77	2.84	2.18	4.20	26.63

PUBLIC HEALTH (PNEUMONIA, DYSENTERY, ETC.).

REGULATIONS, 1919.

The following Statement shows the number of notifications received under the regulations and the number of deaths during 1920 and 1921.

	1920.		1921.	
	Cases.	Deaths.	Cases.	Deaths.
Acute Pneumonia	2,165	1,804	2,007	1,305
Malaria	169	7	90	3
Trench Fever	1	1	1	...
Dysentery	17	10	12	3
	2,452	1,822	2,110	1,356

Enquiry was made into all these cases; 1,556 cases of Influenzal Pneumonia were visited and 178 received assistance from nurses appointed for the purpose, 1,570 revisits being made.

The majority of the cases of Malaria were amongst ex-soldiers who had been infected whilst on active service in tropical climates. The remainder were amongst the sea-faring population and were principally persons infected on the African Coast.

MATERNITY and CHILD WELFARE.

It has been pointed out in a previous Report that there are three important sections of health administration affecting the welfare of young children which merge into one another and cannot be said to have any other than an artificial separating line. They are conducted under the names of Ante-natal Clinics, Infant and Child Welfare Clinics, and the Medical Inspection of School Children. The probable explanation of this partitioning is that the three aspects were dealt with at different times and introduced under different conditions.

Most observers familiar with the work now share the view that the problems involved are best solved by unity of action under one administrative control, but it must at the same time be recognised that the success of the administrative details, involving as they do, the co-operation of large numbers of people, will be best ensured by the tact and intelligence of those engaged in them, rather than upon hard and fast and stereotyped regulations. National schemes of child welfare, aided by thousands of workers, both voluntary and official, have in co-operation with the efforts of public authorities in improving general environment, given most encouraging results. Legislation has facilitated the work in many directions, and tends to make it easier and cheaper.

In dealing with the very young we are obviously dealing with the nation of the future. The conditions of life which produce a high infant mortality lead to future ill-health amongst the survivors, and it is fully recognised that there is no more promising field in preventive medicine than in the prevention of diseases in childhood. The prevention of unhealthy parentage, diseases of infancy and diseases of childhood are the basis of the health of the future.

The medical inspection of school children clearly shows that the defects from which the "entrants" in school life are frequently found to be suffering are to a great extent the legacy of infantile and pre-school ailments. The condition of the sufferers, intercepted and treated as an outcome of medical inspection, no doubt would in many cases have been averted had it been brought to light earlier.

At present it may be fairly said that the arrangements relating to ante-natal and post-natal welfare are of a kind to bring all, or nearly all, mothers and infants, and children up to the first four or five years of their lives, under the special supervision, so far as health is concerned, of the Health Authorities. There is every reason why the continuity of that health supervision should remain unbroken; it is an administrative blunder to break that continuity so soon as a child reaches its fifth birthday, and impose the obligation for the child's health upon a different body, constituted for a wholly different purpose, and by no means always appreciative of the health needs of the child. It may perhaps be well to bear in mind that the reason for this break is not the fault of the Education Authority, but it arose rather from the difficulties of the Central Health Authority in making provision for meeting the necessities in regard to the health of school children. The credit for the step of Medical Inspection of School Children must rest with the Board of Education which established a special health section of its own to enable its real work, namely, the education of the child, to be effectively carried on. It is highly probable that the Ministry of Health will in due course accept responsibility in regard to the medical inspection of school children, the result of which will be to transfer to the local Health Authority the administrative details in connection therewith.

The importance of the close connection between the Child Welfare and School Medical Departments was from the start appreciated in Liverpool. The Medical Officer of Health was appointed the Medical Officer to the Education Committee and charged with the responsibility for the medical staff engaged in the medical inspection of school children. The Health Visitors, nearly all of them fully trained nurses, were appointed by the Health Committee to help the School Medical Officers and to examine the condition of the children, as far as cleanliness and sufficiency and suitability of clothing are concerned. Children whose parents have neglected them in these respects, as well as children suffering from remediable ailments discovered by the doctors, have been visited at their homes by this staff. As a result of these visits, infants and children not yet of school age, found to be neglected or ailing, are also brought under the observation of the appropriate agencies. Attention is given to the home surroundings as well as the health of the occupants; advice is given in various domestic difficulties—food, clothing, fireguards, country holidays

for children, etc. The Health Visitors put the mothers, whenever necessary, in touch with the various agencies through which they can obtain help and instruction, such as the Infant Consultations, Corporation Milk Depôts, Child Welfare Association, and Ladies' Sanitary Association and other Associations.

In the present stage of evolution of the child welfare campaign the position is that the Health Visitors *may* visit the children up to 5 years of age, and the Education Authority *may* provide Nursery Schools for children from 2 years up to 5 years of age, the practical outcome of which is that neither department has the direct duty imposed upon it in regard to the welfare of these children outside of measures to combat infectious diseases. It is highly desirable that the continuity of the official medical and nursing supervision should be retained unbroken from birth until the end of school life.

Under one body, the fusion of control of activities designed with the object of improving the welfare of motherhood, and childhood up to the end of school age, would be attended with many advantages which may be summarised as follows:—

- (1) Convergence of aim, with comprehensive instead of departmental views.
- (2) A large saving of money would result, as the same staff of doctors and nurses and the same premises could be utilised—a saving in capital outlay and running expenses.

Under such a Scheme the school doctors and nurses would be available for attendance at Baby Clinics, Day Nurseries and Nursery Schools, as well as the elementary schools. Records of all defects and illnesses would be kept in the various Infant Welfare departments, and subsequently transferred to the School departments. Incidentally the increased scope of work would make the School Medical Officer's work more interesting and varied, whilst less frequent changes in the staff would result in increased efficiency.

One further advantage of utilising the same Medical Officers and nurses in dealing with the children from birth through school life is that greater confidence of the parents would be acquired. It is a well recognised fact that one of the great obstacles in the way of parents obtaining treatment for their children's defects in many cases arises

from the parents not being convinced of the necessity for such treatment. Constant association with the same doctors and nurses would engender a more friendly feeling, they would more readily accept medical advice, and they would come to regard the Medical Officer as a sort of family doctor, feeling that he knows their constitution.

The preventive measures adopted for further protecting child life have been fully dealt with in Special Reports made to the Health Committee by the Medical Officer of Health.

The relation which the deaths of infants under one year of age has borne to every thousand births in the various districts of the City during the year 1921 and during the previous five years, 1916-1920 is shown in the following table, the detailed causes of death being set out in Table 4 (Appendix).

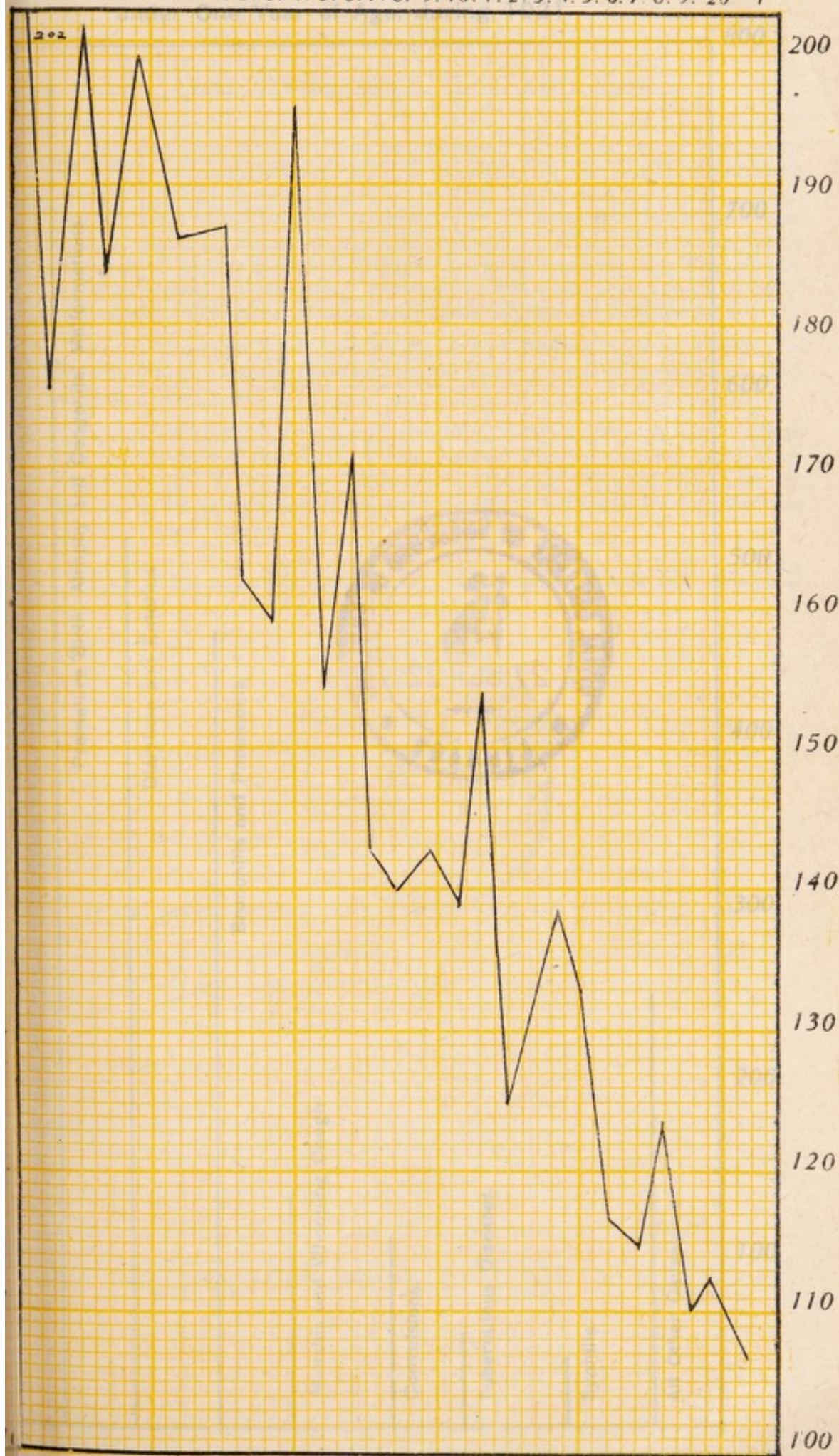
DISTRICTS.	Number of Births. 1921.	Number of Deaths under 1 year of age. 1921.	Deaths under 1 year per 1000 Births. 1921.	Average number of Deaths under 1 year per 1000 Births 1916-1920.
Scotland	1,677	224	133	150
Exchange	1,134	208	183	167
Abercromby	1,206	124	103	126
Everton	3,899	471	121	123
Kirkdale	1,954	221	113	126
West Derby (West)	2,613	270	103	112
Toxteth	3,216	331	103	116
Walton	1,721	138	80	90
West Derby (East)	1,903	150	79	90
Wavertree	1,039	77	74	88
Toxteth—(East)	610	48	79	70
Garston	679	54	80	105
Fazakerley	100	9	90	86
Woolton	153	14	91	78
City	21,904	2,339	107	116

The following table shows the number of deaths of infants below one year of age and the rate per 1,000 births during the last twenty years:—

Year.	No. of Deaths below One Year of Age.	Rate per 1,000 Births.
1902	3,899	162
1903	3,775	159
1904	4,735	196
1905	3,710	154
1906	4,137	171
1907	3,383	143
1908	3,355	140
1909	3,377	143
1910	3,216	139
1911	3,466	154
1912	2,778	125
1913	2,987	132
1914	3,219	139
1915	2,866	133
1916	2,421	117
1917	2,071	115
1918	2,137	124
1919	2,055	110
1920	2,826	113
1921	2,339	107

Infant Mortality per 1000 Births. 1895—1921.

1895. 6. 7 8 9. 1900. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 1. 2. 3. 4. 5. 6. 7. 8. 9. 20 1



Infant Mortality per 1000 Births. 1892-1921.

892 6 5 8 9 1900 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 1

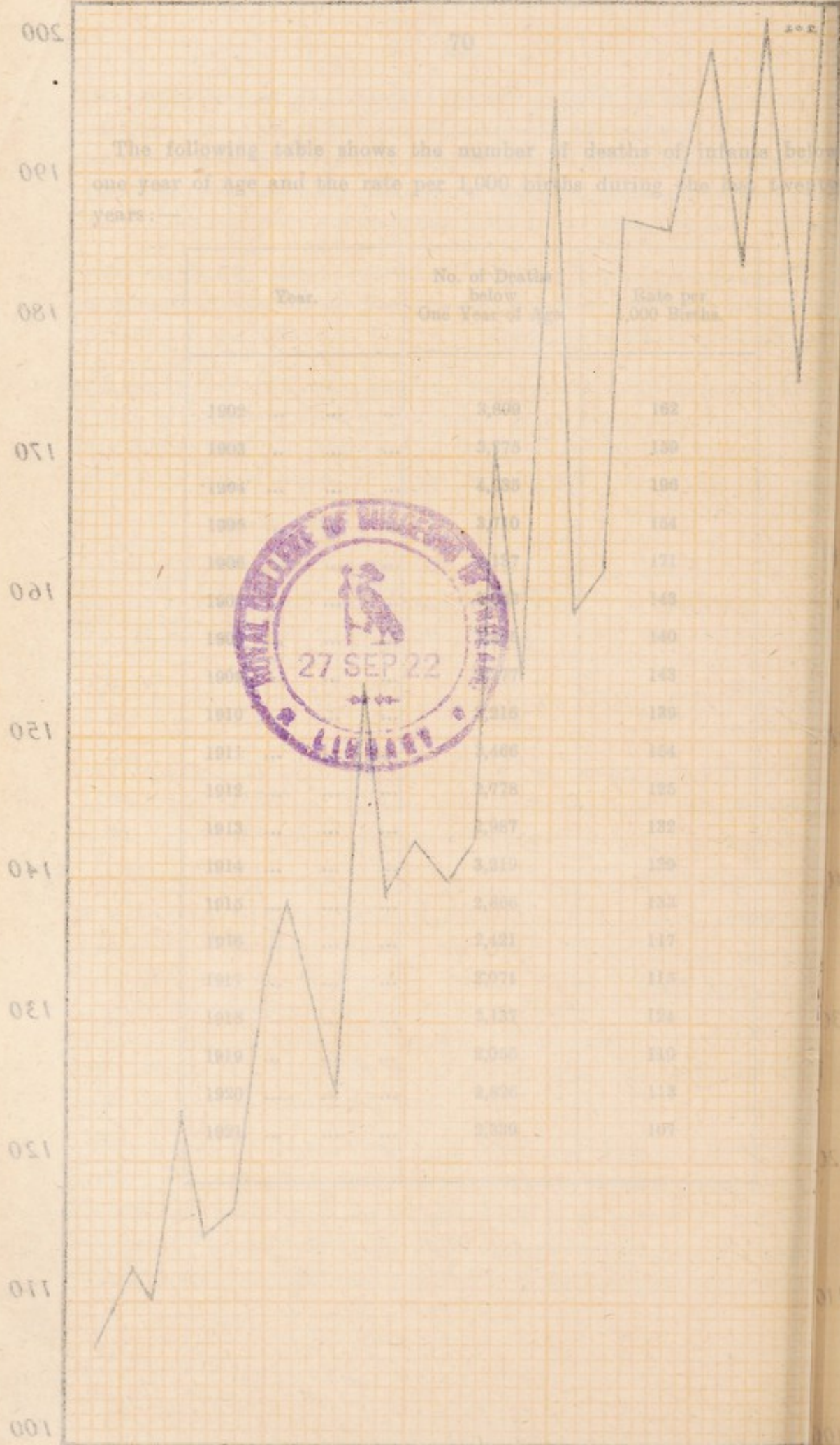


Chart shewing the Principal Causes of Deaths of Infants,
under One Year of Age, during 1921.

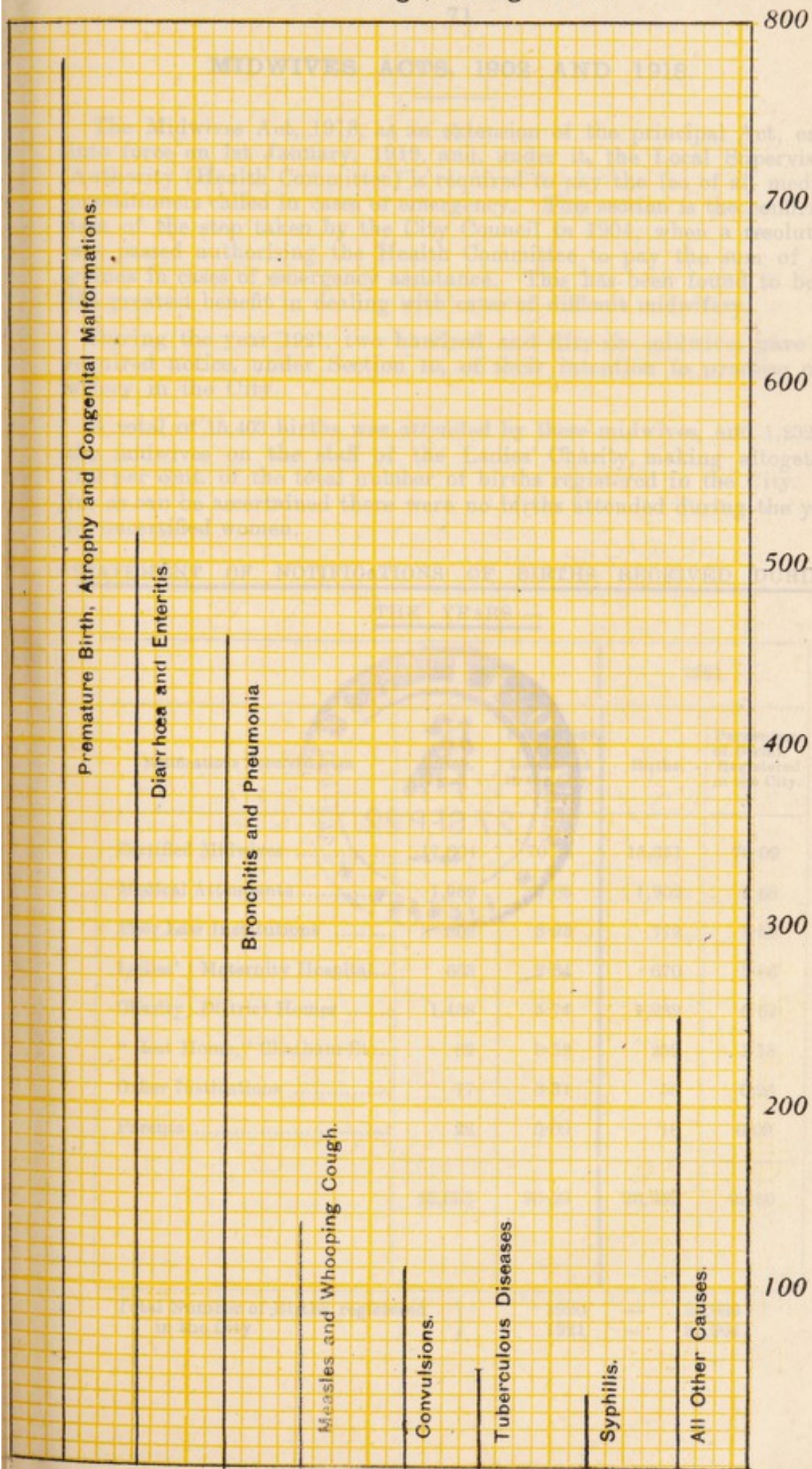


Chart showing the Principal Causes of Deaths of Infants under One Year of Age, during 1921.



MIDWIVES ACTS, 1902 AND 1918.

The Midwives Act, 1918, as an extension of the principal Act, came into force on 1st January, 1919, and, under it, the Local Supervising Authority (Health Committee) is required to pay the fee of all medical practitioners called in cases of emergency. This section is the confirmation of the step taken by the City Council in 1904, when a resolution was passed authorising the Health Committee to pay the sum of one guinea in cases of emergency assistance. This has been found to be of the greatest benefit in dealing with cases of difficult midwifery.

During the year 1921, two hundred and fifty-six midwives gave the required notice, under Section 10, of their intention to practise midwifery in the City.

A total of 15,403 births was attended by these midwives, and 1,232 by the midwives on the staff of the Ladies' Charity, making altogether 75.9 per cent. of the total number of births registered in the City. So far as can be ascertained there were no births attended during the year by uncertified women.

STATEMENT OF NOTIFICATIONS OF BIRTHS RECEIVED DURING THE YEARS:—

Notifications Received from	1920.		1921.	
	Births.	Per centage of Births Registered in the City.	Births.	Percentage of Births Registered in the City.
Certified Midwives	17,604	70.30	15,351	70.09
Medical Attendants.....	1,969	7.86	1,902	8.68
Poor Law Institutions	808	3.23	772	3.52
Ladies' } Maternity Hospital...	663	2.64	670	3.06
Charity } District Homes	1,438	5.74	1,232	5.62
"Rest Home," Chatham St ...	82	0.33	259	1.18
Other Institutions	77	0.31	58	0.26
Parents	22	0.09	18	0.09
	22,663	90.50	20,262	92.50

Total Number of Births registered in the City	}	1920	—	25,039
		1921	—	21,904

STILL BIRTHS.

The number of still-births notified during 1921 was 764, of which number 460 were notified by midwives, being at the rate of 2·8 per cent. of the births attended by them.

In no case does a midwife give a certificate of still-birth unless she is present at the time of birth; she is instructed that if the birth should take place before her arrival she must report the matter to the Coroner, who, after enquiry, grants a certificate for the burial of the body.

Enquiries were made into the circumstances of these still-births, and the following are the figures relating to the months of pregnancy during which the still-births took place:—

Sixth month	...	...	...	...	...	28
Seventh month	...	...	...	...	...	105
Eighth month	...	...	...	...	...	76
Ninth month	...	...	...	...	...	251
						<hr/> 460 <hr/>

Of these 354 were examined by the City Bacteriologist, and 19 or 5·4 per cent., gave a positive reaction, indicating that the cause of the still-birth was probably syphilis (see page 108). In these cases every effort was made to induce the patient to undergo treatment under their private medical attendant or at one of the Venereal Diseases Clinics.

The number of visits paid with reference to still-births was 907.

MEDICAL ASSISTANCE.

Under the Rules issued by the Central Midwives' Board, a midwife must advise that medical assistance shall be called in where there is any abnormal circumstance connected with the confinement.

The following table gives the details of the complications for which medical assistance was required during the past two years:—

MOTHER :	1920.	1921.
Abnormal Presentation :		
Brow or Face Presentation	32	24
Occipito-posterior Presentation	48	50
Transverse Presentation	33	31
Breech Presentation	48	45
Foot Presentation	13	10
Cord Presentation	28	22
Placenta Prævia	11	15
Deformed Pelvis	60	56
Ante-partum Hæmorrhage	105	105
Post-partum Hæmorrhage	77	86
Retained Placenta or Membranes	149	125
Ruptured Perinæum	325	360
Multiple Births	10	29
Abortion or Premature Birth	73	66
Pyrexia	147	164
Eclampsia	25	17
Obstructed Labour, Uterine Inertia, or requiring Instrumental Assistance... ..	660	636
Influenza	5	18
Various	201	197
CHILD :		
Injury at Birth	3	5
Malformation	35	57
Feebleness and Prematurity	232	235
Skin Eruption	8	25
Ophthalmia	202	136
Other conditions in child	82	93
	<hr/> 2,612	<hr/> 2,607

The number of visits of enquiry with regard to Accounts for Emergency assistance during the year was 2,111.

LYING-IN HOMES.

The following notice has been issued by the Town Clerk with reference to the Registration of Lying-in Homes, under the Liverpool Corporation Act, 1921, viz. :—

Notice is hereby given that Part XXVIII (Lying-in Homes) of the above Act, which comes into operation on the 1st April, 1922, contains provisions to the following effect:—

- (1) (a) Premises not to be used as Lying-in Homes unless the name of the person carrying on the same and the premises used for the purpose are registered with the Corporation.
- (b) Particulars to be furnished by persons applying for registration.
- (c) Persons carrying on existing Lying-in Homes to apply for registration within one month after the date of this advertisement.
- (d) Power for the Corporation to refuse registration or to cancel the registration of any person carrying on or proposing to carry on a Lying-in Home or of any premises used or intended to be used therefor, if
 - (i) such person is under the age of twenty-one years; or
 - (ii) such person is unsuitable to carry on such home; or
 - (iii) the premises or their equipment are unsuitable for the purpose of a Lying-in Home; or
 - (iv) the premises are used or intended to be used for the accommodation at any one time of an excessive number of patients; or
 - (v) the premises or any other premises used for any purpose in connection with such first-mentioned premises or with any business or occupation carried on therein are being used for any immoral purpose.
- (2) Power for the Corporation to make Bye-laws prescribing the records to be kept with respect to patients received and the business carried on at a Lying-in Home and requiring notification to the Corporation of any death occurring thereat.

- (3) Power for any Officer duly authorised by the Corporation in that behalf at all reasonable times to enter and inspect any premises used for the purposes of a Lying-in Home.
- (4) Penalty for breach of provisions of Part XXVIII of the Act, including penalties against Directors and Managers of Registered Companies committing offences under the Act.
- (5) Part XXVIII (Lying-in Homes) of the Act does not apply—
 - (a) To any hospital, infirmary, institution, or other establishment maintained or controlled by any Government Department or any other authority or body constituted by Parliament or incorporated by Royal Charter; or
 - (b) To any hospital for the time being recognised by any committee or body administering any of the publicly subscribed funds known respectively as the Hospital Sunday Fund and the Hospital Saturday Fund as a hospital to which grants from either of such funds may be made; or
 - (c) To any institution or home for the training of persons desirous of becoming midwives which is for the time being approved by the Central Midwives Board constituted under the Midwives Acts, 1902 and 1918; or
 - (d) To any Lying-in Home in which only relatives of the person carrying on such home are received for the purposes of childbirth; or
 - (e) In the case of a Lying-in Home carried on by a duly registered medical practitioner with respect to which there has been lodged with the Corporation a certificate in a form to be approved by them and signed by two duly registered medical practitioners practising or residing in the city not being in partnership with such first-mentioned medical practitioner or with each other and not having any financial or other interest in such home, to the effect that the premises used or represented as being or intended to be used for such home and the equipment provided at such premises are in all respects suitable for the purpose, and that the medical practitioner carrying on or proposing to carry on such home is a suitable person to carry on the same provided that any such certificate shall not be valid (a) with respect to any

person or premises other than the person or premises specified therein, or (b) for a period extending beyond the thirty-first day of January next following the date of the certificate.

PUERPERAL FEVER.

The number of cases of Puerperal Fever notified to the Medical Officer of Health during the year was 60, of which 34 proved fatal. This gives a death-rate of 1·55 per 1,000 births in the City.

Fifty cases were removed to hospital, viz.:—5 to Brownlow Hill Infirmary; 14 to Mill Road Infirmary; 27 to Walton Institution; and 4 to Toxteth Infirmary.

After the usual enquiries were made, 47 cases (of which 25 died) were found to have occurred in the practice of midwives. The number of visits paid in this connection was 86.

The following table shows the annual rate of mortality per 1,000 of the total births since the year 1915:—

Year.	Total number of births in the City.	Total number of:—		Death rate per 1,000 births.	Removed to Hospital.
		Cases.	Deaths.		
1915	21,586	54	27	1·25	43
1916	20,679	52	22	1·06	38
1917	17,906	33	16	0·89	21
1918	17,133	28	16	0·93	23
1919	18,694	55	20	1·07	37
1920	25,039	69	36	1·49	50
1921	21,904	60	34	1·55	50

ROUTINE VISITS TO MIDWIVES.

Rule 25 laid down by the Central Midwives' Board states as follows:—"The Local Supervising Authority shall make arrangements to secure a proper inspection of the Register of cases, bag of appliances, etc., of every midwife practising in the district of such authority, and when thought necessary, an inspection of her place of residence, and an investigation of her mode of practice."

For this purpose three fully trained Female Inspectors have been appointed, all of whom hold the certificate of the Central Midwives' Board. During the year, 4,300 visits were paid to the homes of practising midwives for the purpose of inspection, and for special enquiries relating to their work.

The midwives of the City are, with very rare exceptions, fully trained women. They have for many years been encouraged by the Medical Officer of Health to form themselves into an Association, which, year by year, has become numerically stronger, and that Association embraces nearly all, if not quite all, of the midwives in the City. The great advantage of this is, that the midwives as a body are now closely linked up with sanitary administration, and they themselves, as well as their patients, derive considerable advantage from this. For example, they arrange for themselves special courses of instruction, at which they receive much help (from lectures and in other ways) from the gynaecologists of the City.

The adoption of the Notification of Births Act, which renders it obligatory on the part of the medical attendant or midwife, as well as the father of the child, to notify the occurrence of a birth, has been a very valuable aid to the working of the Midwives Act.

MATERNITY AND REST HOME.

During the early part of 1920 the Maternity and Rest Home which was provided and equipped by the Maternity and Child Welfare Sub-Committee, aided by the generosity of the American Red Cross Society and the Stanley Rogers Memorial Committee, was opened.

It consists of two wards, together with an emergency ward and an isolation ward, containing 15 beds in all. It is intended to provide accommodation for women whose physical condition or home circumstances make it very desirable that they should have rest and care before, during, or after their confinements. It has proved to be of immense benefit in this way, and has been very much appreciated by those who have been received into the Home.

PATIENTS ADMITTED.

	1920.	1921.
Ante-natal cases	47	33
Confinements	58	130
Post-natal cases (38—23 with infants)	52	31
Total	157	194

OPHTHALMIA NEONATORUM.

INFLAMMATION OF THE EYES OF THE NEWLY-BORN.

The definition adopted for the purposes of dealing with this disease is the expression used in the Rules issued by the Central Midwives Board, governing the practice of midwives, namely (in the section relating to the child) "Inflammation of, or discharge from, the eyes, however slight." A considerable number of the cases enumerated below are extremely mild, but it is so difficult to draw a line between "very slight inflammation" and definite Ophthalmia Neonatorum that it is considered advisable to include inflammation of all degrees of severity in the term "Ophthalmia Neonatorum."

The following figures give some details as to the sources of information and character of the cases dealt with during the year:—

The total number of cases brought to the notice of the department, 799.

(1) Reported by Doctors	...	...	...	...	48
(2) „ from Hospitals	...	...	...	...	50
(3) „ by Midwives	...	...	...	...	550
(4) Discovered by Inspectors	...	...	...	...	137
(5) Reported by Parents	...	...	...	...	14-799

The above consisted of:—

(1) Mild cases	...	...	...	...	517
(2) Severe cases	...	...	...	...	136
(3) Under private treatment	...	...	...	...	7-660
(4) Not Ophthalmia Neonatorum	...	...	...	...	139

Number treated in their own homes under special

nurse	...	...	...	...	458
„ attended at Hospital as out-patients	...	...	...	...	135
„ admitted into Hospital	...	...	...	...	60
„ treated by Doctors and Private Nurse	...	...	...	...	7-660

INTERVAL IN DAYS BETWEEN BIRTH AND ONSET OF DISEASE.

Days.	1	2	3	4	5	6	7	8	9	10 days and over.	Total.
Notified Cases during 1921	84	63	77	71	49	51	52	49	33	120	649

There were 11 cases in which no information was received.

Arrangements have been made with the City Bacteriologist to examine the discharge in every notified case of inflamed eyes in the newly-born. This enables a prompt verification of the disease to be determined.

No. of Notifications.	Cases from which Specimens were Examined by City Bacteriologist.	No. of Cases Positive Gonorrhoea.	Percentage to Total Cases Examined.	Percentage to Total Notification.
660	125	50	39.9	7.4

TABLE SHEWING INFECTION OF EYES AT ONSET.

Both Eyes.	Right Eye.	Left Eye.	Doubtful.	Total.
412	127	106	15	660

In the 127 cases where the right eye only was affected at onset the other eye became affected in 7 cases.

In the 106 cases where the left eye was affected at onset the other eye became affected in 7 cases.

The total number of visits and revisits paid in respect of the above cases was 6,347.

A very important part of the Scheme for dealing with this disease is the provision at St. Paul's Eye Hospital of 12 beds and cots for the

reception of infants with their mothers, where the former can be under the immediate care of Ophthalmic Surgeons and Nurses during the acute stage of the disease.

From the statistical table it will be seen that 60 babies were admitted with their mothers and the average stay in hospital was 16 days.

RESULTS.

Number of cases cured	...	...	...	...	585
„ under treatment 31/12/21	...	...	...	...	31
„ in which damage to sight resulted (see below)	...	...	...	...	9
„ died during treatment	...	...	...	...	22
„ under private treatment	...	...	...	...	7
„ in Poor Law Institutions	...	...	...	...	4
„ removed to other towns	...	...	...	...	2-660

Three cases in which the sight of one eye was impaired the other being normal.

Two cases in which the sight of both eyes was impaired.

One case in which the sight of one eye was lost and the other seriously impaired.

Three cases in which the sight of one eye was lost and the other eye normal.

The results in these cases were chiefly due to congenital weakness in the infants or delay in bringing the disease under proper treatment.

In no case was the sight of the infant completely destroyed.

INFANT WELFARE CENTRES AND MILK DEPOTS.

The total number of persons supplied with milk during the year was 17,011, viz., 6,502 on the books at the beginning of the year, and 10,509 admitted during the year. The following statement shows the different centres and the numbers supplied at each, viz. :—

Centres.	Ante-Natal.	Nursing Mothers.	Infants.	Liverpool Child Welfare Association.	Totals.
Netherfield Road ...	193	794	651	383	2,021
Earle Road ...	51	433	689	241	1,414
Park Road ...	210	580	620	368	1,778
Boaler Street ...	89	397	380	234	1,100
St. Anne Street ...	108	563	394	358	1,423
Rathbone Road ...	17	140	138	84	379
Mill Street ...	116	200	275	68	659
Agents ...	28	364	534	309	1,735
	812	3,471	3,681	2,545	10,509

The total quantity of milk supplied during the year was 210,728½ gallons, and the bottles prepared reached a total of 1,027,531.

Total cases on Books, January 1st, 1921 ... 6,502

„ admitted during, 1921 ... 10,509

Total supplied during 1921 ... 17,011

Remaining on the books at the end of the year ... 3,636

Quarterly Average—January, February, March ... 6,086

„ „ April, May June ... 4,949

„ „ July, August, September ... 4,282

„ „ October, November, December ... 3,700

Highest number being supplied with milk at one time was 6,400 during the week ending January 8th.

The number of attendances of infants at the Centres during the year for weighing and advice, etc., was 20,383.

The number of visits paid during the year to children in their own homes by the Inspectors attached to the Centres in order to see that the children were being properly fed and cared for was 4,348.

DRIED MILK.

The infants fed on dried milk during the year were 1,602, of whom 988 were admitted during the year.

The number remaining on the books at the end of the year was 398.

The quantity of dried milk used was 15 tons 7 $\frac{1}{4}$ cwts.

HEALTH VISITORS.

The work of the Health Visitors continues on the same lines as in former years, and owing to the prevailing industrial and economic conditions, increasing spheres have been found for their usefulness.

Their duties are numerous, as a subsequent table will shew and, although the work is varied, it is primarily educational and preventive.

The City is divided into districts, to each of which certain Health Visitors are allocated. This arrangement facilitates the carrying out of the work.

The routine work of the Staff includes the following:—

Visiting under the Notification of Births Act.

Attendance at Clinics for expectant mothers and home visiting of these cases.

At the Ante-natal Clinics, cutting out, sewing and knitting classes are held to enable and encourage the mothers to make suitable provision for themselves and their expected infants. The Classes are well attended by the mothers.

Attendance at Clinics for children from birth to five years of age, visiting of these children and instruction to mothers in their own homes.

Attendance at School Medical Inspections and following up in the home cases of physical defects and neglect found by the medical inspector.

Attendance at minor ailments clinics.

Attendance at Eye, Ear, Dental, Ringworm, Tonsils and Adenoids Clinics.

Visits to neglected and verminous school children and ensuring the cleansing of verminous children.

Visits to infectious school children (infectious skin diseases).

Care of cases referred from the various Voluntary Organisations,
e.g. :—

Child Welfare Association.

Police.

Prisoners of War Fund.

Relieving Officers.

