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PUBLIC HEALTH DEPARTMENT.

REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING THE YEAR

1933

BY

W. M. FRAZER, M.D., Ch.B., M.Sc., D.P.H. Barrister-at-Law.

Medical Officer of Health.

LIVERPOOL.

C. Tinling & Co., Ltd., Printing Contractors, 53, Victoria Street

1934.

Staff of the Public Health Department.

1933.

Medical Officer of Health :

W. M. FRAZER, M.D., M.Sc., D.P.H., Barrister-at-Law.

Deputy Medical Officer of Health :

W. HANNA, M.A., M.D., D.P.H. (to June 19).

C. O. STALLYBRASS, M.D., B.S., M.R.C.S., L.R.C.P., D.P.H. (from June 19).

Senior Assistant Medical Officer of Health :

C. O. STALLYBRASS, M.D., B.S., M.R.C.S., L.R.C.P., D.P.H. (to June 19).

B. T. J. GLOVER, M.D., Ch.B., D.P.H. (from June 19).

Assistant Medical Officer of Health :

B. T. J. GLOVER, M.D., Ch.B., D.P.H. (to June 19).

T. R. ROBERTON, M.B., Ch.B., D.P.H. (from June 19).

Maternity and Child Welfare.

Assistant Medical Officer of Health and Inspector of Midwives : RUBY E. BELL, M.B., Ch.B., M.R.C.S., L.R.C.P., D.P.H.
Twenty-nine part-time Clinic Medical Officers.
Eighty-nine Health Visitors, etc.
Seventeen Probationer Health Visitors.
Three Assistants to Inspector of Midwives.
Two Ophthalmia Neonatorum Nurses.
Superintendent and Forty-five Assistants at Infant Milk Centres
Seven Assistants at Cleansing Stations.

Day Nurseries, Maternity Home and Carnegie Welfare Centre.

Six Matrons.
Ten Deputy Matrons and Sisters.
Thirty Nurses and Probationers.
Forty-seven Domestic Staff.

Tuberculosis.

Chief Assistant Tuberculosis Officer : J. P. CLARKE, M.R.C.S., L.R.C.P., D.P.H.
Assistant Tuberculosis Officers at Institutes : W. H. BUTLER, M.C., M.B., Ch.B., M.R.C.S., L.R.C.P., D.P.H.
R. JACKSON, M.R.C.S., L.R.C.P., D.P.H.
J. A. RUSHWORTH, M.R.C.S., L.R.C.P., D.P.H.
Seven Nurses at Tuberculosis Institutes.

Venereal Diseases.

Senior Medical Officer: A. O. ROSS, M.D., Ch.B., D.P.H. (part-time).
Assistant Medical Officers at Seamen's Dispensary: E. E. PREBBLE, M.B., Ch.B., M.R.C.S., L.R.C.P. (part time).
E. T. BAKER-BATES, M.D., M.R.C.P. (Lond.) (part time).
Four Medical Orderlies.

Infectious Disease Hospitals, and Sanatoria.

Fazakerley Hospitals.

Medical Superintendent: C. RUNDLE, M.D., M.R.C.S., L.R.C.P., D.P.H.
Senior Resident Medical Officer: A. E. HODGSON, M.D., Ch.B., D.P.H.
Assistant Resident Medical Officers: C. ABERNETHY, M.B., Ch.B., D.P.H.
L. DENIL, M.B., Ch.B., D.P.H.
E. A. BURNS, M.D., B.Ch., B.A.O.

City Hospital, North.

Visiting Physician: R. I. RICHARDSON, M.B., C.M., J.P.
Resident Medical Officer: E. D. IRVINE, M.D., M.R.C.S., L.R.C.P., D.P.H. (to Jan. 31).
J. H. F. PANKHURST, M.B., B.S., B.H., D.P.H. (from April 1 to Oct. 26).
P. P. FOX, M.B., Ch.B., D.P.H. (from Oct. 26).

City Hospital, South.

Visiting Physician: H. A. CLARKE, M.A., M.D., M.Ch. (to April 30).
C. O. STALLYBRASS, M.D., B.S., M.R.C.S., L.R.C.P., D.P.H. (from May 1).
Resident Medical Officer: RITA HENRY, M.B., Ch.B., B.A.O. (to Oct. 1).
M. E. BIRCH, M.B., Ch.B. (from Oct. 2).

City Hospital, East.

Visiting Physician: H. A. CLARKE, M.A., M.D., M.Ch. (to April 30).
C. O. STALLYBRASS, M.D., B.S., M.R.C.S., L.R.C.P., D.P.H. (from May 1).
Resident Medical Officer: FRANCES WEIGHTMAN, M.B., Ch.B., D.P.H.

Fazakerley Sanatorium.

Medical Superintendent: C. RUNDLE, M.D., M.R.C.S., L.R.C.P., D.P.H.
Senior Resident Medical Officer: W. CRANE, M.D., B.Ch., B.A.O., D.P.H.
Resident Medical Officers: B. G. ELLIOTT, L.R.C.P., L.R.C.S.
W. A. DAVIES, M.B., Ch.B., M.R.C.S., L.R.C.P. (to June 5).
D. T. LEWIS, M.R.C.S., L.R.C.P. (from June 5).

Broad Green Sanatorium.

Medical Superintendent: O. F. THOMAS, M.R.C.P., D.P.H.
Senior Resident Medical Officer: A. J. WALSH, M.B., Ch.B., D.P.H.
Assistant Resident Medical Officer: MARGARET FERRIER, M.B., Ch.B.
Assistant Resident Medical Officer: P. P. FOX, M.B., Ch.B., D.P.H. (to Oct. 25).
J. A. JONES, M.B., Ch.B. (from Dec. 7).

Transferred Hospitals and Institutions.

Walton Hospital.

Master: C. A. W. ROBERTS, M.B.E.
Medical Officer: H. H. MacWILLIAM, B.A., M.B., B.Ch., B.A.O., D.P.H.
Matron: Mrs. M. M. ROBERTS, M.B.E.
One Deputy Medical Officer.
Two Senior Resident Assistant Medical Officers.
Nine Junior Resident Assistant Medical Officers (appointed for 1 year).

Mill Road Infirmary.

Medical Superintendent: R. T. BAILEY, M.B.E., M.R.C.S., L.R.C.P. (Died Aug. 5).
H. CARTER, M.B., Ch.B., F.R.C.S. (from Oct. 2).
Matron: Miss G. RIDING.
One Senior Resident Assistant Medical Officer.
Five Junior Resident Assistant Medical Officers (appointed for 1 year).

Smithdown Road Hospital.

Medical Superintendent: J. P. STEEL, M.D.
Matron: Miss F. M. BROWN.
One Deputy Medical Superintendent.
One Senior Resident Assistant Medical Officer.
Five Junior Resident Assistant Medical Officers (appointed for 1 year).

Alder Hey Hospital.

Medical Superintendent: W. E. CROSBIE, M.B., B.S., B.A.O., D.P.H.
Matron: Miss M. CAVILL.
One Senior Resident Assistant Medical Officer.
Five Junior Resident Assistant Medical Officers (appointed for 1 year).

Belmont Road Institution.

Acting Master: Mrs. M. E. CARR.
Visiting Medical Officer: D. G. HENRY, M.B., B.Ch.
One Assistant Medical Officer.

Olive Mount Children's Hospital.

Matron: Miss A. B. HARDY.
Visiting Medical Officer: D. P. H. GARDINER, M.B., B.Ch., B.A.O., R.U.I. (to Oct. 31).
Resident Assistant Medical Officer: RITA HENRY, M.B., Ch.B., B.A.O. (from Nov. 1)

Cleaver Sanatorium.

Matron: Miss D. KELSALL.
Visiting Medical Officer: J. B. YEOMAN, M.D., C.M., F.R.C.S., D.P.H.

Kirkdale Homes.

Master: N. HUGHES.
Visiting Medical Officer: T. J. MARNER, M.B., B.Ch., B.A.O.

Fazakerley Cottage Homes.

Superintendent and Head Master: R. J. FROOM, B.A.
Visiting Medical Officer: R. I. GREENSHIELDS, M.B., B.Ch.

Seafield House.

Superintendent: A. ARMITAGE.
Visiting Medical Officer: T. D. WILLIAMS, M.B., B.S.

Working Boys' Home.

Superintendent: J. T. D. LEWIS.

Vaccination Officers.

No. 1 District: R. R. RENDELL.
No. 2 District: S. E. REDMOND.
No. 3 District: J. C. HOWARTH.
No. 4 District: R. JACKSON.

Sanitary Staff.

Chief Sanitary Inspector: D. B. COWDEN.
Deputy Chief Sanitary Inspector: W. PARKER,
Fifty-three Sanitary Inspectors.
Nine Inspectors of Lodging and Sub-let Houses.
Four Factory and Workshop Inspectors.
Three Shops Act Inspectors.
One Canal Boat Inspector.
Eleven Ratcatchers.

Smoke Inspectors.

Chief Smoke Inspector: C. M. OPIE.
Two Assistant Smoke Inspectors.

Food Inspection.

Chief Food Inspector: J. D. ALLAN.
Ten Food Inspectors.
Chief Inspector Food and Drugs: A. GLEAVE.
Three Inspectors.
Inspectors of Dairies and Cowsheds: A. M. DEARN (to Oct. 31)
D. THOMAS.

Ambulance and Disinfecting Staff.

Chief Inspector: H. CORBRIDGE.
Deputy Chief Inspector: T. C. CAMPSIE.
Six Inspectors.
Eleven Motor Ambulance Drivers.
Two Inspectors in charge of Disinfecting Stations.
Thirty-two Workmen.
Three Mortuary Attendants.

Chief Clerk, Public Health Department: J. McCOY.
Senior Clerk, Hospitals and Institutions: B. S. BENNETT.

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APPENDICES.

Public Health Department,
Municipal Annexe,
Dale Street, Liverpool, 2.

June, 1934.

My Lord Mayor, Ladies and Gentlemen,

I have the honour to submit to you herewith my third Annual Report, relating to the health of the City of Liverpool during the year 1933.

I desire to acknowledge figures and information for inclusion in the Report from the Town Clerk, the City Treasurer, the City Engineer, the City Analyst, the City Bacteriologist, the City Building Surveyor, the Director of Housing and the Chief Veterinary Officer. I am also indebted to the Chief Officers of the City Hospitals, Sanatoria and Institutions for reports and statistics received, as well as to the officers of the voluntary hospitals and various charitable institutions and others who have supplied valuable information for inclusion in the Report.

A perusal of the information from such diverse sources, scattered throughout the following pages, affords a good indication of the co-operation which exists between the Corporation's Public Health Department and the many other agencies, official and voluntary, in the City which affect, directly or indirectly, the health of the community and the individual.

Any survey of the health of a sanitary district such as is contained in the present Report should commence with a discussion of the total population in the area and the birth-rates and death-rates, since such figures prescribe the extent of the authority's Public Health activities and provide an indication of the major problems which require consideration. Commencing, therefore, with the salient vital statistics of the City we find that in 1933 the estimated mid-year population was 866,013 as compared with 861,935 in 1932, i.e., an increase of 4,078. The total number of births was 16,929, giving a birth-rate per 1,000 of the population of 19·5 as contrasted with a figure of 21·0 for the previous year. The total number of deaths from all causes was 12,444, giving a general death-rate of 14·4 as compared with 13·2 in 1932.

Infantile mortality showed a rate of 98 per 1,000 births, as contrasted with the previous year's rate of 91. Such are the salient vital statistics for the year 1933 and, apart from comparisons with previous years, certain comments may be made on the figures just supplied. In the first place it is evident that the population of Liverpool, already a very large one, is increasing gradually year by year largely as a result of the excess of births over deaths. The effects of emigration, and of immigration into Liverpool, both from other parts of this country and from abroad, are not known with any degree of accuracy, but as far as the year 1933 is concerned it would appear that slightly more people are leaving the City than entering it, if the estimates of population are to be believed, since the increase of population is somewhat less than the excess of births over deaths. The birth-rate was, in the year under review, 19·5 as compared with 21·0 for 1932, and is the lowest rate which has occurred in the history of Liverpool, being even smaller than during any of the War years. This large drop in the birth-rate, if continued, will prove of wide significance to the social history of the City, especially as it has occurred in a district the birth-rate of which is one of the highest in the country, and has for many years been nearly fifty per cent. greater than the average for England and Wales.

An infantile mortality rate of 98, which is larger than that occurring in the previous year, may be partially ascribed to the hot and exceptionally dry summer of 1933, which led to an increase in the number of cases of epidemic diarrhœa.

The number of deaths from cancer is increasing year by year, and in the year under review reached the heavy rate of 1·43 per thousand of the population. It is to be noted that this increase, which has now been going on for many years, has occurred mainly amongst males, and is most marked in the later years of life. It is not to be explained entirely by the increased average age of the population, although this is evidently an important factor, nor by improved methods of diagnosis which vary but little in efficiency from one year to the next, but is a real increase affecting especially the stomach and other internal organs. In view of the marked tendency to a greater average age of the population arising from a lessening birth-rate and lowered death-rate it appears inevitable that the vital statistics of the country as a

whole will have to record in future years a gradual increase in the proportion of deaths due to this disease unless some means of prevention shall be discovered in the meantime.

A forward step of the greatest importance from the Public Health point of view was taken in September when a report was presented to the Housing Committee by the Medical Officer of Health, under the Ministry of Health's Circular 1331, giving in detail the results of a survey of all insanitary property within the City, and by the Director of Housing suggesting measures of rehousing whereby, within a limited period, all slum property in the area should be demolished and the displaced inhabitants accommodated in sanitary dwellings. The report of the Medical Officer of Health is contained in the present Annual Report (pp. 248-264), from which it will be observed that 13,069 houses were recommended for demolition within the period of the scheme which has now been fixed by agreement with the Ministry of Health at eight years, viz., an average of 1,633 houses to be demolished and the inhabitants re-housed per year. The Director of Housing, assuming the population to be re-housed as 63,710, has estimated that the number of dwellings to be erected for the accommodation of this population will be 15,692. This is a large but not overwhelming programme which should be completed within the stipulated period of eight years on the assumption that legal delays do not hinder the progress of the work of demolition. Between November, 1933, and up to the time of writing, representations have been made by the Medical Officer of Health in respect of approximately 1,178 houses.

Organisation of the hospitals and institutions transferred to the Corporation by the Local Government Act of 1929 is still proceeding and, during the year, much has been done in the direction of equipping and staffing the various units of the hospitals' service for the important and ever-increasing work they are being called upon to perform. Improvements made to the hospitals' system have added materially to the efficiency of the service and by reducing markedly the average duration of stay in hospital large economies in the costs of administration have been effected. As a result, an increased number of patients to the extent of about ten per cent. above the previous year has been accommodated without additional cost to the rates. One question which should receive consideration is that of a further degree

of co-operation with the voluntary hospitals. Up to the present time the energies of the Port Sanitary and Hospitals Committee have been rightly devoted to the re-organisation and development of the hospitals and institutions under their charge; but as these efforts have now been crowned with a large measure of success the time is now opportune to consider whether the medical services provided for the community both by the municipality and by charitable sources could not be rendered even more efficient by a closer understanding and by wider co-operation. In Liverpool the total number of voluntary hospital beds, for all purposes including maternity, is 1,995, mainly used for acute—as opposed to chronic—medical and surgical diseases. The turnover of cases is very large, and the standard of efficiency of diagnosis and treatment at all these hospitals is an exceptionally high one. The beds provided by the voluntary hospitals, therefore, play a more important part than their total numbers would indicate, in the medical services of the City.

A perusal of the pages of the present Report will suffice to indicate the large amount of work performed yearly by the Corporation's health services. The volume of work here described could not have reached its present standard of usefulness were it not for the high ideals of duty which animate the medical, inspectorial, nursing and clerical staffs of the Department, and I wish to acknowledge, in cordial terms, my great appreciation of their co-operation with me during the past year.

I would also like to be permitted to express my warm thanks to the Chairmen and members of the Corporation Committees concerned with the Public Health Department for the courtesy and kindness with which they have considered the various suggestions and recommendations made to them.

I am,

Your obedient Servant,

W. M. FRAZER,

Medical Officer of Health.

VITAL STATISTICS.

CITY OF LIVERPOOL.