Liverpool Society for Prevention of Cruelty to Children.

Personal Service Committee.

Society for the Care of the Mentally Deficient.

Re-visits to Phthisis cases amongst women and children.

Visits to cases and home nursing of Measles, Whooping Cough, Influenza, Pneumonia and Infantile Diarrhœa.

In addition to the duties enumerated above, the Health Visitors have given valuable assistance to the Housing Department in investigating the conditions of those applying for houses, so that the most pressing cases should receive priority.

Good work is still being done in co-operation with the Tuberculosis Department, by specially qualified Visitors, for discharged soldiers and sailors suffering from Tuberculosis, especially with reference to their housing, surroundings and treatment.

The visits paid to expectant mothers during the year were as follows:

First visits	...	...	...	...	...	3,436
Total visits	...	...	...	...	...	4,598

NOTIFICATION OF BIRTHS ACTS, 1907 AND 1913.

No of Births notified during the year	...	20,262
No. of Births visited during the year	...	19,586
Percentage visited during the year	...	97
Re-visits of Births during the year	...	47,309

The following figures give the attendances, condition, and feeding of children on admission to those Post-Natal Clinics, which are under the control of the Health Committee:—

INFANT CLINICS.

	<u>1920.</u>	<u>1921.</u>
Admissions for year	6,107	6,296
Age on admission—		
Under 1 month old	1,487	1,598
From 1 to 3 months old	2,417	2,338
From 3 to 6 months old	937	988
From 6 to 12 months old	596	604
Over 12 months old	670	768
Condition of Health on Admission—		
Good	4,215	4,235
Fair (under average)	1,173	1,377
Delicate	719	684
Method of Feeding on Admission—		
Breast fed entirely	3,582	3,662
Partly breast fed	763	667
Artificially fed entirely	1,762—2,525	1,967—2,634
Artificial Method adopted—		
Cow's milk	336	313
Prepared or sterilized milk	122	121
Dried milk	1,068	1,033
Condensed milk	250	314
Patent foods	146	120
Ordinary foods	603—2,525	733—2,634
*Treatment given on admission—		
Advisory	1,857	1,923
Minor Medical	4,073	4,373
Referred to Medical Practitioners, Hospitals, etc.	177	291
Total attendances for year	71,703	73,851
Attendances under 1 year	57,527	58,954
Attendances from 1 to 3 years	12,187	13,637
Attendances from 3 to 5 years	1,989	1,260
Attendances of mothers at classes	7,885	6,822

There are additional Clinics organised by Voluntary Agencies, which carry on very valuable work on the same lines.

* The work of the Clinic is mainly preventive, only minor ailments being treated. Cases found to be suffering from any condition requiring further treatment are referred either to Private Practitioners, Hospitals or Dispensaries. In many cases the early diagnosis of ailments, with the necessary treatment, has given good results which could not otherwise have been obtained.

DAY AND RESIDENT NURSERIES.

In Liverpool there are nine Day Nurseries, seven of which are under the control of the Corporation, with accommodation for 390 children. Children from the age of 3 weeks to 5 years are admitted to the Day Nurseries between the hours of 7 a.m. and 7 p.m.

A daily charge is made for each child.

At certain of the Nurseries, children may be boarded for short periods to tide over special difficulties in the homes, such as illness of the mother, etc.

These Institutions are much appreciated by the working-class mothers in times of sickness, or when, by reason of widowhood or incapacity of their husbands, they are compelled to go out to work in order to make provision for themselves and their families.

The Nurseries provide a training school for Nursery nurses and an excellent preliminary training for girls wishing to train later as Hospital nurses.

The children who attend are taught clean and orderly habits and their diet, play and rest are carefully supervised.

The Day Nurseries are situated as follows:—

	Attendance
1.—264, Westminster Road	7,310
2.—18, Gt. George Square	6,096
3.—407, Edge Lane (day and resident)	9,506
4.—19, Beaumont Street	8,387
5.—141 and 143, Smithdown Lane (day and resident)	9,964
6.—Banks Road, Garston	7,540
7.—87, South Hill Road	7,005
8.—63, Everton Road	7,175
9.—61, Shaw Street	5,592

INFECTIOUS DISEASE IN SCHOOLS.

During the first half of the year 1921 the schools were comparatively free from infectious disease, and only 9 Infants' Departments required to be closed for this reason, mostly on account of Mumps. An outbreak of Diphtheria occurred in the Infants' Department of a school in Toxteth, and 16 cases were reported, of which 6 were in one class; in this class one child was found to be ill with diphtheritic membrane on the tonsil and was excluded. A large number of children were swabbed, but no carriers of Diphtheria were found. The use of a common drinking cup in the playground was discontinued, and the outbreak then rapidly subsided. Another measure tending to restrict the spread of infectious disease was that every child should be required to provide his or her own pen, pencil and slate pencil instead of the school providing a supply of these common to all the children. Glandular Fever, a condition frequently mistaken for Mumps, was prevalent in a number of schools and two departments of an Aigburth School were closed on account of this disease. Three schools in Everton were affected with Influenza in April and May.

During September Scarlet Fever became prevalent in two schools in Kirkdale and Walton. By inspecting the children in the departments affected and excluding all children who presented symptoms pointing to a mild attack of this disease, the outbreaks were controlled without having resort to closure.

During the Autumn term, Measles became increasingly prevalent. Eight Infants' Departments were closed during October and November, and early in December 60 Infants' Departments were closed until the Christmas holidays commenced, 43 of these being closed from December 13th on account of the prevalence of Measles. The numbers of cases reported in the City which had been steadily increasing, reached the maximum in this week when a total of 612 cases were reported. Thereafter the numbers fell rapidly, 436, 292 and 209 being reported in the three succeeding weeks. The decline in deaths occurred slightly later, the number of deaths reaching a maximum of 40 in the week ending December 24th, after which date the weekly number of deaths also rapidly diminished.

PUBLIC ELEMENTARY SCHOOLS.

			<u>1920.</u>		<u>1921.</u>
Number of Visits to Schools	...	...	3,025	...	3,259
„ found incorrect	...	...	15	...	8
„ of Water-closets and Latrines					
found dirty or defective	...		72	...	79
„ of Notices issued for defects	...		20	...	20

NOTICES TO SCHOOL TEACHERS

The arrangements have been continued with the Education Committee that notice shall be sent to the Education Department and postcards to the Head Teachers of the various schools informing them when children from infected houses attend their schools; 9,654 cards were sent during the year, as against 10,408 in the preceding year.

TUBERCULOSIS.

SANATORIA.

The following Institutions were utilised to accommodate cases of pulmonary and non-pulmonary tuberculosis during the year:—

SANATORIA:—Fazakerley, Highfield, Parkhill, Delamere, Delamere Training Colony, Leasowe, the West Kirby Children's Convalescent Home, the Ellen Gonner Home, and Freshfield.

HOSPITALS:—Fazakerley, the Royal Infirmary, the Royal Southern Hospital, the David Lewis Northern Hospital, the Royal Liverpool Children's Hospital, the Royal Liverpool Country Hospital, Heswall, the Chest Hospital, and the Stanley Hospital.

A few cases were accommodated in outside Sanatoria, including Baschurch, Daneswood, Nottingham, Derby, Meathop, Wensleydale, Ventnor, Preston Hall Training Colony, Papworth Training Colony, Bramshott, and Llangwyfan. These Institutions were used for cases which had previously been treated in them, or in which for some special reason, treatment away from Liverpool was advisable.

The Fazakerley, Highfield and Parkhill Sanatoria are equipped and administered by the Hospitals Committee. Their accommodation and staff are as follows:—

FAZAKERLEY—Beds 298.

Medical Superintendent—Dr. C. Rundle.

Principal Resident Medical Officer—Dr. W. Crane.

Consulting Surgeon—Mr. J. T. Morrison.

And 4 Assistant Resident Medical Officers.

Matron, Sisters and Nursing Staff—65.

HIGHFIELD—Beds 320.

Medical Superintendent—Dr. D. A. Hastings.

And 4 Assistant Resident Medical Officers.

Matron, Sisters and Nursing Staff—61.

PARKHILL—Beds 225.

Medical Superintendent—Dr. H. R. Macintyre.

And 3 Assistant Resident Medical Officers.

Matron, Sisters and Nursing Staff—37.

The types of cases treated at these Institutions are as follows:—

FAZAKERLEY.—Adults and children of both sexes; pulmonary, non-pulmonary, early and advanced cases, are all dealt with. At the end of the year there were in Fazakerley 214 pulmonary cases and 72 non-pulmonary cases. Surgical appliances are provided where necessary in cases of non-pulmonary tuberculosis.

HIGHFIELD AND PARKHILL.—Adults of both sexes, pulmonary disease only, early and advanced cases.

The actual distribution of beds between pulmonary and non-pulmonary cases is largely determined by the demands at any one time.

The statistical report relative to the admissions to and discharges from Institutions during the year is given in Table "A" and Table "B." The acquisition of Highfield Sanatorium practically abolished the sanatorium waiting list of patients, which had been so conspicuous a feature for the past few years (see Table "C").

THE DELAMERE TRAINING COLONY.

This Training Colony, which was opened in September, 1920, is reserved for the treatment and training of ex-service patients. At the end of the year 35 beds were available, and an extension in the near future to 55 beds is contemplated. This accommodation is shared by Liverpool, Lancashire and Cheshire. At the end of the year 4 Liverpool ex-service patients were in residence undergoing combined treatment and training. The industries represented are watch and clock repairing, horticulture, market gardening, poultry farming, and rural industries covering joinery, etc. It is with difficulty that ex-service patients can be persuaded to undergo a twelve months' training course, partly because they dislike the long-continued discipline of institutional life, and partly because they realise that at the end of their training it may be difficult to find a position in the trade for which they have been trained.

LEASOWE SANATORIUM.

This Institution is situated in the Wirral Peninsula, by the edge of the sea, and affords accommodation for children suffering from non-pulmonary tuberculosis. It is administered by the Liverpool Child Welfare Association, approximately 150 beds being allocated to Liverpool cases.

The following table of work during 1921 has been kindly furnished by the Senior Medical Officer, Dr. T. Hartley Martin, and indicates the character and the results of the work carried on:—

LIVERPOOL CASES DISCHARGED DURING 1921.

Lesion.	Total Discharged.	Non-Tuberculous.	Tuberculous.	CONDITION ON DISCHARGE.						Duration of stay in days.	Percentage discharged — Disease arrested.
				Disease arrested.	Improved.	Removed by Parents.	Transferred. (Phthisis.)	Unimproved.	Died.		
Tuberculosis of the Spine ...	22	5	17	12	—	—	2	1	2	608	70%
Tuberculosis of the Hip ...	16	1	15	12	—	—	1	1	1	692	80%
Tuberculosis of the Knee ...	19	2	17	16	—	1	—	—	—	501	100%
Tuberculous Osteitis...	32	—	32	29	—	1	—	—	2	495	93%
Tuberculous Adenitis ...	17	1	16	14	—	1	—	—	1	187	93%
Tuberculous Peritonitis ...	9	—	9	5	—	2	—	—	2	252	71%
Lupus	2	—	2	2	—	—	—	—	—	246	100%
TOTALS	117	9	108	90	—	5	3	2	8	—	—
Percentages	—	—	108	90	83·3% of cases treated.						
Percentages of cases treated to completion ...	—	—	103	90	87·3% of cases treated to completion						

Similar statistics for the years 1919 and 1920 are to be found in the 1920 Annual Report, pages 91 and 92. The high percentage of cases discharged with the disease in a quiescent stage is very gratifying. The state of health in December, 1921, of the Liverpool cases discharged from Leasowe during 1919 and 1920 is given below:—

Condition when discharged during 1919 and 1920.	Condition in December, 1921.					
	Fit.	Recurred.	Disease Progressing.	Re-admitted.	Died.	Not traced.
Total ... 202	159	3	9	9	13	9
Disease quiescent ... 170	149	2	—	8	2	9
Improved ... 1	—	—	1	—	—	—
Removed by Parents ... 8	2	1	4	1	—	—
Transferred ... 10	8	—	2	—	—	—
Unimproved ... 13	—	—	2	—	11	—

It is apparent that in the great majority of the cases there has accrued a benefit from Institutional treatment of a lasting character.

TUBERCULOSIS INSTITUTES AND THE DISPENSARY SYSTEM.

ADMINISTRATIVE OFFICE (Public Health Department):

Medical Officer of Health and Chief Tuberculosis Officer—

Dr. E. W. Hope.

Ten Clerks.

CENTRAL TUBERCULOSIS INSTITUTE:

Chief Assistant Tuberculosis Officer—Dr. B. T. J. Glover

Assistant Tuberculosis Officer—Dr. W. H. Butler.

Three Nurses and two Clerks.

SOUTH TUBERCULOSIS INSTITUTE:

Assistant Tuberculosis Officer—Dr. J. P. Clarke.

Two Nurses and two Clerks.

NORTH TUBERCULOSIS INSTITUTE:

Assistant Tuberculosis Officer—Dr. R. Jackson.

Two Nurses and two Clerks.

A statistical summary of the work accomplished at the Tuberculosis Institutes is given in Tables D, E, and F. The practice of examination by one of the Tuberculosis Assistant Medical Officers of every case notified to the Medical Officer of Health, has continued. Without this precaution a considerable number of non-tuberculous patients would annually become a charge upon tuberculosis funds. The extent of the protection thus afforded is indicated by the high rejection rate, for during the year 965 patients referred were considered to be non-tuberculous (Table D), a rejection rate of 36 per cent. The measure to which the Sanatorium accommodation is saved from misuse is apparent.

The chief aids to diagnosis in doubtful cases are:—

- (a) Examination by X-ray.
- (b) Continued observation whilst following an ordinary occupation.
- (c) The repeated examination of sputum.
- (d) A period of observation in hospital if necessary.

It is comparatively uncommon for patients who have been sent into Sanatoria to be shown at a later date to be non-tuberculous, and it is uncommon, moreover, to find old rejected cases returning to the department as undoubted positive cases.

The references from sources other than under the Notification Act have grown in number and add very materially to the total number of new cases examined.

DOMICILIARY TREATMENT.

This form of treatment is arranged by the Tuberculosis Officer in such cases as have been examined by him, and in which it is considered to be the most appropriate form of treatment. Co-operation between

the Medical Practitioners and the Tuberculosis Officer is secured in every case by means of a quarterly report from the Practitioner. These reports are being rendered in a satisfactory manner. At the end of the year 2,098 cases (Table G) were under domiciliary treatment.

NURSING AND EXTRA NOURISHMENT.

The domiciliary nursing of both pulmonary and non-pulmonary cases is carried out by the Liverpool Queen Victoria District Nursing Association, with whom the Liverpool Hospitals Committee have an agreement, and to whom they make a grant in aid. During the year, 145 pulmonary and 161 non-pulmonary cases were nursed in their homes and to these cases 12,581 visits were paid. This is work of an exceedingly valuable nature.

Extra nourishment was granted to patients who needed it as a part of their treatment and were unable to afford to purchase it for themselves. The staple grant was milk and (or) eggs and (or) a meat juice preparation. Orders are given to the patient and can be presented to any tradesman. No orders are issued to patients whose income exceeds the full pension payable by the Ministry of Pensions to a totally disabled pensioner. This scale serves as a very useful guide to the Tuberculosis Officer in determining whether extra nourishment should be provided free or not when examination has shewn that for medical reasons additional diet is desirable. All extra nourishment orders expire at the end of each quarter, and are not renewed until the patient makes a further application and upon re-examination it is shewn that renewal is desirable. At the end of the year 206 patients were in receipt of extra nourishment, compared with 511 at the end of 1920. The fall in the numbers is attributable to the increased Sanatorium accommodation and the consequent abolition of a waiting list of Sanatorium patients.

DENTAL TREATMENT.

Dental treatment is afforded to tuberculosis pensioners by the Ministry of Pensions upon the recommendation of the Tuberculosis Officers. No dental treatment is available for civilian cases. There are undoubtedly many civilian cases whose progress is seriously impeded through want of dental treatment.

AFTER-CARE.

The work of after-care consists in:—

- (a) The periodic examinations by the Tuberculosis Officer of cases discharged from Sanatoria.
- (b) Visits paid to patients by the Tuberculosis Dispensary Nurses.
- (c) Visits paid to patients by the male and female Sanitary Inspectors of the Health Committee.
- (d) Visits paid to patients by the Nurses of the Queen Victoria District Nursing Association.

During the year the Tuberculosis Nurses made 6,062 home visits, of which 1,103 were to ex-service cases. The male and female Sanitary Inspectors made 14,399 home visits, of which 3,690 were to ex-service cases. At the end of the year there were 679 ex-service cases whose names were on the home visiting list. The visits paid by Nurses and Sanitary Inspectors are all the subject of report to the Medical Officer of Health. These visits in effect materially diminish the carelessness which leads to the spread of infection, are constant reminders to patients to keep themselves under proper medical supervision, and enable the Tuberculosis Officer to be informed of any special circumstances requiring his attention.

CO-OPERATION BETWEEN DEPARTMENTS AND OUTSIDE AGENCIES.

The Child Welfare Association, the Local War Pensions Committee, and the Liverpool Personal Service Society, represent three important outside agencies which work in close touch with the Tuberculosis Department. The Child Welfare Association is not only in touch with the majority of tuberculous children who are attending the out-patient departments of the General Hospitals, but is responsible for the institutional treatment of tuberculous children in Leasowe Sanatorium, West Kirby Convalescent Home, the Royal Liverpool Country Hospital, Heswall, and the Ellen Gonner Home. The Tuberculosis Officer is informed of the progress of every tuberculous child under treatment in these institutions, and upon their discharge is furnished with a full report of the condition upon discharge.

The references from the Local War Pensions Committee remain very numerous; during the year upwards of 3,000 documents were completed and rendered by the Tuberculosis Officers in reference to tuberculous pensioners.

ADMISSIONS TO AND DISCHARGES FROM SANATORIA AND HOSPITALS DURING THE YEAR.

I.P.—Insured Person.

N.I.—Not Insured.

	UNDER TREATMENT, DEC. 31ST, 1920.		ADMITTED DURING 1921.		DISCHARGED DURING 1921.		REMAINING UNDER TREATMENT, DEC. 31ST, 1921.	
	I.P.	N.I.	I.P.	N.I.	I.P.	N.I.	I.P.	N.I.
Males ...	238	181	751	478	618	380	388	263
Females ...	95	236	248	598	238	562	104	272
	333	417	999	1076	856	942	492	535
	750		2075		1798		1027	

TABLE B.

RESULTS OF SANATORIUM AND HOSPITAL TREATMENT IN CASES DISCHARGED.

	IMPROVED.		NOT IMPROVED.		DEATH.	
	I.P.	N.I.	I.P.	N.I.	I.P.	N.I.
Males ...	422	257	91	64	105	59
Females ...	165	400	39	97	34	65
	587	657	130	161	139	124
					GRAND TOTAL ... 1,798.	

TABLE C.

THE NUMBER OF PATIENTS WAITING TO ENTER A SANATORIUM AT THE
END OF EACH QUARTER FROM 1914 TO 1921.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
March 31st ...	—	243	330	361	302	†441	77	264
June 30th	—	291	253	442	425	328	131	325
September 30th *198		389	398	422	430	140	173	171
December 31st	221	335	389	265	549	163	190	47

* The surrender of the accommodation at Fazakerley to the Military Authority.

† The acquisition of Fazakerley Sanatorium from the Military Authority.

TABLE D.

NEW CASES EXAMINED BY TUBERCULOSIS OFFICERS.

		Insured Persons	Non-insured	TOTALS
Pulmonary Tuberculosis	... { Male	525	271	796
	... { Female	205	452	657
Non-pulmonary Tuberculosis	... { Male	27	96	123
	... { Female	24	114	138
Non-tuberculous	... { Male	305	230	535
	... { Female	130	300	430
GRAND TOTAL				2,679

A total of 7,837 medical examinations of new and old cases was made.

TABLE E.

DISPENSARY TREATMENT.

				Number under treatment, Dec 31st, 1920	New cases in 1921	Treatment ceased	Remaining under treatment, Dec 31st, 1921.
Insured Persons...	...	...	Male	12	15	18	9
			Female	8	3	7	3
Non-Insured	...	...	Male	18	49	55	27
			Female	59	49	69	46
				119	116	149	86

In addition to 86 patients under Dispensary Treatment there were 541 patients with quiescent disease not in need of treatment under Dispensary Observation.

TABLE F.

ANALYSIS OF RESULTS IN CASES WHERE DISPENSARY TREATMENT CEASED.

		Disease Quiescent	Improved	Not Improved	Died	Left the district or other treatment afforded
Insured persons	Male	3	—	1	—	14
	Female	2	—	—	—	5
Non-Insured	Male	15	3	2	3	32
	Female	14	1	1	1	52
		34	4	4	4	103

TABLE G.

NUMBER OF CASES UNDER DOMICILIARY TREATMENT
ON DECEMBER 31ST, 1921.

	Male	Female
Insured Persons... ..	823	264
Non-Insured	357	654
TOTALS	1,180	918

TABLE H.

SUMMARY OF PATIENTS UNDER PUBLIC MEDICAL TREATMENT
ON DECEMBER 31ST, 1921.

	Male.	Female.
Institutional Treatment	651	376
Dispensary Treatment	36	50
Dispensary Observation	364	177
Domiciliary Treatment	1,180	918
TOTALS	2,231	1,521
GRAND TOTAL	3,752	

**PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912, and REGULATIONS
(No. 2), 1918.**

Summary of Notifications during the period from the 2nd January,
1921, to 31st December, 1921:—

Age-periods.	Notifications on Form A.											Total Notifica- tions on Form A.	
	Number of Primary Notifications.												
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up- wards.		Total Primary Notifica- tions.
Pulmonary—													
Males	7	31	71	74	99	104	201	222	211	93	21	1,134	1,156
Females	4	12	79	102	104	161	199	163	104	41	16	985	1,008
Non-Pulmonary—													
Males	6	54	75	51	30	18	11	8	4	2	1	260	271
Females	6	45	75	67	44	35	31	9	6	3	—	321	324

Age-periods.	Notifications on Form B.				Number of Notifications on Form C.		
	Number of Primary Notifications.				Total Notifica- tions on Form B.	Poor Law Institutions.	Sanatoria.
	Under 5	5 to 10	10 to 15	Total Primary Notifica- tions			
Pulmonary—							
Males	—	6	3	9	9	150	91
Females	—	3	6	9	9	36	51
Non-Pulmonary—							
Males	—	5	3	8	8	9	—
Females	—	8	3	11	11	4	1

Form "A" is used by Medical Practitioners on first becoming aware that a patient is suffering from tuberculosis, unless he has reasonable grounds for believing that the case has already been notified.

Form "B" is used by School Medical Officers to make a weekly return to the Medical Officer of Health of all cases of tuberculosis coming under their notice in carrying out the duties of medical inspection of children in Public Elementary Schools.

Form "C" is for the use of the Medical Officers of Poor Law Institutions and Sanatoria to make a weekly return of cases admitted to their Institutions, and applies only to cases which have been previously notified on Form "A."

The number of deaths from Phthisis during the year was 1,048. The number of deaths during each of the preceding ten years, 1911-1920, has been as follows:—1,313, 1,189, 1,183, 1,132, 1,299, 1,254, 1,357, 1,400, 1,089 and 1,102.

DISTRICTS.				QUARTERS.								YEAR 1921.		
				March.		June.		Sept.		Dec.		M.	F.	Total.
				M.	F.	M.	F.	M.	F.	M.	F.			
Scotland...	...	...	...	12	8	11	8	11	6	10	10	44	32	76
Exchange	...	...	...	14	5	22	10	12	6	24	6	72	27	99
Abercromby	...	...	...	13	12	12	5	16	4	14	12	55	33	88
Everton	...	...	...	25	23	17	31	24	18	27	17	93	89	182
Kirkdale	...	...	...	18	9	20	8	10	4	14	8	62	29	91
West Derby (West)	...	...	...	17	13	12	17	12	11	21	14	62	55	117
Toxteth	...	...	...	17	17	19	25	12	7	14	13	62	62	124
Walton	...	...	...	16	13	14	10	11	13	17	3	58	39	97
West Derby (East)	...	...	...	14	8	13	4	7	9	13	8	47	29	76
Wavertree	...	...	...	3	5	9	5	6	3	3	6	21	19	40
Toxteth (East)	...	...	...	5	4	2	1	3	1	1	...	11	6	17
Garston	...	...	...	4	5	5	3	2	3	2	5	13	16	29
Fazakerley	...	...	...	2	...	3	...	1	2	...	3	6	5	11
Woolton	...	...	...	...	...	...	...	...	...	1	...	1	...	1
City	...	...	...	160	122	159	127	127	87	161	105	607	441	1,048

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & upwards.	All Ages.
8	15	11	25	28	98	239	215	225	107	77	1,048

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

NON-PULMONARY TUBERCULOSIS.

601 cases of non-pulmonary tuberculosis were notified during 1921. These were distributed as follows:—

	Cases.	Rate per 10,000.
Scotland	40	8·6
Exchange	51	14·3
Abercromby	57	12·4
Everton	106	8·4
Kirkdale	67	9·4
West Derby, West	67	7·2
Toxteth	72	11·7
Walton	40	4·8
West Derby, East	42	5·3
Wavertree	17	3·8
Sefton Park	13	3·7
Garston	5	1·7
Fazakerley	1	1·7
Address not known	23	—
Whole City	601	7·35

The high rates in Exchange and Abercromby districts are in part attributable to the numbers of common lodging houses in those districts.

The site of the disease was as follows:—

	Total Cases.		Cases having a clear family history of Tuberculosis.	
	Cases.	Per cent.	Cases.	Per cent.
Spine	44	7·6	3	5·4
Other Bones and Joints ...	99	16·7	4	7·3
Abdominal	131	22·2	12	21·8
Glandular	189	32·0	22	40·0
Meninges and Brain ...	77	13·1	9	16·3
Generalised	23	3·9	2	4·0
Skin	17	2·9	2	4·0
Urinogenital	6	1·0	—	—
Tabes Mesenterica ...	4	0·7	1	2·0
	590		55	

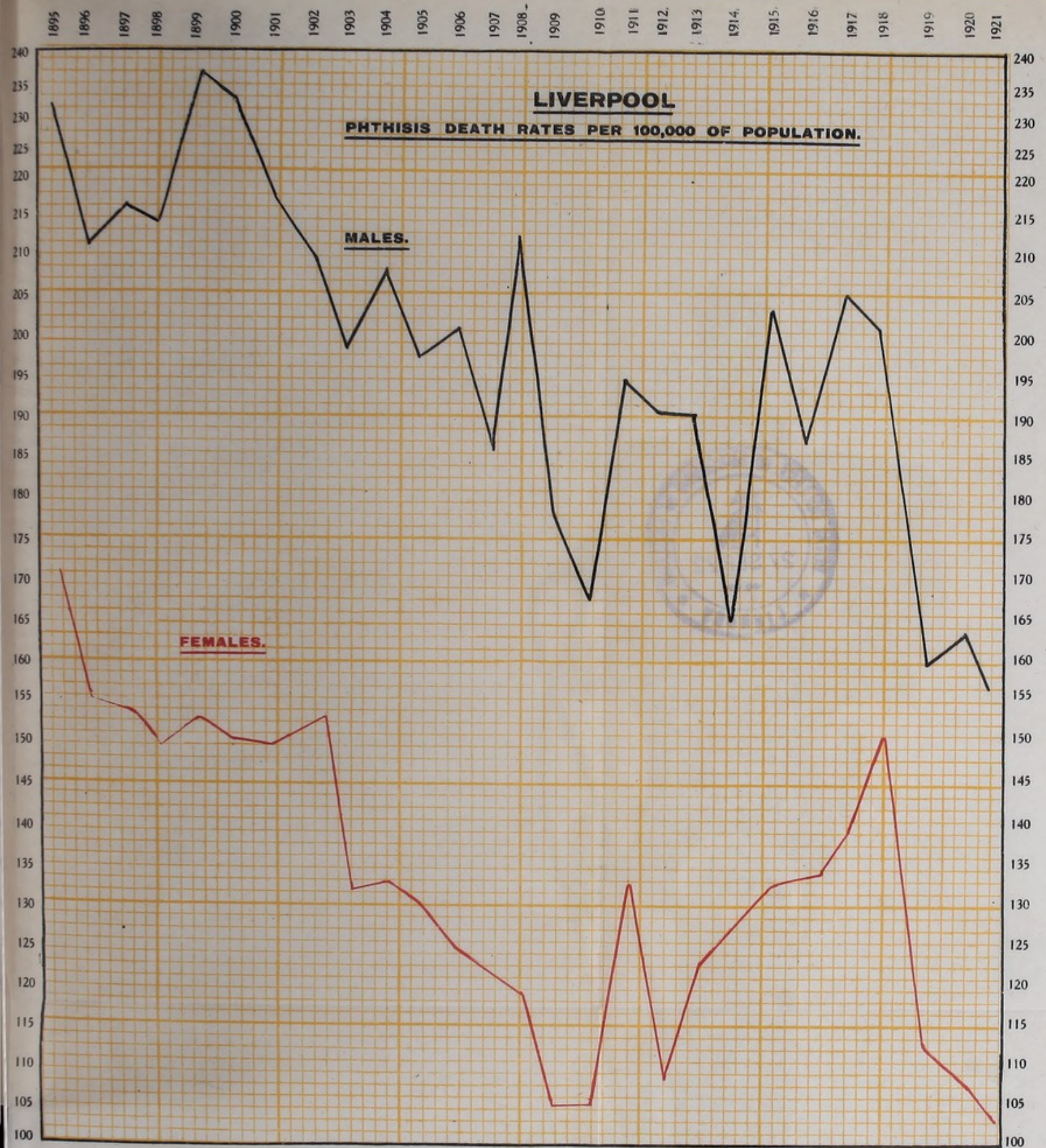
In the remaining 11 cases the site of the lesion was not noted.

The distribution of the sites of tuberculosis is strikingly similar in the cases having a well-marked family history of the disease and in the general run of cases with one exception, namely, the cases in which the bones and joints, other than the spine, are affected. It is well known that these cases, the typical cases of so-called "surgical" tuberculosis are often caused by a bovine bacillus; that is to say one that is derived from the consumption of milk derived from cows suffering from tuberculosis. And these cases are distinctly more numerous in the general run of cases than in those having a definite family history of tuberculosis.

It has been customary for the past few years to keep a note of the source of milk supply of all cases of non-pulmonary tuberculosis. During the year, 39 samples of milk from City cowsheds were found upon examination to be tubercular, of which two were from one dealer, *i.e.*, 38 dealers were known to be affected. One or more cases of non-pulmonary tuberculosis were known to have occurred during the year in the clientèle of 15 of these dealers and of these 10 were cases of tubercular peritonitis, which is known to be frequently of bovine origin. When two or more cases of non-pulmonary tuberculosis occurred within a short period among the clientèle of any particular milk dealer samples of the milk were taken for examination for tuberculosis; this procedure led to the discovery of tuberculous milk in several cases during the year.

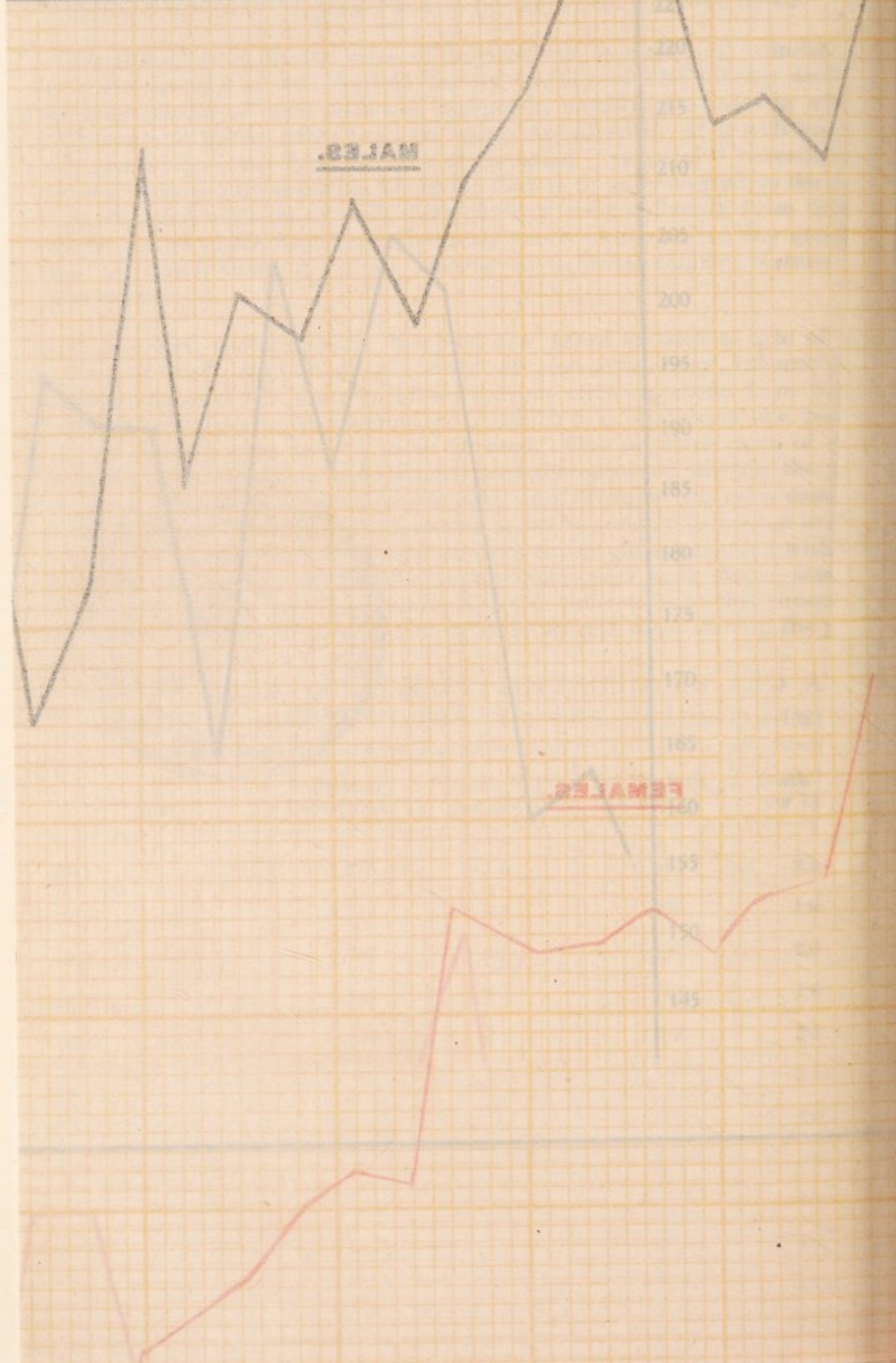
DEATHS FROM PULMONARY TUBERCULOSIS AND ALL FORMS OF TUBERCULOSIS FOR THE YEARS 1911-1921.