SUMMARY

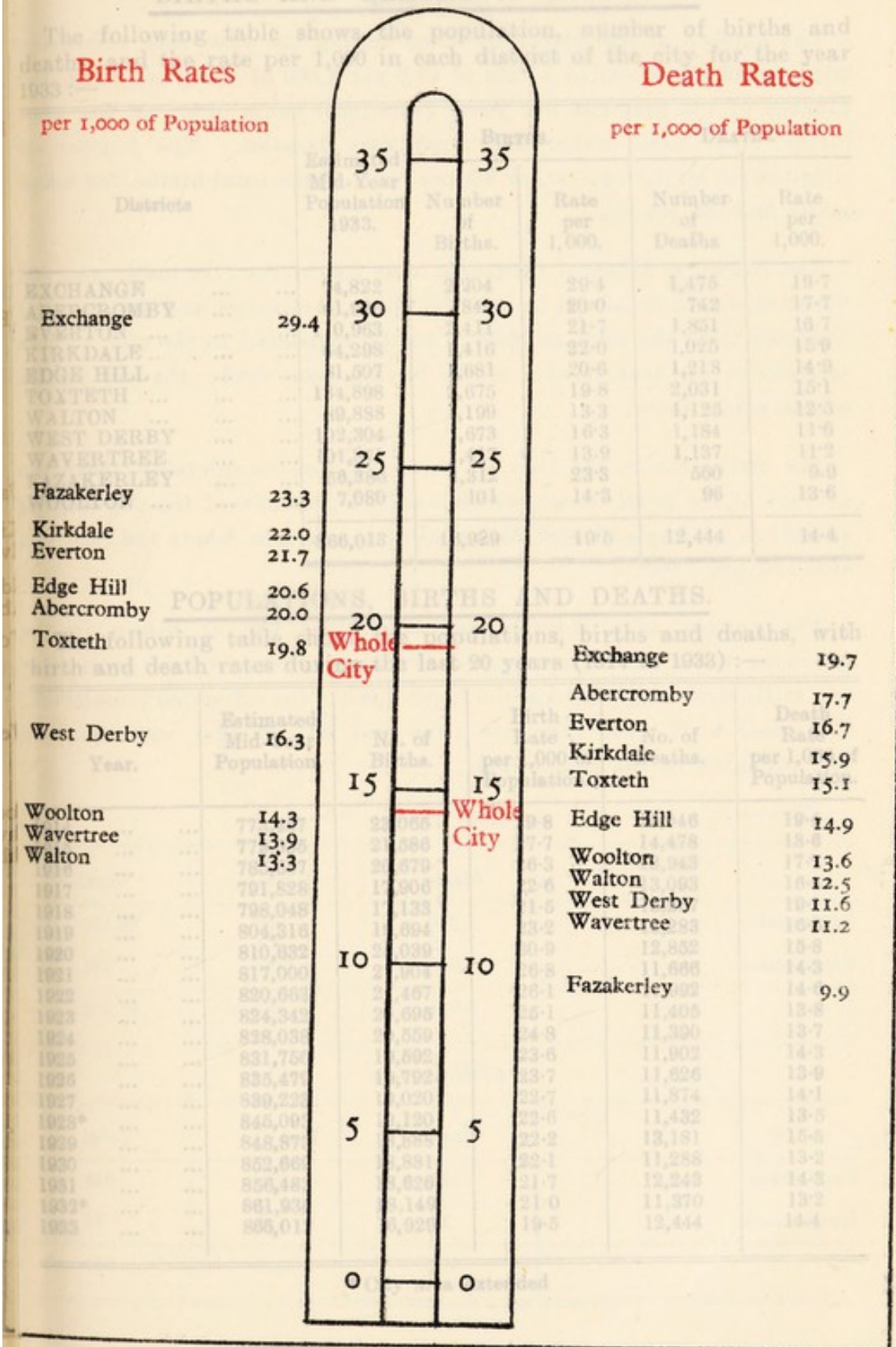
OF

VITAL STATISTICS FOR 1933.

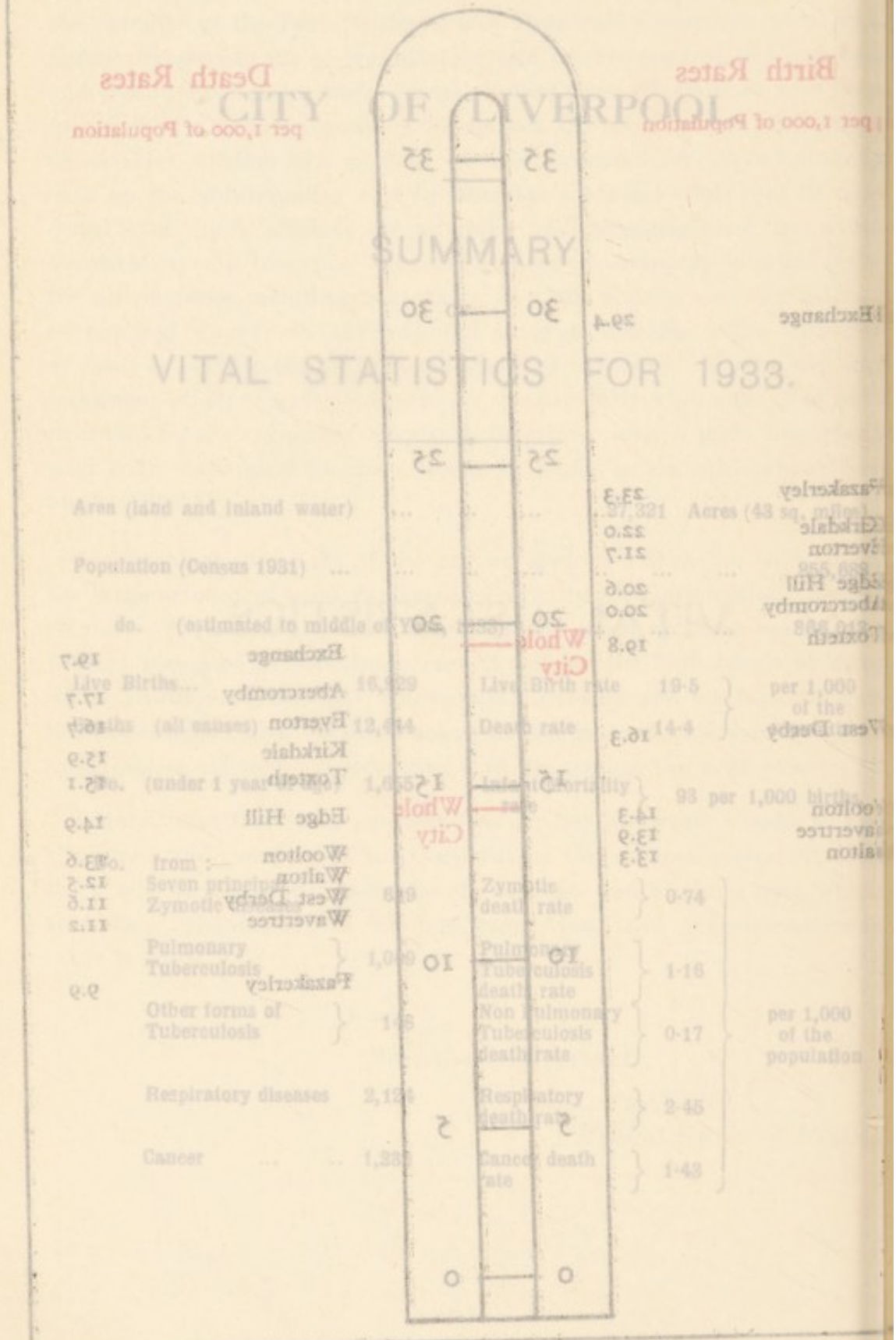
Area (land and inland water)	...27,321	Acres (43 sq. miles)	
Population (Census 1931)	855,688		
do. (estimated to middle of Year, 1933)	866,013		
Live Births...	16,929	Live Birth rate	19·5 per 1,000 of the population
Deaths (all causes) ...	12,444	Death rate	14·4 per 1,000 of the population
Do. (under 1 year of age)	1,655	Infant Mortality rate	93 per 1,000 births.
Do. from :—			
Seven principal Zymotic diseases	639	Zymotic death rate	0·74 per 1,000 of the population
Pulmonary Tuberculosis	1,009	Pulmonary Tuberculosis death rate	1·16 per 1,000 of the population
Other forms of Tuberculosis	148	Non Pulmonary Tuberculosis death rate	0·17 per 1,000 of the population
Respiratory diseases	2,124	Respiratory death rate	2·45 per 1,000 of the population
Cancer	1,232	Cancer death rate	1·43 per 1,000 of the population

CITY OF LIVERPOOL.

COMPARATIVE VIEW OF THE BIRTH AND DEATH RATES PER 1,000 POPULATION IN THE DIFFERENT DISTRICTS OF THE CITY DURING THE YEAR 1933



DEATHS IN PUBLIC INSTITUTIONS ARE TRANSFERRED TO THE DISTRICTS FROM WHICH THE PATIENTS CAME.


Death Rates
per 1,000 of Population
Birth Rates
per 1,000 of Population
35
30
25
20
15
10
5
0
Whole City

BIRTHS AND DEATHS IN DISTRICTS.

The following table shows the population, number of births and deaths, and the rate per 1,000 in each district of the city for the year 1933 :—

Districts	Estimated Mid-Year Population 1933.	Births.		Deaths.	
		Number of Births.	Rate per 1,000.	Number of Deaths.	Rate per 1,000.
EXCHANGE	74,822	2,204	29·4	1,475	19·7
ABERCROMBY	41,996	840	20·0	742	17·7
EVERTON	110,963	2,411	21·7	1,851	16·7
KIRKDALE	64,298	1,416	22·0	1,025	15·9
EDGE HILL	81,507	1,681	20·6	1,218	14·9
TOXTETH	134,898	2,675	19·8	2,031	15·1
WALTON	89,888	1,199	13·3	1,125	12·5
WEST DERBY	102,304	1,673	16·3	1,184	11·6
WAVERTREE	101,871	1,417	13·9	1,137	11·2
FAZAKERLEY	56,386	1,312	23·3	560	9·9
WOOLTON	7,080	101	14·3	96	13·6
	866,013	16,929	19·5	12,444	14·4

POPULATIONS, BIRTHS AND DEATHS.

The following table shows the populations, births and deaths, with birth and death rates during the last 20 years (1914 to 1933) :—

Year.	Estimated Mid-Year Population.	No. of Births.	Birth Rate per 1,000 of Population.	No. of Deaths.	Death Rate per 1,000 of Population.
1914	773,467	23,065	29·8	15,046	19·4
1915	779,535	21,586	27·7	14,478	18·6
1916	785,657	20,679	26·3	13,943	17·7
1917	791,828	17,906	22·6	13,093	16·5
1918	798,048	17,133	21·5	15,267	19·1
1919	804,316	18,694	23·2	13,283	16·5
1920	810,632	25,039	30·9	12,852	15·8
1921	817,000	21,904	26·8	11,666	14·3
1922	820,663	21,467	26·1	11,992	14·6
1923	824,342	20,695	25·1	11,405	13·8
1924	828,038	20,559	24·8	11,390	13·7
1925	831,750	19,592	23·6	11,902	14·3
1926	835,479	19,792	23·7	11,626	13·9
1927	839,223	19,020	22·7	11,874	14·1
1928*	845,093	19,120	22·6	11,432	13·5
1929	848,873	18,888	22·2	13,181	15·5
1930	852,669	18,881	22·1	11,288	13·2
1931	856,483	18,626	21·7	12,243	14·3
1932*	861,935	18,149	21·0	11,370	13·2
1933	866,013	16,929	19·5	12,444	14·4

* City area extended

BIRTHS.

The number of live births recorded during the year 1933 within the city was 16,929, equal to a rate of 19·5 per 1,000 of the population, the average of the previous five years (1928-1932) being 21·9. Of the total births, 8,644 were males, and 8,285 were females. The number of illegitimate births was 734, or 4·3 per cent. of the total births, 369 being males and 365 females.

The Registrar General intimated that 330 births (171 males and 159 females) should be added to and 858 births (416 males and 442 females) deducted from the total number of births registered in the city. These corrections for transferable births having been made, the net figures are as given above.

The birth rate in the City of Liverpool was considerably above the average of the great towns, which was 14·4 per 1,000 of the population, as well as of England and Wales taken as a whole, where the rate was also 14·4 per 1,000.

The number of still-births registered was 680, as shown in the following table. This represented 38·6 per thousand of the total (live and still) births registered and 0·78 per 1,000 of the estimated population. The total birth rate therefore (live and still births) was equal to 20·3 per 1,000 of the population.

Live Births.

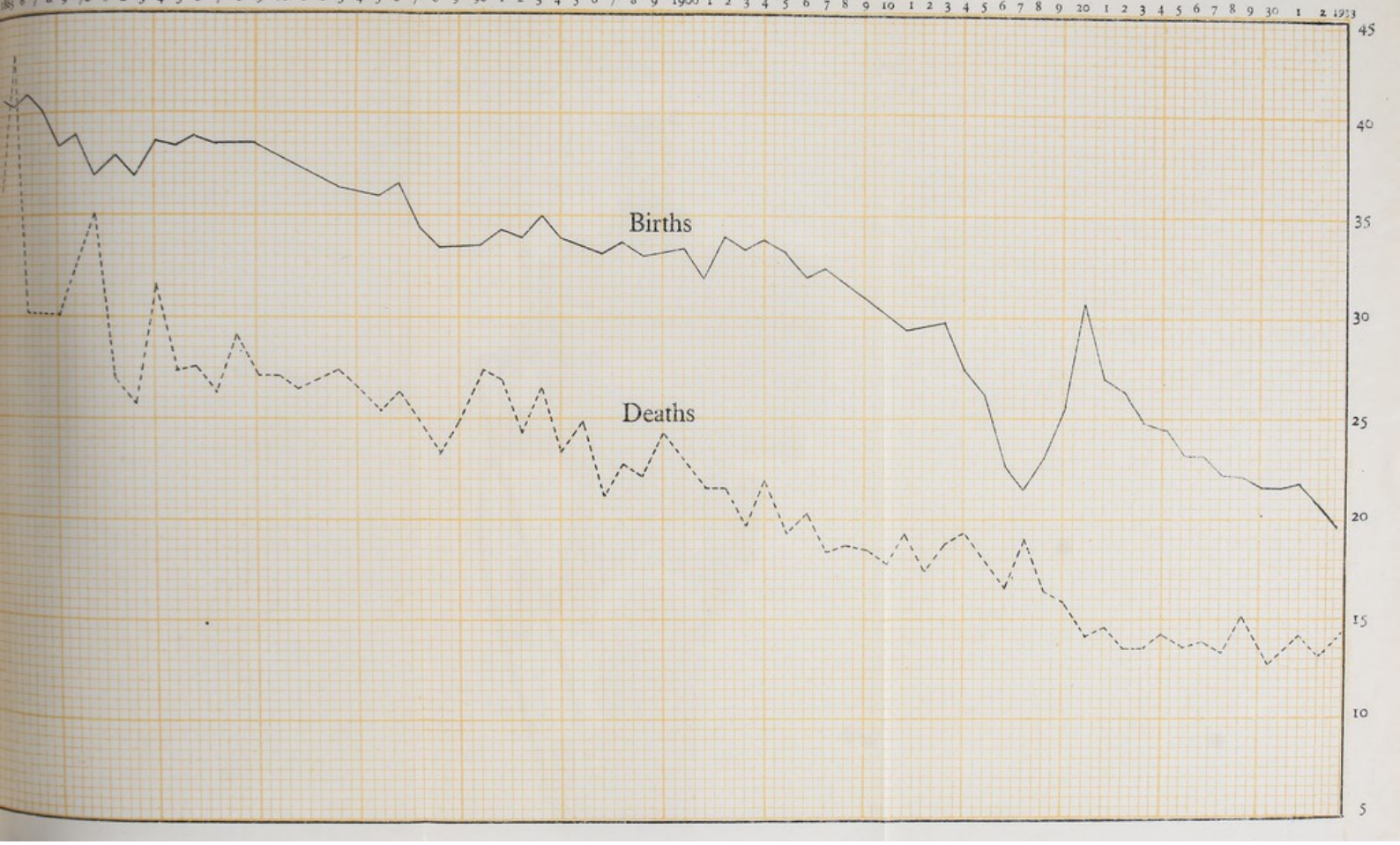
	Males.	Females.	Total.
Legitimate	8,275	7,920	16,195
Illegitimate	369	365	734
	8,644	8,285	16,929

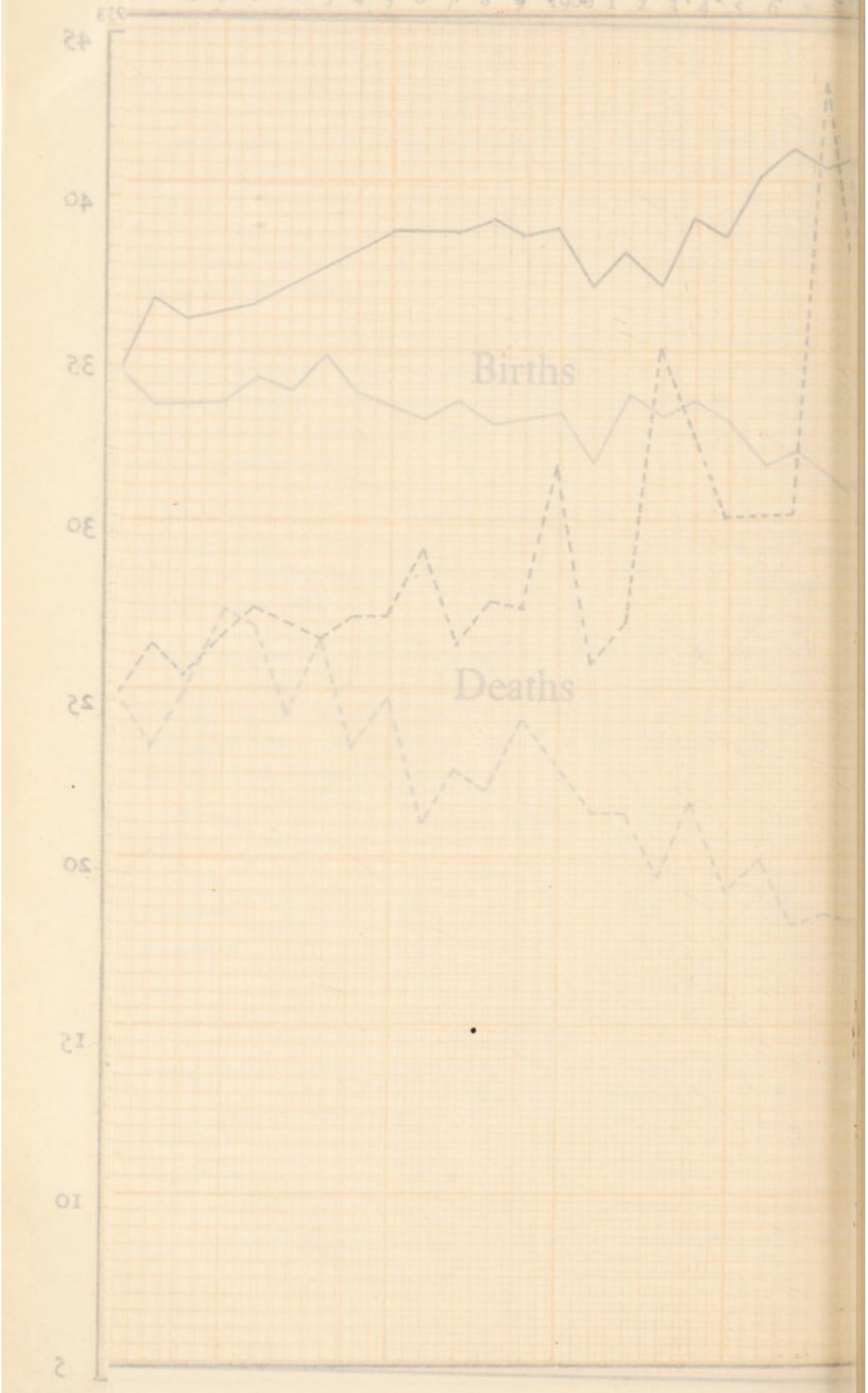
Still-Births.