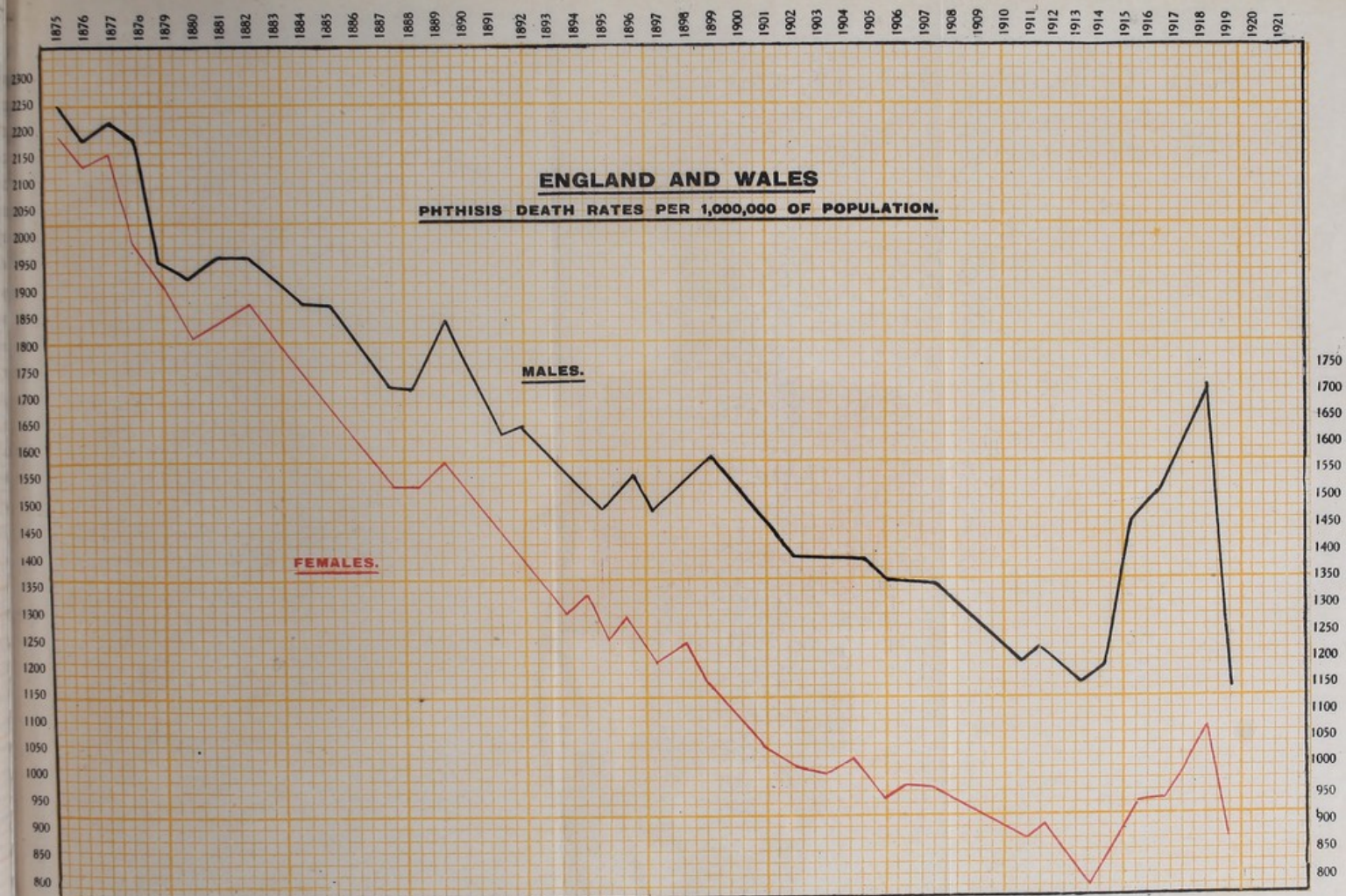
Year.	Pulmonary Tuberculosis	Death Rate per 1,000.	Tuberculosis, All Forms.	Death Rate per 1,000.
1911	1,215	1·6	1,593	2·1
1912	1,113	1·5	1,425	1·9
1913	1,183	1·5	1,573	2·0
1914	1,132	1·4	1,508	1·9
1915	1,299	1·6	1,666	2·1
1916	1,254	1·6	1,636	2·1
1917	1,357	1·7	1,757	2·2
1918	1,400	1·7	1,791	2·2
1919	1,089	1·3	1,338	1·7
1920	1,102	1·3	1,352	1·6
1921	1,048	1·3	1,342	1·6



1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932

LIVER
PHOSPHORUS DEATH RATE IN



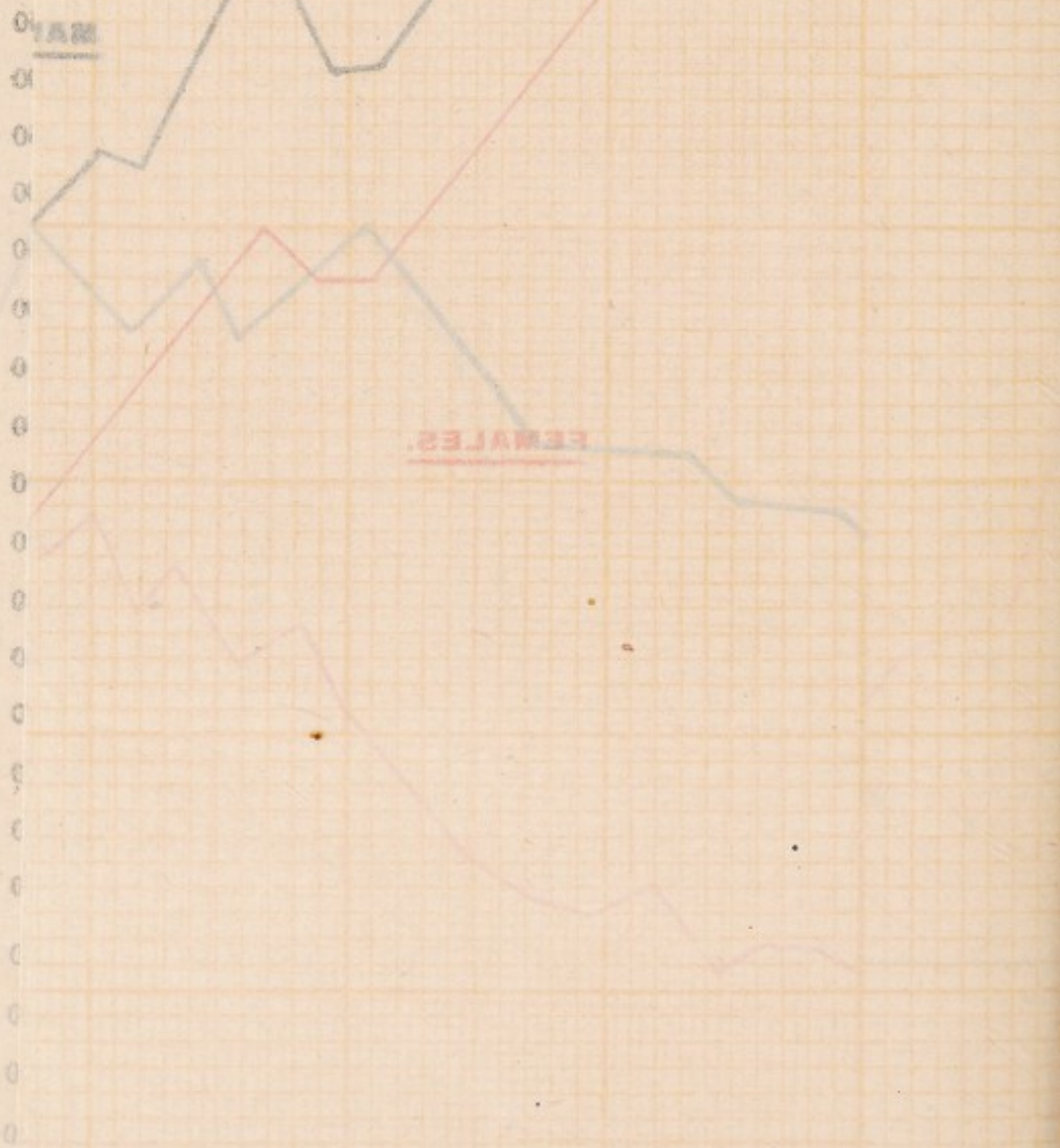


ENGLAND AND WALES

AND FIFTEENTH 1,000,000 OF POPULATION

MALE

FEMALE



DEATHS FROM OTHER TUBERCULAR DISEASES.

The number of deaths from other Tubercular Diseases during the year was 294, and the number during each of the preceding ten years, 1911-1920, has been as follows:—394, 328, 390, 376, 367, 382, 400, 391, 249, 250.

DISTRICTS.					Tubercular Peritonitis.		Tubercular Meningitis.		Other forms of Tuberculosis.		YEAR 1921.		
											M.	F.	T.
Scotland	...	...	...	...	3	5	5	3	2	4	10	12	22
Exchange	...	...	...	...	5	...	5	3	6	3	16	6	22
Abercromby...	...	...	...	...	5	5	5	4	2	5	12	14	26
Everton	...	...	...	...	7	4	8	13	9	7	24	24	48
Kirkdale	...	...	...	...	6	3	6	3	6	4	18	10	28
West Derby (West)	...	...	...	...	6	3	7	9	2	3	15	15	30
Toxteth	...	...	...	...	10	13	13	8	3	2	26	23	49
Walton	...	...	...	...	3	2	7	4	4	4	14	10	24
West Derby (East)	...	...	...	...	3	2	6	3	4	2	13	7	20
Wavertree	...	...	...	...	1	...	3	2	...	1	4	3	7
Toxteth (East)	...	...	...	...	...	...	1	3	1	1	2	4	6
Garston	...	...	...	...	...	4	1	1	2	1	3	6	9
Fazakerley...	...	...	...	...	1	...	...	...	1	...	2	...	2
Woolton	...	...	...	...	...	...	...	...	1	...	1	...	1
City	...	...	...	...	50	41	67	56	43	37	160	134	294
AGES AT DEATH.													
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.		
45	53	47	28	25	23	30	13	13	10	7	294		

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

VENEREAL DISEASES.

Venereal Diseases have long been recognised as one of the leading causes of death, a prolific source of sterility, still-birth, lunacy, blindness and other illness.

The Royal Commission on Venereal Diseases which reported in 1916 made the first suggestions for grappling with these diseases. The recommendations may be summarised as follows:—

1. That opportunities should be afforded to sufferers to have free and expert treatment.
2. That extended facilities should be provided for the diagnosis of these diseases.
3. That information as to the dangers of Venereal Diseases should be disseminated and particulars as to the facilities provided for free treatment.

It is now five years since free treatment centres and arrangements for expert diagnosis were established under the Liverpool V.D. Scheme.

The following summarises the work of the Treatment Centres for the year 1921.

The Clinics which were established are very serviceable and popular. Patients attending the Out-Patients' Department of the Hospitals and those suffering from Venereal Diseases are directed to the Department dealing with their special ailment, and particular care is taken that such patients are not singled out or made conspicuous.

The Clinics now in operation are—The Royal Infirmary, the Royal Southern Hospital, the David Lewis Northern Hospital and the Stanley Hospital. The Cancer and Skin Hospital V.D. Clinic was closed on December 31st, 1921.

During the year under review, there were 4,899 new patients, male and female, a reduction of 1,366 from the figures for 1920. A suggested explanation of this reduction is that on account of unemployment and other industrial conditions, there was a lack of means.

The attendances for the year at all the Clinics totalled 73,368 male and female. A table shewing attendances, etc., at each of the clinics is given, and also details of the diseases and sexes dealt with at the largest centre, namely, the Royal Infirmary.

DEFECTS OF THE SCHEME.—As will be seen from the table appended, large numbers of patients give up treatment when the local manifestations of the disease have subsided, and as there is no compulsion exercised over patients to continue this treatment, such persons remain in an infectious condition and consequently a great danger to the public. There is therefore the outstanding fact that nearly 50 per cent. of the patients give up attendance before they can be considered free from infection.

Free treatment is only availed of for such periods as the affected person thinks appropriate, to be discontinued at will. Efforts have been made in Liverpool to get the patients back to continue treatment, and the importance of steady and continuous attendance under the guidance of the doctor, has been emphasised in each case.

In some cases appropriate worded letter-cards have been sent to the patients asking them to return. In addition, in the case of women, special visits have been made by a member of the Female Staff of the Health Department who has been specially detailed for this work as a portion of her daily duties.

At present, therefore, although clinics have been established at very considerable cost, patients may come and go as they please, or not come at all.

There is no power to compel a patient who is known to be suffering, in a very infectious form, from any one of these diseases, to undergo treatment or to continue treatment.

TABLE SHOWING TOTAL NUMBER OF NEW CASES OF VENEREAL
DISEASE AND THE ATTENDANCES AT THE VARIOUS
CITY CLINICS DURING THE YEAR 1921.

Hospital.	Date of opening.	New cases. *	Attendances.	Number of Patients on the books.	Ceased atten before comple
Royal Infirmary	1/8/1917	2,631	33,863	4,260	2,115
Cancer and Skin	31/1/1918	771	18,595	1,673	342
Royal Southern	7/9/1917	518	5,362	999	121
David Lewis Northern	23/6/1919	502	8,554	805	444
Stanley	7/7/1919	467	6,376	856	264

TABLE SHOWING CLASSIFICATION OF CASES ATTENDING THE LIVERPOOL
ROYAL INFIRMARY DURING 1921.

	NEW CASES. *			CEASED TO ATTEND BEFORE CURE COMPLETED.			TOTAL ATTENDANCE	
	M.	F.	Total.	M.	F.	Total.	M.	F.
Syphilis	840	174	1,014	824	250	1,074	13,389	3,381
Gonorrhoea	1,016	83	1,099	946	95	1,041	14,781	1,231
Soft Chancre	8	—	8	—	—	—	34	—
Suspected cases examined and found to be free from V.D.	441	69	510	—	—	—	918	129
Total	2,305	326	2,631	1,770	345	2,115	29,122	4,741

* The figures in these columns include "Re-admissions," i.e., old patients who had ceased attending for more than six months.

The occupations followed by patients registered at the Clinics at the Royal Infirmary during the year are of interest:—

MALES.	FEMALES.
Seafaring people ... 703 (Of these 59 were foreign)	Housewife ... 121
Artizans ... 565	Home duties ... 22
Miscellaneous ... 486	Unemployed ... 5
(Clerks, Agents, Hawkers, &c.)	Shop Assistants ... 3
	Factory Hands ... 14
	Kitchen Hands ... 2
	Housemaid ... 2
	Waitress ... 5
	Domestic servant ... 10
	Other occupations ... 15
<hr/> 1,754 <hr/>	<hr/> 199 <hr/>

There were also 27 infants and young children registered at this clinic during the year.

59 per cent. of the total male patients registered were discharged soldiers and sailors.

40 per cent. of the total male patients registered were seafaring people.

8.5 per cent. of the latter were not natives of the British Isles, and are classed as follows:—

U.S.A. and Canada, 21; Colonies, 20; Norway and Sweden, 7; other nationalities, 11.

The ages range from 15 to 67, but the majority of the patients were between the ages of 20 and 30 years.

Correct diagnosis being very important, arrangements have been made with the City Bacteriologist to examine material, and the following extract from his Report gives the numbers and particulars of the specimens examined for the Liverpool Clinics, Hospitals and Private Practitioners:—

Detection of Spirochaetes	41
„ „ Gonococci	524
Wassermann Reaction for Syphilis	5,783
Still-born Infants	354
Ophthalmia Neonatorum	131
<hr/> Total	<hr/> 6,833 <hr/>

As the majority of the specimens are sent from patients suspected to be suffering from Syphilis, or undergoing treatment, several specimens of blood may be sent from one case at different times, and, therefore, any percentages as to positive and negative results would be of no value.

STILL-BIRTHS.—Of the 354 still-born infants examined 19 gave positive evidence of the presence of Syphilis (*i.e.*, about $5\frac{1}{2}$ per cent.), and 9 were suspicious. In three of these suspicious cases the blood taken from the mother gave a positive Wassermann Reaction. Although the percentage of syphilitic still-born infants is lower than usual there is no direct evidence as to whether this reduction is due to treatment.

The importance of this work is very great, for where the actual causal spirochaete has been discovered the mother (and in some cases the father) can be advised to submit to treatment. The special Health Visitor also undertakes the visiting of these cases, and visits to the number of 304 were made during the year.

In many instances great difficulty has been experienced in getting the mothers to attend for examination and treatment. A large number, however, have been persuaded to attend for treatment, but these women prefer to attend at hours other than those fixed in the regular Timetable; it is difficult to get those of the better class to continue attendance at regular clinics where prostitutes and other types of patients are brought together.

Of the 131 cases of Ophthalmia Neonatorum, 50 shewed the presence of Gonococcus, *i.e.*, nearly 40 per cent. The importance of the examination of these cases at an early stage has been previously emphasised, and the results for this year have confirmed these observations. It will be seen that the percentage of positive cases is practically the same this year as last year. It is not infrequent to find no bacteria in the films, or bacteria of other types, staphylococci, pneumococci, etc.; the Bacteriologist is convinced that some of these cases are gonorrhœal in origin, but the gonococci are very few in number, the early examination making it difficult to discover them, and the early treatment preventing their development.

The following drugs have been issued to Institutions and Medical Practitioners by the Department during the year 1921:—

ISSUE OF DRUGS TO CLINICS, HOSPITALS, AND PRIVATE PRACTITIONERS DURING 1921 FOR THE TREATMENT OF
VENEREAL DISEASES.

ISSUED TO	NEOKHARSIVAN.					NOVARSENOBILLO.					NOVARSENOBENZOL. C.					GALYL.					KHARSIVAN	
	0-30	0-45	0-60	0-75	0-90	0-15	0-30	0-45	0-60	0-90	0-15	0-30	0-45	0-60	0-90	0-15	0-20	0-30	0-40	0-40	0-60	
Royal Infirmary ...	84	—	1188	—	1008	—	—	—	—	—	5	262	94	446	20	—	—	6	6	—	—	
Northern Hospital ...	408	360	456	—	72	—	140	110	110	30	—	—	—	—	—	—	—	—	—	—	—	
Stanley Hospital ...	1116	—	444	—	—	—	300	200	300	—	—	—	—	—	—	—	—	—	—	—	—	
Southern Hospital ...	156	48	270	24	781	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Edge Lane Hospital ...	30	—	42	—	30	20	70	70	60	60	—	—	—	—	—	—	—	—	—	—	—	
Cancer and Skin Hospital ...	672	173	480	—	—	80	420	140	350	—	—	—	—	—	—	—	—	—	14	—	—	
TOTAL CLINICS ...	2466	581	2880	24	1891	100	930	520	820	90	5	262	94	446	20	—	—	6	20	—	—	
Lower Breck Road Hospital	—	—	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
St. Paul's Hospital ...	24	—	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Prison Hospital ...	—	—	—	—	—	—	220	240	210	620	—	—	—	—	—	—	—	—	—	—	—	
Walton Institution ...	—	—	84	—	—	—	240	10	300	500	—	—	—	—	—	—	—	—	—	—	—	
Brownlow Hill Hospital	—	—	—	—	—	—	—	120	—	80	—	—	—	—	—	—	—	—	—	6	6	
Eye and Ear Hospital	—	—	—	—	—	—	50	50	—	—	—	—	—	—	—	—	—	—	—	—	—	
Hahnemann Hospital	—	—	—	—	—	10	10	20	30	10	—	—	—	—	—	—	—	—	—	—	—	
Belmont Road Hospital	—	—	180	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mill Road Hospital	—	18	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Alder Hey Hospital	82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Children's Hospital	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
TOTAL HOSPITALS ...	112	18	325	—	—	10	520	440	540	1210	—	—	—	—	—	—	—	—	—	6	6	
32 PRIVATE PRACTITIONERS	220	197	442	132	114	50	120	100	170	90	3	40	3	40	3	47	74	99	112	—	—	
GRAND TOTAL	2798	796	3647	156	2005	160	1570	1060	1530	1390	8	302	97	486	23	47	74	105	132	6	6	

Total Number of Doses of	To Clinics.				To Practitioners.				To Hospitals.			
	NEOKHARSIVAN	NOVARSENOBILLO	NOVARSENOBENZOL. C.	GALYL	NEOKHARSIVAN	NOVARSENOBILLO	NOVARSENOBENZOL. C.	GALYL	NEOKHARSIVAN	NOVARSENOBILLO	NOVARSENOBENZOL. C.	GALYL
"	7,842	2,460	827	26	1,105	530	89	332	455	2,720	—	—
"	—	—	—	—	—	—	—	—	—	—	—	12

Approximately one-eighth of the drugs enumerated above have been issued to 32 medical practitioners who applied for them.

SUGGESTIONS FOR IMPROVEMENT.—The Committees of the Liverpool Corporation dealing with these diseases have for some years felt that they should be dealt with under another system or the present schemes be strengthened by the addition of some compulsory powers which should be given to local Health Authorities to compel the sufferer to seek a doctor's advice and to follow it should he be found to suffer from the disease. Those who, after repeated warnings, deliberately refuse treatment should be punished, and public opinion would justly agree with this course.

Ophthalmia Neonatorum (the majority of which cases are of venereal origin) has been compulsorily notified for some years under regulations issued by the Ministry of Health.

The effects of legislation in Western Australia where notification is made compulsory, but without name or address, have been good.

The powers suggested in the proposals of the Liverpool Corporation need not of necessity be used, it might be left to local Health Authorities to adopt them as appeared desirable for their respective areas.

If it can be brought home to the patient that it is his duty to himself and to his fellow men to follow a full and proper course of treatment until free from liability to infect others, much good will be attained.

The Liverpool Health Committee think these ends can be reached by making it obligatory to everyone who suffers, or suspects he is suffering, to seek medical advice and to follow the doctor's instructions; in no case will secrecy be betrayed, and it would only be in cases of deliberate discontinuance that prompt action would be taken by the Health Authority in the public interest.

The real bar to much of the work of treatment and eradication of these diseases is because they are not respectable and by reason of the moral stigma attached to having acquired them.

In Australia the Act has been administered equally for man or woman and health regulations enacted for this purpose would be so carried out in this Country.

In Canada a system of notification and compulsory treatment of venereal diseases is in force in the Government of Ontario, where the Canadian Venereal Diseases Prevention Act, 1918, provides for the notification to the Medical Officer of Health of any case of venereal disease as soon as it comes under the treatment or care of any private practitioner, or the head of any hospital, or institution, for the first time; this notification is anonymous, being recognised by serial number. Every person suffering from venereal disease must seek medical treatment from a legally qualified practitioner. He is also bound to continue treatment until pronounced non-infective. Should he fail to do so, he becomes liable to a fine or imprisonment.

The Canadian Authorities regard the Act as extremely useful in the case of patients who deliberately refuse treatment, or who give it up without adequate explanation. The law is, however, only invoked in extreme cases. Persuasive measures are used, and if they fail, then the threat of legal proceedings usually suffices.

It is, of course, obvious that under compulsory treatment the facilities for medical attendance would have to be extended, not only in perfecting our present venereal clinics, but in giving facilities to private practitioners and in the training of young students more fully in venereal diseases before they enter the medical service.

VERMINOUS PERSONS.

The presence of typhus, which is a vermin transmitted disease, in Poland and in the neighbouring Continental countries, has caused the Ministry of Health and also American Health Authorities to view with some concern the arrival of emigrants and transmigrants in this country en route to America.

The Emigration houses in which these people are housed pending the sailing of the vessel are kept under strict supervision; they are visited daily, and all cases of infectious illness promptly reported to the Company's doctor and the Local Health Authority. The bedding is also constantly examined and attention is given to the occupation of the rooms to prevent overcrowding and to ensure cleanliness. The Medical Officer of Health, at the request of various shipping companies acting under the instructions of the American Consul arranged that certain Polish and other emigrants, together with their effects, should be bathed and disinfected. This work is carried out at the Netherfield Road and Sparrow Hall Hospitals, where the special steam disinfectors have been made use of. The cost of the disinfection is defrayed by the Shipping Company concerned.

Facilities for the cleansing and disinfection of verminous persons and their belongings have been arranged for by the Port Sanitary Authority.

The bathing of these persons has been carried out at the Netherfield Road and Sparrow Hall Hospitals, where an ample number of baths are available. The disinfectors of the hospitals, which are of large size, are, if necessary, utilised for the destruction of vermin in the clothing and belongings of these persons. As a rule, the alien immigrants and transmigrants arriving in the Port of Liverpool on inward-bound vessels are in a clean condition, and do not require the cleansing referred to.

HOSPITAL ADMINISTRATION.

During the entire year 1921 the City Infectious Hospitals and Sanatoria were in full commission.

At the end of the year the amount of hospital accommodation for infectious cases was as follows:—

City Hospital North	...	...	...	...	166	beds
„ South	...	...	...	...	96	„
„ East	...	...	...	...	153	„
„ Fazakerley	...	...	...	...	300	„
„ Fazakerley Annexe	...	...	...	...	160	„
„ Sparrow Hall	...	...	...	...	150	„
Deysbrook Hospital	...	...	...	...	110	„
Parkhill Sanatorium	...	...	...	...	225	„
Fazakerley Sanatorium	...	...	...	...	240	„
Highfield Sanatorium	...	...	...	...	320	„
					<u>1,920</u>	

Deysbrook Hospital belongs to the West Derby Board of Guardians, but by arrangement has been in the possession of the Corporation since October, 1914, and is used for convalescent cases.

Highfield Sanatorium is an Institution belonging to the Liverpool Select Vestry and was built to accommodate Poor Law cases. It is well adapted, however, for the treatment of tuberculosis, and after prolonged negotiations, was taken over for a period of two years by the Liverpool Corporation from the Select Vestry. Occupation commenced on the 7th May, 1921, and by the end of the year there were 266 patients suffering from Tuberculosis resident in this Institution.

The value of the hospitals, and the immense amount of useful work performed, is shown by the fact that no less than 6,737 patients were treated within their walls during the year.

Arrangements have been made between the Hospitals Committee and various Local Authorities to receive cases of infectious disease from districts beyond the City boundary, namely, Sefton Rural District, Waterloo and Seaforth, Great Crosby, Little Crosby, Leasowe Hospital, and the Children's Convalescent Home, West Kirby.

Arrangements have also been made to deal with any case of cholera, yellow fever, or plague, which may arise in any of the neighbouring Urban or Rural Districts. A suitable charge is made in each case.

SMALL-POX DURING THE LAST FIFTY-TWO YEARS.

Years of Increase.	No. of Cases.	Deaths.	Years of Subsidence.	No. of Cases.	Deaths.
1870	Unrecorded	174			
1871	"	1,919			
1872	"	50			
			1873	Unrecorded	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	1,720	141			
			1904	27	2
			1905	15	—
			1906	19	1
			1907	19	—
			1908	7	—
			1909	9	—
			1910	10	—
			1911	19	—
			1912	4	1
			1913	13	1
			1914	2	—
			1915	—	—
			1916	7	—
			1917	3	1
			1918	2	—
			1919	20	1
			1920	10	2
			1921	—	—

The above table includes cases arriving on vessels or importations through other channels.

THE HOSPITAL SERVICE.

FAZAKERLEY HOSPITALS AND SANATORIUM.

Report of the Medical Superintendent.)

The total number of patients admitted during the year ending December 31st, 1921, shows an increase of 461, as compared with that of the previous year. The increase has been largely the result of the number of Measles occurring in the latter months of the year, and admitted to hospital for treatment.

The number of cases under treatment at one time reached a maximum of 319 on October 30th. The following figures represent the gross monthly admissions:—

January	...	...	...	258	July	...	...	...	154
February	...	...	...	200	August	...	...	...	134
March	...	...	...	204	September	...	...	...	260
April	...	...	...	194	October	...	...	...	319
May	...	...	...	279	November	...	...	...	315
June	...	...	...	220	December	...	...	...	298

Considerable strain has been placed upon the resources of the hospital by the number of patients admitted under the headings of (1) Mixed Infections, (2) Observation cases, (3) Cases of doubtful diagnosis, and (4) Non-infectious cases. The more extended use of Sparrow Hall Hospital has been of great service in dealing with the allocation of these cases; but, as in previous years, the practice of bed isolation has been chiefly depended upon for the solution of this difficulty. It is of interest to note that the following cases were dealt with in one ward of 26 beds during the years 1920 and 1921. No cases of cross-infection occurred. The continued immunity from cross-infection enjoyed by bed isolation wards, as compared with Infectious wards generally, is a point of considerable epidemiological interest, apart from its administrative importance:—

Acute Anterior Poliomyelitis	...	...	...	3	Continued Fever	...	...	...	4
Anthrax	...	...	...	1	Diphtheria	...	...	...	15
Cerebro-spinal Meningitis	...	...	...	12	Diphtheria (?)	...	...	...	18
Cellulitis	...	...	...	2	Diphtheria and Scarlet Fever	...	...	...	13
Chicken-pox	...	...	...	47	Diphtheria and Measles	...	...	...	7
Chicken-pox and Scarlet Fever	...	...	...	10	Diphtheria and Syphilis	...	...	...	1
Chicken-pox and Diphtheria	...	...	...	2	Diphtheria (?) and Scarlet Fever	...	...	...	2
Chicken-pox and Measles	...	...	...	4	Diphtheria and Erysipelas	...	...	...	1
Chicken-pox and Scabies	...	...	...	1	Diphtheria Contact and Mumps	...	...	...	1
Chicken-pox and Measles, Contact	...	...	...	2	Diphtheria (?) and Scarlet Fever (?)	...	...	...	6
Chicken-pox and Whooping Cough	...	...	...	1	Diphtheria and Rubella	...	...	...	1
Childbirth	...	...	...	1	Dysentery	...	...	...	1

Dysentery (?)	1	Scarlet Fever	22
Diarrhoea	3	Scarlet Fever (?)	57
Encephalitis Lethargica ...	12	Scarlet Fever and Whooping Cough	6
Enteric Fever	40	Scarlet Fever, Whooping Cough and	
Enteric Fever (?)	2	Measles	1
Enteric Fever and Syphilis ...	1	Scarlet Fever and Scabies ...	
Enteric Fever or Typhus ...	1	Scarlet Fever (?) and Malaria ...	1
Erysipelas	65	Scarlet Fever Contact	1
Erysipelas and Whooping Cough	1	Scarlet Fever (?) and Rubella ...	1
Incomplete Abortion	1	Whooping Cough	21
Malaria	2	Influenza	14
Mastoidectomy	3	Pneumonia	15
Measles	62	Tonsillitis	4
Measles and Whooping Cough ...	8	Tubercular Glands	3
Measles and Scarlet Fever ...	6	Scabies	2
Measles and Rubella	1	Scabies (?)	1
Measles (?)	2	Surgical Cases, Major	10
Meningitis... ..	7	Surgical Cases, Minor	11
Mumps	6	Paratyphoid Fever	1
Mumps and Scarlet Fever ...	1	Trench Fever, or Syphilis ...	1
Mumps and Diphtheria, Contact	1	Rubella	34
Mumps and Chicken-pox ...	1	Other Diseases	16

The diseases stated are as originally notified, not as finally corrected.

The case-mortality rate shows little change from that of previous years. The type of Scarlet Fever for the period under observation has been of lessened severity, and it is but rarely that the fatal complications familiar to practitioners of two decades ago, are met in recent epidemics. Diphtheria, on the other hand, has shewn little tendency to decreased virulence.

The number of cases of Measles under treatment has been in excess of that of recent years, and the type of disease exceptionally severe. The selection of cases of Measles for hospital treatment from amongst the poorer, and less advantageously circumstanced population, has resulted in the admission of a number of young children suffering from the more dangerous forms of pulmonary complication; and the satisfactory results obtained amongst such cases by skilled medical, and nursing, supervision in hospital, has been very striking. A feature of this disease has been the very considerable number of young children treated at home, and subsequently admitted to hospital by reason of laryngeal Diphtheria occurring during convalescence. These cases usually require immediate operation to relieve impending suffocation, and the outlook is invariably serious.

The number and description of cases proving fatal within 48 hours of admission during the year are shewn in the following table.

ANALYSIS OF CASES DYING WITHIN 48 HOURS
OF ADMISSION.

Disease.	Age	Days ill prior to Admission.	No. of hours in Hospital.
	Years.		
Scarlet Fever	8	3	10
Do.	17	4	29
Diphtheria	3	3	5
Do.	1	4	41
Do.	2	3	30
Do.	5	4	5
Do.	5	4	2
Measles	1	7	29
Do.	3	6	5
Do.	1	3	29
Do.	5	14	18
Do.	2	7	40
Pertussis	3	5	10
Cerebro-spinal Meningitis	28	2	6
Do. do.	5	4	32
Tubercular Meningitis	2	6	37
Do.	11	6	26
Do.	4	20	10
Lobar Pneumonia	66	10	24
Broncho Pneumonia	2	3	7
Do.	3	5	4
Do.	1	14	12
Lobar Pneumonia	61	10	10
Dysentery (Bacillary)	9	4	18
Infective Enteritis	1	10	10
Erysipelas	57	8	5
Measles and Diphtheria	4	8	8
Typhoid Fever	31	35	14

CEREBRO-SPINAL-FEVER.

The death of 5 of the 7 cases of Cerebro-spinal-Fever admitted during the year, constitutes a high proportion.

Treatment of this disease under present circumstances compares exceedingly unfavourably with that which was possible during the War. At that time, specific "curative" type serums were to be had, and by means of these a serum homologous to the particular "type" of Meningococcus which was the infecting agent in the case involved, could be obtained, and used—particularly in type I and type I-III cases, with most encouraging results.

Now, however, these curative "type" serums cannot be procured separately, but only in a compound, or "pooled" serum. Such "pooled" serum is said to be potent, or valent for the four Gordon types in the proportion of 40 per cent. each for types I and II, and 10 per cent. for the relatively rarer types III and IV.

It is quite conceivable that the cost of manufacture, and the limited demand for the homologous, or specific "type" Antimeningococcus serums combine to make production of them a difficult matter, but nevertheless, their absence deprives the physician of a most potent weapon in the successful treatment of the disease.

The cases admitted were not "typed" because, except for the strictly scientific interest, the procedure has been deprived of its clinical utility.

TUBERCULOSIS.

A noticeable feature of this Branch of the work during 1921 has been the increased proportion of surgical cases under treatment. Of the total 315 beds allocated to this disease at Fazakerley, 90 were in occupation by surgical cases at the end of the year. In 40 of these cases the surgical condition was accompanied by tuberculous disease of the lungs.

With a view to the elimination of any risk of super-added infection by the tubercle bacillus, or a secondary organism, it has been found administratively convenient to group these patients for treatment in separate wards, or pavilions, under the following headings:—

- (a) For observation.
- (b) Non-pulmonary.
- (c) Pulmonary.
- (d) Combined pulmonary and non-pulmonary.

This arrangement, in addition to the obvious economy effected in equipment, has facilitated supervision by that section of the medical and nursing staff especially trained, and skilled in the management of surgical conditions. The completion of the equipment of the Operating Theatre acquired from the military authorities has materially assisted in making this classification possible, "clean" cases being dealt with in this Theatre, whilst the original Theatre is utilised for cases complicated by a secondary infection of pus organisms.

Exact diagnosis in surgical conditions has been facilitated by the addition of a modern High Tension Transformer to the equipment of the X-ray Department. All cases, pulmonary and surgical, are screened on admission, and, where necessary, on discharge, Radiographs are submitted for inspection by the surgeon specialist in all cases where exact localisation is required, and X-ray control has been of the greatest service in treatment by Artificial pneumothorax.

GRADUATED EXERCISES.

The methods of exercise and manual employment detailed in previous reports have been amplified during the year under consideration. New ground has been included in the Kitchen Gardens worked by patients, and great interest has been displayed in the cultivation of crops. In this work the female patients, in particular, have occupied themselves to their own enjoyment, and the advantage of the Sanatorium larders. It has been found, as in previous years, that male patients display greater enthusiasm in work more immediately productive of results, such as boot and leather work, joinery and carpentry, bricklaying, etc. A large brick brooder house and permanent buildings for housing pigs have been completed during the year, entirely by the labour of patients, in addition to a considerable extension in the work carried out in connection with the skilled trades referred to. The spirit of co-operation displayed by the patients has made these operations possible without the services of paid instructors, each man being willing to share his expert knowledge of a particular trade with his fellows in order to complete the undertaking in hand.

SANATORIUM SCHOOL.

Children of school age receive daily tuition under a certified teacher. The advantages which accrue, physical and educational, from this practice, have been previously referred to; there is no question that the mental stimulus resulting from school teaching has been a decided factor in the recovery of many of these children. The therapeutic value of regular exercise and employment, in the case of adults, has its parallel in the beneficial results of systematic instruction by skilled teachers in the case of children. Especially is this so when this instruction includes graduated physical exercises, and the teaching of manual trades.

Sixty to seventy per cent of all children attend the Sanatorium school. They comprise the under-noted:—

(a) Pulmonary cases with no sputum.

(b) Pulmonary cases with sputum, repeated examinations of which have failed to disclose tubercle bacilli.

The remaining thirty to forty per cent. comprise:—

(c) Pulmonary cases with sputum in which tubercle bacilli have been demonstrated.

(d) Non-pulmonary cases.

(e) Cases of pulmonary disease combined with tuberculous disease of other organs.

(f) Observation cases.

It will be obvious that cases falling under categories *c. d. e. f.* have generally to be treated in pavilions separate from one another, and from those in which are treated categories *a.* and *b.* This is made necessary by the danger of cross-infection, and limits the number of children which can be dealt with in a Sanatorium School by one teacher.

The following extracts from a report by the teacher are of interest as giving instances of the progress made by her pupils:—

“ There have been 43 children on the Register at various times,

“ but the average number in school at one time is not above 35.

“ Their ages range from five years to 15 years at the present time,

“ but the children are graded according to their attainments and

“ progress, rather than age. There are three groups; A. and B.,

“ representing boys and girls of the average level from Standards
 “ V. to VII; C. and D., boys and girls from Standards II to IV,
 “ and E. is a Kindergarten class.

“ In a school of this kind, every child should receive the utmost
 “ benefit in the shortest time, and a great deal of attention must
 “ be spent on the development of initiative, intelligence, and
 “ common-sense. These qualities combined with the acquirement
 “ of reasonable facility in reading, writing, and arithmetic, the
 “ historic three R's, will place the child in a position to take its
 “ place among its fellows on being discharged from hospital.

“ The lower groups have naturally the above subjects as the
 “ chief items; but with the top groups, who are holding their own
 “ in what they have already learnt, Geography, History, English,
 “ and even a little French, are included in the week's work.

“ The following are a few typical cases shewing the progress of
 “ children who had never been to school at all, or, at the most,
 “ only attended for a very short time before their illness:—

“ E. D., a child of 13, only knew her alphabet, and had a
 “ slight idea of numbers. In the course of nine months she
 “ became able to read as well as the average standard IV or
 “ V child, to do simple arithmetic, to write correctly from
 “ dictation, and to compose fairly well. In addition, this
 “ girl began to show initiative and confidence where she had
 “ been lethargic and nervous.

“ V. A., a girl of 12, knew her alphabet, a few numbers,
 “ and could write a very little. In ten months she had learned
 “ to read up to standard IV level, to write from dictation,
 “ and to attempt original composition. Her spelling is very
 “ erratic, but is improving, and she is accurate in working
 “ out simple sums. This girl also was very nervous, and
 “ seemed unintelligent, but is now much brighter.

“ Most of these girls are very good at sewing and knitting,
 “ and like to make garments for themselves.

“ T. T., a boy of 11, knew most of his letters, could write
 “ a little, and had a slight knowledge of numbers. He showed
 “ a very poor power of concentration at first, but during the
 “ past four months has made great progress. He reads up

“ to Standard III or IV level, writes well, (he is left-handed),
 “ and his spelling is improving rapidly. He is good at hand-
 “ work, and shows great perseverance.”

CLASSIFICATION OF CASES.

Patients on admission have been classified in accordance with Turban's formula:—

Class I	...	...	...	...	...	...	70
Class II	...	...	...	...	...	...	93
Class III	...	...	...	...	...	...	140
Non-pulmonary	...	...	...	...	...	...	56
Phthisis combined with Tuberculosis of other organs...							25
Non-Tubercular	...	...	...	...	...	...	10

OCCUPATIONS LIST.

MALE.

Labourer	...	...	...	38	Shop-assistant	...	...	4
Clerk	...	...	...	20	Engineer	...	...	3
Dock Labourer	...	...	...	9	Motor-driver	...	...	3
Carter	...	...	...	8	Store-keeper	...	...	3
Ship's Steward	...	...	...	8	Tailor	...	...	3
Fireman	...	...	...	5	Commercial Traveller	...	...	2
Painter	...	...	...	5	Cooper	...	...	2
Policeman	...	...	...	5	Cotton Porter	...	...	2
Printer	...	...	...	5	Railway Porter	...	...	2
Barman	...	...	...	4	Schoolboy	...	...	16
Brass-moulder	...	...	...	4	Various	...	...	63
Sailor	...	...	...	4				

FEMALE.

Housewife	...	...	...	55	Printer	...	...	3
Clerk	...	...	...	12	Tailoress	...	...	3
Shop Assistant	...	...	...	11	Tobacco-stripper	...	...	3
Domestic Servant	...	...	...	9	Typist	...	...	3
Nurse	...	...	...	7	Cook	...	...	2
Packer	...	...	...	5	Teacher	...	...	2
Charwoman	...	...	...	4	Schoolgirl	...	...	37
Machinist	...	...	...	3	Various	...	...	17

EX-SERVICE MEN.

In Sanatorium during the year 133

HIGHFIELD SANATORIUM.

REPORT OF THE MEDICAL SUPERINTENDENT.

The number of Patients suffering from Pulmonary Tuberculosis admitted to Highfield Sanatorium from the 7th May, 1921, till the 31st December, 1921, was 568. They were classified by Turban's method into three groups according to the extent of the disease in the lungs and the degree of systematic infection. A very large proportion were, on admission, cases of advanced Tuberculosis and therefore less amenable to treatment; in fact, treatment in their case was of necessity limited to that of a symptomatic nature. Auto-inoculation by a system of graduated exercise and rest was prescribed for patients in earlier stages of the disease, and those who were able to be up all day were employed in light duties in the wards for an hour or two daily, while a few of the male patients did a small amount of gardening in good weather. All patients had a compulsory hour for rest both morning and evening and recreations in the form of croquet and clock golf out of doors and bagatelle indoors were available for all who so desired. A bowling green is in process of construction by the patients own efforts, and should prove an additional asset to the social life of the Institution. Occasional concerts and Police band entertainments further tend to introduce a little colour and pleasure into the life of the Institution. Having regard to the extremely serious condition of the majority of the patients on admission, it is not surprising, though greatly to be deplored, that the number of deaths for the period under consideration was 69. In all these cases death was humanly speaking inevitable and everything that could be was done for them. Two hundred and thirty-three were discharged. Remaining in Sanatorium: 266.

The following interesting observations on tubercular patients admitted during the year to Highfield Sanatorium, are supplied by Dr. Ethel Griffiths, Resident Medical Officer.

During the ten months that I have been working at Highfield Sanatorium, it has struck me from the class of case that is admitted here

that the tuberculosis infection in Liverpool is of a more virulent type than that which occurs in other parts of England. I can only give a general impression.

Before working in Liverpool I was engaged in tuberculosis work in Yorkshire, Staffordshire, and Dorsetshire. At the Middleton-in-Wharfedale Sanatorium, which is the County Sanatorium for the West Riding of Yorkshire, there are 200 patients, 50 women and 150 men, most of whom are ex-soldiers, who previous to joining the army were many of them miners. The patients were admitted to the Sanatorium in all stages of the disease in about equal numbers. They did not appear to be very ill, and they usually gave a history of chest trouble extending over a period of one or two years before admission.

The duration of stay in the Sanatorium was at least three months, it might be longer, six, or 12 months, or more. During that time the disease ran a very slow course, the chests were examined monthly, the signs usually showed a slight improvement from month to month or they remained in the same condition as on admission.

Many of the men could do four to six miles walking exercise a day and heavy gardening when they had been in the Sanatorium three months.

The majority of the patients went out moderately improved both generally and locally, a few were in *statu quo*, and a few left the Sanatorium in worse condition than on admission, while a very few died, there were only five deaths in the course of 14 months, in addition to two who went out to die, both died within a few days of leaving the Sanatorium.

The sputum was examined monthly and during the space of 14 months there were only three cases who merited a T.B. +++ three cases T.B. ++ and the rest were T.B. +. In many cases it was necessary to examine the sputum two or three times before a germ was found at all and then after examining the slide for 20 minutes to half an hour only one or two T.B. were discovered.

To compare this with the class of case that we are receiving at Highfield we find that most of the patients are admitted to the Sanatorium looking extremely ill; in fact, they are intoxicated with T.B. virus. They usually give a short history of two or three months chest trouble before admission, except in the case of those who have been taking cod liver oil in some form or another outside, these may give a history of two or three years.

The latter class of case runs a more chronic course, the former class of case on admission shows advanced signs of phthisis in both lungs, in spite of the short duration of the infection, and although everything is done for them that can possibly be done these patients tend to go steadily down hill, some of them show an increase in weight, and a slight general improvement for a short time, but it is only temporary; the disease steadily spreads in the lungs and they die at the end of about three or four months, so that the duration of the illness is about seven months, for the last month they are in a moribund condition.

At the time of writing this, there have been five deaths in the Sanatorium in 24 hours, but that is unusually heavy. The sputum shows a remarkable difference to the sputum of the patients at the Middleton Sanatorium, there the difficulty was to find a bacillus on the slide, here the difficulty is to count the germs in one field, the number is innumerable, the sputum is teeming with T.B. the bacillus is of the rapidly multiplying type, the short, straight, unbeaded variety, suggesting dangerous spreading of the disease, whereas the more chronic form, the long beaded variety is less frequently seen, both types may be found in the same specimen, but the rapidly multiplying type predominates.

I have noticed that some patients who are very ill, in whom the disease is running a rapid course, in spite of the open air treatment, and who have not had cod liver oil before admission, will do remarkably well on cod liver oil, provided that they are not too near death to digest and assimilate the oil. Cyanosis has disappeared, and the temperature fallen to normal, weight increased and the signs in the lungs have gradually disappeared. In time they have been able to get up, do light grade work, and go out on a monthly "pass."

At Moxley Sanatorium, which is the County Sanatorium for Staffordshire, cases were admitted from all parts of the County, but largely from the towns of Wolverhampton, Darlestone, Walsall, and Wednesbury. The patients were chiefly ex-soldiers and miners by trade, they resembled in every way the class of case in the Middleton Sanatorium, Yorkshire, they were admitted in all stages of the disease, and the disease ran a slow chronic course. They did not appear to be very ill, and the majority of patients went out moderately improved.

There was an average of one death in four months.

In Dorsetshire the disease was even more chronic.

PARKHILL SANATORIUM.

REPORT OF THE MEDICAL SUPERINTENDENT.

During the year 424 cases were admitted, of which number 330 were males and 94 females. Of the males, 162 were ex-service men. The admissions were practically confined to those suffering from a primary lesion in the lung: in only 5 cases was the primary lesion elsewhere. In 8 cases there was no definite evidence of Tuberculosis.

AGE PERIODS.—The age periods of the Tuberculosis cases admitted were as follows:—

	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	Total.
No. of cases	4	20	69	108	93	88	34	416

CLASSIFICATION OF PULMONARY CASES.—The classification of the admissions has been based as heretofore on the extent of the lung involvement, together with the degree of constitutional disturbance. In the following table, L_1 denotes not more than a total of one lobe of the lung involved, L_2 not more than two lobes, and L_3 more marked pulmonary involvement. S_1 , S_2 , and S_3 , indicate various degrees of constitutional disturbance:—

TABLE.

	S ₁	S ₂	S ₃
L ₁	88	11	3
L ₂	43	65	21
L ₃	18	64	98

TREATMENT.—Treatment has again been mainly on the lines of graduated exercise, which has largely been provided for in gardening. Beds for both flowers and vegetables have been formed and tended by the patients, but no new work of any magnitude has been undertaken in view of the proposed relinquishment of the Sanatorium site. In addition, boot-repairing and minor carpentry have occupied the attention of a small number of patients.

SCHOOL.—The school has developed considerably during the year. The original accommodation proving insufficient to meet the demand for admission, the scope of the school has been extended by the formation of a separate class of senior boys under the immediate supervision of one of their number, the class being held in an adjoining room in the same pavilion. This plan, though entailing less individual attention to each pupil by the teacher, has permitted of the fullest use being made of the school. During the 12 months, the average number on the roll was 56, and the average attendance 52. In the selection of children for admission to the school, preference is given to those most backward. Many of the children have not attended school for considerable periods before admission to Sanatorium, and in some cases children up to the ages of even 10 or 12 years have not been able to read or write. In all cases the results have been highly satisfactory, not only educationally, but also in the improved response to treatment resulting from the relief of monotony by an interesting and varied type of instruction.

The Education Committee has continued to provide valuable assistance in the supervision of technical details.

The following tables, prepared by the Medical Staff of each of the City Hospitals show the number of patients, the nature of the illness, and the results at each of the ten hospitals during the year 1921:—

CITY HOSPITAL NORTH, NETHERFIELD ROAD.

Visiting Physician, Dr. R. I. RICHARDSON.

Resident Physician, Dr. W. M. FRAZER.

DISEASES.	Remaining Dec., 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.	85	983	—	1068	371	1	537	141	2	18	1.9
Typhus Fever.	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever.	—	1	—	1	—	—	—	1	—	—	—
Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—
Measles ...	—	11	—	11	—	—	7	1	—	3	27.3
Whooping Cough ...	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	—	9	—	9	—	1	8	—	—	—	—
Isolation and Observation Cases ...	—	4	—	4	—	—	4	—	—	—	—
Totals ...	85	1008	—	1093	371	2	556	143	2	21	2.08

CITY HOSPITAL SOUTH, GRAFTON STREET.

Visiting Physician, Dr. H. A. CLARKE.

Resident Physician, Dr. RITA HENRY.

DISEASES.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Enteric Fever..	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever.....	63	439	—	505	231	1	226	41	1	6	1.36
Diphtheria	—	3	—	3	—	—	1	1	1	1	33.3
Measles	14	381	—	395	—	1	318	44	4	32	8.39
Other Diseases.....	—	24	—	24	—	—	21	2	1	1	4.16
Isolation & Obser- vation Cases	—	30	—	30	—	—	30	—	—	—	—
Totals	80	877	—	957	231	2	596	88	7	40	4.56

FAZAKERLEY SANATORIUM.*Medical Superintendent, Dr. C. RUNDLE.**Principal Resident Medical Officer, Dr. W. CRANE.**Assistant Resident Medical Officers, Drs. A. E. CONNOLLY and
B. G. ELLIOTT.*

DISEASES.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals	Total under Treat- ment during the year.	Transferred to Convalescent Hospital	Transferred to other City Hospitals.	Discharged.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Tuberculosis	286	386	7	679	—	—	332	286	3	59	15.2

CITY HOSPITAL, FAZAKERLEY ANNEXE.*Medical Superintendent, Dr. C. RUNDLE.**Assistant Resident Medical Officer, Dr. A. E. BURNS.*

Diseases.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment dur- ing the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.....	77	445	2	524	—	12	415	94	—	3	0.6
Enteric Fever	—	—	—	—	—	—	—	—	—	—	—
Diphtheria	13	85	—	98	—	—	85	5	1	8	9.4
Measles	—	214	—	214	—	1	178	21	1	14	6.5
Whooping Cough ...	—	—	—	—	—	—	—	—	—	—	—
Other Diseases.....	1	39	—	40	—	—	37	1	1	2	5.1
Isolation and Observation Cases	—	7	—	7	—	—	7	—	—	—	—
Totals	91	790	2	883	—	13	722	121	3	27	3.4

CITY HOSPITAL, FAZAKERLEY.

*Medical Superintendent, DR. C. RUNDLE.**Principal Resident Medical Officer, DR. A. E. HODGSON.**Assistant Resident Medical Officers, DRs. C. ABERNETHY and
L. DENIL.*

DISEASES.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment dur- ing the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever...	92	420	122	634	—	93	484	47	2	10	2.3
Enteric Fever..	6	29	—	35	—	—	31	2	1	2	6.9
Typhus Fever..	—	1	—	1	—	—	1	—	—	—	—
Diphtheria.....	22	137	1	160	—	—	135	15	4	10	7.3
Measles	2	306	—	308	—	—	238	55	4	15	4.9
Whooping Cough.....	—	56	—	56	—	—	44	3	2	9	16.0
Phthisis	—	—	—	—	—	—	—	—	—	—	—
Other Diseases.	14	520	2	536	—	14	411	50	13	61	11.7
Isolation and Observation Cases.....	7	15	—	22	—	—	19	3	—	—	—
Totals.....	143	1484	125	1752	—	107	1363	175	26	107	7.2

CITY HOSPITAL, DEYSBROOK, WEST DERBY.

Visiting Physician, Dr. W. J. ROBERTSON DUNN.

Diseases.	Remaining Dec. 31st, 1920.	Admitted during the year	Transferred from other City Hospitals	Total under Treatment during the year	Transferred to Convalescent Hospital	Transferred to other City Hospitals	Discharged Cured	Remaining at end of year	Died within 48 hours of Admission	Total Deaths	Total Mortality per cent. of Admissions
Scarlet Fever ...	71	32	605	708	—	2	600	106	—	2	6.2

PARKHILL SANATORIUM.

Medical Superintendent, Dr. H. R. MACINTYRE.

Senior Assistant Medical Officer, Dr. W. HUNTER BROWN.

Assistant Medical Officer, Dr. WYNDHAM WILLIAMS.

DISEASES.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treat- ment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged.	Remaining at end of year.	Died within 48 hours of admission	Total Deaths.	Total Mortality per cent. of Admissions.
Phthisis	213	424	—	637	—	44	295	211	—	87	20.5

CITY HOSPITAL EAST, MILL LANE, OLD SWAN.

Visiting Physician, Dr. H. A. CLARKE.

Resident Medical Officer, Dr. M. THOMSON.

DISEASES.	Remaining Dec. 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treat- ment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.....	—	1	—	1	—	—	1	—	—	—	—
Enteric Fever	—	—	—	—	—	—	—	—	—	—	—
Diphtheria.....	87	875	—	962	—	—	817	86	28	59	6.7
Measles	—	116	—	116	—	—	80	15	—	21	18.1
Other Diseases	—	55	—	55	—	—	37	11	—	7	12.7
Isolation and Obser- vation Cases ...	—	—	—	—	—	—	—	—	—	—	—
Totals.....	87	1,047	—	1,134	—	—	935	112	28	87	8.3

CITY HOSPITAL, SPARROW HALL.

Medical Superintendent, DR. C. RUNDLE.

DISEASES.	Remaining Dec., 31st, 1920.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of admission.	Total Deaths.	Total Mortality per cent of Admissions.
Scarlet Fever.....	23	176	91	290	7	119	102	61	—	1	0.56
Whooping Cough...	—	16	16	32	—	—	15	15	—	2	12.50
Measles	—	4	1	5	—	—	4	1	—	—	—
Other Diseases	4	99	29	132	—	2	124	4	—	2	2.02
Isolation and Observation Cases	—	—	2	2	—	—	—	2	—	—	—
Total	27	295	139	461	7	121	245	83	—	5	1.69

HIGHFIELD SANATORIUM.

Resident Physician, DR. D. A. HASTINGS.

Resident Medical Officers, Drs. ETHEL R. GRIFFITHS,
ESTHER ASHWORTH,
EVELINE F. BEBINGTON and
MARGT. FERRIER.

DISEASES.	Remaining 7th May, 1921.	Admitted during 7th May to 31 Dec., 1921.	Transferred from Parkhill Sanatorium.	Total under Treatment during the year.	Transferred to Convalescent Hospital	Transferred to Fazakerley Sanatorium.	Discharged Cured	Remaining at end of year	Died within 48 hours of Admission	Total Deaths	Total Mortality per cent. of Admissions
Phthisis	72	456	40	568	—	1	232	266	—	69	15.1

SANITARY ADMINISTRATION.

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.

	Males	Females
*Chief Sanitary Inspector	1	—
*Deputy Chief Sanitary Inspector	1	—
*Prosecuting Sanitary Inspectors	10	—
*District Sanitary Inspectors	34	—
¹ Food Inspectors	11	—
(These Inspectors and the Port Sanitary Inspectors assist in carrying out the provisions of the Diseases of Animals Acts)		
*Inspectors under the Food and Drugs, etc., Acts ...	3	1
* „ of Cowsheds and Milkshops	2	—
* „ under the Food and Drugs, etc., Acts and of Cowsheds and Milkshops	1	—
* „ under the Shops Acts	3	1
* „ „ Factories and Workshops Acts ...	4	—
(These Inspectors are also appointed under the Shops Acts)		
² Smoke Inspectors	3	—
³ Inspectors of Common Lodging Houses and Houses let in Lodgings	17	—
*Inspectors of Canal Boats	1	—
⁴ Ambulance and Disinfecting Superintendents and Inspectors	15	—
Motor Ambulance Drivers	8	—
Rat Catchers	9	—
Men engaged stripping walls and spraying infected houses, limewashing middensteads, etc. ...	24	—
*Notice Servers	3	—
Chief Clerk	1	—
Clerical Staff (Permanent)	29	—
„ „ (Temporary)	1	5
„ „ (Health Visitors, etc.)	—	5
„ „ (Tuberculosis Branch)	3	15

⁵ Health Visitors, School Nurses, etc. (Permanent) ...	—	59
⁵ „ „ „ „ (Temporary) ...	—	18
⁶ Inspectors under the Midwives' Act ...	—	3
⁷ „ of Ophthalmia Neonatorum ...	—	2
Superintendent and Assistants at Infant Milk Centres		
(Permanent) ...	1	12
Temporary assistants at Infant Milk Centres ...	5	40
⁸ Nurses at Tuberculosis Institutes ...	—	5
Caretakers at Tuberculosis Institutes ...	2	—
„ Ford Street Mortuary ...	—	1
Women engaged cleansing Verminous Children ...	—	2
<i>Day Nurseries, Maternity Home and Clinics.</i>		
Matrons ...	—	10
Deputy-Matrons ...	—	9
Nurses and Probationers ...	—	37
Domestic Staff, including Gardener and Cleaners ...	1	56
<hr/>		
Total number of Staff ...	193	281
<hr/>		

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 a certificate affording evidence of adequate sanitary instruction. ¹ Have special training in each branch of the work, *i.e.*, Butchers, Fishmongers, Fruiterers, &c., are also certificated. ² Hold Marine Engineer's First Class Certificates. ³ Several hold the certificate of the Royal Sanitary Institute or an equivalent thereto. ⁴ The Ambulance Superintendent holds the certificate of St. John Ambulance Association. ⁵ All hold qualifying certificates. ⁶ Registered Midwives with qualifying certificate. ⁷ Fully qualified Nurses with special training in Ophthalmia Neonatorum. ⁸ Fully qualified Nurses.

The number of occasions upon which the advice and assistance of the Health Department have been sought has increased during the year. These applications fluctuate year by year; in 1910 they were

9,354; in 1920, 18,730; and in 1921, 20,688. 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 owners or agents of property, had been ignored. 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, are 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 the examination.

The District Sanitary Inspectors visit at the earliest possible moment all premises where a nuisance is complained of, and last year 28,302 nuisances were discovered as the result of complaints. Preliminary notices were served either on the owners or the occupiers to remedy 24,004 nuisances. These nuisances were referred to the Prosecuting Inspectors for re-inspection, and where necessary, further proceedings were taken to cause the abatement of the nuisance. The remaining 4,298 nuisances came within the province of other departments, and were referred to those departments to be dealt with.

In addition to the foregoing, the Inspectors, in the course of house to house inspection, discovered 66,149 nuisances to remedy which preliminary notices were served on either the owner or the occupier. A number of defects were also referred to other departments.

On re-inspection, the number found not abated was 20,707, and statutory notices were served to remedy them. These were again re-inspected by the District Inspectors, and those found not abated were referred to the Prosecuting Inspectors for further action. In addition, all nuisances found in process of being abated, or to which the District Inspector was unable to gain access for re-inspection, were referred to the Prosecuting Inspectors.

The following table shows the number of nuisances found by the District Sanitary Inspectors, and the character of the proceedings taken by the Prosecuting Sanitary Inspectors to abate the nuisances, and the results:—

Number of complaints made by inhabitants ...	20,688
„ nuisances discovered on above complaints ...	28,302
„ „ „ on house to house inspection	66,149
Total nuisances ...	94,451
„ notices issued (Owners) ...	64,369
„ „ (Occupiers) ...	1,522
Total notices ...	65,891
„ notes to complainants ...	118
„ visits to premises under observation ...	1,568
„ incidental calls ...	22,841
„ special nuisances referred to Prosecuting Inspectors ...	24,004
„ ordinary nuisances referred to Prosecuting Inspectors ...	20,234
Total ...	44,238
„ visits made by Prosecuting Inspectors, <i>re</i> special reports ...	41,253
„ visits made by Prosecuting Inspectors, <i>re</i> ordinary reports ...	31,712
Total ...	72,965
„ re-inspections of nuisances ...	118,942
„ nuisances abated on first re-inspection ...	41,493
„ notes sent to comply with notices ...	4,927
„ re-tests of drains after compliance with notices	47
„ Informations laid ...	316
„ Magistrate's Orders ...	218
Number fined ...	44
„ acquitted or withdrawn ...	54

The nuisances dealt with comprise, mainly, defective and choked drains, sink waste pipes and spouts; defective roofs; defective flagging and paving; defective water-closet basins, putty joints, walls, floors, seats and doors; defective or dirty cisterns; defective supply pipes; insufficient or no supply of water; defective chimney flues; offensive matter, animals or poultry on premises; also dirty floors, etc.

REFERENCES FROM OTHER DEPARTMENTS.

The references from the other departments, mainly comprised insanitary conditions discovered by officers belonging to those departments, but with which it is not within their province to deal.

Received from Education Department	...	...	...	15,729
„ City Engineer	...	...	...	6,167
„ Water Engineer	...	...	...	3,500
„ Lodging House Inspectors	...	...	...	11,054

The references from the Education Department relate to school children said to be suffering from Measles, Whooping Cough, Ring-worm, skin diseases, neglect, etc.

REFERENCES TO OTHER DEPARTMENTS.

The number of matters referred to other departments was:—

Referred to City Engineer	...	...	...	12,755
„ Building Surveyor	...	...	...	5,720
„ Water Engineer	...	...	...	9,689
„ Education Department	...	...	...	29,979

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.

The references to the City Engineer consist principally of choked main drains and street gullies, and defective street and passage pavements; the references to the Building Surveyor concern dangerous walls, floors, roofs, &c.

The references to the Education Department chiefly relate to children from infected houses who are attending school.

SPECIAL VISITS.

Number of visits to railway carriages ...	...	...	...	728
„ „ „ platforms (fish arrivals) ...	...	...	...	157
„ „ poultry depots ...	...	...	...	621
„ „ manure depots ...	...	...	...	255
„ „ marine stores ...	...	...	...	1,856
„ „ fried fish shops ...	...	...	...	582

EXAMINATION OF CELLARS AND CELLAR DWELLINGS

Number of inspections of street cellars ...	...	...	...	19,417
„ found illegally occupied ...	...	...	...	94
„ of inspections of court cellars ...	...	...	...	729
„ found illegally occupied ...	...	...	...	1
„ of notices issued to cease letting or occupying ...	...	...	...	212

HOUSES TO HOUSE INSPECTION.

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

Number of street houses examined ...	...	...	...	134,513
„ court houses examined ...	...	...	...	1,676
Total ...	...	...	...	136,189
Number of apartments examined ...	...	...	...	688,395
„ houses where nuisances existed ...	...	...	...	11,059

INFECTED HOUSES.

The following table shows the number of houses visited where notifiable infectious diseases had occurred; also the number of visits to these houses, and to houses where cases of non-notifiable infectious diseases had been reported to the Department by the Education Department:—

Number of street houses where notifiable diseases occurred	18,487
„ court houses where notifiable diseases occurred	265
„ visits to infected houses and cellars (notifiable cases) ...	20,449
„ visits to infected houses and cellars (School cases) ...	12,431
„ visits and re-visits to Phthisis cases ...	7,143
„ enquiries <i>re</i> suspected smallpox contacts ...	1,915

COURT AND ALLEY EXAMINATIONS.

Number of inspections of Courts and Alleys	...	...	17,691
„ „ water-closets	...	...	34,618
„ water-closets found dirty, but cleansed by Officer's instructions	...	...	22,169

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 water-closets for a period of one week; the inspector records in his visiting book whose turn it is, and duly informs that tenant.

In 1890 there were 2,165 courts and alleys in the City, this number has been reduced to 386, and shows a diminution in 32 years of 2,165 courts and alleys.

The exteriors of all courts and alleys are limewashed as often as may be necessary.

Number of exteriors of courts and alleys requiring limewashing	...	...	588
„ exteriors of houses requiring limewashing	...	...	2,261
„ interiors of water-closets requiring limewashing	...	...	1,001
„ notices issued to limewash	...	...	430

SMOKE NUISANCES.

Proceedings for the abatement of nuisances caused by the emission of excessive smoke from factory chimneys, steamers and steam-waggons were taken under:—

The Liverpool Sanitary Amendment Act, 1854, Sections 24 and 25.

The Liverpool Improvement Act, 1882, Section 77.

The Liverpool Corporation Act, 1902, Section 57.

The Liverpool Corporation (General Powers) Act, 1905, Section 7.

The Highways and Locomotives (Amendment) Act, 1878, Section 32.

The following were the results:—

	1921.
Number of reports of excessive smoke from manufactories...	30
" " " steamers in river	3
" " " steamers in dock	34
" " " steam waggons	10
Total	77

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

Manufacturers	4
Steamship Owners	37
Steam Waggon Owners	3
Total	44

Chief Inspector and Assistants gave Manufacturers	561	cautions
" " Steamship Owners	65	"
" " Steam Waggon Owners	112	"
Total	738	"

Informations against Manufactories	26
" " Steamers in river	3
" " Steamers in dock	2
" " Steam Waggons	7
Total	38

Acquitted or withdrawn—Manufactories	1
" " Steamers	0
" " Steam Waggons	0
Total	1

Fined—Manufactories	25
" Steamers	5
" Steam Waggons	7
Total	37

Amount of Fines—Manufactories	£17	10	0
Steamers	2	10	0
Steam Waggons	3	15	0
Total	£23	15	0

It is the duty of the Police to deal with nuisances arising from the firing of domestic chimneys.

SMOKE INSPECTION.

The number of complaints received relating to defective house flues has increased considerably during the year. This is probably the after effects of the war period, during which time little or no attempt was made to keep house property in a proper state of repair.

Out of 37 cases of excessive smoke from steamers, 32 cases were from foreign trading steamers in dock. No proceedings were taken on this account, but the owners were communicated with in respect to the nuisance occasioned.

Complaints received of smoke from defective house flues and low chimneys; also fumes from gas and oil engines ...	371
Visits relating to same	1,432
Chimneys raised in consequence of complaints received ...	32
Flues altered and repaired	278
Attention given to complaints	46
Complaints referred to other departments	4
Complaints not sustained	11
Total complaints dealt with	371

The smoke in our atmosphere is very largely contributed to by the combustion of coal in domestic firegrates, steam-boiler furnaces, and other furnaces used for manufacturing purposes.

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 individual small quantities of smoke emitted from dwelling-house chimneys. These latter chimneys emit a considerable amount in the aggregate.

SMOKE ABATEMENT.

During the year the duties of the Inspectors have been found more difficult owing to fuel shortage and labour disputes. From April until August (during the Miners' strike) manufacturers were compelled to either close down their works or convert their plants in order to burn crude oil as a substitute for coal. Owing to the inexperience of stokers with this class of fuel, the number of visits necessary increased considerably. The inspectors found it necessary to give instruction and advice, and to deal leniently with offences observed during this period. With few exceptions the manufacturers reverted to coal as soon as was practicable, finding the latter fuel cheaper and more efficient.

OFFENSIVE TRADES.

The number of inspections of premises where offensive trades are carried on was 1,440.

Number of Applications for permission to carry on Offensive

Trade	...	...	...	...	...	...	...	4
Number of Applications granted	...	...	...	...	...	...	...	4
"	"	refused	...	...	...	...	...	—

In cases in which permission is granted, conditions are imposed requiring that the premises be put in order to the satisfaction of the City Engineer, Building Surveyor and Medical Officer of Health, that no public or private nuisance be caused, and that the business be discontinued whenever the Council shall so require.

DETAILS OF VISITS.

Number of visits to Bone Boilers	...	...	...	...	53
" Bone Stores	...	...	...	...	95
" Bone Grinding	...	...	...	...	4
" Destructors	...	...	...	...	3
" Dripping Factories	...	...	...	...	145
" Fat and Tallow Melters	...	...	...	...	260
" Fellmongers	...	...	...	...	15
" Fertiliser Works	...	...	...	...	24
" Fish Oil Works	...	...	...	...	18
" Gut Scrapers	...	...	...	...	186
" Ham Cooking and Potted Meat Works...	...	...	...	...	4
" Hide and Skin Works	...	...	...	...	49
" Knackers' Yards	...	...	...	...	90
" Lard Refiners	...	...	...	...	11
" Magnesium Chloride	...	...	...	...	15
" Oil Refining	...	...	...	...	5
" Oleo-Margarine Works	...	...	...	...	18
" Paint and Resin Works	...	...	...	...	14
" Palm Oil Works	...	...	...	...	35
" Rabbit Skin Stores	...	...	...	...	2
" Soap Boilers	...	...	...	...	176
" Tanneries	...	...	...	...	64
" Tar and Naphtha Works	...	...	...	...	23
" Tripe Boilers	...	...	...	...	131
Total	...	...	...	...	1,440

INSPECTION OF STABLES AND REMOVAL OF MANURE.

Attention has been given to the inspection of stables and the necessity for the frequent removal of manure emphasised.

The number of visits to stables was 5,574, and the number of disinfections of middensteads was 15,624.

The middensteads are sprayed with lime after being emptied.

**Administration of the Factory and Workshop Act, 1901, in
connection with
FACTORIES, WORKSHOPS, WORKPLACES & HOMEWORK**

The following Tables are prepared by request of the Secretary of State :—

1.—Inspection of Factories, Workshops and Workplaces.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices	Prosecutions.
<i>Factories</i> (Including Factory Laundries.)	3,271	259	—
<i>Workshops</i> (Including Workshop Laundries.)	10,470	859	—
<i>Workplaces</i> (Other than Outworkers' premises in- cluded in Part 3 of this Report.)	670	38	—
TOTAL	14,411	1,156	—

2.—Defects Found in Factories, Workshops and Workplaces.

Particulars.	Number of Defects.			Number of Prosecu- tions.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :*</i>				
Want of cleanliness	342	342	—	—
Want of ventilation	5	5	—	—
Overcrowding	—	—	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	406	406	—	—
Sanitary accommodation—				
Insufficient	28	28	—	—
Unsuitable or defective	384	384	—	—
Not separate for sexes	27	27	—	—
<i>Offences under the Factory and Workshop Acts :—</i>				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Breach of special sanitary require- ments for bakehouses (ss. 97 to 100)	2	2	—	—
Other offences (Excluding offences relating to outwork which are included in Part 3 of this Report)	—	—	—	—
TOTAL	1,194	1,194	—	—

*Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

3.—Home Work.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.										OUTWORK IN UNWHOLESOME PREMISES, SECTION 108.				OUTWORK IN INFECTED PREMISES, SECTIONS 109, 110.				
	Lists received from Employers.										Prosecutions.		Instances.	Notices served.	Prosecutions.	Instances.	Orders made (S. 110).	Prosecutions (Sections 109, 110).	
	Twice in the year.					Once in the year.					Falling to keep or permit inspection of Lists.	Falling to send Lists.							
	a Lists.		a Outworkers.		Lists.	a Outworkers.		On Occupiers as sending Lists.					(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	(2)	(3)	Con-tractors.	Work-men.		(4)	(5)	Con-tractors.	Work-men.	(6)	(7)								
(1)																			
Wearing Apparel.....*	354	1,121	288	21	44	17	29												
Household linen	4	10	26	—	—	—	—												
Curtains, etc.	—	—	—	—	—	—	—												
Furniture, etc.	2	6	4	—	—	—	—												
Electro-Plate	4	10	—	—	—	—	—												
Brass and brass articles.....	4	10	2	—	—	—	—												
Umbrellas, etc.	2	6	—	—	—	—	—												
Paper Bags, etc.	2	2	10	—	—	—	—												
Fur Pulling.....	2	—	4	—	—	—	—												
Cardboard or Paper Box Making	2	2	—	—	—	—	—												
Basket Making	2	2	—	—	—	—	—												
Any Process Incidental to above.....	2	22	2	—	—	—	—												
Total	380	1,191	336	21	44	17	29												

* Several Employers give out work of more than one of the classes specified in column 1, and subdivide their lists in such a way as to show the number of workers in each class of work; the lists are included among those in column 2 (or 5 as the case may be) against the principal class only, but the outworkers are assigned in columns 3 and 4 (or 6 and 7) into their respective classes.

a The figures in columns 2, 3 and 4 are the total number of lists received from employers who comply strictly with the statutory duty of sending two lists each year and of entries of names of outworkers in those lists. The figures in columns 3 and 4 are (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name is often repeated.