	Males.	Females.	Total.
Legitimate	346	299	645
Illegitimate	15	20	35
	361	319	680

CITY OF LIVERPOOL.

BIRTH AND DEATH RATES PER 1000 OF THE POPULATION FOR THE YEARS 1865 TO 1933




Births
Deaths

DEATHS.

The total deaths registered in the city during the year numbered 13,076. Of these deaths 1,032 were those of non-residents, chiefly occurring in public institutions, nursing homes, etc., and these were excluded from the returns. On the other hand, the deaths of 400 Liverpool residents which occurred in other districts and in the County Mental Hospitals, etc., were included in the returns for the year.

This gave a corrected number of deaths of 12,444, being 6,475 males and 5,969 females, for the year, equal to a death rate of 14·4 per 1,000 of the population. The death rates for England and Wales and the great towns during the year were 12·3 and 12·2 respectively.

During the five years (1911-1915) the average death rate was 18·6 per 1,000, whilst during the five years (1928-1932) the average rate was 13·9 per 1,000.

A comparison of the table on page 13 with previous reports will show that this improvement is not confined to the infant mortality nor to the mortality at any particular age, but is a general improvement affecting the whole of the population. It is plain that any variation in the *proportions* living at the respective age-periods would affect the death rate, and this with absolutely no change whatever in the condition of municipal sanitation. These proportions, however, vary very slowly and very slightly year by year in each district, so that yearly comparisons of the mortality rate of the same district may be fairly made, but one district should not be put into comparison with another unless the age and sex conditions of each are known, and the necessary corrections made.

Causes of Death.

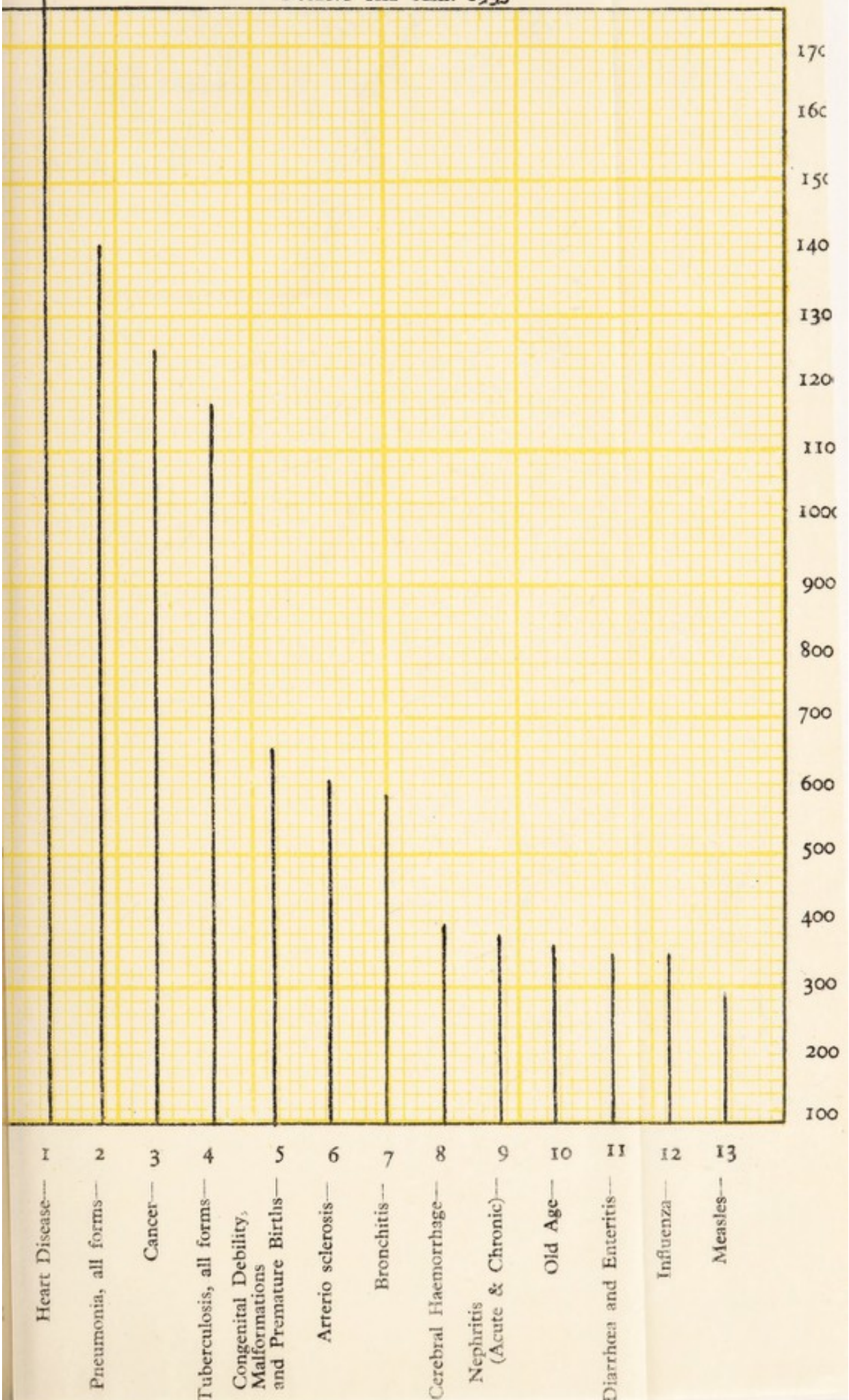
The Short List of Causes of Death appears in Appendix C. Fuller details as to the causes of death are set out in Appendix F; in the same table various age periods at which deaths took place and the districts in which they occurred will also be found.

The following table gives a classification of the causes of death during the four quarters of the year, shown under 18 classes, and the number of deaths at various age-groups :—

CLASSES.		Quarters.				Year 1933
		March	June	Sept.	Dec.	
All Causes		4,167	2,749	2,402	3,126	12,444
I. Infectious and Parasitic Diseases ...		880	597	366	464	2,307
II. Cancer and Other Tumours		343	302	311	334	1,290
III. Rheumatism and other Gen. Diseases		78	72	68	69	287
IV. Diseases of the Blood		21	27	13	33	94
V. Chronic Poisoning		3	—	—	1	4
VI. Diseases of the Nervous System ...		215	138	183	204	740
VII. Diseases of the Circulatory System ...		867	579	495	806	2,747
VIII. Diseases of the Respiratory System ...		997	351	253	523	2,124
IX. Diseases of the Digestive System ...		157	168	239	165	729
X. Diseases of the Genito-Urinary System		153	124	113	156	546
XI. Diseases of Pregnancy		16	20	12	12	60
XII. Diseases of the Skin		14	6	17	13	50
XIII. Diseases of the Bones		7	5	7	6	25
XIV. Congenital Malformations		19	21	24	22	86
XV. Diseases of Early Infancy		157	137	117	160	571
XVI. Old Age		145	97	61	63	366
XVII. Deaths from Violence		92	100	119	94	405
XVIII. Ill-defined Diseases		3	5	4	1	13
Ages at Death	Under 1 year	458	377	402	418	1,655
	1—	312	283	169	180	944
	5—	69	65	48	68	250
	10—	34	42	42	40	158
	15—	80	61	61	41	243
	20—	86	78	81	74	319
	25—	494	342	256	330	1,422
	45—	1,133	647	590	863	3,233
	65 and upwards	1,501	854	753	1,112	4,220

CITY OF LIVERPOOL.

COMPARATIVE VIEW OF THE PRINCIPAL CAUSES OF DEATH DURING THE YEAR 1933



The following tables give Comparative Statements of Vital Statistics during the years 1929, 1930, 1931, 1932 and 1933.

BIRTHS.

	Births.					Birth Rates per 1,000 population.				
	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933
1st quarter ...	4,804	4,800	4,623	4,963	4,631	22·6	22·5	21·6	23·0	21·4
2nd " ...	5,000	4,995	4,903	4,924	4,512	23·5	23·4	22·9	22·9	20·8
3rd " ...	4,751	4,703	4,789	4,535	4,361	22·4	22·1	22·4	21·0	20·1
4th " ...	4,607	4,701	4,658	4,184	3,988	21·7	22·1	21·7	19·4	18·4
	19,162	19,199	18,973	18,606	17,492					
Corrected for transfers per Registrar Gen.	18,888	18,881	18,626	18,149	16,929	22·2	22·1	21·7	21·0	19·5

DEATHS.

	Deaths					Death Rates per 1,000 population.				
	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933
1st quarter ...	5,041	3,139	4,185	3,346	4,167	23·7	14·7	19·5	15·5	19·2
2nd " ...	2,866	2,733	2,711	2,861	2,749	13·5	12·8	12·7	13·3	12·7
3rd " ...	2,311	2,205	2,219	2,293	2,402	10·9	10·2	10·4	10·6	11·1
4th " ...	2,963	3,211	3,128	2,870	3,126	14·0	15·1	14·6	13·5	14·4
	13,181	11,288	12,243	11,370	12,444	15·5	13·2	14·3	13·2	14·4

DEATHS OF INFANTS under 1 year of age.

	Deaths.					Death Rates per 1,000 births registered.				
	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933
1st quarter ...	647	369	520	482	458	134	77	112	97	99
2nd " ...	366	337	377	373	377	73	67	77	76	83
3rd " ...	332	287	329	338	402	70	61	68	75	92
4th " ...	477	551	514	453	418	103	117	110	108	105
	1,822	1,544	1,740	1,646	1,655	96	82	93	91	98

The following table shows deaths at various age periods, expressed as a percentage of total deaths, for each year 1915 to 1933 :—

Year	Ages below										
	5 years	10	20	30	40	50	60	70	80	80 up	
	%	%	%	%	%	%	%	%	%	%	
1915 ...	33	2	4	4	7	9	12	13	12	4	100
1916 ...	30	3	4	5	6	9	12	14	13	4	100
1917 ...	29	3	4	5	7	9	12	14	13	4	100
1918 ...	29	5	6	8	8	9	11	12	9	3	100
1919 ...	25	4	5	7	8	9	12	13	13	4	100
1915-1919 (average)	29	3	5	6	7	9	12	13	12	4	100
1920 ...	33	2	4	5	7	9	11	13	12	4	100
1921 ...	33	2	4	5	6	9	11	13	12	5	100
1922 ...	28	2	4	5	6	9	12	15	14	5	100
1923 ...	30	2	4	5	6	9	12	14	13	5	100
1924 ...	29	2	4	4	6	8	12	15	15	5	100
1920-1924 (average)	30	2	4	5	6	9	12	14	13	5	100
1925 ...	28	2	4	4	5	9	12	15	15	6	100
1926 ...	28	2	3	5	6	9	12	15	14	6	100
1927 ...	25	2	3	5	5	9	12	16	16	7	100
1928 ...	25	2	4	5	5	9	12	16	16	6	100
1929 ...	23	3	3	5	5	9	12	16	17	7	100
1925-1929 (average)	26	2	3	5	5	9	12	16	16	6	100
1930 ...	20	3	4	5	5	9	14	17	16	7	100
1931 ...	23	2	3	5	5	8	12	17	18	7	100
1932 ...	22	2	3	5	5	8	13	17	17	8	100
1933 ...	21	2	3	5	5	8	13	17	18	8	100

Analysis of Decline in Mortality.

The accompanying tables (pages 11 and 12) show the deaths that have occurred in the city of Liverpool during the past 63 years. These have been separated into five principal classes of disease which 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 the greater part of the diseases of infective origin. The deaths from cancer are placed in a separate column.

Despite the very great increase in population since 1871, the population having nearly doubled since then, the actual numbers of deaths per annum have fallen from an average of 14,700 in the decennium 1871-1880 to 12,444 in the year 1933. The general death rate has fallen from 28·5 to 14·4 per thousand, a fall of almost 50 per cent.

The greatest proportional decline has been experienced in the group of infective 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 83 per cent. during the 63 years.

A similar steady decline has been shown by the tubercular diseases, which have fallen to 36·1 per cent. of the earlier figure. These deaths still account for 9·3 per cent. of the total.

In the group of respiratory diseases, although the death rate has been halved during the period under review, namely, between 1871-1880 and 1933, the decline has not been continuous; rises occurred in 1881-90 and in 1911-20, and again in 1929, due in all cases to the prevalence of influenza. Although a marked decline in respiratory

deaths has occurred, this decline is not commensurate with that recorded in deaths from all causes.

Digestive diseases, of which diarrhœa and other digestive diseases of infants form 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, taking the latter rate as equal to 100. From that time on there has been a most marked and rapid decline to 28 per cent. of the 1871-80 rate of mortality. This decline coincides in time with the great efforts that have been put forward in this city for the prevention of infantile mortality.

In contrast, however, there has been a considerable increase in the deaths from cancer during the past 63 years (see pages 11 and 12). The rate of mortality is now more than three times as high as in the seventies of last century. This increase is, however, mainly due to the increasing longevity of the people and to the better diagnosis of the disease. The increasing proportion of persons dying in later life is well shown in the table on page 8 from which it will be seen that since 1915 the proportion of deaths at ages 70 and over has increased from 29 to 43 per cent.

If the general rate of mortality experienced in 1871-80 had prevailed during the year 1933, there would have been nearly twice as many deaths as those actually recorded, viz., 24,629 instead of 12,444, a saving of 12,185 lives being thereby effected.

Deaths from certain Groups of Diseases in each decade from 1871 to 1930, and during 1931, 1932 and 1933.

Years.	(a) Infective diseases (less Diarrhœa and Influenza).	(b) Tubercular diseases.	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhœa).	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
1921-1930	7,831	12,664	29,447	8,184	58,126	9,852	117,756
1931	947	1,153	2,742	658	5,500	1,128	12,243
1932.....	826	1,139	1,905	654	4,524	1,167	11,370
1933.....	808	1,157	2,466	729	5,160	1,232	12,444

Deaths expressed as a percentage of total deaths from all causes (Proportionate Mortality).

1871-1880	19·2	13·5	20·2	10·0	62·9	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
1921-1930	6·6	10·7	25·0	6·9	49·4	8·4	100·0
1931	7·7	9·4	22·4	5·4	44·9	9·2	100·0
1932.....	7·3	10·0	16·7	5·7	39·7	10·3	100·0
1933.....	6·5	9·3	19·8	5·9	41·5	9·9	100·0

Death Rates per 1,000 Population.

Years.	(a) Infective diseases (less Diarrhœa and Influenza).	(b) Tubercular diseases	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhœa).	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	17·3	0·4	28·5
1881-1890	3·6	3·2	5·9	2·4	15·1	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	1·3	1·9	4·7	1·6	9·5	1·0	18·1
1921-1930	0·9	1·4	3·3	0·9	6·5	1·1	13·6
1931	1·1	1·3	2·8	0·8	6·0	1·3	14·3
1932.....	0·9	1·3	2·2	0·7	5·1	1·3	13.2
1933.....	0·9	1·3	2·8	0·8	5·8	1·4	14·4

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
1921-1930	17·1	40·0	58·8	36·8	38·5	280·0	47·7
1931	21·2	36·1	49·1	28·6	36·7	325·0	50·0
1932	19·2	36·1	38·6	25·0	29.9	325·0	46·3

Table showing 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 1933 in Liverpool.

1933.	Ages below											80 and upwards.	All Ages.
	1 year.	2	5	10	20	30	40	50	60	70	80		
Rate of Mortality per 1,000 living at ages indicated	*98	31·1	8·5	2·9	2·5	4·3	5·3	10·1	18·6	40·3	99·9	230·9	14·4
Total Number of Deaths at each Age-Period ...	1655	524	420	250	401	645	641	1057	1622	2078	2208	943	12444
Approximate Population	17298	16862	49283	85128	158074	148315	120739	105589	86984	51557	22101	4083	866013

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

Deaths in Public Institutions.

In Liverpool the number of deaths which take place in Public Institutions is large—indeed more than half the total—and is steadily increasing. This tends to show the proportion of people who in times of sickness have recourse to public and charitable institutions in the city, and no doubt also suggests that the institutions have a wide reputation and attract sufferers not only from within the city, but from a distance, as shown by the number of non-resident deaths.

The deaths in institutions during the year numbered 7,461, and included 1,032 persons who were non-residents in the city area. The number of deaths in the various institutions is shown in the following table :—

	Total Deaths.	Deaths of non-residents.
Walton Hospital	1,929	392
Belmont Road Institution	391	25
Smithdown Road Hospital	1,217	43
Mill Road Infirmary	774	7
Alder Hey Hospital	797	73
Kirkdale Homes	196	11
Olive Mount Children's Hospital ...	183	7
Royal Infirmary	302	103
David Lewis Northern Hospital ...	283	90
Royal Southern Hospital	199	51
Stanley Hospital	92	25
Royal Liverpool Children's Hospital...	181	39
Maternity Hospital	73	17
Consumption Hospital	26	20
Hahnemann Hospital	13	5
Samaritan Hospital	18	9
Eye and Ear Infirmary	26	8
Garston Hospital	38	1
Carried forward	6,738	926

	Total Deaths.	Deaths of non-residents.
Brought forward	6,738	926
City Hospital North	18	1
do. South	25	—
do. East	68	1
do. Fazakerley	104	6
do. do. Annexe ...	48	2
do. Sparrow Hall	4	—
Sanatorium, Fazakerley	96	3
do. Broad Green	164	—
St. Joseph's Home	23	—
Home for Incurables	7	—
Tuebrook Villa Asylum	9	2
Turner Memorial Home	9	1
St. Augustine's Home	29	3
H.M. Prison, Walton	3	1
Other Institutions, Nursing Homes, etc.	116	86
	7,461	1,032

Of the above deaths 5,487 took place in the transferred institutions, 1,251 in voluntary hospitals, 527 in city hospitals, and 196 in other institutions.