4.—Registered Workshops.				5.—Other Matters.	
Workshops on the Register (S. 131) at the end of the year.				Class.	Number.
Workshops	...	...	...	Matters notified to H.M. Inspector of Factories:— Failure to affix Abstract of the Factory and Workshop Acts (S. 133, 1901)	40
Cooking Kitchens of Restaurants	...	...	...	Action taken in matters referred by (Notified by H.M. Inspector as remediable Inspector ... under the Public Health Acts, but Reports (of action not under the Factory and Workshop Acts) sent to shop Acts (S. 5, 1901) ... H.M. Inspector	124
Bakehouses	...	...	...	Other ...	124
Total number on Register				Underground Bakehouses (S. 101) : — In use at the end of year ...	112
					—
Total number on Register					4,407

FACTORY AND WORKSHOP ACT, 1901.

BAKEHOUSES.

The sanitary control of Bakehouses is dealt with under the Factory and Workshop Act and the Public Health Acts.

During the year 3,656 visits were paid to bakehouses.

Number of Bakehouses on Register, 31st December, 1921	...	633
---	-----	-----

„ special visits to Bakehouses on complaints	...	73
„ ordinary visits to Bakehouses	...	2,635
„ re-inspections of incorrect premises	...	948
Total visits		3,656

„ occasions on which Bakehouses were found incorrect	715
„ sanitary defects found	355
„ Notices issued	301

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

The number of visits paid to cooking kitchens of restaurants was 670 and 147 kitchens were found incorrect.

SHOPS ACTS, 1912 AND 1913.

During the year 595 complaints have been received, relating principally to the non-closing of shops on the weekly half-holiday.

AMBULANCE AND DISINFECTING STAFF.

There have been 5,883 infectious cases removed by officers of the Ambulance Staff to the Hospitals during the year.

The number of rooms stripped or sprayed was 2,744, and the number of rooms disinfected was 33,485. There were also 2,495 library books disinfected.

The number of articles, consisting of bedding, clothing, etc., disinfected at the Disinfecting Apparatus was 120,903.

Two Disinfecting Stations have been established in the City for a number of years, each well equipped to deal with large quantities of material. The North End of the City is served by the Charters Street Station and the South End by the Smithdown Road Station. When necessary the disinfecting apparatus attached to each of the City Hospitals can be utilised.

EXTERMINATION OF RATS.

A staff of rat-catchers is systematically employed in the destruction of rats.

The number of rats caught within the City was 18,132 (including those caught in sewers). Of this total 5,185 rats were sent to the City Bacteriologist for examination.

The removal of the foul deep ashpit from the rear of dwellings and the substitution of suitable covered galvanized bins, whilst providing a sanitary improvement, has also undoubtedly been a material factor in the removal of rats from the proximity to dwellings.

There are special reasons for a constant campaign against rats in Liverpool. The first is the possibility of the spread of plague, a disease which from time to time is, and will continue to be, brought into the Port. The destruction and damage to valuable property, foodstuffs, etc., by means of rats, further justify the stringent measures taken in Liverpool at all times against these vermin, and the maintenance of the special staffs employed by the Health Committee to effect their extermination. In this connection, the co-operation of warehouse owners, and so forth, is always sought and obtained.

Active methods and measures were continued in the more modern warehouses to render the buildings rat-proof or to diminish harbourage and to make nesting difficult. The risk of infection of a district is gauged by the amount of feeding and harbourage afforded to the rats.

With regard to the methods of trapping, the bird-lime tray is quite as effective as any other method, and in regard to poisons it is difficult to say whether one poison has an advantage over another. Barium carbonate is believed by many to be very effective, and is relatively non-poisonous to domestic animals.

BACTERIOLOGICAL EXAMINATION OF RATS.

During the year, the usual examination of rats for plague infection was carried out (see page 189).

The following statement shows the number of rats caught and examined or destroyed in the City during the year 1921:—

Number of rats caught in warehouses, stores, etc. ...	6,563
„ „ „ „ „ sewers ...	4,913
„ „ „ „ „ obtained from other sources ...	6,683
	<hr/> 18,159
Number of rats submitted for bacteriological examination...	5,185
„ „ „ „ „ other examination ...	358
„ „ „ „ „ destroyed ...	12,616

MORTUARIES.

The Mortuary at the Prince's Dock is for the reception of the bodies of persons who have been drowned, killed or found dead, and upon which the Coroner desires to hold Inquests. Bodies are taken to this Mortuary by the Police, and when it is necessary to make post-mortem examinations.

BODIES REMOVED TO PRINCE'S DOCK MORTUARY.

Number from River.	Number from City.	Total.
13	326	339

The method of transport of the bodies of persons killed, or found dead in the street, has been adequately provided for, the Health Committee having arranged, through the Head Constable, with a firm of undertakers to supply a hearse on short notice, together with a shell coffin. This arrangement has proved satisfactory.

BODIES REMOVED TO FORD STREET MORTUARY AND
DISTRICT MORTUARIES.

Green Lane.	Lark Lane.	Ford Street.	Total.
—	—	406	406

The District Mortuaries 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. The Ford Street Mortuary is provided for the reception of bodies which cannot be kept at the homes in which death had taken place, without possible injury to the health of the inmates. It is also used for the reception of stillbirths.

CREMATORIUM.

The Crematorium is situated in Anfield Cemetery, and was opened by the Liverpool Crematorium Company in the year 1896. When the Corporation became the Burial Authority for the City, the administration was taken over in October, 1908, by the Crematorium Sub-Committee.

The number of cremations which have taken place since the opening is shown in the following table:—

1896.....	2	1911.....	50
1897.....	10	1912.....	52
1898.....	27	1913.....	66
1899.....	23	1914.....	49
1900.....	40	1915.....	53
1901.....	40	1916.....	58
1902.....	54	1917.....	62
1903.....	35	1918.....	70
1904.....	40	1919.....	88
1905.....	35	1920.....	70
1906.....	46	1921.....	74
1907.....	34		—
1908.....	32		1,193
1909.....	46		—
1910.....	37		

CINEMATOGRAPHS.

The premises licensed by the City Justices have been systematically visited throughout the year, 309 visits having been paid. The visits have been mainly at night, but day inspections have also been made.

Special attention has been directed to the ventilation of the auditorium, sanitary convenience and cleanliness, and generally speaking the premises are kept in a satisfactory condition.

The attention of the Managers is constantly directed to the need of the fans being kept in operation during the entertainment, and also as to the necessity for flushing the auditorium by opening the doors during the interval.

COMMON LODGING HOUSES.

In the year 1866 there were 1,278 Common Lodging Houses on the Register. These houses were registered under the Liverpool Sanitary Act, 1844, and the Common Lodging Houses Acts of 1851 and 1853.

Bye-laws were made in 1848 and 1860 to regulate such houses. These bye-laws were repealed in 1869, when new bye-laws were made under powers given by the Common Lodging Houses Acts of 1851 and 1853, and confirmed by the Public Health Act, 1875, Sec. 326, and these remain in force at the present time.

During the year 1867 all Common Lodging Houses not having a separate day room for the use of lodgers, and all houses taking lodgers in and not having this accommodation, were registered as Sub-Let Houses. The cubic space required in Common Lodging Houses was 300 cubic feet per head at that time, as against 400 cubic feet at present.

Further powers to deal with Common Lodging Houses are given under Part 5 of the Public Health Acts Amendment Act, 1907 (adopted in 1912), Sections 69 to 75, particulars of which will be found in the Annual Report for 1913.

Under Sections 69 to 72 of the above Act, 85 keepers were re-registered and 22 Deputy-Keepers were registered.

The Liverpool Corporation Act, 1913, Section 36 (details of which will be found in the Annual Report for 1913), deals with keepers who induce persons suffering from trachoma or other contagious diseases of the eye to become lodgers in a lodging-house.

The Annual Report for 1913 contains a list showing the number of Common Lodging Houses added to and removed from the Register since 1866.

INSPECTION OF LODGING HOUSES.

Lodging-houses on Register, December 31st 1920	...	...	192
„ removed from Register during 1921	...	...	20
„ added to the Register during 1921	...	...	11
„ on Register, December 31st, 1921	...	...	183

These houses provide accommodation for 7,629 lodgers.

									<u>1921.</u>
Visits by Day	...	...	...	...	...	...	...	...	7,906
„ Night	...	...	...	...	...	...	...	...	94

There were 287 special visits, *re* notified cases of Phthisis, included in the above.

Two informations were laid against Keepers for not washing the floors of their Lodging Houses, resulting in fines of 10s. and 5s., respectively.

There are 23 houses providing accommodation for 776 women lodgers. For details of Women's Lodging Houses see Reports for the years 1909 and 1914.

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 three such licensed houses now being on the register, providing accommodation for 63 seamen.

The number of licenses granted since the adoption of the Seamen's Lodging House Bye-laws is 33.

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, hence, probably, the small number upon the register.

HOUSES LET IN LODGINGS.

(SUB-LET HOUSES.)

Overcrowding in sub-let houses was first dealt with under the Nuisance Removal Act, 1855.

The first bye-laws made to deal with these houses were confirmed by the Secretary of State, November, 1866, under Powers given by the Liverpool Sanitary Act of 1866, Section 35. These bye-laws required only 300 cubic feet for an adult person if the room was used as a sleeping apartment only, and 350 cubic feet if used as a combined room, *i.e.*, without a separate day-room. Every person above the age of 15 years was considered an adult and two persons between the ages of 6 years and 15 years were considered one adult. No provision was made for cubic space for persons below 6 years occupying a room as a sleeping apartment, with or without their parents.

These bye-laws were amended in 1869 under the Act of 1866, and further amended in 1885 and 1886 under the Public Health Act, 1875, Section 90. Further amendments were made in 1901 requiring 400 cubic feet for each adult person and 200 cubic feet for every person below 10 years. Powers were also given to deal with non-separation of sexes in lodgers' rooms and to enforce the cleansing of stairs and passages used in common.

These bye-laws were amended in 1911, and additional powers were given requiring 400 cubic feet for *each* person occupying a room which is not exclusively used for sleeping purposes, the separation of the sexes, in rooms occupied by the tenant's family, or in rooms over which he retains possession or control. Lodgers are made responsible for overcrowding, and for the separation of sexes, in rooms let to them, and for the cleansing of the floors, and for the cleansing of the stairs, passages, and landings used exclusively by them.

Powers were also given to enforce the provision of water-closet accommodation (one water-closet for every twelve persons), the lime-washing of walls and ceilings of houses, yards and water-closets at stated intervals.

INSPECTION OF HOUSES LET IN LODGINGS.

Houses on Register, December 31st, 1920	...	...	...	15,080
„ removed from Register during 1921	...	...	...	48
„ added to Register during 1921	...	...	...	300
„ on Register, December 31st, 1921	...	...	...	15,332

DAY VISITS:

Day visits	...	...	...	...	...	113,994
Rooms measured	...	...	...	...	...	1,497
Floors found dirty	...	...	...	...	...	329
Floors found cleansed on revisit	...	...	...	...	...	256
Stairs and passages dirty	...	...	...	...	...	59
Stairs and passages found cleansed on revisit	...	...	...	...	...	37

Informations were laid for breaches of the bye-laws as follows:—

Not washing floors	...	...	...	...	...	41
Not sweeping floors	...	...	...	...	...	14
Not cleansing stairs, passages	...	...	...	...	...	11

NIGHT VISITS:

Night visits (between 11-45 p.m. and 2 a.m.)	...	...	24,851
Rooms found overcrowded	...	...	1,259
Cases of overcrowding found	...	...	1,157
Cases of overcrowding abated on re-visit	...	...	1,114
Informations laid for overcrowding	...	...	55
Convictions for overcrowding	...	...	45
Discharged	...	...	5
Withdrawn	...	...	2
Summons not served	...	...	3

DETAILS OF OVERCROWDING:

Overcrowding by families occupying 1 room	...	...	250
“ “ “ 2 rooms	...	...	600
“ “ “ 3 or more rooms	...	...	386

NON-SEPARATION OF SEXES:

Cases found	...	...	...	...	...	208
Cases abated on re-visit	...	...	...	...	...	200
Informations laid	...	...	...	...	...	45
Convictions	...	...	...	...	...	37
Discharged	...	...	...	...	...	6
Withdrawn	...	...	...	...	...	2

During the year the Department has been instrumental in finding other accommodation for lodgers' families occupying overcrowded and indecently occupied rooms and for persons ordered by the tenant to give up possession of their rooms.

CLEANSING OF WALLS AND CEILINGS.

During the year the following Notices were served on Landlords of houses let in lodgings under Section 7 of the 1911 Bye Laws:—

Preliminary notices to cleanse walls and ceilings	...	...	84
Statutory notices	...	...	6
Comply notes	...	...	2
Houses cleansed	...	...	73
Rooms cleansed	...	...	429

The following table shows the number of Houses let in Lodgings on the Register, together with the number of visits for the prevention of overcrowding for the past 9 years:—

Year.	No. of Houses let in Lodgings on Register.	No. of night visits for prevention of overcrowding.	No. of convictions for overcrowding.	Percentage of convictions to number of visits.
1913	16,405	22,938	660	2·87
1914	16,492	24,309	693	2·85
1915	16,626	21,659	595	2·74
1916	16,827	22,199	636	2·86
1917	16,635	21,746	508	2·33
1918	16,870	19,524	220	1·12
1919	14,636	23,350	191	0·81
1920	15,080	24,596	85	0·34
1921	15,332	24,851	45	0·18

CANAL BOATS ACTS, 1877 and 1884.

The Leeds and Liverpool Canal Company are the proprietors of the only canal having direct communication with Liverpool, and the length of the waterway within the City, exclusive of locks which lead to the docks, is about three miles.

The number of inspections of canal boats during the year was 4,132 and the condition of the boats and their occupants as regards matters dealt with in the Acts and Regulations is indicated in the following information:—

Boats on Register, 1st January, 1921	...	...	...	429
New Boats registered	...	...	...	2
Boats removed from Register:—				
Broken up	...	...	...	2
Left the district	...	...	...	40
Not used as dwellings	...	...	...	13
			—	55
Boats on Register, 31st December, 1921	...	...	...	376
„ not seen in the district	...	...	...	60
„ regularly plying on the Canal	...	...	...	316
„ re-registered on account of change of owners	...	...	...	2
„ re-registered on account of change of name of boat	...	...	...	16
„ re-registered on account of structural alterations	...	...	...	1
Copy of Certificate of registration re-issued	...	...	...	1
Boats on which contraventions occurred	...	...	...	60*
Nature of contraventions—				
Unregistered boats used as dwellings	...	...	...	13
No certificate of registration on board	...	...	...	19
Registered lettering, &c., not legible	...	...	...	11
Leaky decks	...	...	...	11
Defective ventilation	...	...	...	1
„ floor	...	...	...	1
„ stoves	...	...	...	2
„ deck light	...	...	...	1
„ scuttle covers	...	...	...	2
Cabins requiring re-painting	...	...	...	5
No water cask	...	...	...	4

* Of this number 42 were registered by other Authorities.

Written notices were issued to Owners in 40 instances.

Verbal notices given to Owners in 6 instances.

Verbal notices given to Masters in 14 instances.

No informations were laid during the year against Owners or Masters for infringements of the Acts and Regulations.

No cases of infectious sickness were reported as having occurred during the year on any canal boat visiting the district.

One motor-propelled boat is registered by this Authority.

DETAILS OF VISITS TO CANAL BOATS FOUND ON CANAL.

Four hundred and ten boats found plying on the Canal were visited. These boats are registered as follows:—

316 boats are registered at Liverpool.

19	„	„	Runcorn.
13	„	„	Leigh.
16	„	„	Wigan.
8	„	„	Manchester.
7	„	„	Chester.
11	„	„	Blackburn.
4	„	„	Burnley.
3	„	„	Northwich.
3	„	„	Widnes.
9	„	„	Leeds.
1 boat is	„	„	Mirfield.

410

All of these boats are “ Wide ” boats—174 being propelled by steam, or steam-towed, 4 motor driven and the remainder horse drawn.

The number of inspections of these 410 boats was 3,516, and the population was as follows, viz.:—

Men	...	...	639
Women	...	...	136
Children	...	...	74

Total ... 849 persons, detailed as follows:—

Sex and Age.	Having no home except the boat.	With home on shore in addition to boat.	Total.
Males over 14 years of age ...	1	638	639
Females over 12 years of age...	1	135	136
Children 0 to 4 " "	...	58	74
" 5 to 12 " "	...	16	
	2	847	849

NOTE.—Males on attaining the age of 14 years, and females 12 years, living on Canal Boats become adults and are recorded as such in the above Table (Regulation III, Section 2, Canal Boats Act, 1877).

Only 16 children of school age were found on Canal Boats during the year, and they were on trips with their parents during the school holidays.

The two instances above recorded of persons living on a Canal Boat and having no home except the Boat relate to the "Douglas," registered at Leigh, No. 305, being used as a dwelling by the mate and his wife—the Master having a home ashore.

In addition to the above, the Port Sanitary Inspectors, whilst visiting Canal Boats in the Docks or on the River, found the under-mentioned Boats with families on board who had no other home except the Boat, viz.:—

Boat.	Registration Authority.	Registered Number.	Occupied by
"Ismail"	Runcorn	240	Mate, Wife, and One Child (10 months).
"Lloyd"	Runcorn	187	Mate and Wife.
"Falkland"	Runcorn	72	Mate and Wife.
"Ernest"	Manchester	9	Mate and Wife.

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 connection with certain boats plying upon the canal which were not registered under the Canal Boats Acts, but which had been registered by the Board of Trade under the Merchant Shipping Acts. Eighty-eight inspections were made of boats of this class, and all were found correct.

In 1903 the Port Sanitary Inspectors were appointed as Canal Boat Inspectors. This appointment authorised them to inspect canal boats which ply to and from the docks and on the river. During the year, 616 inspections were made by these Inspectors, and they are included in the 4,132 visits made to Canal Boats. The number of contraventions for which written notices were served on the owners was 22 in connection with 20 boats.

SUPERVISION OF FOOD SUPPLIES.

During the year the inspection of foodstuffs intended for human consumption has been efficiently carried out and a new system adopted viz., the centralisation of all food inspection in the City, has proved to be very efficient; duplication of work has disappeared, time has been saved, and details more thoroughly investigated. It is satisfactory to know that all carcasses, whether of animals slaughtered in the Public Abattoir or in Private Slaughter-houses in the City, or sent in from districts outside the City, have been examined by the Food Inspectors.

During the year, 298,869 animals were slaughtered in the City for human food, of which 1,264 carcasses were totally rejected and 807 partially rejected as unfit for human consumption.

The Ministry of Health has issued a memorandum on a system of Meat Inspection by Local Authorities and their officers, and the adoption of this system will create uniformity throughout the country.

PUBLIC ABATTOIRS.

The congested, insanitary, and unsuitable position of the Public Abattoirs and allied offensive trades remains the same as at the close of last year. The Markets Committee are now considering a comprehensive scheme for the erection of Abattoirs, Meat and Cattle Markets, and accommodation for the allied trades, and a determined effort is being made with a view to proceeding with the matter.

Repairs to the roofs and floors of the present Abattoir have been carried out, but, as stated in last year's Report, no amount of repairing can make the building a suitable abattoir—the only remedy lies in the erection of a modern abattoir and meat market, with refrigerators appropriate for a city so far advanced in other public health work.

The shops where foodstuffs are sold in the City have during the year been kept in a more cleanly condition. Great improvement is noticeable generally in new premises and in a number of cases existing premises have been renovated and improved.

Under the provisions of the Liverpool Corporation Consolidation Act, 1921, Section 448, Bye-laws can be made to prevent the exposing of foodstuffs where they will be liable to contamination by dust, flies, etc.

The following table shows the number of private slaughter-houses in the City, viz. :—

SLAUGHTER HOUSES.

		1914	Dec. 1920	Dec. 1921
Registered	...	5	5	* 5
Licensed	...	13	12 Cattle 2 Horse	12 Cattle 2 Horse

* Three have not been used for slaughtering during 1921.

The following tables show the quantities of foodstuffs dealt with during the year:—

ANIMALS SLAUGHTERED FOR HUMAN FOOD IN THE CITY.

	Bulls.	Bullocks.	Cows.	Heifers.	Calves.	Sheep.	Lambs.	Swine.	Horses.
Public Abattoir	247	6,620	8,383	2,718	26,210	87,779	110,152	20,682	—
Private Slaughter-houses ...	—	175	476	47	2,735	1,793	4,353	25,086	1,413
TOTAL ...	247	6,795	8,859	2,765	28,945	89,572	114,505	45,768	1,413

Total number of animals slaughtered in the City = 298,869.

IMPORTED MEAT SOLD IN MEAT MARKETS.

	Cattle.	Calves.	Sheep.	Lambs.	Swine.
Abattoir (Irish and Birkenhead dressed)	12,967	2,247	27,625	32,991	4,008
Gill Street (Imported meat)	35,897	93	235,747	99,437	4,065
Retail Shops	2	—	—	—	860
TOTAL	48,866	2,340	263,372	132,428	8,933

ANIMALS IMPORTED, SLAUGHTERED AND SOLD FROM
THE MEAT MARKETS.

Cattle.	Calves.	Sheep.	Lambs.	Swine.
67,530	31,285	352,994	246,933	57,701

During 1921, 1,413 horses were slaughtered for export to Belgium. These carcasses were inspected and stamped by the Food Inspector, with the exception of 45, which were rejected as unfit for human food.

IMPORTED MEAT AND OFFAL SOLD IN BOXES AND BAGS
AT THE MEAT MARKETS.

	Boxes and bags.
Abattoir (Irish and Birkenhead)	19,562
Gill Street Imported (Frozen)	26,894
TOTAL	46,456

During the year 2,483 Fat Cows from cowsheds in the City were slaughtered at the Abattoir, with the following result:—

Cows slaughtered.	Totally Condemned.	Partially Condemned.	Number affected with Tuberculosis.
2,483	55	76	79

In all cases in which animals from local cowsheds were slaughtered in the City, and which on post-mortem inspection were found to be diseased, the stall, and in some cases the cowshed, from which the animal came was immediately cleansed and disinfected under the supervision of the Food Inspectors.

The following carcasses were seized or surrendered for various causes:

Cattle	Calves.	Sheep.	Swine.	Horses.	Total.
236	132	751	111	45	1,275

ANIMALS SENT TO KNACKERS YARD AT CARRUTHERS STREET
FOR DESTRUCTION.

Horses destroyed.	Horses sent in dead.	Asses destroyed.	Cows destroyed.	Other animals destroyed.	Total.
103	977	20	105	1	1,206

In all cases where carcasses were condemned at the Abattoir and Private Slaughter-houses on account of their diseased condition, the history of each animal was obtained and a record kept.

All cows that died in local cowsheds were reported to the Food Inspector, and each case was carefully investigated and a record kept.

The following table shows the result of the examination of carcasses of diseased or injured animals totally or partially rejected:—

				Bulls.	Bullocks.	Cows.	Heifers	Calves	Sheep	Swine	Horses
Tuberculosis	...	...	...	—	2	143	1	3	—	22	—
Do.	Partial	...	...	—	10	207	10	—	—	334	—
Asphyxia	...	...	...	—	—	1	—	28	114	36	—
Emaciation...	...	...	...	—	—	12	—	19	61	21	33
Dropsy	...	...	...	—	—	31	—	16	305	5	12
Decomposition	...	...	...	—	3	2	—	28	211	14	—
Do.	Partial	...	...	—	44	2	—	—	26	6	—
Pyrexia	...	...	...	—	—	12	—	2	—	—	—
Septicaemia	...	...	...	—	—	2	—	—	—	—	—
Arthritis	...	...	...	—	—	8	—	1	—	2	—
Pyaemia	...	...	...	—	—	2	—	—	3	3	—
Sapraemia	...	...	...	—	—	1	—	—	—	—	—
Peritonitis	...	...	...	—	—	3	1	—	—	—	—
Do.	Partial...	...	...	—	—	1	—	—	1	—	—
Enteritis	...	...	...	—	—	2	—	—	—	—	—
Septic Metritis	...	...	...	—	—	1	—	—	—	—	—
Septic Pericarditis...	...	...	...	—	—	1	—	—	—	—	—
Endocarditis	...	...	...	—	—	1	—	—	—	—	—
Gangrene	...	...	...	—	—	1	—	—	—	—	—
Jaundice	...	...	...	—	—	1	—	12	10	6	—
Injury	...	...	...	—	—	2	—	3	23	2	—
Do.	Partial	...	...	—	—	19	—	1	17	2	—
Immaturity	...	...	...	—	—	—	—	17	—	—	—
Black Spot	...	...	...	—	—	—	—	—	24	—	—
Abscesses	...	...	...	—	1	2	—	—	—	—	—
Do.	Partial	...	...	—	—	2	—	—	4	79	—
Joint Ill	...	...	...	—	—	—	—	3	—	—	—

The following Table shows from which district tubercular cattle, calves, or swine came to Liverpool:—

Where from.							Cattle.	Pigs.	Calves.
Liverpool	...	...	...	...	...	...	55	3	1
Ireland	...	...	...	...	...	...	57	—	—
Preston	...	...	...	...	...	...	13	—	—
Saughall Massie...	...	...	...	...	...	...	2	—	—
Waterloo and Crosby	...	...	...	...	...	...	3	—	—
Isle of Man	...	...	...	...	...	...	5	—	—
Oswestry...	...	...	...	...	...	...	—	3	—
Whitchurch	...	...	...	...	...	...	—	2	—
Wellington	...	...	...	...	...	...	—	3	—
Beeston	...	...	...	...	...	...	—	3	—
Other Districts	...	...	...	...	...	...	11	8	2
TOTAL ...							146	22	3

ORGANS DESTROYED.

Disease.	CATTLE.							
	Bulls.	Bullocks	Cows.	Heifers	Total.	Calves.	Sheep.	Swine.
HEADS :—								
Tuberculosis ...	3	14	132	2	151	—	—	349
Abscess ...	—	4	177	2	183	—	—	81
Actinomycosis ...	—	1	9	—	10	—	—	—
Decomposition ...	—	—	49	—	49	—	75	5
LUNGS :—								
Tuberculosis ...	3	14	621	11	649	—	—	351
Abscess ...	1	1	93	—	95	—	2	1
Cysts ...	—	1	417	—	418	—	—	12
Pleurisy ...	—	1	62	—	63	—	1	43
Pneumonia ...	3	4	78	—	85	—	5	51
Congestion ...	—	—	538	—	538	2	9	87
Decomposition ...	—	124	570	—	694	20	311	3079
Emphysema ...	—	—	38	—	38	—	—	—
Parasitic ...	—	2	4	—	6	1	1	1
Melanosis ...	—	1	4	—	5	—	3	—
LIVERS :—								
Tuberculosis ...	2	5	163	8	178	—	—	351
Abscess ...	9	18	94	—	121	—	4	12
Distomatosis ...	—	114	1609	—	1713	—	657	—
Cav. Angioma ...	—	1	251	—	252	—	—	—
Cirrhosis ...	1	39	463	—	503	—	3	133
Echinococci ...	—	—	254	—	254	—	2	57
Decomposition ...	—	78	425	—	503	20	449	2506
Fatty Infiltration ...	—	—	7	—	7	—	—	—
Malignant Neoplasms ...	—	—	4	—	4	—	—	—
HEARTS :—								
Tuberculosis ...	—	1	17	—	18	—	—	—
Pericarditis ...	1	—	21	—	22	—	—	—
Decomposition ...	—	149	55	—	204	20	214	2374
SPLEENS :—								
Tuberculosis ...	—	—	21	—	21	—	—	53
Decomposition ...	—	56	396	—	452	—	—	—
STOMACHS :—								
Tuberculosis ...	1	1	58	—	60	—	—	201
Abscess ...	—	3	8	—	11	—	—	—
Gastritis ...	—	—	3	—	3	—	—	—
INTESTINES :—								
Tuberculosis ...	1	1	70	4	76	—	—	201
Enteritis ...	—	—	4	4	8	—	—	—
Decomposition ...	—	—	—	—	—	—	—	84
KIDNEYS :—								
Tuberculosis ...	—	—	29	—	29	—	—	—
Cysts ...	—	1	127	—	128	—	—	4
Cirrhosis ...	—	—	52	—	52	—	—	—
Decomposition ...	—	172	8	—	180	—	—	—
UDDERS :—								
Tuberculosis ...	—	—	20	—	20	—	—	—
Mammitis ...	—	—	165	—	165	—	—	—
Abscess ...	—	—	42	—	42	—	—	—
Actinomycosis ...	—	—	—	—	—	—	—	3
SWEETBREADS :—								
Decomposition ...	—	314	—	—	314	—	—	—

This Table does not include the organs from carcasses destroyed.
42,992 lbs. of various organs were also destroyed as refuse.

PUBLIC HEALTH ACT, 1875, AND LIVERPOOL CORPORATION
ACT, 1913.

It was found necessary to take proceedings in one case under the above Acts. A farmer in Mold sent a dressed cow carcase to Liverpool for sale which on inspection was found to be in an advanced stage of Tuberculosis. Defendant was fined £10 and £5 costs.

QUANTITIES OF FISH, RABBITS AND POULTRY WHICH PASSED
THROUGH THE WHOLESALE FISH MARKET.

FISH.		RABBITS.	POULTRY.
No. of Packages.	Tons.	No. of Packages.	No. of Packages.
801,188	22,189	12,433	2,956

It is estimated that 2,860 tons Wet Fish, 3,016 tons Dry Fish, and 6,240 bags Shell Fish, were sold from premises outside the Fish Market.

VEGETABLE AND FRUIT MARKETS.

Large consignments from all over the world passed through the Fruit Markets and Queen's Square, Liverpool being the principal distributing centre in the country for imported fruit. 75,348 tons of vegetables passed through the Vegetable Market.

PREMISES VISITED BY THE FOOD INSPECTORS.

Slaughter houses.	Butchers' shops.	Fish & Fruit shops.	Fruit shops.	Food Hawkers' premises.	Jam factories.	Pickle factories.	Food factories.	Knackers yards.
6,415	59,129	37,393	46,280	2,981	67	77	1,495	302

COWSHEDS AND COWS INSPECTED BY THE FOOD INSPECTORS.

Cowsheds visited.	Cows examined.	Found healthy.	Found unhealthy.	Number reported for Veterinary examination.
1,001	12,494	12,413	81	81

75 samples of foodstuffs were obtained for bacteriological examination, including shellfish, meat, animal feeding stuffs, herbs, etc.

FOOD STUFFS CONDEMNED.

The following articles were condemned as unfit for human food, viz.: Beef, Mutton, Lamb, etc., 406,677 lbs.; Wet and Dry Fish, 427,367 lbs.; Mussels, Winkles, Oysters, 202 packages; Crabs, Lobsters and Prawns, 3,350 lbs.; Poultry, 3,479 head; Game, 752 head; Rabbits, 179,977 head; Hares, 97 head; Venison, 104 lbs.; Fruit, 509,199 lbs.; Vegetables, 196,802 lbs.; Tinned Foods, 21,427 tins; Eggs, 27,660; Cheese and Butter 517 lbs.

CONTAGIOUS DISEASES OF ANIMALS ACTS, ETC.

The administration of the Contagious Diseases of Animals Acts and the Orders and Regulations of the Ministry of Agriculture are carried out by the Food Inspectors. During the month of January and at the beginning of February, 1922, Foot and Mouth Disease broke out in three cowsheds in Liverpool, necessitating the slaughter of 37 dairy cows. The disease was carried to Liverpool by cows brought from Preston. These cows were brought to Liverpool on Thursday and Friday, 26th and 27th January, and symptoms of Foot and Mouth Disease appeared late on January 30th. Stringent precautions were taken, and the disease was confined to the three cowsheds, which were within a short distance of each other, each cowshed having been infected from the same source. All movement of animals was controlled by licence, and upwards of 5,000 licences were issued, controlling the movement of some thousands of animals.

The following inspections were made under the Diseases of Animals Acts:—

Inspections of Railway Stations	2,686
„ Cattle Pens	53,720
Found Clean	48,337
„ Dirty and Cleansed	5,383
Inspections of Cattle Trucks	25,264
Found Clean	19,872
„ Dirty and Cleansed	5,392
Inspections of Horse Boxes	2,326
Found Dirty	1,780
„ Dirty and Cleansed	546
Inspections of Vessels	4,419
Found Clean	2,294
„ Dirty and Cleansed	2,119
„ going to sea Dirty, etc.	6
Inspections of Gangways	2,088
Found Clean	1,850
„ Dirty and Cleansed	238
Inspections of Lairages and Saleyards	4,121
Found Clean	2,670
„ Dirty and Cleansed	1,451
Inspections of Carts for Conveying Pigs	13
Found Clean	13
„ Dirty and Cleansed	—
Inspections of Manure Yards and Wharves	2,168
Crates containing Live Poultry	7,047
Empty Poultry Crates Inspected	4,648

SWINE FEVER ORDERS OF 1908-1917.

Under these Orders the movements of swine are controlled, and provision made for disinfection of carts, etc., used for conveying swine.

It was found necessary to lay one information for an infringement of the Swine Fever Order of 1908, viz., movement of pigs into the City from Whitchurch without a Movement Licence. The defendant was fined £5 and £4 10s. 0d. costs.

One outbreak of Swine Fever was reported by the Food Inspector and confirmed by the Ministry of Agriculture; all the pigs were slaughtered and the disease confined to the one set of premises.

ANTHRAX ORDER OF 1910.

Under this Order a number of sudden deaths in the local cow herds was investigated, and in one instance Anthrax was reported, and confirmed by the Ministry of Agriculture. Disinfection and cleansing of the cowshed and burning of contaminated manure was immediately carried out. The disease was confined to the one animal.

ANIMAL TRANSIT AND GENERAL ORDER, 1910.

Regulations are made under this Order for the carriage of cattle, sheep, and swine, in properly constructed vehicles, and with due regard to the comfort of the animals by not overcrowding, also the feeding and watering of animals at stated intervals. The cleansing and disinfection of the trucks is also provided for.

HORSES IMPORTATION AND TRANSIT ORDER, 1913.

This Order deals specifically with the transport of horses. A large number of horses pass through Liverpool, most of them being of a good class, but a certain number of worn-out horses pass through en route for Antwerp via Goole and Grimsby; these receive careful attention. Liverpool not being a port at which these animals are embarked, it is only necessary for this class of horse to be in a condition to stand the railway journey to the port of shipment—during the year one horse was rejected as unfit to travel. A new and still more stringent Order has been issued, and comes into force in 1922. This Order will practically end the traffic in worn-out horses.

FOREIGN ANIMALS ORDER, 1910.

This Order provides for the landing of foreign cattle, etc., at special landing places, and during the year a great increase in the numbers of United States and Canadian cattle landed took place. All the manure and fittings from the cattle boats were removed, and the vessels cleansed and disinfected under the supervision of the Inspectors.

CONVEYANCE OF LIVE POULTRY ORDER OF 1919.

The conveyance of live poultry in properly constructed crates, prevention of overcrowding, and the cleansing of crates, is provided for under this Order. 7,047 crates of live poultry were inspected.

MARKETS, LAIRS AND SALE YARDS.

The sale of cattle and sheep is held each Monday at the Stanley Cattle Market. The class of animals has been good, and the Market well cleansed.

The several sale yards for milch cows, and the lairs for detention of animals for shipment have been kept in good condition. 3,113 cattle, 45,890 sheep, and 399 pigs passed through Stanley Cattle Market during the year.

CASE OF FOOD POISONING.

On May 8th, after partaking of roast, stuffed breast of mutton and potatoes, a lady and her two daughters became ill. The patients first noticed dryness of the mouth, then they felt giddy and the limbs weak and vision much disturbed. The onset of symptoms occurred about ten minutes after partaking of the food, and all three persons who had partaken of the food were similarly affected. A doctor who was called in shortly after the onset of the symptoms was of opinion that the cause of the poisoning was belladonna.

The mutton and potatoes were cooked together on one dish in the oven. The mutton was stuffed with breadcrumbs, salt, pepper, mint, sage and onions. The sage was bought at the usual local shop, but none of the herbs were left over after preparation of the meal. An examination by the City Analyst of herbs from the shop revealed no belladonna leaves. The dried herbs were obtained from the district of Evesham, Worcestershire.