The following table shows the total number of deaths in public institutions during the years 1927 to 1933 :—

1927.	1928.	1929.	1930.	1931.	1932.	1933.
6,123	6,195	7,334	6,447	7,053	6,858	7,461

Infant Mortality.

The following table shows the deaths and death-rates of infants under one year of age for the year 1933:—

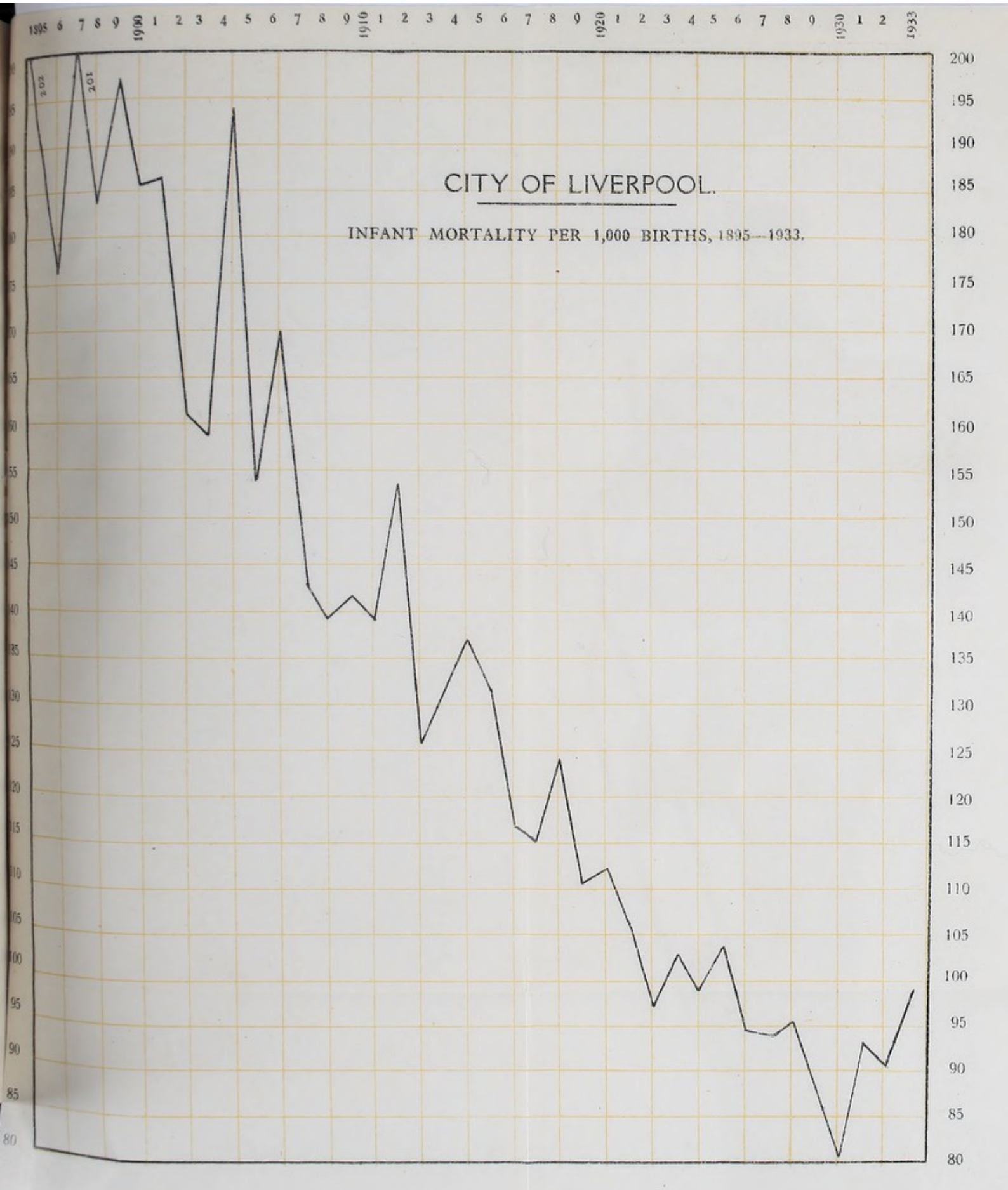
	Infant Deaths.	Infant Death Rates.
All Infants	1,655	98 per 1,000 live births.
Legitimate Infants ...	1,500	93 ,, legitimate live births.
Illegitimate Infants ...	155	211 ,, illegitimate live births.

The infant mortality rate for 1933 was 98 per 1,000 births. Reference to the table on page 17 will show that the rate, in spite of fluctuations in individual years, has steadily declined during the past thirty years. At the beginning of this period the figure was nearly 200 deaths per 1,000 births.

The infantile mortality rate in 1933 was approximately one-half the rate in the first years of the present century.

It may be noted that the numbers of deaths from all the usual forms of infantile diseases such as broncho-pneumonia, convulsions, prematurity, etc., have been reduced, but the most markedly affected cause is the one which, in former years, frequently proved the most fatal, namely, epidemic diarrhœa. The number of deaths under one year of age from this cause in the year 1933 was 272, as against an average of 1,000, or 1,100 thirty years ago. No doubt this result is due to a variety of causes, but one which has most materially hastened the decline is the initiation and carrying on by the Health Committee of schemes for the promotion of the welfare of motherhood and infancy, including the work of the health visitors, pre-maternity and infant clinics and milk depots, and the measures taken to prevent the breeding of flies.

The summer of the year 1933 was unfavourable from a climatic standpoint, being both hot and dry and is comparable with the summers of 1911 and 1921 when infantile mortalities of 154 and 107 were recorded.


CITY OF LIVERPOOL.
INFANT MORTALITY PER 1,000 BIRTHS, 1895—1933.
202
201
1895 6 7 8 9 1900 1 2 3 4 5 6 7 8 9 1910 1 2 3 4 5 6 7 8 9 1920 1 2 3 4 5 6 7 8 9 1930 1 2 1933
200
195
190
185
180
175
170
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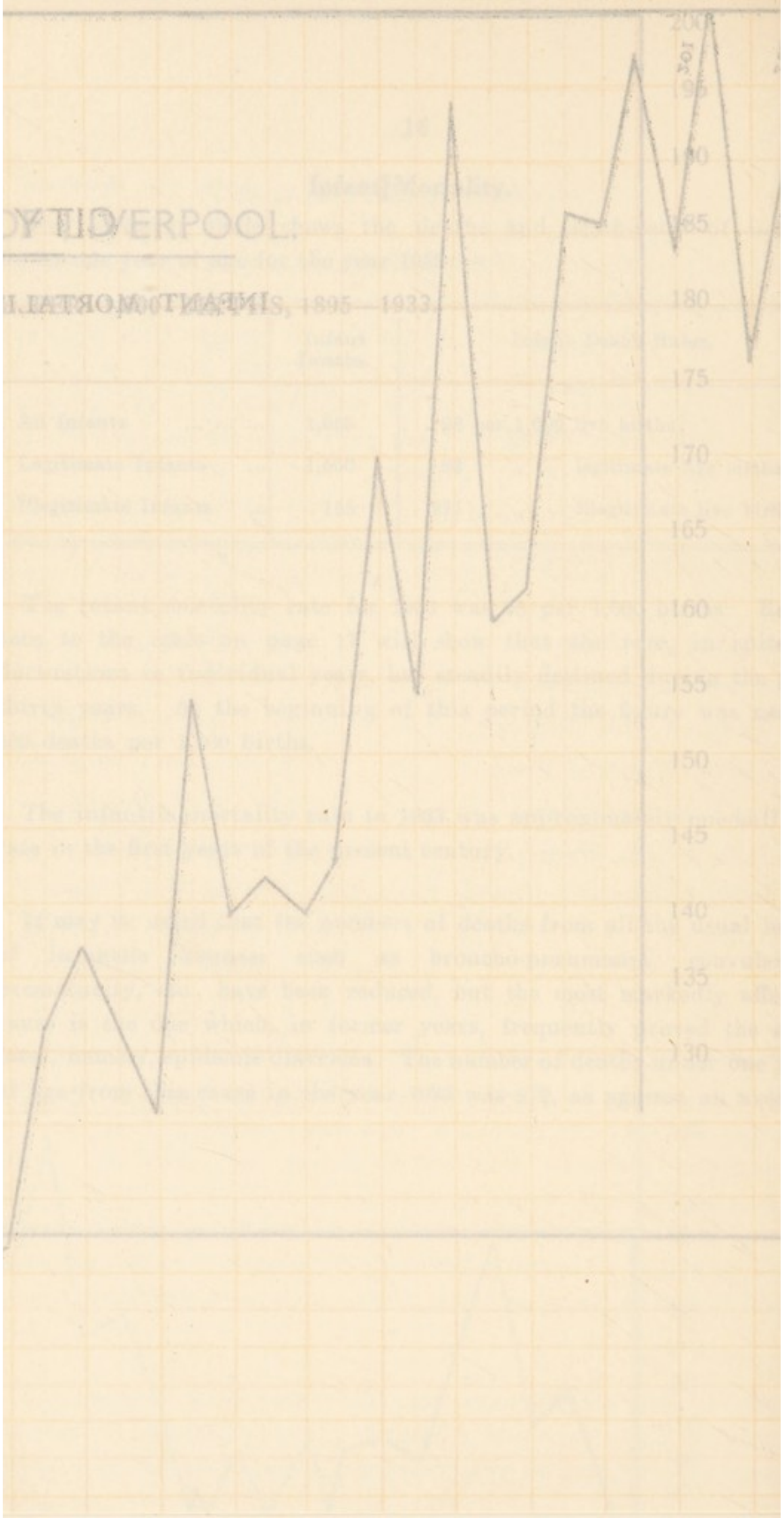
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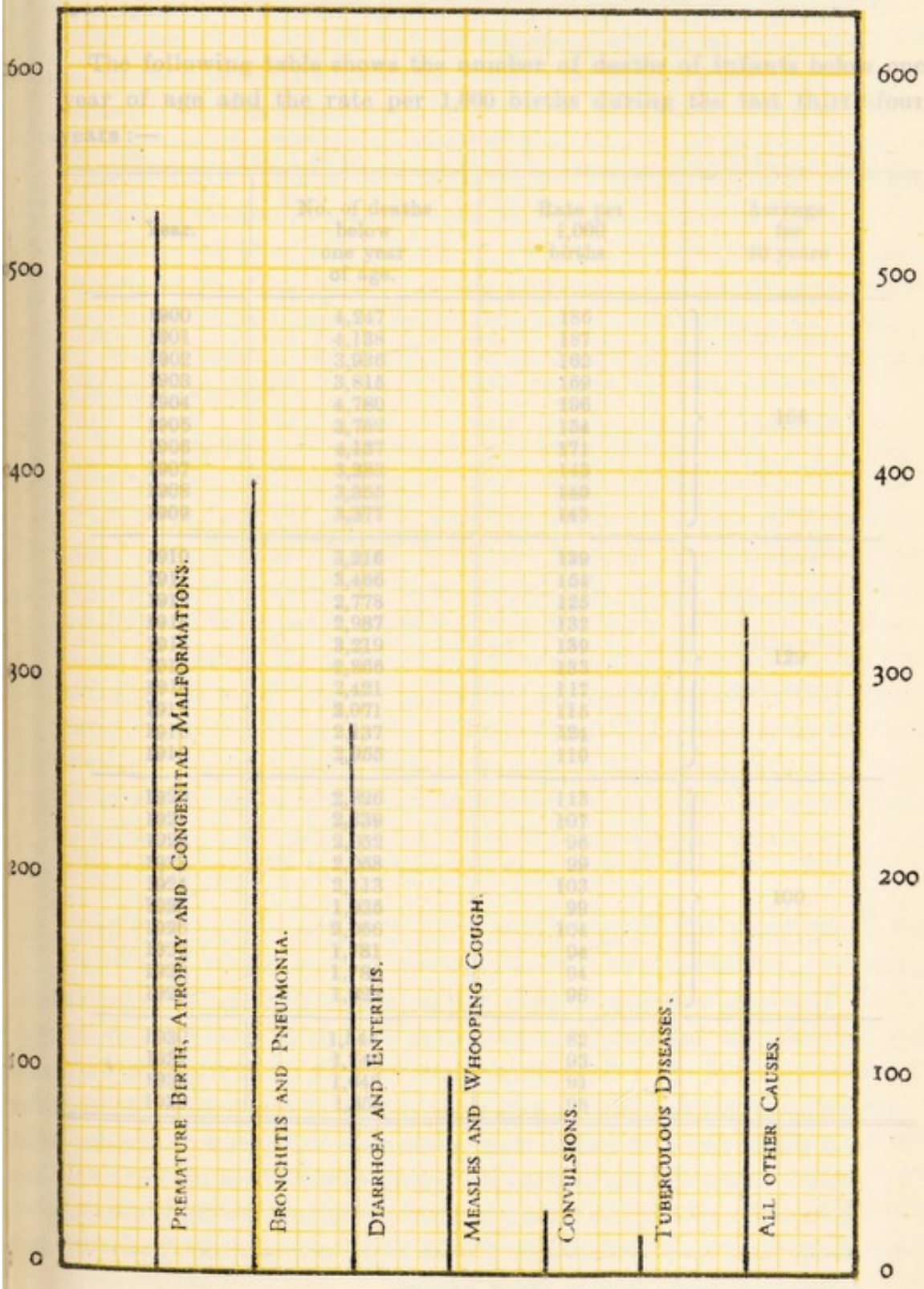
CITY OF LIVERPOOL.

CHART SHOWING THE PRINCIPAL CAUSES OF DEATHS OF INFANTS UNDER ONE YEAR OF AGE DURING 1933



CITY OF LIVERPOOL.

CHART SHOWING THE PRINCIPAL CAUSES OF DEATHS OF INFANTS UNDER ONE YEAR OF AGE DURING 1933

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 thirty-four years :—

Year.	No. of deaths below one year of age.	Rate per 1,000 births.	Average for 10 years
1900	4,247	186	
1901	4,138	187	
1902	3,936	162	
1903	3,815	159	
1904	4,780	196	
1905	3,752	154	164
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	129
1916	2,421	117	
1917	2,071	115	
1918	2,137	124	
1919	2,055	110	
1920	2,826	113	
1921	2,339	107	
1922	2,052	96	
1923	2,058	99	
1924	2,113	103	
1925	1,935	99	100
1926	2,066	104	
1927	1,781	94	
1928	1,789	94	
1929	1,822	96	
1930	1,544	82	
1931	1,740	93	
1932	1,646	91	
1933	1,655	98	

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 1933 is shown in the following table. The detailed causes of death are set out in Appendix D.

DISTRICTS.	Number of births. 1933.	Number of deaths under 1 year of age. 1933.	Deaths under 1 year per 1000 births. 1933.
Exchange	2,204	278	126
Abercromby	840	104	124
Everton	2,411	279	116
Kirkdale	1,416	168	119
Edge Hill	1,681	140	83
Toxteth	2,675	251	94
Walton	1,199	106	88
West Derby	1,673	117	70
Wavertree	1,417	99	70
Fazakerley	1,312	105	80
Woolton	101	8	79
City	16,929	1,655	98

The table on page 20 provides an analysis of the principal causes of infantile mortality for successive periods of five years from 1896-1900 onwards. It is divided into three sections, the first giving the *actual number* of births and of deaths under 1 year of age, both the total deaths and the numbers of deaths from seven main categories of disease, which include almost all the deaths; the second section gives the birth rate and the deaths expressed as rates per 1,000 births, and the third section gives these rates as a percentage of the rates recorded in 1896-1900, such percentages being termed **index figures.**

Examination of this table shows that whilst the annual number of births has shown some decline, fluctuating from 22,340 to 16,929 per annum, the number of infantile deaths has fallen from 4,232 to 1,655, and the infantile death date has accordingly fallen from 189 to 98 per 1,000 births; in other words, this rate has fallen to 51·8 per cent. of the figure recorded in 1896-1900. This great saving of life during the past 30 years coincides with the many improvements in housing and sanitation in Liverpool; and more particularly this fall has occurred simultaneously with the increasing attention which has been directed to infant welfare by the Health Department and other bodies, by the improvement in the provision of assistance for women in child birth and the advice and help extended to mothers and infants by health visitors, ante-natal, post-natal and infant clinics, hospitals and other agencies.

Investigation of the actual causes of death bears this out. The greatest reduction has occurred under the heading Tubercular Diseases--reduction from 100 to 14·5, Nervous Diseases to 19·0, and Digestive Diseases to 31·4. The deaths included under the heading Nervous Diseases are mainly those certified as from convulsions, which are frequently a symptom of the onset of acute infective diarrhœa, by far the commonest cause of death in the group of digestive diseases. Convulsions may also occur at the onset of other infectious diseases, and further may result from injuries during birth. The heading Tubercular Diseases also formerly included many deaths ascribed to Tabes Mesenterica, a term of uncertain meaning, but probably including numerous cases of chronic diarrhœa. The reduction in these three groups of diseases is then mainly a reduction in deaths from diarrhœa.

Equally marked and even more satisfactory is the reduction in the number of deaths from "external causes," which includes overlaying (see page 25) and burns and scalds. The great reduction in the deaths placed in this category testifies to the greater care taken of children and infants by parents. Much less satisfactory are the figures relating to general diseases and respiratory diseases. The figures in column 8 relating to Malformations, Premature Birth, Marasmus, etc., although they show a considerable saving of life—488 lives saved per annum—and though doubtless containing many deaths of children who were so malformed as to be incapable of prolonged life, yet show much room for improvement.

Analysis of causes of Infant Mortality in successive quinquennia 1896-1930, and the years 19[illegible] 1932 and 1933. (A.)—Recorded Deaths.

Years.	1 Births and Birth Rates.	2 Total Deaths Under 1 Year of Age.	3 General Diseases (excluding Tuberculosis).	4 Tubercular Diseases.	5 Nervous Diseases	6 Respiratory Diseases	7 Digestive Diseases; including Diarrhœa.	8 Malformations, Premature Birth, Marasmus, &c.	Ex[illegible] Ca[illegible]
1896/1900	111,700	21,160	1,508	698	2,476	3,575	6,376	5,698	
1901/1905	118,801	20,353	1,546	644	2,516	3,484	5,187	5,732	
1906/1910	118,313	17,739	1,613	465	2,052	3,146	3,902	5,520	
1911/1915	111,872	15,458	1,309	345	1,432	2,916	3,635	4,953	
1916/1920	99,451	11,510	1,116	202	1,083	2,821	1,872	4,107	
1921/1925	104,217	10,497	1,066	200	573	2,776	1,786	3,764	
1926/1930	95,701	9,002	978	109	401	2,553	1,670	2,981	
1931	18,626	1,740	267	20	58	471	258	640	
1932	18,149	1,646	206	22	63	409	265	642	
1933	16,929	1,655	167	16	71	401	304	652	
(B.)—Death Rates per 1,000 Births.									
1896/1900	33·4	189	12·7	6·2	22·1	32·0	57·1	51·0	
1901/1905	33·4	172	13·0	5·5	21·2	29·3	43·7	48·1	
1906/1910	32·2	149	13·6	3·9	17·4	26·6	33·0	46·7	
1911/1915	29·3	137	11·6	3·1	12·8	26·1	32·5	43·1	
1916/1920	24·9	116	11·1	2·0	10·9	28·4	18·8	42·0	
1921/1925	25·1	100	10·2	1·9	5·5	26·6	17·1	36·1	
1926/1930	22·1	94	10·2	1·1	4·2	26·7	17·4	31·1	
1931	21·7	93	14·3	1·1	3·1	25·3	13·8	34·4	
1932	21·0	91	11·3	1·2	3·5	22·5	14·6	35·4	
1933	19·5	98	9·9	0·9	4·2	23·7	17·9	38.5	
(C.)—Death Rates expressed as a percentage of the rates recorded in 1896-1900.									
1896/1900	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	
1901/1905	100·0	91·0	102·3	89·3	95·9	91·5	76·5	94·0	
1906/1910	93	78·6	107·1	62·9	78·6	83·1	57·8	91	
1911/1915	87	72·5	91·9	50·0	57·9	81·5	56·9	84	
1916/1920	76	61·4	87·4	32·2	49·3	88·7	32·7	82	
1921/1925	75·1	54·9	80·3	30·6	24·9	84·7	29·9	70·8	
1926/1930	66·2	49·7	80·3	17·7	18·9	83·5	30·4	60·9	
1931	64·9	49·2	112·6	17.7	14·0	79·0	24·2	67·5	
1932	62·9	48·2	89·0	19·3	15.9	70·3	25·6	69.4	
1933	58·4	51·8	77·9	14·5	19·0	74·1	31·4	75·5	

Deaths from Diabetes.

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

	Actual Numbers.			Average.			Rate per 100,000 population.	Ratio of males to females.
	Males.	Females.	Total.	Males.	Females.	Total.		
1890-1894	55	45	100	11·0	9·0	20·0	3·8	1·22
1895-1899	99	76	175	19·8	15·2	35·0	5·3	1·30
1900-1904	132	100	232	26·4	20·0	46·4	6·5	1·32
1905-1909	153	124	277	30·6	24·8	55·4	8·4	1·23
1910-1914	162	153	315	32·4	30·6	63·0	8·4	1·06
1915-1919	153	137	290	30·6	27·4	58·0	7·4	1·12
1920-1924	153	203	356	30·6	40·6	71·2	8·6	0·75
1925-1929	168	216	384	33·6	43·2	76·8	8·9	0·78
1930	34	60	94	—	—	—	10·7	0·57
1931	25	64	89	—	—	—	10·4	0·39
1932	19	63	82	—	—	—	9·5	0.30
1933	34	66	100	—	—	—	11·5	0·51

The death-rate from diabetes rose steadily 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, and are now above 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 change. In 1890-1894, 55 per cent. of the deaths were of males; but since 1920-25 the position has been reversed, and in 1933 only 34 per cent. were of males. It is not improbable that the greater attention that has recently been paid to this disease has led to its more frequent recognition as a factor in mortality.

The age at death has also greatly altered and, especially among males, there is a preponderance of deaths at ages over 60 and a reduction in deaths under this age. In the year 1910 66 per cent. of the deaths were under 65 years of age, in 1929 55 per cent., in 1930 63 per cent., in 1931 56 per cent., in 1932 57 per cent., and in 1933 46 per cent.

Deaths from Cancer.

During 1933 there were 1,232 deaths attributed to cancer, equivalent to a rate of 1·43 per thousand, whereas in 1871-1880 the rate of mortality was 0·4 per thousand. The tables on pages 11 and 12 give the figures for the intervening years. Comparing the anatomical distribution in 1928-1932 and 1933 it will be observed that there is a tendency for deaths from cancer of the stomach, liver, etc., from cancer of the intestines, etc., and especially from cancer of other organs, mainly internal, to increase. Such fluctuations, however, are apt to occur under the influence of chance.

Part of the increase in mortality from cancer is due to the increased longevity of the population, more of whom survive into those periods of life when cancer is most frequent. Whilst during the last 50 years there has been an increase in recorded cancer mortality at each age period except the earliest, the increase is most marked at the three later age periods, that is at ages over 60 years. The increase in recorded cancer mortality is mainly at old age.

The increased mortality from cancer was, therefore (*a*) mainly among males; (*b*) most marked in the later years of life. There is evidence to show that the increase is especially in the case of cancer of the stomach and other internal organs where the disease is most difficult to diagnose. A great part in the increase is probably not real but statistical, and due to improved diagnosis. The term, old age, for example, is less frequently used as a cause of death than in former years; doubtless many deaths from cancer were formerly concealed under this title.

Deaths from Cancer, showing the parts of the body affected, during the years 1928 to 1933.

Parts of the Body affected.	1928.			1929.			1930.			1931.			1932.			Average 1928-32.			1933.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Buccal Cavity...	102	10	112	85	10	95	70	10	80	72	14	86	86	15	101	83	12	95	80	12	92
Stomach, liver, etc.	192	127	319	178	155	333	167	141	308	168	160	328	185	132	317	178	143	321	221	181	402
Intestines, etc.	98	106	204	105	107	212	100	106	206	118	102	220	115	115	230	107	107	214	114	122	236
Breast	—	84	84	—	82	82	1	111	112	—	107	107	—	106	106	—	98	98	2	116	118
Female Genital Organs	—	116	116	—	107	107	—	81	81	—	88	88	—	91	91	—	97	97	—	87	87
Skin	8	4	12	11	4	15	7	7	14	3	5	8	9	8	17	8	6	14	13	8	21
*Lungs.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67	17	84
Other Organs....	150	103	253	186	74	260	158	121	279	173	118	291	199	106	305	173	104	277	126	66	192
Totals.....	550	550	1100	565	539	1104	503	577	1080	534	594	1128	594	573	1167	549	567	1116	623	609	1232

* The deaths from cancer of lungs prior to 1933 are included in the deaths from cancer of other unspecified organs.

Deaths due to Rheumatic Fever, Pericarditis and Acute Endocarditis (during 1933 and 9 previous years).

	1924.		1925.		1926.		1927.		1928.		1929.		1930.		1931.		1932.		1933.		Av. of 10 yrs. 1924-1933.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Rheumatic Fever	22	27	22	28	19	19	28	45	30	55	30	49	42	51	26	36	21	27	33	36	27	37
Pericarditis.....	10	5	5	4	4	5	7	3	6	3	10	4	6	9	9	4	8	2	6	5	7	4
Acute Endocarditis.....	39	55	38	44	23	42	29	43	24	31	34	53	18	33	15	27	15	21	15	13	25	36
TOTALS	71	87	65	76	46	66	64	91	60	89	74	106	66	93	50	67	44	50	54	54	59	77
	158		141		112		155		149		180		159		117		94		108		136	

Monthly Distribution of Rheumatic Fever Deaths.

	1933. M.	1933. F.
January	3	3
February	3	4
March	2	5
April	4	3
May	2	—
June	3	2
July	2	2
August	2	2
September	2	6
October	3	3
November	—	3
December	6	3
Inward Transfers	1	—
	33	36

Deaths from Excessive Drinking, &c.

It is still gratifying to note that the deaths due to or accelerated by excessive drinking continue to remain low, the number being six.

The number of deaths of infants under one year of age from suffocation was six.

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 have unquestionably contributed towards improving the general conditions of life and social habits of the people formerly living in insanitary surroundings in slum areas. The improved condition of the children is especially noticeable; the reports in connection with medical inspection of school children in the poorer localities show welcome improvement, details in reference to this subject being given in the annual reports to the Education Committee.

The following table shows the number of deaths from excessive drinking from the year 1900 to date, together with the number of deaths of infants under one year of age from suffocation for the same period :—

	Deaths from excessive drinking.			Deaths from suffocation under 1 year of age.
	Males.	Females.	Total.	
1900—1909 (yearly average)	101	63	164	94
1910—1919 (yearly average)	53	28	81	51
1920—1929 (yearly average)	7	3	10	12
1930	4	—	4	12
1931	2	5	7	8
1932	3	4	7	5
1933	5	1	6	6

Deaths from Gas Poisoning.

Deaths from this cause fall under two headings, namely, from accidental poisoning and suicide. The following table gives the number for the last six years, viz. :—

Year.	Accidental.	Suicide.
1928	8	29
1929	9	49
1930	4	46
1931	5	49
1932	5	47
1933	7	71

METEOROLOGY.

The Director to the Liverpool Observatory and Tidal Institute, Bidston, has kindly furnished the following tables relating to Meteorological observations made by him at the Observatory, Bidston :—

Latitude 53° 24′ N. Longitude 3° 4′ W.

Height above the Mean Level of the Sea 202 feet.

1933	Barometer. Mean.	Temperature. Mean.	Rainfall.		Mean Humidity of the air (Complete Saturation 100 %).
			Amount.	No. of days on which 0·01 in. fell.	
	Inches.	Degrees F.	Inches.		
January	30·082	37·9	1·189	15	86
February	29·947	40·6	2·693	14	82
March	29·853	45·4	1·909	13	76
April	30·092	47·5	0·878	10	77
May	29·974	52·1	1·724	13	81
June	29·884	58·7	2·146	11	77
July	30·021	62·0	1·335	15	78
August	30·038	62·4	1·785	12	75
September	30·085	59·1	0·831	6	78
October	29·907	50·9	3·638	16	79
November	29·965	43·3	1·299	11	86
December	30·199	36·1	0·579	10	91

Difference from the Average Quantities observed during the last 67 years.

1933.	Barometer.		Temperature.		Rainfall.	
	Above Average.	Below Average.	Above Average.	Below Average.	Above Average.	Below Average.
	Inches.	Inches.	Degrees F.	Degrees F.	Inches.	Inches.
January	1·149	...	...	1·9	...	1·025
February	0·018	...	0·3	...	0·960	...
March.	...	0·046	2·3	...	0·114	...
April.....	0·191	...	0·9	...	...	0·784
May	0·013	...	...	...	...	0·288
June	...	0·108	1·4	...	0·107	...
July.....	0·061	...	1·6	...	...	1·401
August	0·120	...	2·6	...	...	1·364
September	0·116	...	2·9	...	...	1·921
October	0·028	...	1·2	...	0·289	...
November.....	0·088	...	...	0·5	...	1·293
December	0·338	...	...	4·5	...	2·085
Year's Totals ...	0·163	...	0·5	...	...	8·691

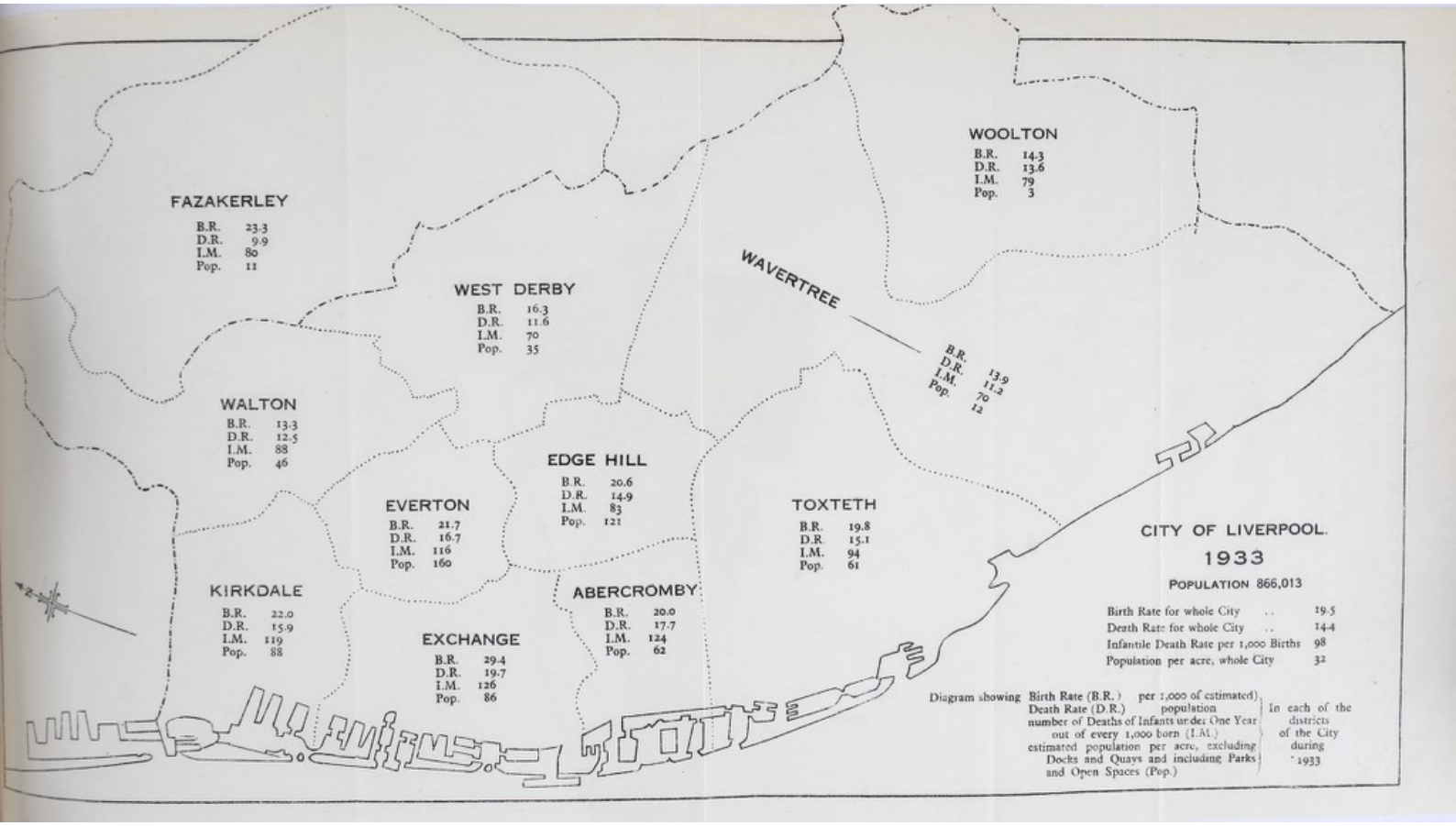
Monthly Analysis of Wind Observations during 1933.

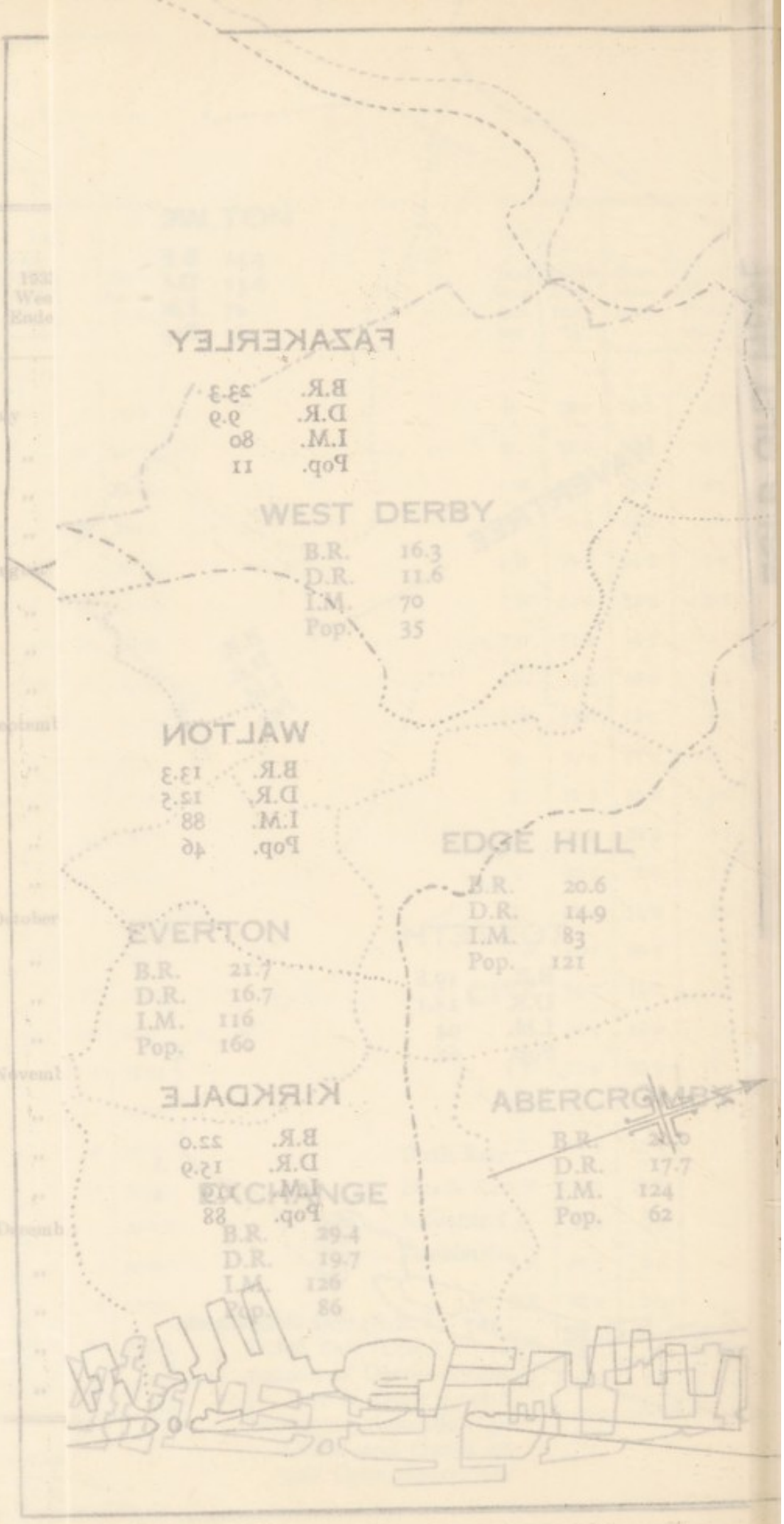
Compiled from observations taken at 0700, 1300, 1800 and 2100.