The chemical examination showed that the portions of meat and sage stuffing examined weighed 3 ounces, and contained one-fortieth of a grain of atropine. A further sample of sage was examined for belladonna and atropine, with negative results.

The address of the senders of the sage was communicated to the Medical Officer of Health of the Worcestershire County Council, who made enquiries. The following is an extract from his letter:—

“The belladonna plant was at one time largely grown in the vicinity of Evesham, viz., in Badsey and Littleton parishes. I made enquiries at those places as to this, and I find that belladonna growing has entirely ceased since 1918, as ‘it did not pay.’ Even when it was grown ‘during the war’ (and only then) the seed was supplied to some 39 growers, and each purchaser had to sign an undertaking to sell all the belladonna leaf he grew to a certain Society, who dried it at Littleton and disposed of it in London. Although cultivation of belladonna has ceased in the Evesham district since 1918, and the roots have, as far as practicable, been destroyed, odd leaves still appear on the land now used for cultivating other produce, as belladonna root is extremely difficult to eradicate.

“A warning notice to all local persons who formerly grew belladonna, as to the danger of odd leaves of that plant getting mixed with any of their consignments of vegetables and herbs, was issued.”

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.

						1921
Number of applications to keep cows on premises not						
					previously licensed	...
						1
					granted	...
						1
					for re-issue of licence	...
						1
					cows applied for	...
						39
					granted	...
						39
					applications for transfer to fresh tenants of cow-	
					sheds previously licensed	...
						21
					granted	...
						21
					for additional stock	...
						1
					Cowsheds on the register 31st December, 1920	...
						295
						1921
						296
					cows licensed to be kept within the city area	...
						4,921

COWSHED INSPECTION.

				<u>1920.</u>	<u>1921.</u>
Number of inspections of Cowsheds	...	...	...	3,147	2,993
„ found incorrect	...	...	...	45	62

Thirty-nine notices were issued to occupiers directing their attention to minor contraventions of regulations.

The number of cowsheds in the City during the years 1912 to 1921, inclusive, together with the number of cows licensed to be kept, and the number of applications for new cowsheds are shown in the following table:—

Years		Cowsheds		Cows		Applications.
1912	...	432	...	6,589	...	3
1913	...	415	...	6,431	...	4
1914	...	429	...	6,734	...	21
1915	...	423	...	6,460	...	7
1916	...	383	...	6,043	...	8
1917	...	393	...	6,516	...	3
1918	...	339	...	5,487	...	1
1919	...	323	...	5,228	...	2
1920	...	295	...	4,942	...	7
1921	...	296	...	4,921	...	1

MILKSHOPS.

				<u>1920.</u>	<u>1921.</u>
Number of applications for registration	...	...	...	62*	76*
„ „ granted	...	...	...	60	75
„ „ withdrawn	...	...	...	2	—
„ „ in abeyance	...	...	...	—	1
„ „ refused	...	...	...	—	—
Number of Milkshops on the register at the end of 1917	...				740
„ „ „ „ 1918	...				720
„ „ „ „ 1919	...				670
„ „ „ „ 1920	...				655
„ „ „ „ 1921	...				688

* Forty-five of these applications were transfers.

DAIRIES AND MILKSHOPS.

		<u>1920.</u>	<u>192</u>
Number of Inspections of Dairies and Milkshops	...	5,972	6,448
„ found incorrect	... ..	22	16

Twenty-three caution notices were issued to occupiers of milkshops, and three notices were sent to farmers for minor contraventions of the Regulations.

ICE CREAM MAKERS AND VENDORS.

The usual inspections have been made of the premises utilised by 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 has it been found that ice-cream has been made or stored in or about these dwellings.

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

		<u>1920.</u>	<u>1921.</u>
Number of premises under inspection	... ..	1,002	1,010
„ visits made	... ..	2,382	2,839
„ caution notices issued	... ..	5	19

PIGGERIES.

During the year special attention has been given to the keeping of pigs on suitable premises in continuation of the policy adopted with a view to the encouragement of food production as recommended by the Order in Council dated 10th January, 1917.

At the beginning of 1917 there were 136 piggeries licensed to keep 1,760 pigs. There are now 153 piggeries licensed to keep 2,762, an increase of 1,002 pigs during the past five years.

In 1921, 15 applications involving the keeping of 364 pigs were made and granted. 815 inspections were made during the year.

TUBERCULOSIS AND THE MILK SUPPLY.

LIVERPOOL CORPORATION ACT, 1900.

The examination of cows and cowsheds within the City has been duly carried on throughout the year, and all cases of sickness found by the Leavelookers reported to the Veterinary Department. In cases where the cows are reported to be suffering from any disease of the udder, the Medical Officer of Health directs that the animal be submitted to veterinary examination, and if it is found to be affected with disease likely to be inimical to the public health, the milk supply from the affected cow is stopped.

Apart from notifications, the Veterinary Department have submitted a great number of cows in the town to inspection.

The following is a table showing the number of visits made by the Veterinary Inspectors to cowsheds within the City Boundary:—

YEAR.	No. of Visits to Town Cowsheds.	No. of Cases notified by Owners.	Other Visits.	No. of Cows examined.	No. of Cows with Tuberculosis of the Udder.	No. of Convictions for Offences under the Act.
1917	64	11	53	896	2	—
1918	105	2	103	1570	2	—
1919	72	14	58	867	2	—
1920	67	11	56	934	6	—
1921	91	7	84	1400	21	—
Totals...	399	45	354	5667	33	—

It has been necessary during the routine examination for the Veterinary Inspectors to take 105 samples of milk for bacteriological examination; 72 of these were control samples and 33 were direct. Of the control samples 19 were proved tubercular and 53 non-tubercular. Of the direct samples 17 were proved tubercular and 16 non-tubercular.

All the above figures are included in the table of samples submitted for bacteriological examination within the City.

MILK SUPPLIED FROM OUTSIDE THE CITY BOUNDARIES.

Under the Liverpool Corporation Act, 1900, Inspectors systematically visit various places supplied with milk from the country, including the railway stations and hospitals, and there take samples. These samples are then submitted to bacteriological examination. Should they be found to contain tubercle bacilli the Veterinary Superintendent or his assistant, accompanied by the Medical Officer of Health or his representative, and furnished with an order signed by a magistrate resident within the county from which the milk is consigned (as prescribed by the Act), visit the farm or dairy and examine the stock therein.

The following table shows the number of visits to farms outside the City boundary during the past five years:—

YEAR.	No. of Farms Visited.	No. of Re-Visits to Farms.	Total No. of Visits to Farms.	No. of Cowsheds Examined.	No. of Cows Examined.	No. of Cows with Tuberculosis of Udder.	No. of Convictions for Offences under the Act.	No. of Orders Prohibiting the Sale of Contaminated Milk within the City.
1917	17	2	19	53	898	10	—	—
1918	6	5	11	14	449	9	—	—
1919	6	—	6	14	312	1	—	—
1920	23	4	27	48	1225	4	—	—
1921	40	18	58	113	2225	10	—	—
Totals...	92	29	121	242	5109	34	—	—

During the examination of cattle outside the City, it has been necessary for the Veterinary Department to take 126 samples of milk for bacteriological examination. Of these, 89 were control samples and 37 were direct samples. Of the control samples, 11 were proved tubercular and the remainder non-tubercular. Of the direct samples 10 proved tubercular and the remainder non-tubercular.

BACTERIOLOGICAL EXAMINATION OF MILK.

From January, 1901, to December, 1921, 8,089 samples of milk from sources outside the City were submitted for bacteriological examination, and 496 of the samples were found to be contaminated by tubercle bacilli, this being equal to 6.1 per cent.

All the farms from which the contaminated milk was supplied (232 in number) were visited and the herds examined, the total number of cows being 18,331; 171 cows were regarded as "suspicious," and the farmers were requested to isolate these animals pending a report of the City Bacteriologist on samples of milk taken direct; 328 samples were taken in this way, and 65 were reported by the City Bacteriologist to contain tubercle bacilli. In several instances the emaciated condition of the animal was such as to justify immediate slaughter. "Control" samples were also taken, and the examination of these samples generally proved that the remainder of the herds were healthy.

In the earlier years of the operation of the Liverpool Corporation Act, 1900, the action of the Health Committee in regard to the examination of cattle and farms outside the City area was in many cases resented by the farmers concerned, and it became necessary for the Committee to make Orders prohibiting the sending of milk from certain farms into Liverpool. Twenty-three such Orders were made. Twenty-seven convictions were also obtained against farmers, whose premises were outside the City, for failing to notify the Medical Officer of Health of the existence of "suspicious" animals amongst the herds.

As a general rule, when first visiting these country cowsheds, it was found that very little inspection was done by the Rural Authorities, and the cowsheds were devoid of light, ventilation and drainage, the floors were badly paved and covered with filth, the walls and ceilings were extremely dirty and rarely, if ever, limewashed. In some instances the cubic capacity per cow was as low as 200 feet.

During latter years a much better condition has been found, and it is evident that the Rural Authorities are becoming more alive to the necessity for close attention to the sanitation of cowsheds. There can be little doubt that the action of such large milk-consuming centres as Manchester, Sheffield, Liverpool, etc., has been instrumental in bringing about more activity in regard to these matters in country districts.

During the same period 4,591 samples of milk from town cowkeepers were submitted for bacteriological examination, and 173 of the samples were found to be contaminated by tubercle bacilli, this being equal to 3·7 per cent.

Owing to the neglect to notify the Medical Officer of Health that they had in their dairy a cow "suspicious" of tuberculosis of the udder, it was found necessary up to the year 1905 to prosecute 21 cowkeepers. Since that time the requirements of the Act have been more closely observed.

The accompanying tables give detailed particulars relating to the samples taken and result of examination, together with the number of cows examined:—

MILK SUPPLY.

DETAILED TABLE RELATING TO COUNTRY SAMPLES.

YEAR.	Samples from Bulk		FARMS.			Samples direct from individual cows at farm.		Orders prohibiting the sale of Contaminated Milk within the City.	No. of Convictions for offences under the Act.
	No.	T.B.	Farms Affected.	Cows examined.	Cows suspicious.	No.	T.B.		
1901	297	18	12	351	20	15	2	4	1
1902	352	26	17	760	18	30	6	3	3
1903	344	18	12	364	10	7	1	2	3
1904	354	33	17	604	19	16	4	5	1
1905	338	13	9	266	9	10	1	1	4
1906	307	21	14	391	10	14	1	1	6
1907	352	12	9	462	7	5	2	1	1
1908	267	9	5	568	5	5	1	1	3
1909	333	6	6	1,153	6	8	4	—	—
1910	318	13	9	871	4	5	2	2	1
1911	336	15	7	1,365	3	10	3	1	2
1912	342	20	7	1,121	4	14	6	2	2
1913	412	28	13	784	4	14	2	—	—
1914	452	42	17	1,302	6	47	6	—	—
1915	419	30	4	1,265	3	16	3	—	—
1916	439	22	10	1,395	5	30	1	—	—
1917	387	20	11	898	10	18	3	—	—
1918	387	14	6	449	9	10	2	—	—
1919	346	26	6	312	1	3	1	—	—
1920	800	56	18	1,225	8	14	4	—	—
1921	507	54	23	2,225	10	37	10	—	—
TOTAL ...	8,089	496	232	18,131	171	328	65	23	27

MILK SUPPLY.

DETAILED TABLE RELATING TO TOWN SAMPLES.

YEAR.	SAMPLES.		COWSHEDS.		Number of Convictions for Offences under the Act.
	Number taken.	T.B.	Cows examined.	Cows suspicious.	
1901	254	2	59	27	—
1902	213	1	13	6	1
1903	230	2	121	24	7
1904	198	3	665	70	12
1905	204	1	298	57	1
1906	209	3	225	14	—
1907	190	4	238	3	—
1908	247	5	255	3	—
1909	247	—	203	3	—
1910	282	4	189	1	—
1911	312	3	215	2	—
1912	225	9	1,755	17	—
1913	238	18	4,732	18	—
1914	206	11	4,043	21	—
1915	261	14	1,781	15	—
1916	147	5	3,232	11	—
1917	128	9	896	2	—
1918	113	12	1,570	2	—
1919	163	4	867	2	—
1920	222	17	934	6	—
1921	302	46	1,400	21	—
TOTAL ...	4,591	173	23,691	325	21

DETAILS OF SAMPLES OF MILK OBTAINED FOR CHEMICAL ANALYSIS.

	1920.	1921.
Number of samples purchased on week-days in town.	915	1,252
„ informations	58	67
„ samples taken at railway stations on week-days	428	921
„ informations	10	8
„ samples purchased on Sundays in town...	171	137
„ informations	14	3
„ samples taken at railway stations on Sundays	146	107
„ informations	2	1
„ samples taken at City Hospitals...	762	351
„ informations	5	—
„ samples taken at Corporation Infant Welfare Centres and Day Nurseries.	386	219
„ informations	—	—

MARGARINE ACT.

	1920.	1921.
Number of visits to wholesale dealers in margarine...	450	131
„ visits to shops	3,524	3,481
„ visits to other places	2,417	2,592

SPECIAL EXAMINATIONS.

The total number of samples submitted during 1920 and 1921 for special examination was 220, and 65, respectively.

POISONS AND PHARMACY ACT, 1908.

The Poisons and Pharmacy Act, 1908, came into operation on the 1st April, 1909.

The object of the Act is to regulate the sale of certain poisonous substances, and to amend the Pharmacy Acts. It is fully referred to in the Annual Report for 1909.

The number of licenses renewed under this Act during the year 1921 was 20.

PUBLIC HEALTH (MILK AND CREAM) REGULATIONS,
1912 and 1917.

Report for the year ending 31st December, 1921:—

1. MILK AND CREAM NOT SOLD AS PRESERVED CREAM.

Number of samples examined for the presence of a preservative:

Milk 2,987, Cream 13.

Number in which a preservative was reported to be present:

(a) Milk 6

(b) Cream 0

Nature of preservative—Boracic Acid, 5 samples; Formaldehyde, 1.

ACTION TAKEN.

(a) Four informations were laid under the Sale of Food and Drugs Act, 1875 (Section 6), and in two of these cases the defendants were cautioned and ordered to pay the costs, 2ls. each. The other two defendants were fined £1 and £1 1s. 0d. costs.

Two vendors were cautioned, and further samples were taken and found genuine.

2. CREAM SOLD AS PRESERVED CREAM.

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

Number of samples taken 15

Correct statements made 14

(b) Determinations made of milk fat in cream sold as Preserved Cream:

Above 35 per cent. 14

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of Preserved Cream in Article V (1), and the proviso in Article V (2) of the Regulations were not observed:

1 and 2—The requirements of the Regulations were observed.

SUMMARY OF SAMPLES, &c.—Continued.

INFORMAL SAMPLES.				Nature of Sample.	FORMAL SAMPLES.					
Number taken.	Number genuine.	Adulterated.			Number taken.	Number genuine.	Adulterated.		Number cautions.	Informations.
		Sch'dule A.	Sch'dule B.				Sch'dule A.	Sch'dule B.		
2	2	—	—	Cream of Tartar	49	48	1	—	—	—
—	—	—	—	Custard Powder	35	35	—	—	—	—
13	13	—	—	Dripping	15	15	—	—	—	—
2	2	—	—	Egg Powders and Substitutes	10	10	—	—	—	—
6	5	1	—	Fruit Cordials	58	27	24	7	—	—
—	—	—	—	Flour.....	51	51	—	—	—	—
1	1	—	—	Do. Self-Raising	80	80	—	—	—	—
12	12	—	—	Honey	2	2	—	—	—	—
12	11	1	—	Jam, Jellies and Marmalade	74	70	—	4	—	—
6	6	—	—	Lard	90	90	—	—	—	—
46	45	1	—	Margarine.....	88	87	1	—	—	—
27	8	18	1	Milk.....	2961	2616	216	129	60	72
—	—	—	—	Do. Skimmed.....	13	11	2	—	—	1

SUMMARY OF SAMPLES, &c.—continued.

INFORMAL SAMPLES.				FORMAL SAMPLES.				
Number taken.	Number genuine.	Adulterated.		Number taken.	Number genuine.	Adulterated.		Number Infor- mations.
		Sch'dule A.	Sch'dule B.			Sch'dule A.	Sch'dule B.	
—	—	—	—	8	5	3	—	1
2	2	—	—	99	87	—	12	—
12	12	—	—	7	7	—	—	—
16	16	—	—	26	26	—	—	—
126	121	5	—	20	16	4	—	1
247	221	19	7	529	503	11	15	—
770	712	48	10	5010	4556	280	174	77

SUMMARY OF SAMPLES IN WHICH LEGAL PROCEEDINGS WERE INSTITUTED DURING THE YEAR ENDING
DECEMBER 31st, 1921, TOGETHER WITH RESULT.

No. of Infor- mations.	Nature of Sample.	Nature of Offence.	RESULT OF LEGAL PROCEEDINGS.					Costs.
			No. of con- vic- tions.	No. with- drawn on payment of costs.	No. with- drawn and dismissed without costs.	Fines £ s. d.	£ s. d.	
28	Milk	Adulterated with water	22	9	2	105 0 0	37 15 6	
30	"	Deficient in cream	12	13	—	27 0 0	28 17 0	
9	"	Deficient in cream and adulterated with water	6	3	—	70 0 0	11 2 6	
1	"	Adulterated with water and contained preservative	—	—	1	—	—	
4	"	Contained preservative	2	2	—	2 0 0	4 4 0	
1	Butter Milk	Adulterated with water	—	1	—	—	1 1 0	
1	Skimmed Milk	Adulterated with water	1	—	—	2 0 0	1 1 0	
1	Gregory Powder	Contained 4 % Magnesia and 12 % Mag- nesium Carbonate	1	—	—	5 0 0	1 1 0	
1	Ground Cinnamon	Contained 5 % Sand and Siliceous Matter	—	1	—	—	1 1 0	
1	Ground Mace	Contained 30 % Wild Mace	—	—	1	—	—	
77			44	29	4	£211 0 0	£86 3 0	

REPORT OF THE CITY BACTERIOLOGIST, 1921.

During the year 1921, specimens were examined for the Health, Port Sanitary, Water, and Baths' Committees, shewing an increase of nearly 5,000 over the number of specimens examined during 1920.

The specimens may be grouped as follows:—

1. Milk and other Food-stuffs.
2. Water.
3. Rats, Mice, etc., for possible infection with the bacillus of plague.
4. Material from Infectious Diseases in Man (Diphtheria, Typhoid Fever, Tuberculosis, etc.).
5. Venereal Diseases.
6. Material from Infectious Diseases in Animals (Tuberculosis, Anthrax, etc.).
7. Other Specimens.

MILKS AND OTHER FOOD-STUFFS.

PUBLIC HEALTH DEPARTMENT—

The following samples have been examined:—

(a) Fresh Milks:—

City Hospitals	...	...	...	...	131
Infant Welfare Centres	...	...	...	...	92
Milk Shops, Railway Stations, etc.	...	...	...	...	720

(b) Condensed Milks 9

(c) Other Food-stuffs; Canned and Potted Meats, etc. 26

(a) *Fresh Milks*—

City Hospitals.—Of the 131 samples examined, 73 contained *B. coli* in one-hundredth of a c.c., in ten samples, *B. coli* was absent in 1 c.c., 9 contained *B. enteritidis sporogenes* in 10 c.c., 8 contained streptococci, and *B. Tuberculosis* was found in 12 samples.

Infant Welfare Centres—Of the 92 samples examined, 42 contained *B. coli* in one-hundredth of a c.c., in 8 samples *B. coli* was absent in 1 c.c., 12 contained *B. enteritidis sporogenes* in 10 c.c., 4 contained streptococci, and *B. Tuberculosis* was found in 14 samples.

Milk Shops, Railway Stations, etc.—Of the 720 samples examined, 308 contained *B. coli* in one-hundredth of a c.c., in 129 *B. coli* was absent in 1 c.c., 63 contained *B. enteritidis sporogenes* in 10 c.c., 25 contained streptococci, and *B. Tuberculosis* was found in 113 samples.

Thus, in 943 samples of milk, 139 were found to be infected with tubercle. This, at first sight, seems a large proportion, but many of the samples were in duplicate, and it is impossible to draw any conclusion from these figures.

(b) Condensed Milks.—Of the 9 samples examined only 2 were sterile, 3 contained putrefactive organisms, 1 contained *B. enteritidis sporogenes*, and 5 staphylococci.

(c) Other Food-stuffs.—All of these were found to be in a satisfactory condition, free from putrefactive organisms, and food-poisoning organisms; 3 were sterile, 5 contained *B. coli*, 3 contained *B. enteritidis sporogenes*, and 1 contained streptococci. The empty sardine tin contained putrefactive organisms. The shell-fish were all free from *B. typhosus*, and their bacterial content (i.e., of other bacteria), was not excessive.

Water—

There were 470 samples of water examined for the Water Engineer, as follows:—

Daily Samples	...	...	...	...	...	...	328
Special Daily Samples	...	...	...	...	...	...	69
Monthly Samples—							
Prescot—Vyrnwy	...	...	...	...	...	...	12
,, Rivington	...	...	...	...	...	...	12
George Holt Well	...	...	...	...	...	...	2
John Holmes Well	...	...	...	...	...	...	1
Dudlow Lane Well	...	...	...	...	...	...	12
Other Special Samples from Rivington District, etc...							34

The water throughout the year, whether from the wells or from Prescot, was, from the bacterial standpoint, satisfactory.

Rats, Mice, etc., for possible infection with the Bacillus of Plague—

The total number examined is as follows:—

			Rats.	Mice.	Dogs.	Total.
Port	...	...	6,978	227	1	7,206
City	...	...	5,185	2	—	5,187
Totals	...	...	<u>12,163</u>	<u>229</u>	<u>1</u>	<u>12,393</u>

Material from Infectious Diseases in Man—

(a) Swabs from suspected cases of Diphtheria:—

			Positive.	Negative.	Total.
City Hospitals	...	...	297	7,346	7,643
Private Practitioners	...	...	46	427	473
Totals	...	...	<u>343</u>	<u>7,773</u>	<u>8,116</u>

(b) Urine from suspected cases of Diphtheria: There were 115 specimens examined and all were negative, but about 10 per cent. contained organisms presenting the morphological appearances of *B. diphtheria*, but all proved non-virulent on guinea-pig inoculation.

(c) Blood from suspected cases of Typhoid Fever:

			Positive.	Negative.	Total.
City Hospitals	...	...	20	85	105
Private Practitioners	...	...	4	22	26
Totals	...	...	<u>24</u>	<u>107</u>	<u>131</u>

(d) Urine and Faeces from suspected cases of Typhoid Fever:

			Positive.	Negative.	Total.
City Hospitals	...	...	5	256	261
Private Practitioners	...	...	—	20	20
Totals	...	...	<u>5</u>	<u>276</u>	<u>281</u>

(e) Sputum from suspected cases of Tuberculosis:

			Positive.	Negative.	Total.
City Hospitals	...	...	202	1,124	1,326
Private Practitioners	...	...	223	915	1,138
Totals	...	...	<u>425</u>	<u>2,039</u>	<u>2,464</u>

(f) Anthrax Infection: One suspected malignant pustule from a man was examined, but was negative.

(g) Miscellaneous: Tissues, Secretions, Fluids, etc.— ... 421

Venereal Diseases—

The following are the numbers and particulars of the specimens examined for the Liverpool Clinics, Hospitals, and Private Practitioners:—

Detection of Spirachœetes	...	...	...	...	41
„ „ Gonococci	...	...	...	...	524
Wassermann Reaction for Syphilis	...	...	...	...	5,783
Still-born Infants	...	...	...	...	354
Ophthalmia Neonatorum	...	...	...	...	131
Total	...	...	...	...	6,833

As the majority of the specimens are sent from patients suspected to be suffering from Syphilis, or undergoing treatment, several specimens of blood may be sent from one case at different times, and, therefore, any percentages as to positive and negative results would be of no value.

Of the 354 still-born infants examined 19 gave positive evidence of the presence of Syphilis (*i.e.*, about 5½ per cent.), and 9 were suspicious. In three of these suspicious cases the blood taken from the mother gave a positive Wassermann Reaction. Although the percentage of syphilitic still-born infants is lower than usual there is no direct evidence as to whether this reduction is due to treatment.

Of the 131 cases of Ophthalmia Neonatorum, 50 shewed the presence of Gonococcus, *i.e.*, nearly 40 per cent. I have previously emphasised the importance of the examination of these cases at an early stage, and the results for this year have simply confirmed my previous observations. It will be seen that the percentage of positive cases is practically the same this year as it was last year. It is not infrequent to find no bacteria in the films, or bacteria of other types, staphylococci,

pneumococci, etc., but I am convinced that some of these cases are gonorrheal in origin, but the gonococci are very few in number, the early examination makes it difficult to discover them, and the early treatment prevents their development.

Material from Infectious Diseases in Animals—

(a) *Tissues, etc., for Tubercle*: Four specimens were examined, but there was no evidence of *B. tuberculosis*. In addition, the head and liver of a fowl were examined, but there was no trace of *B. tuberculosis*, bacterial necrosis, nor of any definite diphtheria bacilli.

(b) *Anthrax Infection*: Wool, Hides, Hair, etc.: 2 specimens were examined, one (a sample of brush fibres) was positive, and the other was negative.

Animal Foods, etc.: The 4 specimens examined were all negative.

Shaving Brushes: The 110 brushes examined (including one tooth-brush), were all negative.

Tissues, etc.: The two specimens examined were both negative.

Other Specimens—

The following were examined for the Baths and Wash-houses Department:—

1 specimen of water from Public Swimming Bath;

4 specimens of Disinfectants.

It is difficult to arrive at a standard of purity for the Swimming Bath water, but no organisms which were likely to cause disease were found, and the general bacterial content of the water was not abnormally high.

The object of examining the disinfectants was to test the efficiency of them, and to compare one with the other, in order that the best for the purpose of disinfection might be employed, and also for the purpose of seeing that the guaranteed standard was maintained.

There were 6 bottles of vaseline examined for the Public Health Department; tetanus was suspected to be present, but no trace could be found.

SUMMARY OF EXAMINATIONS DURING THE YEAR 1921.

Description of Specimens.										Numbers.
Milks and Other Food-stuffs	...	...	...	...	...	...	...	...	...	1,001
Waters	...	...	...	...	...	...	...	...	...	472
Rats, Mice, etc.	...	...	...	...	...	...	...	...	...	12,393
Material from Infectious Diseases in Man :—										
Swabs for Diphtheria	...	...	...	...	...	...	...	...	...	8,116
Urine for Diphtheria	...	...	...	...	...	...	...	...	...	115
Blood for Typhoid Fever	...	...	...	...	...	...	...	...	...	131
Urine and Faeces for Typhoid Fever	...	...	...	...	...	...	...	...	...	281
Sputa for Tuberculosis	...	...	...	...	...	...	...	...	...	2,464
Anthrax Infection	...	...	...	...	...	...	...	...	...	1
Miscellaneous	...	...	...	...	...	...	...	...	...	421
Venereal Diseases	...	...	...	...	...	...	...	...	...	6,833
Material from Diseases in Animals	...	...	...	...	...	...	...	...	...	123
Other Specimens	...	...	...	...	...	...	...	...	...	11
TOTALS										32,362

DISEASES OF ANIMALS.

THE GLANDERS AND FARCY ORDER OF 1907.

During the year 1921 the City was again entirely free from the disease.

Immediate notification of suspected glanders is received either from the owner, police, or the veterinary surgeon who may be called in to the case. As a further safeguard, the Veterinary Department examine the lungs of all equines sent to the horse slaughterer's yard (there is only one in the city for this purpose), and it is by these inspections that unreported cases can be discovered.

This precaution is also taken to ensure owners being notified of the existence of the disease which may be in a latent state, and to detect unscrupulous persons who may not conform to the requirements of the Order.

The following table gives the number examined during the past three years:—

Year	Lungs Examined.	Affected.	Not Affected.
1919	2,744	—	2,744
1920	1,305	—	1,305
1921	1,139	—	1,139

INSPECTION OF HORSE AUCTIONS.

The sale yards in the City have been regularly visited and the animals exposed for sale therein examined for the presence of any contagious disease, under the Glanders Order of 1907, Parasitic Mange Orders of 1911 and 1918, and the Epizootic Lymphangitis Order, 1905; also as to their fitness to travel in accordance with the Horses (Importation and Transit) Order of 1913, and the Protection of Animals Act of 1911.

There were 3,768 animals examined, all of which were found to be free from contagious disease.

MARKET INSPECTION.

The following number of animals were examined at the Liverpool Cattle Market during the year 1921. The figures for 1920 are also given for comparison:—

	1920.	1921.
Cattle	5,411	3,946
Sheep	31,948	44,077
Pigs	—	399
Other Animals	—	—
Total	37,359	48,422

THE PARASITIC MANGE ORDER OF 1911 AND AMENDMENTORDER OF 1918.

Under this Order, immediate notification of actual or suspected cases of mange in horses is received from the owner, police, horse slaughterers, or veterinary surgeons, who may be called in to the case. The suspected animals are then examined by the Veterinary Department, and also the entire stud when at rest. Affected animals are immediately isolated and kept under observation until the disease has disappeared. Thorough disinfection of the premises, harness, utensils, feeding troughs, etc., is carried out under the supervision of the veterinary inspectors.

During the period of the War, this Order, with the exception of regulations relating to the prohibition to expose or move affected animals, was repealed by the Ministry of Agriculture and Fisheries on August 6th, 1914, and again came into operation on 22nd May, 1918.

One prosecution was instituted and a conviction obtained.

The total number of outbreaks on premises where the disease was found to exist was 58, and the number of visits paid to these premises was 522.

In a number of cases infection was traced to horses outside the City.

The following table shows the figures for 1921, with the previous four years for comparison.

Year.	Number of Outbreaks.	Number of Animals and Carcases Examined.	Number affected or suspected.	Recovered.	Died or Slaughtered
1917	155	7,173	309	200	109
1918	105	5,864	196	142	54
1919	268	3,213	493	358	135
1920	221	1,921	263	189	74
1921	58	847	73	55	18

THE ANTHRAX ORDER OF 1910.

A number of suspected cases of Anthrax were investigated by the Health Department under this Order. Of these, 20 were referred to the Veterinary Department and, on microscopical examination, Anthrax was suspected to exist in one case. This was reported to the Ministry of Agriculture and Fisheries in accordance with the Order and was confirmed.

In connection with the spread of Anthrax to farm animals owing to the contamination of cattle food products with the spores of the bacillus during shipment in foreign parts and during the voyage, the staff of the City and Port have kept this matter constantly before them, and systematic enquiries have been made as to the possibility of the contamination of cattle food products. In addition, the Ministry of Agriculture and Fisheries have issued a notice to shipowners and others concerned pointing out that special precautions should be adopted when cargo containing animal products likely to be infected (such as hides, hair, wool, etc.) is carried in the holds and other parts of vessels before such places are used for carrying any cargo to be utilised as cattle food.

THE RABIES ORDER OF 1897.

Twenty-one suspected cases of Rabies were dealt with under this Order. These were examined by the Veterinary Department and certified to be free from Rabies.

THE IMPORTATION OF CANINE ANIMALS ORDER OF 1909.

This Order was issued by the Ministry of Agriculture in 1909 to control the importation of animals such as wolves and jackals, and so prevent the introduction of rabies by animals other than dogs whose importation was already controlled by the Importation of Dogs Order of 1901.

No examinations were made under this Order during the year.

THE PROTECTION OF ANIMALS ACTS, 1911.

Under this Act the Police have power to call in a veterinary surgeon in cases of cruelty and act upon his advice. The Veterinary Department is consulted under the Act.

EXAMINATION OF HORSES FOR HUMAN FOOD.

There were two shops in the City licensed under the Horse Flesh Act of 1889 for the sale of horse beef for human food at the end of the year.

Premises have been set apart at three slaughter-houses, viz., Carruthers Street, Foley Street, and High Street, Wavertree, for the slaughter of the horses and dressing of the carcasses.

The animals deemed suitable for human consumption are first submitted whilst alive to veterinary examination, and after slaughter the carcasses are examined by the Inspectors of the Medical Officer of Health, and also in many cases by the Veterinary Inspector.

There were 1,400 animals examined by the Veterinary Inspector, 6 of which were condemned alive as being unfit for slaughter for human consumption. Of the remaining 1,394 animals, 1,346 of these were passed for human consumption by the Inspectors of the Medical Officer of Health and 48 were condemned.

The Corporation of Liverpool makes a yearly donation to the Funds of the Royal Society for the Prevention of Cruelty to Animals on account of the work done for the Health and Watch Committees, and the following reports from their various Liverpool centres may be of interest:—

LIVERPOOL CATS' SHELTERS.

41, Russell Street, 90, Smith Street, 171, Mill Street.

During 1921 the number of animals received and humanely destroyed reached the unprecedented total of 15,453. The work is just the same as ever in that there is a tremendous proportion of animals received in a state of suffering from injury or disease of all kinds. It is undoubtedly a substantial contribution to the health and good order of the City that it should be thus possible for unwanted and afflicted animals to be humanely and expeditiously put out of the way. The Shelters van collects cats from all parts of the City and District.

LIVERPOOL HORSES' REST, BROADGREEN.

During 1921 57 animals, almost without exception the property of humble owners, benefited by staying for various periods at this recuperating farm. In many cases this assistance has proved of the highest possible value to the owners, as well as to the animals.

LIVERPOOL ANIMALS' HOSPITAL (ANIMALS' WAR MEMORIAL), LARCH LEA.

During 1921 the figures for the Animals' Hospital shewed a marked increase, 2,762 attendances being recorded. Only those animals are treated whose owners cannot pay veterinary charges. Quite apart from the healing and relief that is actually accomplished, the influence upon the community forms a decided contribution towards the improvement and humanising of conduct generally.

LIVERPOOL DOGS' HOME, EDGE LANE.

During 1921, out of a total of unwanted and stray dogs received at the Home, numbering 4,945, those brought in from the streets by the Police numbered 2,422, while the remainder, 2,523, came to the Home direct from owners' houses, a large number of these actually being collected direct by the motor van maintained by the Institution. This indicates an immense saving in animal suffering and a very large reduction in the number of homeless dogs which might otherwise constantly frequent our streets.

CLEANSING AND SCAVENGING.

The City Engineer has kindly supplied the following information, which indicates the operations carried out by the cleansing staff under his control:—

The work of the Department consists of cleansing and watering the 570 miles of streets within the City, together with their back passages, the periodical emptying of ash-bins, street gullies, street and court-bins and ashpits, and the disposal of the refuse collected therefrom, etc. During 1921 the quantity of refuse collected and disposed of amounted to approximately 383,000 tons, the quantity removed per working day averaging 1,244 tons.

The whole of the 570 miles of streets with their passages are swept weekly, the principal streets, and streets in congested areas, receiving constant daily attention. In addition, certain streets and passages are washed by hose pipe at night time. During 1921 street washing was carried out as follows:—

- 104 streets washed once a week;
- 15 streets washed twice a week;
- 13 streets washed three times a week; and
- 210 streets washed as occasion required.

and all passages and tunnel entrances to courts were also regularly washed.

On Sunday mornings a number of the principal streets are cleansed.

During 1921, approximately 55,000 tons of street sweepings were collected and disposed of as manure.

In connection with street watering upwards of 13½ million gallons of water were distributed during the season, in addition to the large quantity used for street washing.

820,631 square yards of carriageway were treated with dust-laying compositions, of which 27,916 square yards were in Sefton and Newsham Parks.

The frequent flushing of trough water closets is a sanitary measure, this type of closet being provided principally in the more densely populated areas of the City. The number of trough water closets in existence on 31st December, 1921, was 730.

There are 32 underground urinals with 275 stalls and 151 overground urinals with 550 stalls in Liverpool, which are cleansed and disinfected at least once daily. During the summer season a large number of urinals and trough water closets are cleansed and disinfected twice daily. All private, domestic and office drains are flushed twice a year by the City Engineer's staff.

An improved type of fixture ash-bin was first supplied to Liverpool premises in 1898, and at the end of 1921 the number of bins in use of this type was 85,600, and the number of ashpits had been reduced from 65,000 to approximately 7,000. More than 48,000 loose bins had been supplied to premises unsuitable for fixture bins. In the year 1900 an improved sanitary ash-bin was introduced for the use of courts, some of which have been removed owing to property being demolished. The number in use at the end of the year was 1,420, which are emptied daily. Ash-bins at domestic premises are emptied approximately once weekly, and ashpits about once a month. The Bell-Cart service provides for the daily removal of domestic refuse from shops, business premises, and dwelling-houses, where no provision can conveniently be made for the storage of this description of refuse. This service has to be conducted within limited hours during the morning to suit the convenience of occupiers and the exigencies of business.