1933.	Force (0–12).				Direction.							
	8 or over.	4–7	1–3	Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
January	0	56	61	7	9	8	16	24	17	12	21	10
February	1	75	35	1	21	6	6	18	4	9	24	23
March	0	58	64	2	0	2	22	32	16	20	24	6
April.....	0	39	68	13	8	8	5	10	9	14	32	21
May	0	34	76	14	9	2	9	19	14	1	4	52
June	0	38	68	14	6	9	9	15	5	4	25	33
July.....	3	31	79	11	4	0	2	13	12	11	29	42
August	0	42	69	13	7	4	1	7	16	8	22	46
September	0	37	74	9	9	17	37	19	7	5	2	15
October	0	65	49	10	21	7	16	13	8	9	15	25
November.....	0	36	71	13	19	15	21	12	4	5	17	14
December	1	32	76	15	8	25	20	27	11	3	9	6
Year's Total	5	543	790	122	121	103	164	209	123	101	224	293

1933 Week Ended.	Barometer Mean.	Temperature.			Rainfall.		Wind Mean direction.	Median Humidity %	Sunshine hours.	Ultra-Violet Radiation.
		Maximum.	Minimum.	Mean.	Amt. inches	Duration hours.				
January 7	29·81	56·0	36·3	44·1	0·401	6·6	S.E.	81·9	18·8	1·3
,, 14	30·30	52·3	31·8	39·6	0·345	9·5	W.	88·8	20·7	1·1
,, 21	29·81	41·5	27·4	35·3	0·35	15·0	S.E.	86·5	12·6	1·0
,, 28	30·56	37·4	24·4	30·8	—	—	S.E.	88·1	12·6	—
February 4	29·6	54·0	31·8	42·6	0·55	13·0	W.	83·9	10·3	1·0
,, 11	29·91	54·8	32·9	45·6	0·827	19·4	N.W.	83·4	12·6	—
,, 18	30·3	44·0	30·0	38·6	0·023	1·0	N.W.	78·9	33·0	—
,, 25	29·9	42·0	29·1	34·8	0·429	15·5	N.W.	77·4	29·2	1·0
March 4	29·45	52·2	32·5	43·1	1·488	32·7	S.E.	90·0	10·0	1·3
,, 11	29·9	56·3	38·0	46·3	0·374	11·4	S.E.	76·1	25·2	2·0
,, 18	29·67	56·9	36·2	45·5	0·653	11·3	S.E.	81·2	30·2	1·7
,, 25	30·02	58·3	33·7	44·2	0·216	3·1	S.E.	62·5	42·1	3·0
April 1	30·14	57·7	34·0	45·3	0·126	4·0	W.	78·6	46·6	2·7
,, 8	30·23	55·0	41·8	48·8	0·047	2·2	W.	79·8	33·6	2·3
,, 15	30·18	58·4	40·4	49·9	0·031	2·6	S.W.	74·9	51·4	3·6
,, 22	30·18	53·2	32·8	43·0	0·09	2·8	N.E.	68·6	25·6	1·9
,, 29	29·79	58·4	41·0	50·1	0·508	15·5	W.	83·5	24·0	2·1
May 6	29·81	63·7	42·7	50·9	0·783	14·5	E.	81·5	15·3	2·3
,, 13	29·85	58·4	45·7	50·9	0·177	8·0	N.W.	81·0	33·9	4·3
,, 20	30·08	69·4	45·8	55·2	0·531	11·7	S.E.	81·2	24·3	2·8
,, 27	30·08	59·2	47·2	52·9	0·405	6·8	N.W.	85·4	50·1	1·0
June 3	30·01	76·1	47·6	52·9	0·165	1·6	S.E.	71·3	47·0	4·5
,, 10	30·14	83·0	51·4	63·0	0·11	2·8	N.W.	74·7	56·3	4·7
,, 17	29·9	71·8	47·7	57·5	0·433	10·6	W.	75·1	57·9	4·7
,, 24	29·49	65·4	52·6	56·8	1·425	13·1	W.	84·9	31·8	2·1
July 1	30·01	70·2	52·2	58·5	0·004	0·3	N.W.	80·9	49·2	4·1

1933 Week Ended.	Barometer Mean.	Temperature.			Rainfall.		Wind Mean direction.	Median Humidity %	Sunshine hours.	Ultra-Violet Radiation.
		Maximum.	Minimum.	Mean.	Amt. inches	Duration hours.				
July 8	30·2	81·2	57·0	65·9	0·15	2·1	S.	76·8	78·1	4·8
,, 15	29·72	69·0	54·0	60·3	1·04	19·2	W.	81·6	26·0	1·7
,, 22	30·08	74·2	56·0	62·1	0·035	0·2	N.W.	76·6	61·0	4·1
,, 29	30·04	81·5	56·0	64·0	0·07	2·8	N.W.	78·1	49·5	3·3
August 5	30·18	79·7	57·2	65·2	0·043	1·8	N.W.	79·8	24·2	1·8
,, 12	30·17	75·2	53·4	61·4	0·002	0·8	N.W.	70·9	52·5	2·3
,, 19	29·84	74·0	51·6	62·9	0·358	3·1	N.W.	74·4	44·1	—
,, 26	29·88	79·7	50·0	60·3	0·913	8·7	N.W.	74·4	53·8	3·3
September 2	30·13	83·0	52·2	63·1	0·48	7·1	N.W.	81·0	23·7	3·6
,, 9	30·31	76·8	52·2	63·2	—	—	E.	70·8	57·6	5·1
,, 16	30·21	71·0	44·3	57·6	—	—	E.	72·1	52·8	4·0
,, 23	29·75	73·1	50.1	58.4	0·311	5·1	E.	76·8	37·3	3·7
,, 30	30·03	65·0	45·8	56·5	0·508	11·5	E.	87·1	15·6	1·1
October 7	30·25	64·3	42·0	54·5	0·405	5·7	E.	80·6	11·9	1·4
,, 14	29·71	61·1	45·9	53·1	1·9	32·9	N.W.	83·7	20·8	2·1
,, 21	29·92	56·6	43·0	50·0	0·626	6·4	S.E.	75·7	16·3	1·8
,, 28	29·8	56·2	39·0	47·8	0·39	10·0	N.	76·4	16·2	1·0
November 4	29·91	52·2	41·0	46·2	0·429	7·8	N.W.	77·9	30·9	1·8
,, 11	30·00	51·5	34·8	46·7	0·177	8·3	N.W.	70·2	11·5	1·0
,, 18	29·75	46·9	32·1	41·8	0·878	21·2	E.	87·6	15·4	—
,, 25	30·04	52·0	32·2	43·2	0·133	3·6	N.E.	87·6	10·3	—
December 2	30·05	41·3	32·0	37·4	0·011	0·7	E.	82·6	0·5	—
,, 9	30·38	42·0	26·4	34·5	0·023	2·2	N.E.	80·8	8·9	—
,, 16	30·28	42·1	31·1	35·6	0·153	9·9	N.E.	86·0	7·1	—
,, 23	30·53	48·0	31·0	36·5	0·047	1·4	S.E.	96·2	7·0	—
,, 30	29·74	44·3	33·5	37·6	0·318	6·8	S.E.	91·9	3·0	—


FAZAKERLEY
B.R. 23.3
D.R. 9.9
I.M. 80
Pop. 11
WOOLTON
B.R. 14.3
D.R. 13.6
I.M. 79
Pop. 3
WEST DERBY
B.R. 16.3
D.R. 11.6
I.M. 70
Pop. 35
WAVERTREE
B.R. 13.9
D.R. 11.2
I.M. 70
Pop. 12
WALTON
B.R. 13.3
D.R. 12.5
I.M. 88
Pop. 46
EDGE HILL
B.R. 20.6
D.R. 14.9
I.M. 83
Pop. 121
EVERTON
B.R. 21.7
D.R. 16.7
I.M. 116
Pop. 160
TOXTETH
B.R. 19.8
D.R. 15.1
I.M. 94
Pop. 61
KIRKDALE
B.R. 22.0
D.R. 15.9
I.M. 119
Pop. 88
ABERCROMBY
B.R. 20.0
D.R. 17.7
I.M. 124
Pop. 62
EXCHANGE
B.R. 29.4
D.R. 19.7
I.M. 126
Pop. 86
CITY OF LIVERPOOL.
1933
POPULATION 866,013
Birth Rate for whole City .. 19.5
Death Rate for whole City .. 14.4
Infantile Death Rate per 1,000 Births 98
Population per acre, whole City 32
Diagram showing Birth Rate (B.R.) per 1,000 of estimated) population
Death Rate (D.R.) number of Deaths of Infants under One Year out of every 1,000 born (I.M.)
estimated population per acre, excluding Docks and Quays and including Parks and Open Spaces (Pop.)
In each of the districts of the City during 1933


WEST DERBY
B.R. 16.3
D.R. 11.6
I.M. 70
Pop. 35
EDGE HILL
B.R. 20.6
D.R. 14.9
I.M. 83
Pop. 121
EVERTON
B.R. 21.7
D.R. 16.7
I.M. 116
Pop. 160
ABERCROMBY
B.R. 21.6
D.R. 17.7
I.M. 124
Pop. 62

INFECTIOUS DISEASES

NOTIFICATION OF INFECTIOUS DISEASE.

The following is a list of the diseases notifiable in Liverpool during 1933:—

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

GENERAL STATISTICAL TABLES.

In Table I are given the numbers of notifications of infectious disease received from medical practitioners during each month of 1933.

TABLE I.

MONTHLY NUMBERS OF NOTIFICATIONS OF INFECTIOUS DISEASE DURING 1933.

January	1,768
February	1,617
March	2,194
April	2,360
May	3,148
June	2,186
July	1,458
August	1,049
September	1,452
October	1,933
November	2,024
December	1,950
	23,139

* Measles and German Measles ceased to be compulsorily notifiable on 31st October, 1920. A system of voluntary notification has been adopted in regard to these diseases and Chickenpox.

In Table II are given the numbers of cases of infectious disease coming to notice during 1933, both by means of notifications from medical practitioners and in other ways, together with the number of patients who were removed to hospital.

TABLE II.

NUMBERS OF CASES OF INFECTIOUS DISEASES COMING TO NOTICE DURING 1933, AND NUMBERS ADMITTED TO HOSPITAL.

	January	February	March	April	May	June	July	August	September	October	November	December	Totals	Cases admitted to hospital	Percentage admitted to hospital
Smallpox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever ...	2	1	3	4	3	4	5	12	23	7	3	3	70	67	95·7
Scarlet Fever ...	246	237	293	386	342	292	338	213	601	693	776	869	5286	3780	71·5
Measles and German Measles	281	665	1098	1935	2090	1528	868	225	241	257	337	479	10004	1070	10·7
Diphtheria	251	203	256	252	267	202	231	154	359	235	220	287	2917	2799	95·9
Puerperal Fever ...	3	7	—	4	4	7	2	2	4	3	5	3	44	43	97·7
Puerperal Pyrexia...	22	14	29	36	35	24	34	23	23	17	20	29	306	279	91·1
Erysipelas	62	63	76	86	62	54	65	57	86	77	102	130	920	580	63·0
Cerebro-spinal Fever	12	8	3	12	6	7	7	3	3	1	0	2	64	64	100·0
Poliomyelitis and Polioencephalitis	1	—	—	1	—	—	—	3	5	—	—	—	10	7	70·0
Ophthalmia Neonatorum	48	42	58	51	60	55	56	42	47	45	48	42	594	116	19·5
Pneumonia & Influenzal Pneumonia	597	325	187	213	182	201	163	117	248	314	265	294	3106	1515	48·8
Malaria	1	2	—	2	3	—	6	2	2	3	1	4	26	7	26·9
Dysentery	—	—	—	—	—	2	1	—	—	—	—	—	3	3	100·0
Encephalitis Lethargica	1	3	1	1	2	2	3	—	5	6	1	5	30	13	43·3
Whooping Cough ...	71	61	72	65	74	69	64	82	106	67	119	137	987	199	20·2
Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chickenpox... ...	291	216	371	269	293	359	183	65	103	151	210	377	2888	132	4·6
Totals ...	1889	1847	2447	3317	3423	2806	2026	1000	1856	1876	2107	2661	27255	10674	39·2

The numbers of patients admitted to hospital include the cases which occurred while in hospital.

In Table III are given the numbers of cases of infectious diseases coming to notice during 1933, and also corresponding cases during the previous five years.

TABLE III.

NUMBERS OF CASES OF INFECTIOUS DISEASE DURING 1933 AND THE FIVE PREVIOUS YEARS.

Disease.	1928	1929	1930	1931	1932	1933
Smallpox	2	2	1	—	1	—
Plague	—	—	—	—	—	—
Typhus Fever	—	—	—	—	—	—
Enteric Fever	30	23	60	37	54	70
Scarlet Fever	2,193	3,989	3,069	1,407	1,925	5,286
Measles and German Measles	6,025	10,546	5,966	7,572	8,816	10,004
Diphtheria	1,902	2,336	4,023	3,256	3,312	2,917
Puerperal Fever	51	41	43	54	54	44
Erysipelas	623	711	720	510	592	920
Cerebro-spinal Fever	21	23	21	57	76	64
Poliomyelitis and Polioencephalitis	6	21	14	7	25	10
Ophthalmia Neonatorum	545	584	610	718	668	594
Anthrax	7	4	3	2	2	—
Encephalitis Lethargica	54	28	27	35	21	30
Whooping Cough	2,313	1,876	1,147	2,267	1,596	987
Malaria	77	63	125	98	24	26
Dysentery	4	8	27	12	7	3
Chickenpox	2,446	2,800	2,567	1,568	2,993	2,888

In Table IV are given the numbers of deaths from infectious disease during 1933, and also corresponding deaths during the previous five years.

TABLE IV.

NUMBERS OF DEATHS FROM INFECTIOUS DISEASE DURING 1933 AND THE FIVE PREVIOUS YEARS.

Disease.	1928	1929	1930	1931	1932	1933
Smallpox	—	—	—	—	—	—
Plague	—	—	—	—	—	—
Typhus Fever	—	—	—	—	—	—
Enteric Fever	4	8	1	6	6	2
Scarlet Fever	19	41	35	11	11	27
Measles and German Measles	177	427	170	369	312	299
Diphtheria	100	139	236	197	184	177
Influenza	99	408	75	345	128	342
Puerperal Fever	19	26	16	20	16	29
Erysipelas	22	34	24	27	42	73
Cerebro-spinal Fever	16	21	17	47	47	45
Poliomyelitis and Polioencephalitis	5	10	6	4	11	3
Anthrax	2	2	1	—	—	—
Encephalitis Lethargica	24	26	18	26	15	21
Whooping Cough	269	198	75	189	148	93
Malaria	5	5	12	3	1	2
Dysentery	3	3	4	5	5	2
Chickenpox	3	8	3	1	—	1

In Table V are given the case-rates per 1,000 of the population and the death-rates per 100,000 of the population in respect of the infectious diseases named at the head of the table.

TABLE V.

CASE-RATES AND DEATH-RATES OF INFECTIOUS DISEASE DURING 1933.

	Smallpox.	Enteric Fever.	Scarlet Fever.	Measles.	Diphtheria.	Puerperal Fever.	Erysipelas.	Cerebro-spinal Fever.	Poliomyelitis and Polioencephalitis.	Encephalitis Lethargica.	Malaria
Cases	—	70	5,286	10,004	2,917	44	920	64	10	30	26
Case-rate per 1,000 ...	—	0·08	6·10	11·55	3·37	2·60*	1·06	0·07	0·01	0·03	0·03
Deaths	—	2	27	299	177	29	73	45	3	21	2
Death-rate per 100,000	—	0·2	3·1	34·5	20·4	165 †	8·4	5·2	0·3	2·4	0·2

* Case-rate per 1,000 births.

† Death-rate per 100,000 birt

INFECTIOUS SICKNESS.

PLAGUE.

No cases of plague occurred in the city during the year.

SMALLPOX.

No cases of smallpox occurred in the city during the year.

The following figures for England and Wales show a gradual and remarkable spread of a very mild type of smallpox during the years 1925 to 1930, followed by a rapid decline. Only a few deaths occurred among the thousands of cases reported.

Year.	Cases.	Deaths.
1925	5,365 ...	9
1926	10,205 ...	19
1927	14,769 ...	49
1928	12,433 ...	53
1929	10,975 ...	39
1930	11,855 ...	28
1931	5,665 ...	9
1932	2,070 ...	3
1933	631 ...	2

(Extracted from the Registrar General's Quarterly Returns.)

On account of its world-wide trade, Liverpool must always be one of the channels through which the severe types of smallpox may be imported. Furthermore, the constantly moving population—inwards and outwards—renders the city particularly liable to infection. For that reason it has always been the policy of the department to continue to urge that the only safeguard against smallpox and the risk of death from this disease is vaccination and re-vaccination.

In Liverpool, however, the child population is relatively well vaccinated, as the most recent available figure for 1932 shows that approximately 70·8 per cent. of the children born in Liverpool have been successfully vaccinated.

In Table VI are given the numbers of primary vaccinations in Liverpool during the last six years.

TABLE VI.

PRIMARY VACCINATIONS.

	1927.	1928.	1929.	1930.	1931.	19
1.—Number of children born ...	19,020	19,120	19,145	19,183	18,917	18
2.—Number of primary vaccinations...	15,572	13,736	13,368	13,711	13,678	13
3.—Number of exemption certificates granted ...	1,296	1,596	1,907	2,036	1,993	2
4.—Number of certificates of insusceptibility sent ...	102	145	235	115	149	

In Table VII are given the numbers of primary vaccinations during 1932, arranged in accordance with their occurrence in four districts.

TABLE VII.

PRIMARY VACCINATIONS IN DISTRICTS DURING 1932.

District.	Sub-District.	No. of children born.	No. of primary vaccinations.	No. of exemptions granted.	No. of certificates of insusceptibility.	Percentage of children successfully vaccinated.
1	Toxteth Park N.	1,918	1,160	229	15	60·5
	„ „ S.	1,240	756	180	11	61·0
	Wavertree ...	941	636	180	13	67·6
	Woolton	68	54	8	—	79·4
2	Abercromby ...	2,853	1,926	431	33	67·5
	Exchange ...	1,733	1,346	51	4	77·6
	Everton S.E. ...	1,820	1,340	139	2	70·4
	„ N.W. ...	992	776	92	3	78·2
3	Walton	2,672	2,010	251	12	75·2
	West Derby ...	1,155	806	215	10	69·8
	Fazakerley ...	1,070	790	147	5	73·8
	Edge Hill ...	1,064	686	139	9	64·5
4	Kirkdale... ...	1,017	836	72	3	82·2
	Total ...	18,543	13,122	2,134	120	70·8
Summary	No. 1 District ...	4,167	2,606	597	39	62·5
	No. 2 District ...	7,398	5,388	713	42	72·8
	No. 3 District ...	5,961	4,292	752	36	72·0
	No. 4 District ...	1,017	836	72	3	82·2
	Total ...	18,543	13,122	2,134	120	70·8

TYPHUS FEVER.

No case occurred in Liverpool during 1933, and no indigenous cases have occurred in the city during the course of the past fifteen years.

ANTHRAX.

The importation of large amounts of animal products, which are handled in transit to stores or manufactories, has associated with it the risk of human infection with the anthrax bacillus, causing a condition known as malignant pustule or cutaneous anthrax.

During the year 1933, two cases of this disease were admitted to the Liverpool City Hospital, Fazakerley. Both of these patients were tannery hands who were employed outside the city. Both cases ended in recovery. The source of the hides with which they worked is unknown.

Details relating to these cases are given in Table VIII.

TABLE VIII.

ANTHRAX.

CASES TREATED DURING 1933.

Age.	Sex.	Occupation.	Days ill on admission.	Site of infection.	Clinical Notes.	Serum injected daily. Each dose expressed in ccs.*	Complications.	Result.
24	M.	Tannery hand	3	Root of neck in front	Local oedema, dysphagia and some aphonia	300 300 300	Nil.	Recovery.
34	M.	Tannery hand	3	Right cheek	Mild infection.	300 200 200	Serum rash.	Recovery.

* All serum was given intravenously. Both cases received, in addition to serum, 0·3 mgm. and 0·45 mgm. of Neokharsivan intravenously on the first and third day of treatment respectively.

The treatment facilities at the Fazakerley Hospital are available for cases coming from districts outside Liverpool.

The fatal cases frequently quoted in these and other reports emphasise the importance of early diagnosis and serum treatment in all cases of this disease, and the Health Department have taken steps to make facilities for diagnosis available for the public.

The business firms connected with the hide and skin trade in Liverpool and neighbourhood have also recognised the importance of the points above enumerated in regard to the early diagnosis and treatment of anthrax, and have conferred with the Liverpool Health Authorities with the object of taking further measures to educate the workers as to the risks involved in handling goods of animal origin, particularly hides and skins, and the precautions to be observed.

Posters have been printed on the subject and are affixed in suitable places. A pocket card has also been issued containing full information regarding the appearance and symptoms of cutaneous anthrax and advice on the action to be taken. Arrangements are also made to admit all cases of anthrax or suspected anthrax direct to Fazakerley Hospital.

During 1933, seventeen persons, mainly employed at the docks, or in tanneries or wool factories, attended at the hospital with suspicious boils, pimples, skin abrasions and the like, for anthrax investigation. In no instance was that disease found. This practice is at all times encouraged, since early discovery of an infection implies early treatment and a greatly increased hope of recovery. In the past four years during which these facilities have been offered, 146 individuals suffering from various local infections and injuries have been specially examined, and of these, seven were found to be cases of anthrax, and as such reaped the benefit of prompt serum treatment.

ENTERIC FEVER.

During the year there occurred 71 cases of enteric fever, of which 70 were of indigenous origin and one case was imported from overseas.

The types of infection and the number of deaths occurring in each type are given in Table IX.

TABLE IX.

ENTERIC FEVER.

TYPES OF INFECTION AND NUMBER OF DEATHS OCCURRING IN EACH TYPE.

Type.	Indigenous Cases.		Imported from Overseas	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid Fever	18	1	1	—
Paratyphoid—A	—	—	—	—
Paratyphoid—B	51	—	—	—
Paratyphoid—C...	—	—	—	—
Not ascertained...	1	1	—	—
Total ...	70	2	1	—
Fatality rate	2·9%		Nil.	

The seventy cases of city origin represent a case-rate of 0·08 per 1,000 of the population, and the 2 deaths occurring among them represent a death-rate of 0·2 per 100,000 of the population.

The decline in the prevalence of enteric fever has been continuous for the past 38 years. Since 1894 the death-rate has been divided by 230 in falling from 46 to 0·2 per 100,000 of the population.

The 18 city cases of typhoid fever and 1 case of unknown type were sporadic in respect of their situation and the time of their occurrence. Five of these cases occurred during the first quarter of the year, five during the second quarter, five during the third quarter, and four during the fourth quarter.

On the other hand, 37 out of the 51 cases of paratyphoid B fever had dates of onset between July 1st and September 30th.

The age and sex distribution of these cases is as follows :—

Age	Males	Females	Total
Under 1 ...	—	—	—
1 + ...	1	2	3
2 + ...	2	3	5
5 + ...	9	6	15
10 + ...	8	3	11
15 + ...	3	5	8
20 + ...	2	4	6
30 + ...	1	—	1
40 + ...	—	—	—
50 + ...	—	2	2
70 + ...	—	—	—
Total ...	26	25	51

These cases were widespread over the city area. Enquiries failed to reveal any articles of food which could be incriminated. The young age of many of the patients and the prevalence of hot weather during the outbreak rendered the ice cream supplies suspect, although there was no ascertained source of this commodity common to more than one or two cases. Many samples of ice cream were taken consequently, but none of them revealed evidence of infection.

UNDULANT FEVER.

No cases of undulant fever were brought to the notice of the Health Department during the year.

DIPHTHERIA.

During 1933, 2,917 cases of diphtheria were reported, a case-rate of 3·4 per 1,000 of the population. Of these cases, 177 proved fatal, making a fatality rate of 6·1 per 100 cases and a mortality rate of 20·4 per 100,000 of the population.

In Table X are given the numbers of cases of diphtheria and of deaths from this disease during 1933 in the various districts of Liverpool.

TABLE X.

DIPHTHERIA—CASES AND DEATHS DURING 1933.

District.	Estimated Population, 1933.	Cases.	Deaths.	Attack Rate per 1,000 population.	Death Rate per 100,000 population.	Case Fatality Rate %	Percentage Proportion of Secondary to Primary Cases.	Percentage Proportion of Children 0-2 years to Total Cases.	Percentage Proportion of Children 0-5 years to Total Cases.
1. Exchange	74,822	281	17	3·7	22·7	6·0	3·5	5·3	36·3
2. Abercromby	41,996	158	13	3·8	31·0	8·2	1·9	7·6	30·4
3. Everton	110,963	466	28	4·2	25·2	6·0	6·2	4·3	28.7
4. Kirkdale	64,298	210	13	3·3	20·2	6·1	3·8	4·8	30·9
5. Edge Hill	81,507	223	15	2·7	18·4	6·7	2·7	4·9	33·6
6. Toxteth	134,898	378	32	2·8	23·7	8·5	4·2	4·0	27·0
7. Walton	89,888	263	15	2·9	16·7	5·7	3·4	3·0	20·9
8. West Derby	102,304	374	11	3·6	10·7	2·9	9·4	3·2	21·1
9. Wavertree	101,871	252	13	2·5	12·8	5·1	6·7	3·6	22·2
10. Fazakerley	56,386	299	19	5·3	33·7	6·3	5·7	2·7	21·4
11. Woolton	7,080	13	1	1·8	14·1	7·7	—	—	30·8
Central Districts (1 to 2)	116,818	439	30	3·8	25·7	6·8	3·0	6·1	34·2
Middle Districts (3 to 7)	481,554	1,540	103	3·2	21·4	6·6	4·4	4·1	28·0
Outer Districts (8 to 11)	267,641	938	44	3·5	16·4	4·7	7·3	3·1	21·6
Whole City	866,013	2,917	177	3·4	20·4	6·1	5·1	4·1	26·9

In Table XI are given the number of cases of diphtheria and of deaths from this disease during 1933, and also during nine previous years.

TABLE XI.

DIPHTHERIA—CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEAI

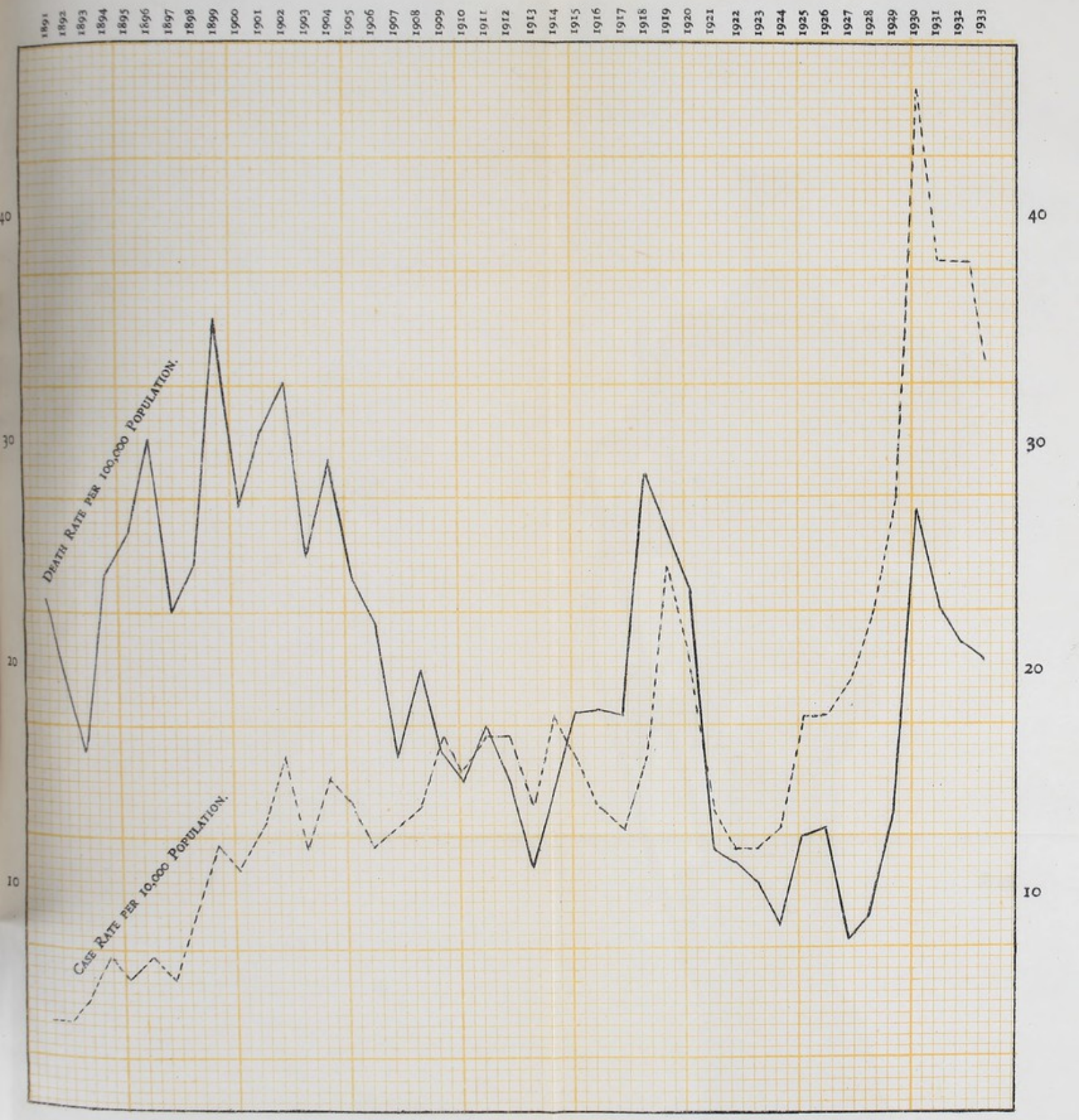
	1924	1925	1926	1927	1928	1929	1930	1931	1932	
Cases	1,105	1,504	1,519	1,664	1,902	2,336	4,023	3,256	3,312	2
Case-rate per 1,000 population	1·3	1·8	1·8	1·9	2·2	2·7	4·6	3·8	3·8	
Deaths	71	106	112	90	100	139	236	197	184	
Death-rate per 100,000 population ...	8·5	12·6	13·2	10·5	11·5	15·9	26·8	23·0	21·3	
Fatality rate per 100 cases	6·4	7·0	7·4	5·4	5·3	5·9	5·9	6·0	5·5	

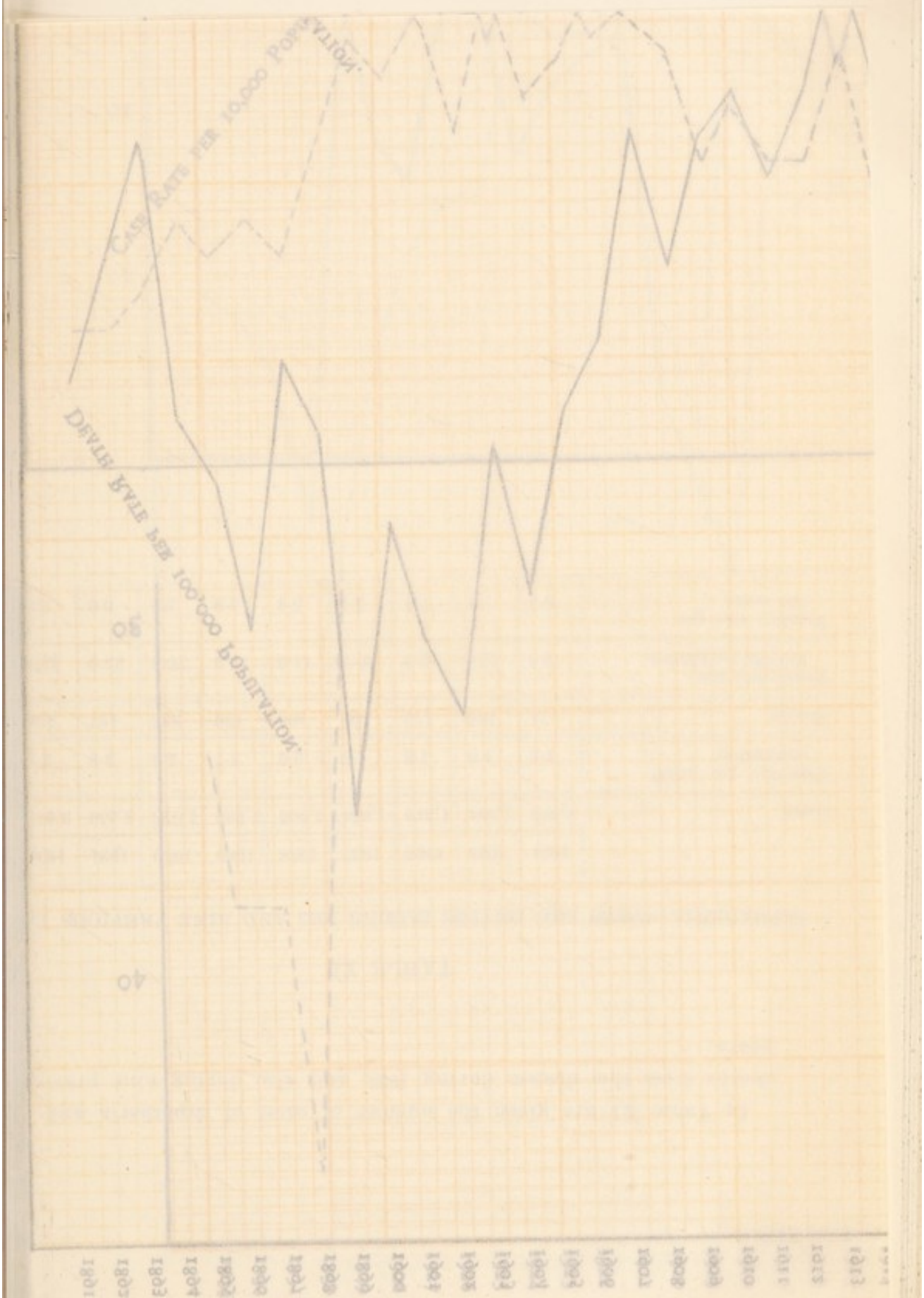
Prior to 1857 there were no records of the deaths from diphtheria, the heading croup presumably containing all the deaths from this disease; from 1858 onwards, however, the term diphtheria has steadily replaced croup as a certified cause of death.

The accompanying graphs show how great has been the decline in the fatality of this disease since 1892, and also the fluctuations and decline in the annual number of cases during the same period of time.