Middens have been practically abolished in the Old City, and consequently the operations of the night service are limited to the removal of domestic and office refuse from the neighbourhood of the Exchange, where it is impracticable to perform the work during business hours. 1,280 clearances of ashpits by night were made during 1921, and 1,368 tons of refuse removed.

Horse middens are emptied weekly and abattoir garbage is removed nightly. 2,538 tons of abattoir garbage were removed during 1921.

All ashpit and ash-bin refuse is tipped direct into the carts, and all loaded carts traversing the streets are covered.

The refuse collected is disposed of by burning at six destructors, by disposing at sea, by sale to farmers, and by other use for agricultural purposes. During the year 159,380 tons were burned at the destructors, 50,205 tons were deposited at sea by hopper barge, 39,546 tons were sold to farmers, and 86,209 tons were otherwise disposed of for filling up pits, and agricultural purposes, etc. In addition, approximately 48,000 tons of clinker residue from destructors were used almost entirely in the construction and maintenance of roads, tramways, and in the manufacture of mortar and concrete slabs, etc.

HOUSING.

In the Annual Report for 1920, reference was made to:—

“ A ”—Unhealthy Areas previously scheduled but not finally disposed of, and

“ B ”—Unhealthy Areas in respect to which no proceedings have yet been taken.

Under the first heading “ A ” the following Areas are comprised, viz.:—

1. Beau Street.
2. Prince Edwin Street.
3. Rathbone Street.
4. Mason Street.
5. Saltney Street and Dublin Street.
6. Blenheim Street.
7. Penrhyn Street.

The present position in regard to these Areas is as follows:—

(1) Beau Street.—All the houses in this Area have been demolished, and the site cleared. Operations in respect to rebuilding on this Area have been delayed, as the Area will be materially affected by the proposed widening in continuation of Prince Edwin Street. Plans are now being prepared shewing the main line of the proposed new Street.

(2) Prince Edwin Street—Approximately one-half of the houses on this Area have been demolished, 69 houses are still occupied. It is proposed to widen the street to a width of 120 feet, and plans are being prepared for building on the remaining land.

All the property has been purchased, with the exception of three blocks which still await the sanction of the Ministry of Health before the purchase can be completed.

(3) Rathbone Street—There are only three houses now occupied on this Area, one-half of the houses having been demolished, but the proposition in regard to this Area is not yet finally adjusted.

(4) Mason Street—All the property on this Area has been demolished, 28 self-contained houses erected, and all are now occupied.

(5) Saltney Street—The sanction of the Ministry of Health is still awaited in respect to the purchase of several properties in this Area.

(6) Blenheim Street—Plans for the erection of 18 cottage flats on this Area have been approved, the Ministry of Health have agreed to a tender being accepted, so that the erection of houses on the vacant ground, which forms part of this Area, may be commenced at once.

(7) Penrhyn Street—25 self-contained houses have been erected on this Area and are now occupied. The original scheme has not been carried out in its entirety owing to the Ministry of Health declining to approve of the purchase of premises Nos. 2, 4, 6 in 1 Court, and 5, Penrhyn Street; also premises Nos. 330 to 336, Scotland Road.

Apart from the above mentioned "Unhealthy Areas," there are also 14 "Unhealthy Areas" which are suitable for being dealt with under part 1 of the Housing of the Working Classes Act, 1909. In each case details shewing the population, total number of houses, together with the mortality rates, will be found in the Annual Report for the year 1920.

With regard to these "Unhealthy Areas" the following Draft Official Representation was submitted to the Housing Committee on 18th November, 1920:—

TO THE URBAN SANITARY AUTHORITY
OF THE CITY OF LIVERPOOL.

I, EDWARD WILLIAM HOPE, Medical Officer of Health for the City of Liverpool, do hereby represent that, in my opinion, within certain Areas in the District of the Urban Sanitary Authority of

the City of Liverpool, described in the Schedule hereto, there are (a) certain houses, courts and alleys which are unfit for human habitation, and that (b) the narrowness, closeness, and bad arrangements and bad condition of the streets and houses and groups of houses within such areas, and the want of light, air, ventilation, and proper conveniences and other sanitary defects, or one or more of such causes, are dangerous or injurious to the health of the inhabitants, either of the buildings in the said areas or of the neighbouring buildings, and that the most satisfactory method of dealing with the evils connected with such houses, courts or alleys, and the sanitary defects in such areas, is an improvement scheme for the re-arrangement and re-construction of the streets and houses within such areas, or of some of such streets and houses.

BANCROFT STREET AREA.

An Area on the west side of Bancroft Street, beginning with and including the premises No. 1, Bancroft Street, thence running in a southwardly direction to Milner Street, thence turning and running in a westwardly direction to Harding Street, thence turning and running in a northwardly direction to and including the premises No. 17, Harding Street, thence turning and running in an eastwardly direction to and including the premises No. 8, Malt Street, thence turning and running in a southwardly direction to the premises No. 1, Bancroft Street aforesaid.

BURLINGTON STREET AREA.

An Area on the south side of Burlington Street, beginning with and including the premises No. 54, Burlington Street, thence running in an eastwardly direction to and including the premises No. 108, Burlington Street, thence across Titchfield Street and continuing in an eastwardly direction to Limekiln Lane, and including the premises No. 162, Burlington Street, thence turning and running in a southwardly direction along Limekiln Lane to Back Bond Street, and including the premises No. 73, Limekiln Lane, thence turning and running in a westwardly direction to and including the premises No. 24, Titchfield Street, thence across Titchfield Street and continuing in a westwardly direction along the southerly side of the premises No. 33, Titchfield Street, and the rear of the premises Nos. 1 and 3, Lancaster Terrace, and continuing along the rear of the courts Nos. 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4 and 2 court, Burlington Street, and continuing in a westwardly direction to Vauxhall Road, and including the premises No. 202, Vauxhall Road, thence turning and running in a northwardly direction to and including the premises No. 54, Burlington Street aforesaid.

COMUS STREET AREA.

An Area on the east side of Comus Street, beginning with and including the premises No. 34, Comus Street, thence running in a southwardly direction to and including the premises No. 26, Comus Street, thence turning and running in an eastwardly direction to and including the premises No. 16 in No. 6 court, Comus Street, thence turning and running in a northwardly direction along the westerly side of the premises the Rose Hill Bridewell to Peover Street, thence turning and running in a westwardly direction to the premises No. 34, Comus Street aforesaid.

GOMER STREET AREA.

An Area on the south side of Gomer Street, beginning with and including the premises No. 2, Gomer Street, thence running in an eastwardly direction to and including the premises No. 30, Gomer Street, thence turning and running in a southwardly direction along the west side of Soho Street to and including the premises No. 23, Soho Street, thence turning and running in a westwardly direction along the north side of Travers Street to and including the premises No. 2, Harker Street, thence turning and running in a northwardly direction along the east side of Harker Street to and including the premises No. 10, Harker Street, thence turning and running in an easterly direction to the premises No. 2, Gomer Street aforesaid.

GREAT RICHMOND STREET AREA.

An Area on the south side of Great Richmond Street, beginning with and including the premises No. 18, Great Richmond Street, thence running in an eastwardly direction to and including the premises No. 32, Great Richmond Street, thence turning and running in a southwardly direction to rear of the premises No. 131, Richmond Row, thence turning and running in a westwardly direction in a broken line along the rear of premises No. 131, 129, and 127, Richmond Row, thence continuing in a westwardly direction along the north side of the passage to St. Anne Street, thence turning and running in a northwardly direction to and including the premises No. 106, St. Anne Street, thence turning and running in an eastwardly direction to the premises No. 18, Great Richmond Street aforesaid.

HOPWOOD STREET AREA.

An Area on the south side of Hopwood Street, beginning with and including the premises No. 82, Hopwood Street, thence running in an eastwardly direction to Scotland Road to and including No. 345, Scotland Road, thence turning and running in a southwardly direction to Benledi Street, and including the premises No. 337, Scotland Road, thence turning and running in a westwardly direction to and including the premises No. 57, Benledi Street, thence turning and running in a

northwardly direction to the rear boundary wall of No. 4 court, Hopwood Street, thence turning and running in a westwardly direction along the boundary wall to the centre line of No. 2 court, Hopwood Street, thence turning and running in a northwardly direction to Hopwood Street, thence turning and running in an eastwardly direction to the premises No. 82, Hopwood Street aforesaid.

LAWRENCE STREET AREA.

An Area on the north side of Lawrence Street, beginning with and including the premises No. 5, Lawrence Street, thence running in an eastwardly direction to and including the premises No. 25, Lawrence Street, thence turning and running in a northwardly direction along the west side of Cazneau Street to and including the premises No. 57, Cazneau Street, thence turning and running in a westwardly direction along the south side of Horatio Street to and including the premises No. 8, Horatio Street, thence turning and running in a southwardly direction along the east side of the passage to the premises No. 5, Lawrence Street aforesaid.

LEEDS STREET AREA.

An Area on the south side of Leeds Street, beginning with and including the premises No. 82, Leeds Street, thence running in an eastwardly direction to and including the premises No. 98, Leeds Street, thence turning and running in a southwardly direction along the west side of Northampton Street to and including the premises No. 25, Northampton Street, thence turning and running in a westwardly direction along the southerly side of the premises No. 25, Northampton Street to the rear of the premises No. 34, Westmoreland Street, thence turning and running in a northwardly direction to the rear of the premises No. 36, Westmoreland Street, thence turning and running in a westwardly direction to and including the premises No. 36, Westmoreland Street, thence turning and running in a northwardly direction along the east side of Westmoreland Street to the premises No. 82, Leeds Street aforesaid.

MOUNT VERNON VIEW AREA.

An Area on the south side of Mount Vernon View beginning with and including the premises No. 2, Mount Vernon View, thence running in an eastwardly direction to and including the premises No. 18, Mount Vernon View, thence turning and running in a southwardly direction along the rear of premises Nos. 1, 3, 5, 7, 9, and 11, Vernon Grove, and continuing along the easterly side of the premises No. 13a, Mount Vernon Road to Mount Vernon Road, thence turning and running in a westwardly direction to and including the premises No. 3, Mount Vernon Road, thence turning and running in a northwardly direction to Mount Vernon View to the premises No. 2, Mount Vernon View aforesaid.

RANKIN STREET AREA.

An Area on the north-west side of Rankin Street, beginning with and including the premises No. 1, Rankin Street, thence running in a north-eastwardly direction to Bessemer Street, thence turning and running in a north-westwardly direction to and including the premises No. 2, Bessemer Street, thence turning and running in a south-westwardly direction to and including the premises No. 72, Wellington Road, thence turning and running in a south-eastwardly direction along the north-east side of the premises No. 70, Wellington Road to the rear of the premises No. 2, Corwen Place, thence turning and running in a south-westwardly direction to the rear of the premises No. 1, Wellington Gardens, thence turning and running in a north-westwardly direction to the rear boundary wall of Wellington Gardens, thence turning and running in a south-westwardly direction in an irregular line along the rear boundary wall of Wellington Gardens, thence turning and running in a south-eastwardly direction along the rear of premises Nos. 2, 4, 6, and 8, Wellington Gardens, thence turning and running in a south-westwardly direction along the rear boundary of courts Nos. 5, 3, and 1, Rankin Street, to the centre line of No. 1 court, Rankin Street, thence turning and running in a south-eastwardly direction to Rankin Street, thence turning and running in a north-eastwardly direction to the premises No. 1, Rankin Street aforesaid.

ROSCOE LANE AREA.

An Area on the south side of Roscoe Lane, beginning with and including the premises No. 8c, Roscoe Lane, thence running in an eastwardly direction to Roscoe Street, thence turning and running in a southwardly direction to Knight Street, thence turning and running in a westwardly direction to and including the premises No. 11, Knight Street, thence turning and running in a northwardly direction along the westerly side of No. 11, Knight Street along the rear of the premises No. 33, Berry Street, thence turning and running along the northwardly side of the premises No. 33, Berry Street, to Berry Street, thence turning and running in a northwardly direction to the premises No. 23, Berry Street, thence turning and running in an eastwardly direction along the southerly side of the premises No. 23, Berry Street to the passage at the rear of the premises in No. 2 court, Roscoe Lane, thence turning and running in a northwardly direction along the east side of the passage to the premises No. 8c, Roscoe Lane aforesaid.

SLADE STREET AREA.

An Area on the north side of Slade Street, beginning with and including the premises No. 17, Slade Street, thence running in an eastwardly direction to Latimer Street, and including the premises No. 89, Latimer Street, thence turning and running in a northwardly direction to Athol Street, and including the premises No. 144, Athol Street, thence turning and running in a westwardly direction to

Sumner Street, and including the premises No. 56, Sumner Street, thence turning and running in a southwardly direction to Slade Street, and including the premises No. 44, Sumner Street, thence turning and running in an eastwardly direction to the premises No. 17, Slade Street aforesaid. Also an area of land beginning at the rear wall of No. 350, Vauxhall Road, thence running in an eastwardly direction along the south side of Calvin Street to Sumner Street, thence turning and running in a southwardly direction along the west side of Sumner Street to Burnet Street, thence turning and running in a westwardly direction along the north side of Burlington Street to the east side of a common passage at the rear of Nos. 346 and 348, Vauxhall Road, thence turning and running in a northwardly direction to the rear wall of No. 350, Vauxhall Road aforesaid.

WHITLEY STREET AREA.

An Area on the north side of Whitley Street, beginning with and including the premises No. 3, Whitley Street, thence running in an eastwardly direction to and including the premises No. 19, Whitley Street, thence turning and running in a northwardly direction along the easterly side of the premises No. 19, Whitley Street, and Nos. 8 and 7, in No. 7 Court, Whitley Street, thence turning and running in a westwardly direction along the rear of the premises Nos. 7, 6 and 5, in No. 7 Court, Whitley Street, to the rear of the premises No. 5, in No. 6 Court, Princes Walk, thence turning and running in a northwardly direction along the rear of the premises in Nos. 6 and 5 Court, Princes Walk, and No. 6, Court, Upper William Street to Upper William Street, thence turning and running in a westwardly direction along the fronts of the premises in Upper William Street, to Gt. Howard Street, thence turning and running in a southwardly direction to and including the premises No. 98, Great Howard Street, thence turning and running in an eastwardly direction to the premises No. 3, Whitley Street, aforesaid.

WOOLTON AREA.

An area commencing on the north-west side of the premises No. 28, Vale Road, and running in a north-easterly direction along the boundary wall of the property in Rose Street, thence turning and running in an easterly direction to and including No. 6, Rose Street, thence turning and running in a south-westwardly direction along the fronts of the property Nos. 6 to 38, Rose Street to Vale Road, thence turning and running in a north-westwardly direction along Vale Road to No. 28, Vale Road aforesaid.

Also an area on the north-east side of Vale Road commencing at the north-west corner of the premises No. 22, Vale Road, thence turning and running in a north-easterly direction to the boundary wall and gardens of property known as Sunnyside, thence turning and running in a north-westwardly direction to Rose Street, thence turning and

running along the fronts of property Nos. 25 to 9, Rose Street to north-east side of passage, thence turning and running in a south-easterly direction along the north-east side of passage to and including the rear wall of No. 59, Quarry Street, thence turning and running in a north-easterly direction to the boundary wall of No. 57, Quarry Street, thence turning and running in a south-easterly direction to Rodick Street, thence turning and running in a south-westerly direction along the fronts of properties Nos. 4 to 40, Rodick Street, thence running southerly to Vale Road, thence turning and running in a north-westwardly direction in an irregular line to the premises No. 22, Vale Road, aforesaid.

Also an area commencing on the south-east side of Rodick Street to boundary wall of No. 39, Rodick Street, thence running in a north-eastwardly direction along the fronts of the property No. 39 to 1, Rodick Street to the rear wall of 53, Quarry Street, thence turning and running in a south-easterly direction along the rear wall of 53 to 47, Quarry Street, thence turning and running in a south-westerly direction along the boundary wall of the property in Rodick Street to the boundary wall to land No. 1 in 7, Court, Rodick Street, thence turning and running in a south-easterly direction along the boundary fence for a distance of about 20 yards, thence turning and running in a south-westwardly direction to the boundary wall of gas works, thence turning and running in a westwardly direction along the boundary wall of the premises No. 39, Rodick Street, aforesaid.

On 25th March, 1921, the Housing Committee resolved that the following Areas should be considered with a view to making an Improvement Scheme:—Hopwood Street, Mount Vernon View, Rankin Street, and the upper portion of Burlington Street, between Titchfield Street, Limekiln Lane, and Hornby Street and Bevington Street Areas.

It was also resolved that the undermentioned Areas should be dealt with by Closing and Demolition Orders:—Bancroft Street, Comus Street, Gomer Street, Great Richmond Street, Lawrence Street, Leeds Street, Roscoe Lane, and lower portion of Burlington Street, between Titchfield Street and Vauxhall Road.

At a meeting of the City Council on 6th April, 1921, the proceedings of the Housing Committee relative to these properties were by permission of the Council, withdrawn.

HOUSING OF THE WORKING CLASSES ACTS, 1890-1909

During the years 1916 to 1920, owing to conditions created by the war, no proceedings were taken under the Act.

In March, 1921, fifty-four houses, mainly court houses, and situated in Hopwood Street, were included in a Presentment under the Liverpool Sanitary Amendment Act, 1864.

Closing Orders were also made in November, 1921, in respect to fifty-five insanitary houses situated in the Quarry Street Area, Woolton. In several instances improvements have been commenced with a view to making the houses sanitary.

The approximate number of insanitary houses existing on January 1st, 1922 (including added areas), were as follows:—

Table 1.

Number of Courts	...	...	...	...	306
Number of Court Houses	...	...	...	...	1,653
Approximate number of Front Houses	...	...	...	...	932

Table 2.

Statement showing the total number of houses dealt with during the years 1906 to 1921 inclusive.

FRONT HOUSES.

Year.	Total No. of Houses dealt with.	Demo-lished.	Ren-dered Sanitary.	In Schemes but still Occupied.	Closed.	Occu-pied.
1906	193	133	60	—	—	—
1907	113	49	64	—	—	—
1908	46	17	29	—	—	—
1909	28	11	17	—	—	—
1910	33	33	—	—	—	—
1911	31	7	24	—	—	—
1912	87	45	—	35	7	—
1913	20	15	5	—	—	—
1914	61	50	11	—	—	—
1915	20	16	4	—	—	—
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918	—	—	—	—	—	—
1919	—	—	—	—	—	—
1920	—	—	—	—	—	—
1921	—	—	—	—	—	—
Total	632	376	214	35	7	—

COURT HOUSES.

Year.	Total No. of Houses dealt with.	Demo-lished.	Ren-dered Sanitary.	In Schemes but still Occupied.	Closed.	Occu-pied.
1906	966	865	101	—	—	—
1907	287	199	88	—	—	—
1908	274	174	100	—	—	—
1909	352	291	61	—	—	—
1910	303	228	69	—	6	—
1911	162	139	23	—	—	—
1912	595	456	4	120	15	—
1913	148	131	17	—	—	—
1914	175	162	11	—	2	—
1915	40	40	—	—	—	—
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918	—	—	—	—	—	—
1919	—	—	—	—	—	—
1920	—	—	—	—	—	—
1921	—	—	—	—	—	—
Total	3,302	2,685	474	120	23	—

During the past sixteen years 3,061 insanitary dwellings have been demolished, 30 have been closed and await demolition or re-construction, and 688 have been re-constructed and rendered sanitary, making a total for the sixteen years (excluding those still occupied) of 3,779, as follows:—

1906	...	...	...	...	...	1,159
1907	...	...	...	...	...	400
1908	...	...	...	...	...	320
1909	...	...	...	...	...	380
1910	...	...	...	...	...	336
1911	...	...	...	...	...	193
1912	...	...	...	...	...	527
1913	...	...	...	...	...	168
1914	...	...	...	...	...	236
1915	...	...	...	...	...	60
1916-17-18-19-20-21	...	...	...	...	...	—
Total						3,779

NEW DWELLINGS IN SUBURBS.

The Housing Committee have entered into contracts for the erection of the following dwelling-houses:—

	“ A ”			“ B ”		
Elms House Estate	252	...	—
Larkhill Estate	466	...	1,575
Fazakerley Estate	62	...	150
Edge Lane Drive Estate	63	...	225
Walton and Clubmoor Estate	238	...	145
Allerton	668	...	1,332
Partly developed Estate	—	...	554
Penrhyn Street	26	...	—
Mason Street	28	...	—
				1,803	...	3,981

On 16th June, 1922, of the above, 939 " A " type and 2,029 " B " type (2,968 in all) were completed and occupied; while 401 " A " type and 1,396 " B " type (1,797 in all) were in course of erection.

" A " type contains 1 Living Room and 3 Bedrooms.

" B " type contains 1 Living Room, Parlour, and 3 Bedrooms.

	" A "	" B "	Total.
Completed	939	2,029	2,968
In course of erection ...	401	1,396	1,797
	<hr/>	<hr/>	<hr/>
Total ...	1,340	3,425	4,765
Thus there are	463	556	1,019
houses not yet commenced.			

In addition to the above, 488 military huts have been converted for temporary occupation as dwellings on a site at Knotty Ash formerly used as a military camp, and all of these huts are tenanted.

WOOLTON AREA.

Plans have been approved by the City Council for the erection of 12 houses at the corner of Speke Road and School Lane, Woolton. The plans, together with the estimated cost, have been submitted to the Ministry of Health for their approval.

It is hoped that the completion of the houses on the Springwood Estate, Allerton, will greatly facilitate the fulfilment of the obligation in regard to dealing with Quarry Street, as accommodation will be provided for those who will be displaced pending the re-construction of the Quarry Street Area.

NEW DWELLINGS IN SUBURBS.

PROGRESS OF WORK 16TH JUNE, 1922.

Statement shewing:—

Number of houses in Contracts	5,784
	<hr/>
Number of houses completed and in progress	4,765
Bungalows completed	488
	<hr/>
	5,253
	<hr/>

As follows:—

Completed	...	...	...	...	...	2,968	
Roofed in	...	...	...	...	...	1,217	
First floor joists laid	...	...	...	...	...	406	
Foundations commenced	...	...	...	...	...	174	
						—	4,765
Bungalows	...	...	...	...	...	488	
						—	5,253

In occupation:—

Elms House Estate	...	...	...	252 type "A" Houses.	
Larkhill Estate	...	...	...	373	„ "A" „
do.	...	...	...	950	„ "B" „
Fazakerley Estate	...	...	...	62	„ "A" „
do.	...	...	...	150	„ "B" „
Edge Lane Drive	...	...	...	140	„ "B" „
Walton and Clubmoor	...	...	...	89	„ "A" „
do.	...	...	...	60	„ "B" „
Allerton	...	...	...	118	„ "A" „
do.	...	...	...	175	„ "B" „
Partly developed Estates	...	...	...	554	„ "B" „
Penrhyn Street	...	...	...	25	„ "A" „
Mason Street	...	...	...	20	„ "A" „
				—	
				2,968	

Knotty Ash Camp ... 488 Bungalows.

—
3,456
—

RE-HOUSING IN OLD CITY AREA.

The number of dwellings provided by the Corporation up to the present is 2,863; their situations and dates of opening are as follows:

Situation	Date Opened.	Number of Tenements.
St. Martin's Cottages	1869	124
Victoria Square	1885	270
Juvenal Dwellings	1891	101
Arley Street	{ 1897 (1902/3) }	46
Gildart's Gardens	{ 1897 1904 }	229
Dryden Street	1901	181
Kempston Street	1902	79
Kew Street	1902/3	114
Adlington Street Area	1902/3	272
Stanhope Cottages	1904	60
Mill Street	1904	55
Hornby Street	{ 1904 1906/7 }	449
Clive Street and Shelley Street	1905	84
Eldon Street	1905	12
Upper Mann Street	1905/6	87
Combermere Street	1909	49
Burlington Street	1910	114
Saltney Street	1911	48
Grafton Street	1911	60
Bevington Street Area	1912	218
Northumberland Street Area	1913	68
St. Anne Street Area	1914	72
Gore Street	1916	24
Jordan Street	1916	31
Sparling Street	1916	16
Total	—	2,863

DESCRIPTION OF TENEMENTS.

Number of 1-roomed dwellings	193
Number of 2-roomed dwellings	1,283
Number of 3-roomed dwellings	1,105
Number of 4-roomed dwellings	282
	<hr/> 2,863

Number of self-contained dwellings (included in above) 79

Number of shops 32

RENTALS.

The rentals of the tenements vary from 2s. 8d. to 9s., and those of the self-contained cottages from 9s. 2d. to 11s. 0½d. per week.

CORPORATION TENEMENTS.

VITAL STATISTICS.

Comparative Table.

RESTRICTED DWELLINGS.

	1916.		1917.		1918.		1919.		1920.		1921.	
	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.
Births	378	39.9	380	37.8	357	34.8	371	35.9	485	45.57	431	40.6
Deaths	277	29.2	226	22.5	308	30.09	220	21.3	240	22.55	206	19.003
Infantile Mortality	60	158.7 per 1,000 Births.	62	163.1 per 1,000 Births.	63	176.4 per 1,000 Births.	52	140.1 per 1,000 Births.	81	167.01 per 1,000 Births.	54	125.2 per 1,000 Births.
Deaths under 1 year												
Phthisis	21	2.2	16	1.5	23	2.2	20	1.9	22	2.06	21	1.9

Population, 1916	...	...	...	9,461
Population, 1917	...	...	...	10,027
Population, 1918	...	...	...	10,235
Population, 1919	...	...	...	10,324
Population, 1920	...	...	...	10,642
Population, 1921	...	...	...	10,840

CORPORATION TENEMENTS.

VITAL STATISTICS.

Comparative Table.

UNRESTRICTED DWELLINGS.

Population, 1916	...	...	...	1,873.
Population, 1917	...	...	...	1,870
Population, 1918	...	...	...	1,904
Population, 1919	...	...	...	1,962
Population, 1920	...	...	...	2,022
Population, 1921	...	...	...	2,030

	1916.		1917.		1918.		1919.		1920.		1921.	
	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.
Births	84	44.8	82	43.8	67	35.1	67	34.1	98	48.46	86	42.3
Deaths	50	26.6	33	17.6	50	26.2	42	21.4	39	19.28	40	19.7
Infantile Mortality	15	178.5 per 1,000 Births.	8	97.5 per 1,000 Births.	10	149.2 per 1,000 Births.	10	149.2 per 1,000 Births.	11	112.24 per 1,000 Births.	14	162.7 per 1,000 Births.
Deaths under 1 year												
Phthisis	1	0.5	2	1.0	4	2.1	4	2.03	4	1.9	6	2.9

CORPORATION TENEMENTS.

VITAL STATISTICS.

ALL DWELLINGS.

Statistics as to Birth Rate and Infantile Mortality Rate in Corporation Dwellings as a whole for the four years 1918 to 1921 :—

Year	Birth Rate per 1,000 of population.	Infantile Mortality. Deaths under 1 year per 1,000 births.
1918.....	34·9	172·1
1919.....	35·6	141·5
1920.....	46·03	157·8
1921.....	39·27	150·35

CORPORATION TENEMENTS.

ALL DWELLINGS.

Average Birth Rate for the 4 years 1918 to 1921...	39·27
Average Death Rate for the 4 years 1918 to 1921	22·91
Average Infantile Mortality Rate (under 1 year) 1918 to 1921...	150·35
Average Phthisis Death Rate for the 4 years 1918 to 1921	2·08

CELLARS.

On the 31st December, 1912, there were 1,614 cellars let as separate dwellings.

The present position in regard to these cellars is as follows:—

Number at present unoccupied	...	...	...	764
Number occupied as kitchens or wash-cellars	...			410
Number occupied as a kitchen and separately let with the front parlour	...	...	...	111
Number permanently closed	...	...	...	208
Number demolished	...	...	...	9
Number of cellars occupied as separate dwellings, 31st March, 1921	...	...	...	112

UNOCCUPIED HOUSES.

From a Report of the Chief Constable dated 10th January, 1922, it appears that the total number of unoccupied houses situated within the City for the year ending 1921 was 431. Of this number, approximately 276 are returned as being for sale, and the larger number of houses included in the return are high-rented houses situated in residential districts.

The number of unoccupied houses at rents of 5s. and under per week was 1, and over 5s. and under 8s. per week was 11, making a total of 12, all of which are insanitary.

NUMBER OF HOUSES ERECTED AND TAKEN DOWN
DURING THE YEAR ENDING DECEMBER, 1921.

DISTRICTS.						Number Erected.	Number Taken Down.
Scotland...	...	...	...	...	...	26	15
Exchange	...	...	...	...	...	—	58
Abercromby	...	...	...	...	...	—	—
Everton ...	...	...	...	...	...	—	70
Kirkdale...	...	...	...	...	...	—	1
West Derby (West)	...	...	...	...	...	12	20
Toxteth ...	...	...	...	...	...	—	5
Walton ...	...	...	...	...	...	223	—
West Derby (East)	...	...	...	...	...	973	8
Wavertree	...	...	...	...	...	18	—
Toxteth (East) ...	...	...	...	...	...	—	—
Garston ...	...	...	...	...	...	204	2
Fazakerley	...	...	...	...	...	115	1
Woolton ...	...	...	...	...	...	224	17
Totals ...						1,795	197

Of the 1,795 dwelling-houses erected during 1921, 1,758 were built under the direction of the Housing Department, these forming parts of Government assisted schemes.

The Building Surveyor has kindly furnished the following Return of Houses erected in the City:—

RETURN OF HOUSES ERECTED 1905-1921.

Annual Rental.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Under £12 ...	78	243	115	...	149	...	132	...	68	37	...	6	...	...	...	...	...
£12 to £18 ...	394	547	609	418	283	119	151	41	92	38	21	49	1	...	...	...	...
£18 to £25 ...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
£18 to £25 ...	872	1,039	1,022	1,102	1,369	1,279	768	717	537	539	337	99	16	1	...	...	1
£25 to £35 ...	638	422	444	195	191	168	109	64	43	147	83	18	2	...	...	...	...
£35 and upwards..	204	202	152	135	157	144	74	56	27	74	57	14	3	...	11	276	1,794
	2,186	2,453	2,342	1,850	2,149	1,710	1,234	878	767	835	498	186	22	1	11	276	1,795

PARLIAMENTARY POWERS.

During the year a Bill was promoted in Parliament to consolidate the local powers which had been obtained in many local Acts, and this new Act, comprising 658 sections, was entitled the Liverpool Corporation Act, 1921. The Royal Assent was given on 4th August, 1921, and the Act came into operation on 1st April, 1922.

The Act is divided into thirty-three parts, and the opportunity was taken to make application for further powers to advance the interests of the public health. Amongst other things, provision was made to meet the following needs:—

1. Registration and supervision of lying-in Homes.
2. To make Bye-laws for prohibiting the manufacture, preparation, storage, transport or exposure for sale of any article intended to be sold for food for man in such a manner as to render such article liable to infection or contamination by dust, flies, animals or offensive matter.
3. On the occasion of an outbreak of infectious disease, to prevent children assembling in Sunday Schools, Cinemas, and other places of amusement.
4. To prohibit infected persons, or persons living in houses in which there is a case of infectious disease, carrying on a business connected with food.
5. To medically examine inmates of Common Lodging-houses where infectious disease is believed to exist.
6. To extend the provisions of Section 44 of the Liverpool Corporation Act, 1902 (Street Vendors of Ice Cream, Fried Fish, to have their names pointed on side of cart, barrow or stand), to all food purveyors in streets.
7. To obtain additional powers for the cleansing of verminous parents where there is evidence of the children being found constantly verminous. This section will give the necessary power of entry, and provide a penalty in the case of obstruction.

8. To obtain additional powers to ensure that houses infested with vermin should be cleansed by the occupier or by the owner.

9. To provide that Ashbins shall be kept in good repair by owner or tenant.

10. To enable the Deputy Medical Officer of Health or other officer appointed to take proceedings to act on behalf of the Medical Officer.

11. To provide a penalty against the occupier of a house for wilful damage to the drains or water-closet, or the improper use of same.

12. To prohibit the re-letting of houses scheduled as insanitary, and to prevent the erection of undesirable buildings on the sites of insanitary property in cases where compensation has not been paid.

13. To facilitate the reconstruction, alteration, or demolition of property, which is rendered insanitary by defective arrangements of outbuildings, and which reasonably admit of improvement by structural alteration.

14. To provide that the occupier of a cowshed within the City shall be required to notify the Medical Officer of Health in the event of sickness or injury amongst the cattle when the emergency slaughter of cattle for human food has become necessary.

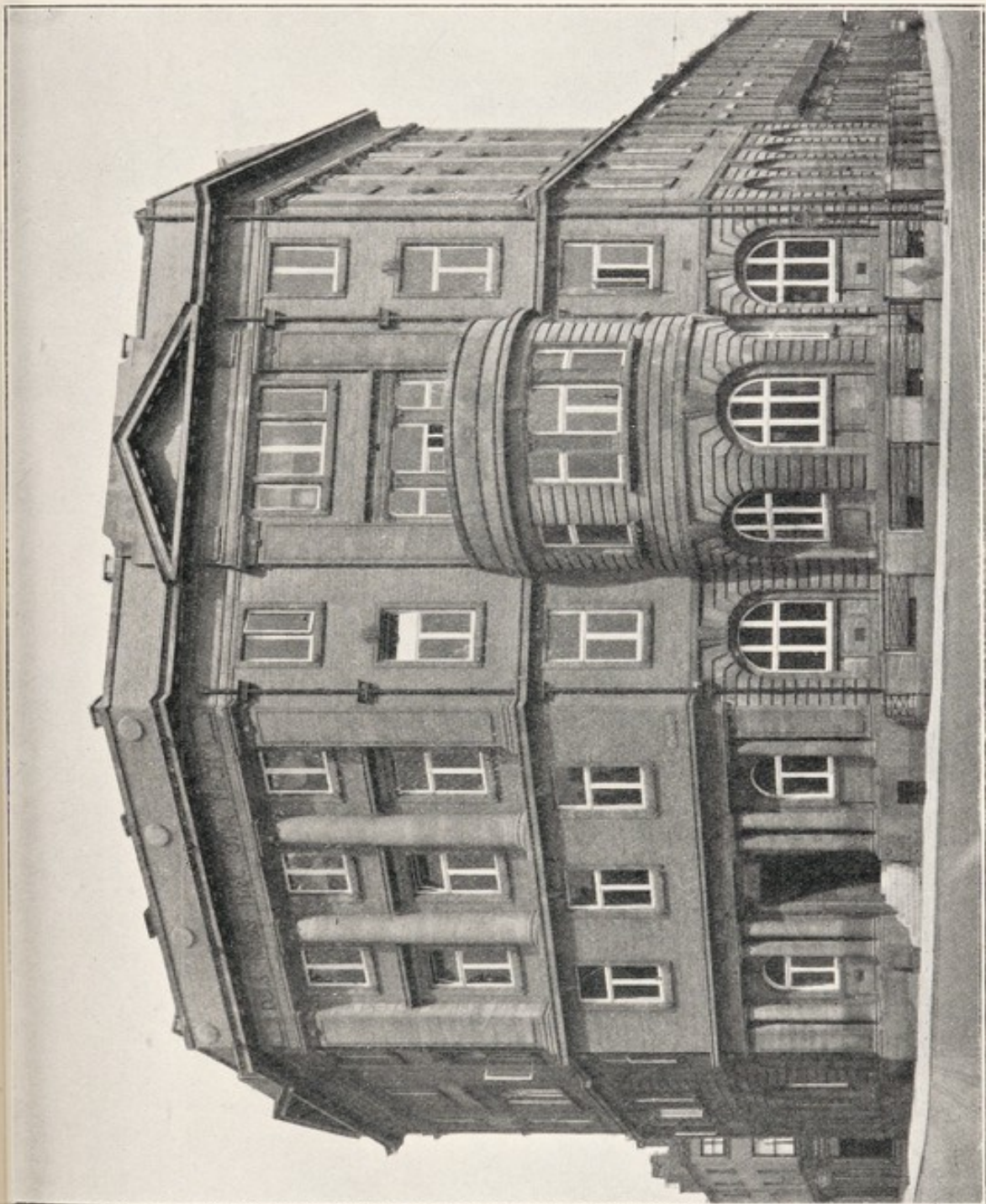
15. To provide penalty for contraventions of provisions comprised in the original Sections 47 and 48 of the Liverpool Improvement Act, 1867, relating to the inspection of premises licensed by the Health Committee.

16. To provide that in the event of the Milk and Dairies (Consolidation) Act, 1915, being repealed, all existing powers of the local Acts with regard to milk supply shall be continued.

17. To provide for the location and control of new stables.

18. To secure protection of and minimise waste of foodstuffs from contamination by dust, vermin (rats), etc., in case of premises where food is prepared and stored.

19. For the better control of Fried Fish Shops.
20. For marking specifically "Drinking" tap direct from the main in dwelling-houses, factories, workshops, offices, etc.
21. For the registration of Undertakers and the control of Private Mortuaries.



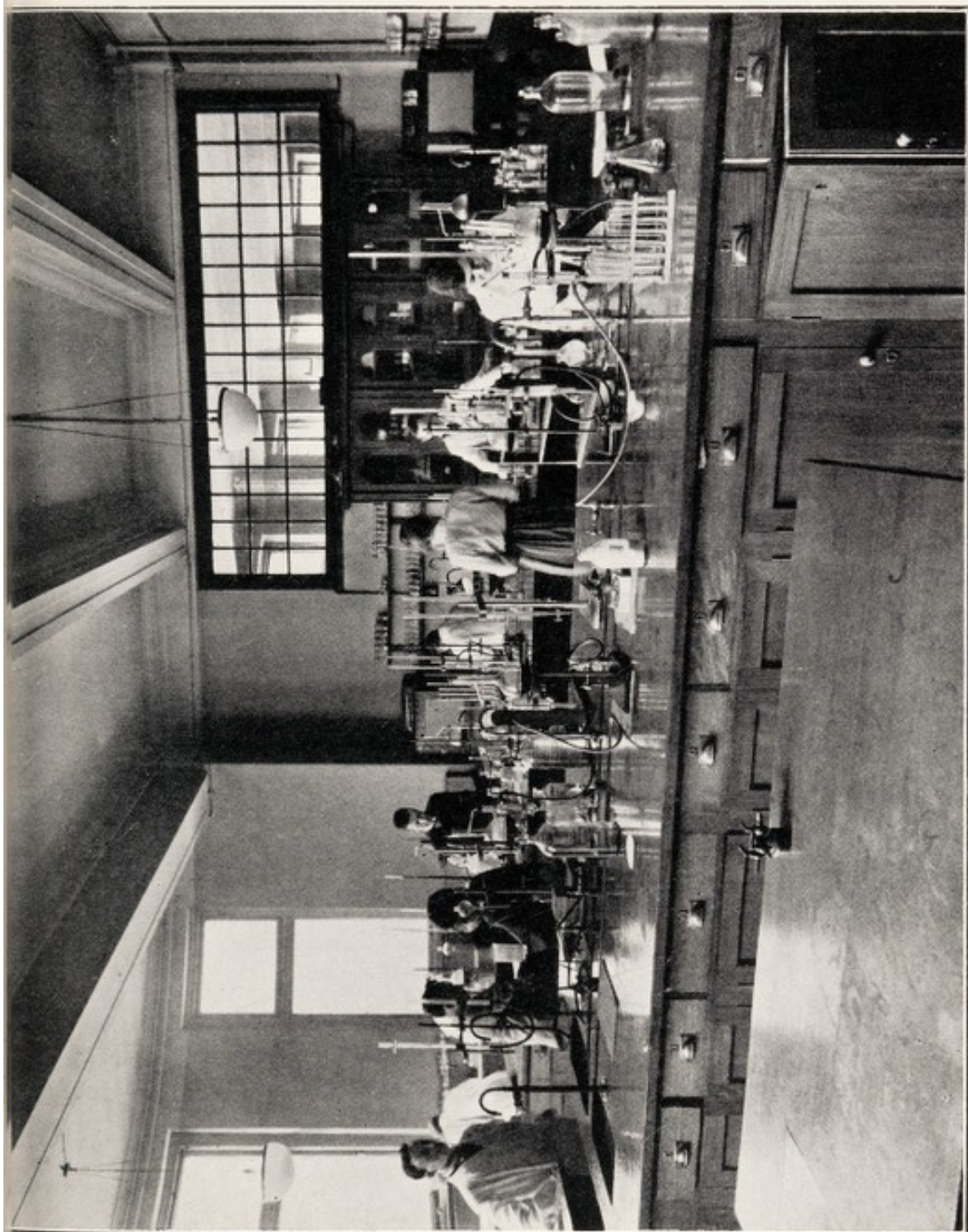
UNIVERSITY SCHOOL OF HYGIENE AND CITY LABORATORIES.—VIEW FROM MOUNT PLEASANT.





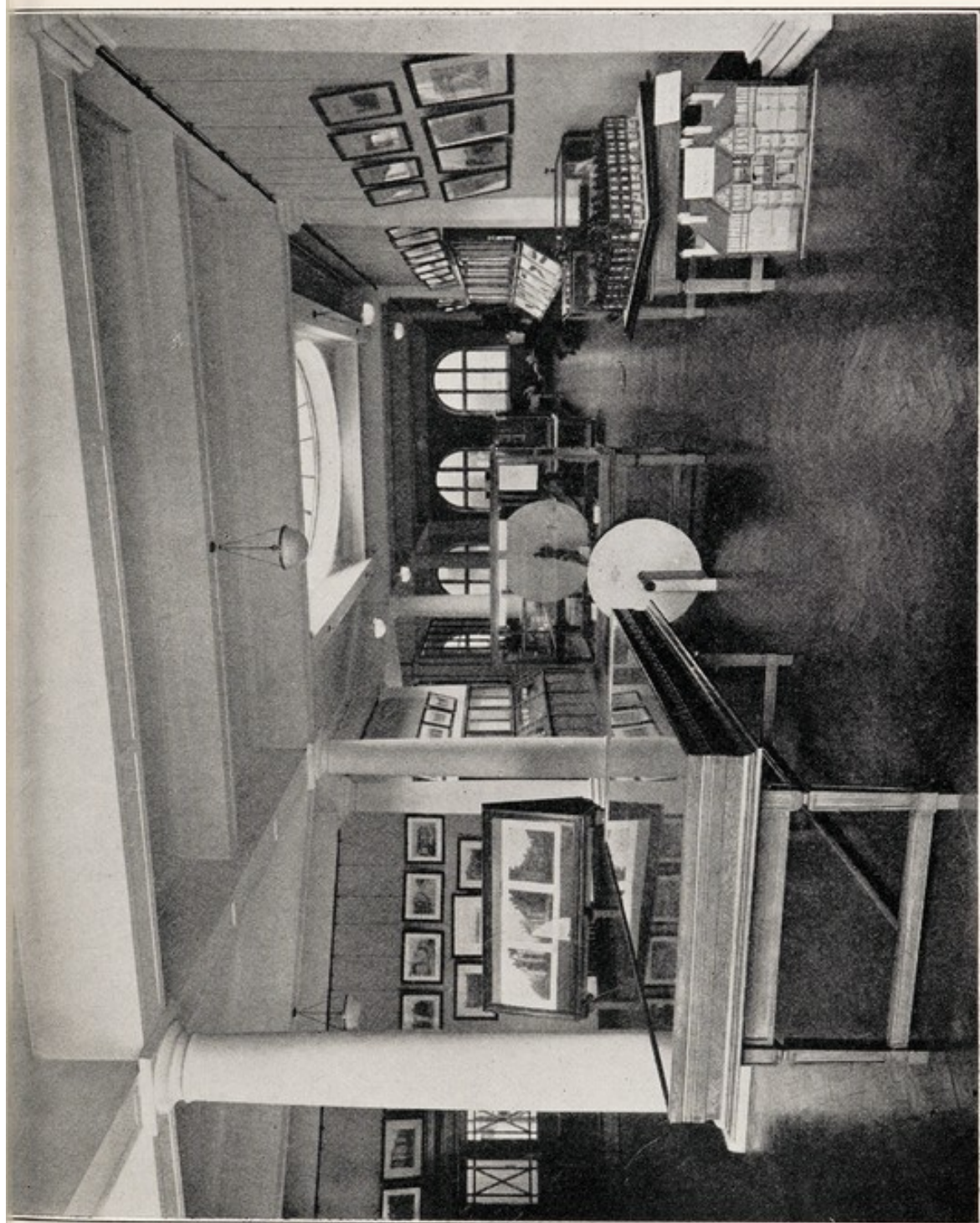
SCHOOL OF HYGIENE AND CITY LABORATORIES.—PUBLIC HEALTH LABORATORY (BACTERIOLOGY).





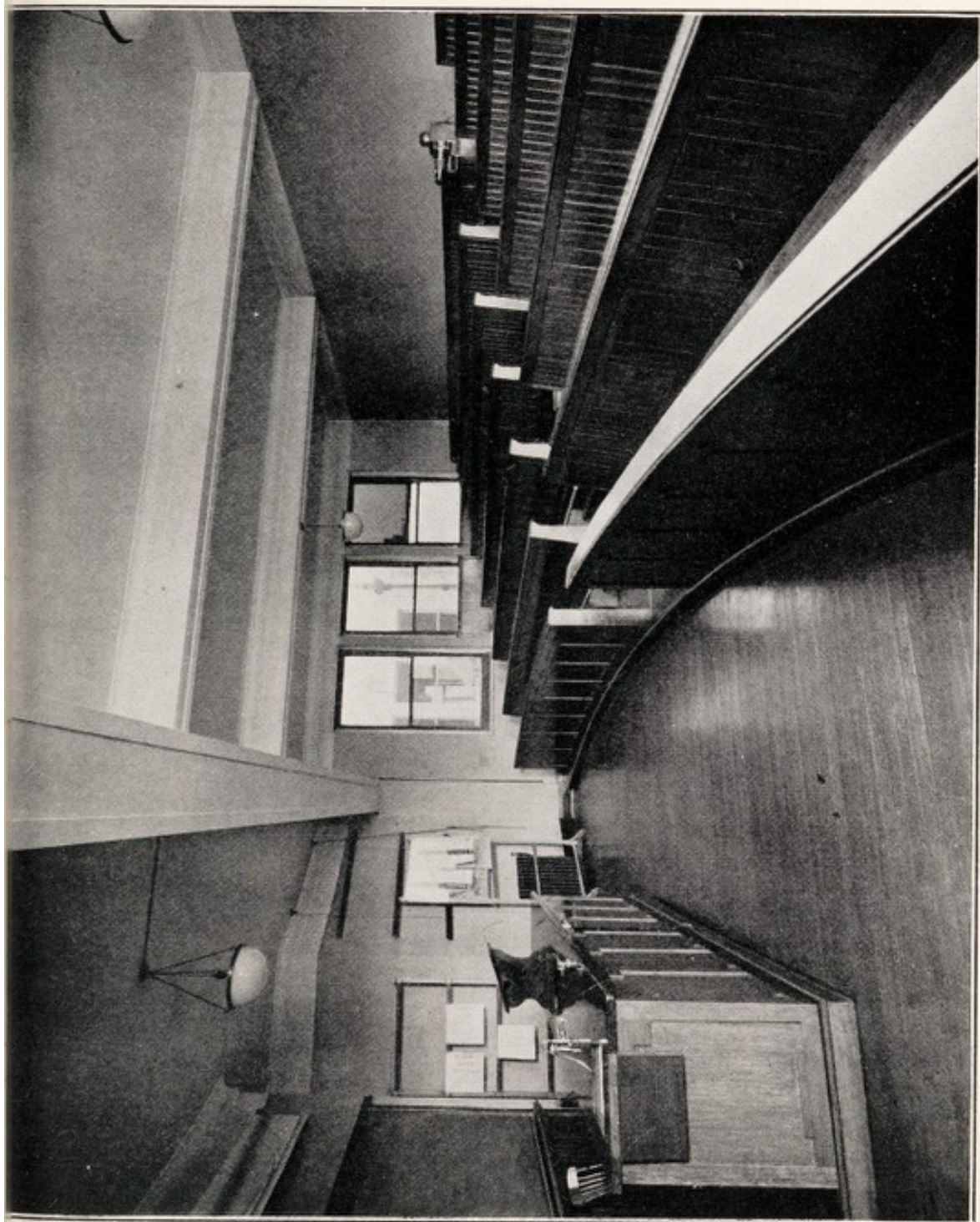
SCHOOL OF HYGIENE AND CITY LABORATORIES—CHEMICAL LABORATORY.





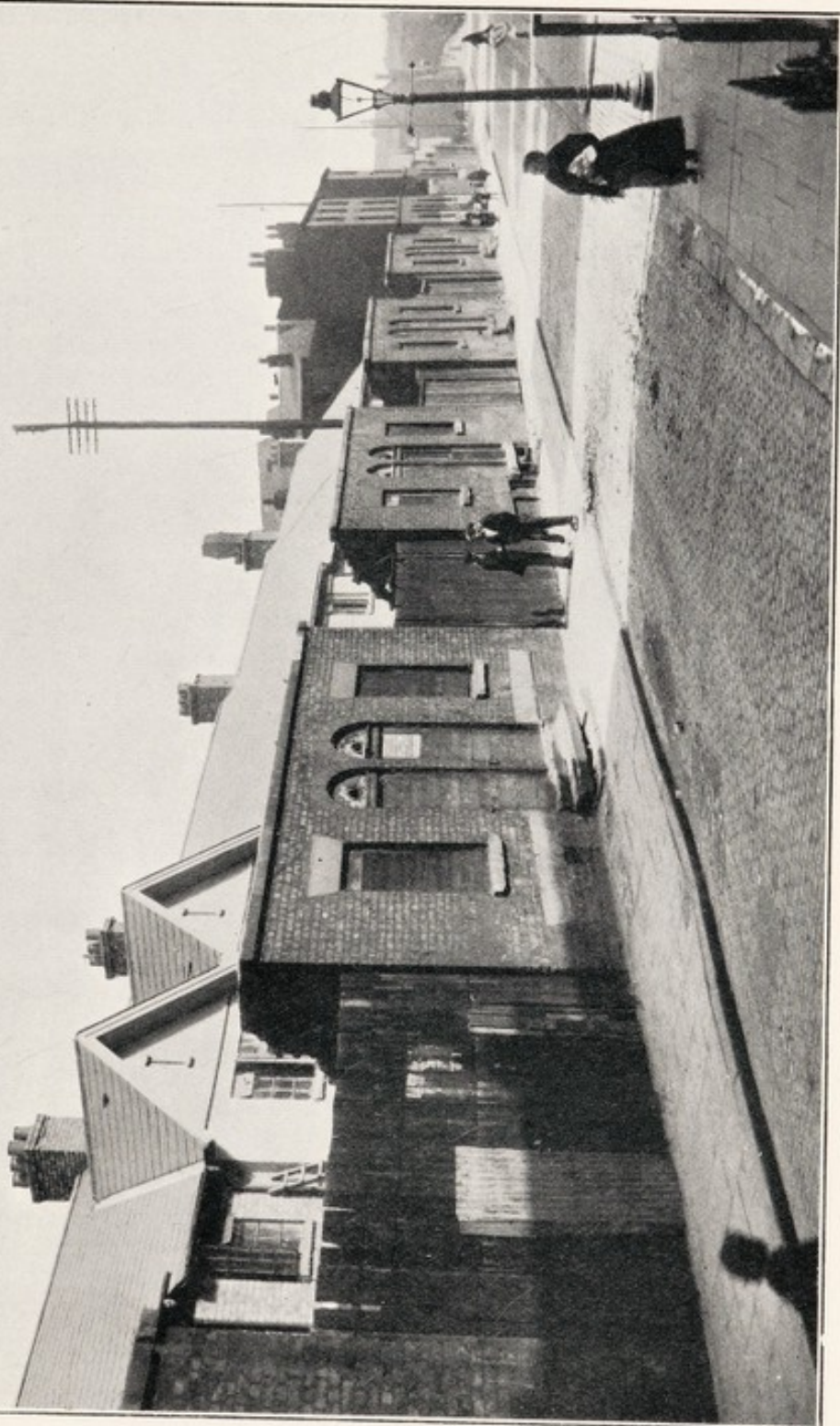
SCHOOL OF HYGIENE.—PUBLIC HEALTH EXHIBITION (South Wing).





SCHOOL OF HYGIENE.—LECTURE THEATRE.





PENRHYN STREET RE-HOUSING SCHEME.

THE OLD LINE OF BUILDING IS INDICATED IN ORDER TO SHOW THE IMPROVEMENT PROVIDED FOR BY
THE INCREASED WIDTH OF THE STREET.





PENRHYN STREET RE-HOUSING SCHEME.—SHOWS THE SETTING BACK OF THE BUILDING LINE.



A

The following tables I, II, III, IV, and marked also A, B, C, D, are prepared pursuant to an instruction of the Ministry of Health.

CITY OF LIVERPOOL.

TABLE I.

VITAL STATISTICS OF WHOLE DISTRICT DURING 1921 AND PREVIOUS YEARS.

YEAR.	Population estimated to Middle of each year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS. ‡		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.		Number.	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 year of age.		At all ages.	
			Number.	Rate.					Number.	Rate per 1000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1916.....	787188	20756	20679	26.3	14119	18.0	834	658	2421	117	13943	17.7
1917.....	793061	17931	17906	22.6	13144	16.6	804	753	2071	115	13093	16.5
1918.....	798979	17171	17133	21.4	16077	20.1	1626	816	2137	124	15267	19.1
1919.....	804948	18845	18694	23.2	13710	17.3	923	496	2055	110	13283	16.5
1920.....	810947	25172	25039	30.9	13185	16.3	739	406	2826	113	12852	15.8
1921.....	817000	21988	21904	26.8	12447	15.2	781	372	2339	107	11666	14.3

NOTES.—This Table is arranged to show the gross births and deaths registered in the district during the calendar year, and the births and deaths properly belonging to it with the corresponding rates. The rates should be calculated per 1,000 of the estimated gross population as stated in Column 2, without the use of the standardising factor for the district given in the Annual Report of the Registrar General. In a district in which large Public Institutions for the sick or infirm seriously affect the Statistics, the rates in Columns 5 and 13 may be calculated on a nett population, obtained by deducting from the estimated gross population the average number of inmates not belonging to the district in such institutions.

* In Column 6 are to be included the whole of the deaths registered during the calendar year as having actually occurred within the district, but excluding the deaths of Soldiers and Sailors that have occurred in hospitals and institutions in the district. Information as to the number and causes of such deaths should, however, be given in the text of the report. (See Table D² in Appendix.)

In Column 12 is entered the number in Column 6, corrected by subtraction of the number in Column 8 and by addition of the number in Column 9. Deaths in Column 10 are similarly corrected by subtraction of the deaths under 1, included in the number given in Column 8, and by addition of the deaths under 1 included in the number given in Column 9.

‡ "Transferable Deaths" are deaths of persons who, having a fixed or usual residence in England or Wales, die in a district other than that in which they resided. The deaths of persons without fixed or usual residence, e.g., casuals, are not included in Columns 8 or 9, except in certain instances under 3 (b) below. In Column 8 the number of transferable deaths of "non-residents" are deducted, and in Column 9 the number of deaths of "residents" registered outside the district are added in calculating the net death-rate of the district.

The following special cases arise as to Transferable Deaths:—

(1) Persons dying in Institutions for the sick or infirm, such as hospitals, lunatic asylums, workhouses, and nursing homes (but not almshouses) must be regarded as residents of the district in which they had a fixed or usual residence at the time of admission. If the person dying in an Institution had no fixed residence at the time of admission, the death is not transferable. If the patient has been directly transferred from one such institution to another, the death is transferable to the district of residence at the time of admission to the first Institution.

(2) The deaths of infants born and dying within a year of birth in an Institution to which the mother was admitted for her confinement should be referred to the district of fixed or usual residence of the parent.

(3) Deaths from violence are to be referred (a) to the district of residence, under the general rule; (b) if this district is unknown, or the deceased had no fixed abode, to the district where the accident occurred, if known; (c) failing this, to the district where death occurred, if known; and (d) failing this, to the district where the body was found.

Area of District in acres
(land and inland water) 21,219.

Total population at all ages.....803,118 } At Census
Total families or separate occupiers ...173,823 } of 1921

A

The following table, I. II. III. IV. and V. are taken from the
of the Ministry of Health.

CITY OF LIVERPOOL

TABLE I.

VITAL STATISTICS OF LIVERPOOL DISTRICT IN 1910

Year	Population estimated in Middle of each year	Deaths estimated in Middle of each year	Rate per 1,000		Deaths estimated in Middle of each year	Deaths estimated in Middle of each year
			Male	Female		
1910	472,100	17,210	36.4	31.2	17,210	17,210
1909	468,000	16,800	35.9	30.8	16,800	16,800
1908	464,000	16,400	35.3	30.4	16,400	16,400
1907	460,000	16,000	34.8	30.0	16,000	16,000
1906	456,000	15,600	34.2	29.6	15,600	15,600
1905	452,000	15,200	33.6	29.2	15,200	15,200
1904	448,000	14,800	33.0	28.8	14,800	14,800
1903	444,000	14,400	32.4	28.4	14,400	14,400
1902	440,000	14,000	31.8	28.0	14,000	14,000
1901	436,000	13,600	31.2	27.6	13,600	13,600

Notes.—This Table is arranged to show the gross birth and death rates and the birth and death rates per 1,000 of the population in the City of Liverpool. The rates per 1,000 are calculated on the basis of the population of the City of Liverpool in the middle of each year. The rates per 1,000 are calculated on the basis of the population of the City of Liverpool in the middle of each year. The rates per 1,000 are calculated on the basis of the population of the City of Liverpool in the middle of each year.

* In Column 6 are to be inserted the names of the districts in which the deaths occurred. The names of the districts are to be inserted in the middle of each year. The names of the districts are to be inserted in the middle of each year. The names of the districts are to be inserted in the middle of each year.

In Column 7 is entered the number of deaths in each district. The number of deaths in each district is entered in the middle of each year. The number of deaths in each district is entered in the middle of each year. The number of deaths in each district is entered in the middle of each year.

The "Lancashire District" and "Lancashire District" are districts of persons who have a birth or death in the Lancashire District. The "Lancashire District" is a district of persons who have a birth or death in the Lancashire District. The "Lancashire District" is a district of persons who have a birth or death in the Lancashire District.

TABLE II
CITY OF LIVERPOOL.
Cases of Infectious Disease notified during the Year 1921.

NOTIFIABLE DISEASE	NUMBER OF CASES NOTIFIED.							
	At all Ages.	At Ages—Years.						
		Under 1	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upwards.
Small-pox ... ..	...	...	...	...	...	...	...	...
Plague ... ..	...	...	...	...	...	...	...	...
Diphtheria (and Croup)	1182	36	343	573	142	77	11	...
Erysipelas	471	26	17	39	56	153	140	40
Scarlet fever	3062	22	623	2064	256	94	3	...
Typhus fever	1	...	...	...	...	1	...	...
Enteric fever	30	...	...	8	14	6	2	...
Puerperal fever	60	...	...	...	12	48	...	...
Cerebro-Spinal Fever	25	7	7	6	2	3	...	...
Poliomyelitis and Polioencephalitis	5	1	3	1	...	...	...	...
Ophthalmia Neonatorum	660	660	...	...	...	...	...	...
Pulmonary Tuberculosis	2142	11	43	344	470	787	450	37
Tuberculosis other than Pulmonary	601	12	99	288	127	59	15	1
Anthrax ... ..	...	...	...	...	...	...	...	...
Measles and German Measles	9143	477	3595	4964	65	40	2	...
Pneumonia and Influenzal Pneumonia	2007	174	568	279	260	395	242	89
Malaria	90	...	...	...	22	60	8	...
Trench Fever	1	...	...	...	...	1	...	...
Dysentery	12	...	5	3	1	2	1	...
Encephalitis Lethargica... ..	27	...	...	5	9	9	3	1
Totals	19519	1426	5303	8574	1436	1735	877	168

City Hospital North, Netherfield Road.
 " " South, Grafton Street.
 " " East, Mill Lane, Old Swan.
 " " Fazakerley Isolation.
 " " do. Annexe.
 " " Sparrow Hall, Fazakerley.
 Sanatorium, Fazakerley.
 " Park Hill.
 " Highfield.

} All within the City.

Deysbrook Hospital, West Derby. ... Outside the City.

All the above Institutions are provided by the Corporation of Liverpool.

TABLE III.
CITY OF LIVERPOOL.
Causes of, and ages at, Death during the Year 1921.
(See notes at back.)

C

Causes of Death.	NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT (a).									Total Deaths whether of "Residents" or "non-Residents" in Institutions in the District (b).
	All ages.	Under 1 year.	1 and under 2 years.	2 and under 5 years.	5 and under 15 years.	15 and under 25 years.	25 and under 45 years.	45 and under 65 years.	65 and upwards.	
1	2	3	4	5	6	7	8	9	10	11
All causes { Certified (c)	11582	2311	1018	467	476	527	1444	2646	2693	5396
{ Uncertified	84	28	2	1	4	2	2	15	30	6
1. Enteric Fever	8	—	—	—	—	5	3	—	—	6
2. Small-pox	—	—	—	—	—	—	—	—	—	—
3. Measles	328	65	171	79	13	—	—	—	—	166
4. Scarlet Fever	45	2	6	13	20	4	—	—	—	43
5. Whooping Cough	210	68	98	37	7	—	—	—	—	70
6. Diphtheria and Croup	97	12	25	26	31	1	1	1	—	87
7. Influenza	106	7	4	2	4	5	24	41	19	15
8. Erysipelas	18	7	—	—	—	1	3	4	3	15
9. Phthisis (Pulmonary Tuberculosis) ..	1048	8	15	11	53	233	438	260	30	553
10. Tuberculous Meningitis	123	22	33	22	27	13	3	3	—	74
11. Other Tuberculous Diseases	171	23	20	25	26	27	29	14	7	98
12. Cancer, malignant disease.	690	2	1	—	2	5	109	489	282	450
13. Rheumatic Fever	39	1	—	1	10	11	9	7	—	11
14. Meningitis (See note (d))	110	30	27	11	28	6	6	—	2	28
15. Organic Heart Disease	762	—	—	2	25	34	107	297	297	264
16. Bronchitis	1083	135	50	24	5	7	50	318	494	283
17. Pneumonia (all forms)	1350	317	283	99	59	48	165	214	165	560
18. Other diseases of Respiratory organs	144	9	7	11	10	4	21	43	39	42
19. Diarrhoea and Enteritis. (See note (e))	683	514	169	—	—	—	—	—	—	338
20. Appendicitis and Typhlitis	46	—	—	—	16	8	9	9	4	53
21. Cirrhosis of Liver	27	—	—	—	—	—	4	17	6	8
21a. Alcoholism	10	—	—	—	—	—	3	5	2	13
22. Nephritis and Bright's Disease	289	4	1	3	11	7	45	140	78	143
23. Puerperal Fever	34	—	—	—	—	4	30	—	—	34
24. Other accidents and diseases of Pregnancy and Parturition	46	—	—	—	—	7	37	2	—	43
25. Congenital Debility and Malformation, including Premature Birth	824	782	31	8	3	—	—	—	—	293
26. Violent Deaths, excluding Suicide ...	311	20	18	29	44	30	48	68	54	182
27. Suicide	58	—	—	—	—	4	14	31	9	16
28. Other Defined Diseases	2782	309	60	65	84	65	287	689	1223	1510
29. Diseases, ill-defined or unknown	24	2	1	—	2	—	1	9	9	4
Totals	11666	2339	1020	468	480	529	1446	2661	2723	5402
Sub-Entries included in above figures—										
Cerebro-Spinal Meningitis	19	6	5	1	4	1	2	—	—	18
Poliomyelitis	4	1	—	—	3	—	—	—	—	—
*Trench Fever	1	—	—	—	—	—	1	—	—	1
*Anthrax	—	—	—	—	—	—	—	—	—	—
*Pneumonia	593	43	49	26	35	38	137	167	98	259

* Sub-Entries should here be made for other deaths which it is desirable to distinguish, on account of their administrative importance or special interest (e.g. any deaths from Anthrax, Typhus or Glanders, which have been included under 28, Other Defined Diseases; or deaths from pneumonia other than broncho pneumonia which have been included under 17, Pneumonia all forms).

NOTES TO TABLE III.

The classification and numbering of Causes of Death are those of the "Short List" on page XXV. of the Manual of the International List of Causes of Death, which has been consulted and followed in all cases of doubt.

- (a) All "Transferable Deaths" of residents, *i.e.*, of persons resident in the District who have died outside it, are *included* with the other deaths in Columns 2-10. Transferable deaths of non-residents, *i.e.*, of persons resident elsewhere in England and Wales who have died in the District, are in like manner *excluded* from these columns. For the precise meaning of the term "transferable deaths" see footnote to Table I.

The total deaths in Column 2 of Table III. equal the figures for the year in Column 12 of Table I.

- (b) All deaths occurring in institutions for the sick and infirm situated within the district, whether of residents or of non-residents, are entered in the last column of Table III.
- (c) All deaths certified by registered Medical Practitioners and all Inquest cases are classed as "Certified"; all other deaths are regarded as "Uncertified."
- (d) Exclusive of "Tuberculous Meningitis" (10), but inclusive of Cerebro-Spinal Meningitis.
- (e) Title 19 has been used for deaths from Diarrhoea and Enteritis of children under 2 years of age. (In the "Short List" deaths from Diarrhoea, and Enteritis under 2 years are included under Title 19; those at 2 years and over being placed under Title 28.)

TABLE IV.
CITY OF LIVERPOOL.

INFANT MORTALITY DURING THE YEAR 1921.

Nett Deaths from stated Causes at various Ages under One Year of Age.

(See Note (a) at back).

CAUSE OF DEATH.						Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks and under 3 Months.	3 Months and under 6 Months.	6 Months and under 9 Months.	9 Months and under 12 Months.	Total Deaths under One Year.
All Causes.	Certified	...	...	...	...	472	107	83	75	737	388	467	384	335	2311
	Uncertified	...	...	...	...	20	—	1	—	21	—	4	2	1	28
Small-pox	...	...	...	...	...	—	—	—	—	—	—	—	—	—	—
Chicken-pox	...	...	...	...	...	—	—	—	—	—	—	2	2	—	4
Measles	...	...	...	...	...	—	—	—	1	1	2	8	25	29	65
Scarlet Fever	...	...	...	...	...	—	—	—	—	—	—	—	1	1	2
Whooping Cough	...	...	...	...	...	—	—	1	—	1	12	9	21	25	68
Diphtheria and Croup	...	...	...	...	...	—	—	—	—	—	—	3	1	8	12
Influenza	...	...	...	...	...	1	—	1	—	2	—	2	3	—	7
Erysipelas	...	...	...	...	...	—	—	—	—	—	4	1	1	1	7
Tuberculous Meningitis	...	...	...	...	...	—	—	—	—	—	2	5	10	5	22
Abdominal Tuberculosis (b)	...	...	...	...	...	—	—	—	—	—	3	5	4	5	17
Other Tuberculous Diseases	...	...	...	...	...	—	—	—	—	—	1	3	1	1	6
Meningitis (not Tuberculous)	...	...	...	...	...	—	—	—	2	2	3	7	6	6	24
Convulsions	...	...	...	...	...	18	12	9	7	46	21	15	14	11	107
Laryngitis	...	...	...	...	...	—	—	—	—	—	—	1	—	—	1
Bronchitis	...	...	...	...	...	1	3	7	3	14	35	31	29	26	135
Pneumonia (all forms)	...	...	...	...	...	7	3	1	6	17	47	76	81	96	317
Diarrhoea	...	...	...	...	...	1	6	4	4	15	49	123	70	52	309
Enteritis	...	...	...	...	...	—	—	3	8	11	54	58	55	27	205
Gastritis	...	...	...	...	...	1	2	—	2	5	8	7	6	2	28
Syphilis	...	...	...	...	...	2	2	5	5	14	13	9	3	2	41
Rickets	...	...	...	...	...	—	—	—	—	—	—	1	1	2	4
Suffocation, overlying	...	...	...	...	...	2	—	2	—	4	6	2	—	—	12
Injury at Birth	...	...	...	...	...	14	—	—	1	15	—	—	—	—	15
Atelectasis	...	...	...	...	...	41	1	—	—	42	4	—	—	—	46
Congenital Malformations (c)	...	...	...	...	...	37	5	4	7	53	9	9	4	3	78
Premature Birth	...	...	...	...	...	320	50	29	15	414	26	5	1	1	447
Atrophy, Debility and Marasmus...	...	...	...	...	...	29	19	11	12	71	81	70	26	9	257
Other Causes	...	...	...	...	...	18	4	7	2	31	8	19	21	24	103
						492	107	84	75	758	388	471	386	336	2339

Nett Births in the year { Legitimate ... 21,076
Illegitimate ... 828

Nett Deaths in the year of { Legitimate Infants 2,112
Illegitimate Infants 227

NOTES TO TABLE IV.

(a) The total in the last column of Table IV. should equal the total in column 10 of Table I., and in column 3 of Table III.

(b) Under Abdominal Tuberculosis are to be included deaths from Tuberculous Peritonitis and Enteritis and from Tabes Mesenterica.

(c) The total deaths from Congenital Malformations, Premature Birth, Atrophy, Debility and Marasmus, should equal the total in Table III. under the heading Congenital Debility and Malformation, including Premature Birth.

Want of Breast Milk is included under Atrophy and Debility.

(d) For references to the meaning of any other headings, see notes attached to Table III.

In recording the facts under the various headings of Tables I, II., III. and IV., attention has been drawn to the notes on the Tables.

FAZAKERLEY

B.R. 16'2
D.R. 9'7
I.M. 90
Pop. 3'6

WEST DERBY—EAST

B.R. 24'2
D.R. 11'6
I.M. 79
Pop. 26'4

WOOLTON

B.R. 16'0
D.R. 9'1
I.M. 91
Pop. 2'1

WAVERTREE

B.R. 20'7
D.R. 10'5
I.M. 74
Pop. 24'7

WALTON

B.R. 20'3
D.R. 11'3
I.M. 80
Pop. 44'5

WEST DERBY-WEST

B.R. 28.1
D.R. 14.1
I.M. 103
Pop. 138.0

TOXTETH--EAST

B.R. 17·7
D.R. 9·8
I.M. 79
Pop. 26·8

GARSTON

B.R. 23'2
D.R. 10'7
I.M. 80
Pop. 18'3

EVERTON

B.R. 30'8
D.R. 16'2
I.M. 121
Pop. 185'5

KIRKDALE

B.R. 27.5
D.R. 14.3
I.M. 113
Pop. 102.4

ABERCROMBY

B.R. 26.2
D.R. 16.7
I.M. 103
Pcp. 67.5

TOXTETH

B.R. 29.2
D.R. 14.5
I.M. 103
Pop. 134.8

SCOTLAND EXCHANGE

B.R. 36.5
D.R. 19.9
I.M. 133
Pop. 117.7

B.R. 32.0
D.R. 23.9
I.M. 183
Pop. 76.1

1921.

Population 817,000.

Birth Rate for whole City	-	-	-	268
Death " " " "	-	-	-	143
Infantile Death Rate per 1000 Births	-	-	-	107
Population per acre, whole City	-	-	-	40.1

Diagram showing Birth Rate (B.R.)
 and Death Rate (D.R.)
 and number of deaths
 (M) out of every
 1000 including
 and Open
 Spaces (P)

LIVERPOOL

In cases of
 death
 City
 during
 1921.

OLD DUTY
 FOLDS



DEATHS REGISTERED IN THE CITY OF LIVERPOOL.
DURING THE YEAR 1921.

CAUSE OF DEATH	SEX	AGE-BELOW	AGE-BELOW										DISEASES										PUBLIC INSTRUCTIONS										Total	Per 1,000																																																																	
			AGE-BELOW										DISEASES										PUBLIC INSTRUCTIONS																																																																												
			AGE-BELOW										DISEASES										PUBLIC INSTRUCTIONS																																																																												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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