CITY OF LIVERPOOL.

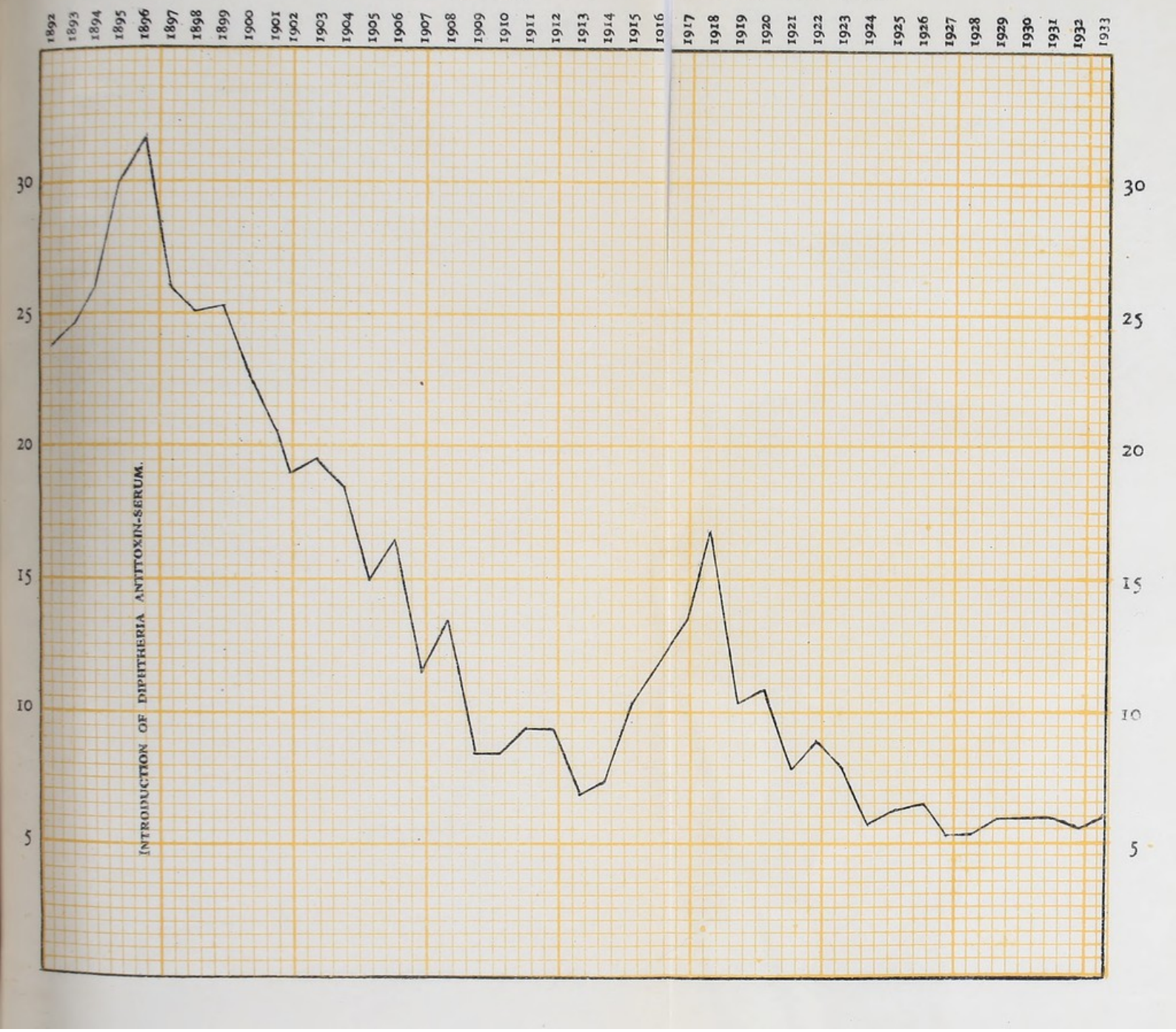
DIPHTHERIA 1891-1933. CASE RATES PER 10,000 POPULATION AND DEATH RATES PER 100,000 POPULATION.




Case Rate per 10,000 Population.
Death Rate per 100,000 Population.

CITY OF LIVERPOOL.

DIPHTHERIA 1892-1933. FATALITY RATES PER 100 CASES.



INTRODUCTION OF DIPHTHERIA ANTITOXIN-SERUM
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25
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In Table XII are given details relating to ages at death, ages of notified cases, and percentage fatality at various ages, etc.

TABLE XII.

DEATHS FROM DIPHTHERIA.

DISTRICTS.	Quarters.								Year 1933		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Exchange	1	1	3	2	3	2	4	1	11	6	17
Abercromby	...	1	2	1	3	3	2	1	7	6	13
Everton	6	6	1	3	2	3	2	5	11	17	28
Kirkdale	1	1	4	2	1	1	1	2	7	6	13
Edge Hill	1	4	1	3	2	1	1	2	5	10	15
Toxteth	1	1	5	4	5	4	6	6	17	15	32
Walton	3	2	2	1	1	1	1	4	7	8	15
West Derby	...	1	1	1	...	1	4	3	5	6	11
Wavertree	1	3	2	2	...	...	2	3	5	8	13
Fazakerley	1	2	2	4	3	1	3	3	9	10	19
Woolton	...	1	...	...	...	...	...	...	...	1	1
City	15	23	23	23	20	17	26	30	84	93	177

Ages at Death.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
4	14	19	21	25	72	13	2	2	2	2	...	1	177

Ages of Notified Cases.

14	106	185	226	253	1153	525	165	184	79	23	3	1	2917
66·4%						33·6%							

Percentage Fatality at each age.

28.6	13·2	10·3	9·3	9·9	6·2	2·5	1·2	1·1	2·5	8·7	...	100·0	6·1

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

It was in 1890 that diphtheria and membranous croup became notifiable. In 1895 treatment by antitoxin was introduced. Since that time there has been a steady reduction in the fatality-rate. Whereas in 1895, 31 patients out of every 100 died in Liverpool, the percentage fatality-rate now varies between 5% and 7%. This favourable result is greatly helped by the admission to hospital of all patients willing to go. During 1933, 2,799 patients were admitted to hospital out of 2,917 cases notified, an admission rate of 96%.

It was hoped at one time that extensive hospitalization and improvements in treatment would result in a material reduction in the number of cases occurring. This has not been so. On the contrary, in Liverpool, there has been a considerable rise in the number of cases and, since 1929, there has been an epidemic which has taxed the hospital accommodation severely and has given rise to considerable anxiety.

There is reason to believe that the way out of this dilemma lies in the extensive protection of children against diphtheria by means of inoculation. In later paragraphs (1) the steps which have been taken successfully in this direction are described.

SCARLET FEVER.

During 1933, 5,286 cases of scarlet fever were reported, a case-rate of 6·1 per 1,000 of the population. Of these cases, 27 proved fatal, making a fatality-rate of 0·51 per 100 cases, and a mortality-rate of 3·1 per 100,000 of the population.

In Table XIII are given the numbers of cases of scarlet fever and of deaths from this disease during 1933 in the various districts of Liverpool.

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(1) Page 52.

TABLE XIII.

SCARLET FEVER—CASES AND DEATHS DURING 1933.

District.	Estimated Population, 1933.	Cases.	Deaths.	Attack Rate per 1,000 population.	Death Rate per 100,000 population.	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. Exchange	74,822	439	1	5·9	1·3	0·2	5·7	4·6	28·9
2. Abercromby	41,996	188	2	4·5	4·8	1·1	7·4	5·3	23·4
3. Everton	110,963	677	3	6·1	2·7	0·4	7·1	6·2	27·6
4. Kirkdale	64,298	416	1	6·5	1·5	0·2	9·4	4·6	28·1
5. Edge Hill	81,507	445	2	5·5	2·4	0·5	4·9	2·5	24·7
6. Toxteth	134,898	854	6	6·3	4·4	0·7	6·4	4·2	20·6
7. Walton	89,888	542	2	6·0	2·2	0·4	6·1	2·8	21·0
8. West Derby	102,304	708	2	6·9	1·9	0·3	9·2	2·6	19·8
9. Wavertree	101,871	498	4	4·9	3·9	0·8	10·5	1·6	16·5
10. Fazakerley	56,386	506	4	8·9	7·1	0·8	8·7	5·3	25·1
11. Woolton	7,080	13	—	1·8	—	—	7·7	—	—
Central Districts (1 to 2)	116,818	627	3	5·4	2·6	0·5	6·2	4·8	27·3
Middle Districts (3 to 7)	481,554	2,934	14	6·1	2·9	0·5	6·7	4·2	24·0
Outer Districts (8 to 11)	267,641	1,725	10	6·4	3·7	0·6	9·4	2·5	20·2
Whole City	866,013	5,286	27	6·1	3·1	0·5	7·5	3·7	23·1

In Table XIV are given the numbers of cases of scarlet fever and of deaths from this disease during 1933 and also during nine previous years.

TABLE XIV.

SCARLET FEVER.

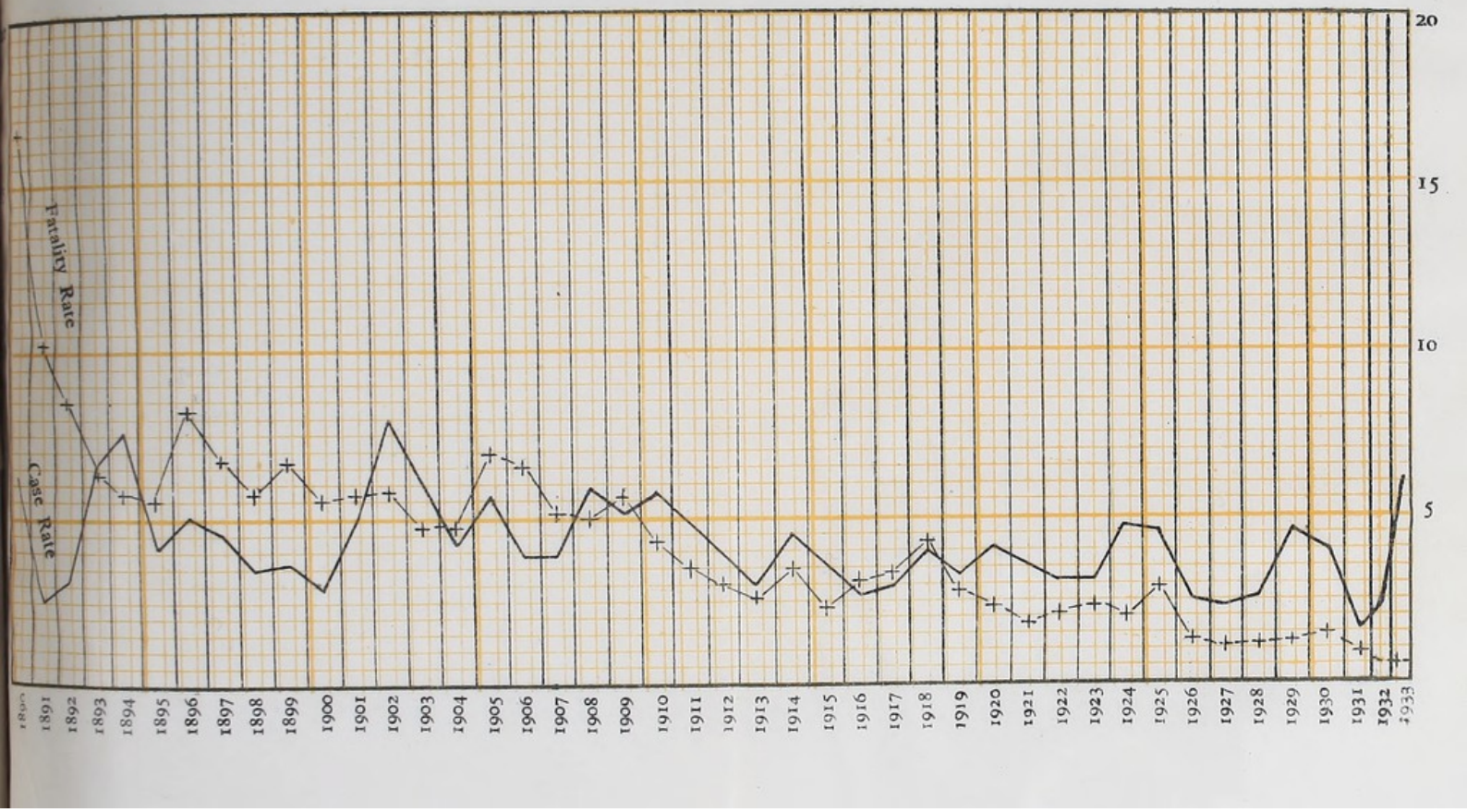
CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1
Cases	3,790	3,561	2,244	1,640	2,193	3,989	3,069	1,407	1,925	5
Case-rate per 1,000 inhabitants	4·5	4·2	2·6	1·9	2·5	4·6	3·5	1·6	2·2	
Deaths	63	93	24	12	19	41	35	11	11	
Death-rate per 100,000 inhabitants	7·4	11·0	2·8	1·4	2·2	4·7	4·0	1·2	1·3	
Fatality rate per 100 cases	1·7	2·6	1·1	0·7	0·9	1·0	1·1	0·8	0·6	

In Table XV are given details relating to ages at death, ages of notified cases and percentage fatality at various ages. etc. :—

CITY OF LIVERPOOL.

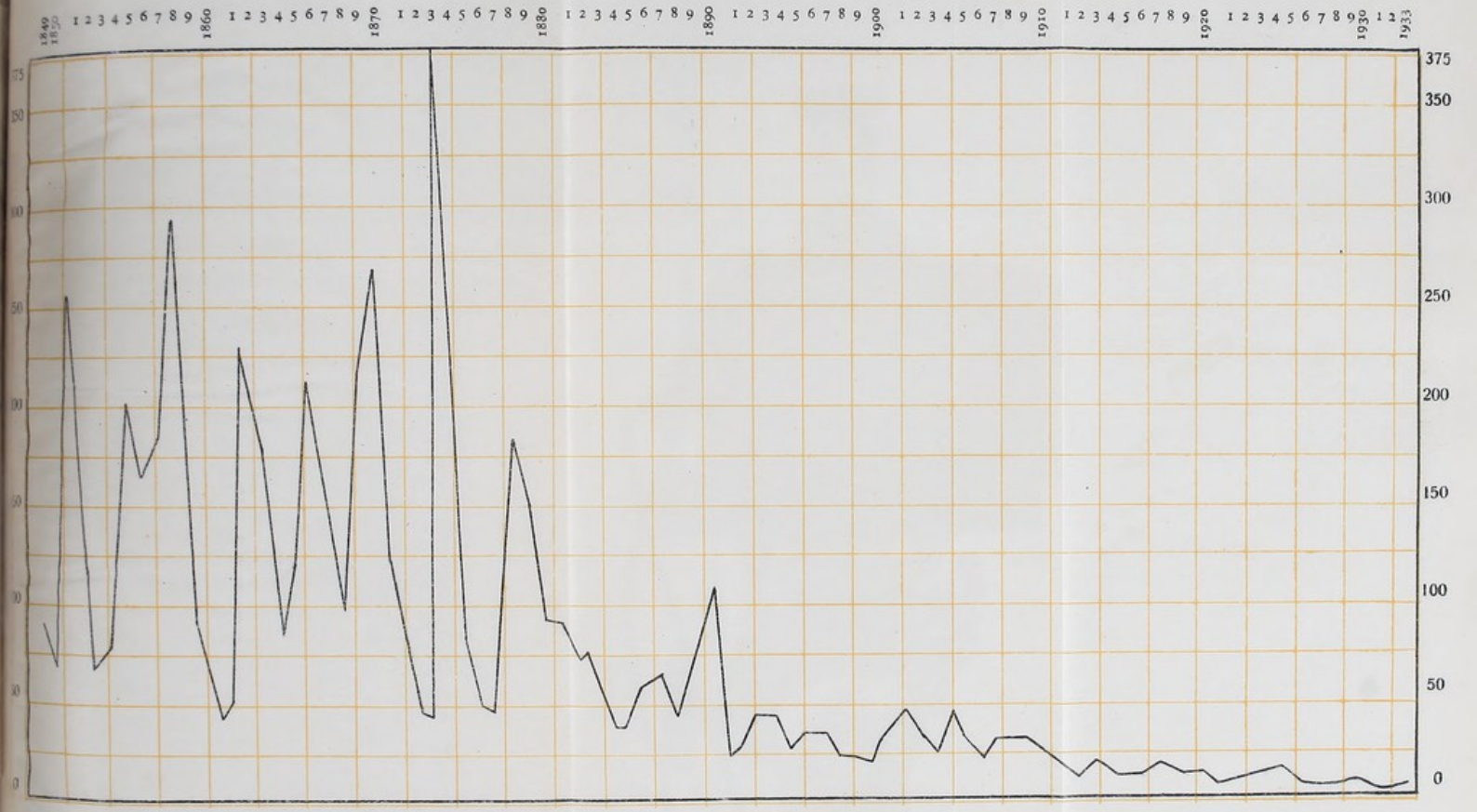
Scarlet Fever 1890—1933: Case Rates per 1000 Population, and Fatality Rates per 100 Cases.



Fatality Rate

Case Rate

CITY OF LIVERPOOL. Scarlet Fever Death Rates per 100.000 Population 1849-1933



CITY OF LIVERP

Death Rates per 100,000 Pop

1880 1 2 3 4 5 6 7 8 9 1890 1 2 3 4 5 6 7 8 9 1900 1 2 3 4 5 6 7 8 9 1910 1 2 3 4 5 6 7 8 9 1920 1 2 3 4 5 6 7 8 9 1930

TABLE XV.

DEATHS FROM SCARLET FEVER.

DISTRICTS.	Quarters. March. M.	F.	June. M.	F.	Sept. M.	F.	Dec. M.	F.	Year. 1933. M.	F.	Total
Exchange	...	...	...	...	...	...	1	...	1	...	1
Abercromby	...	1	...	1	...	...	...	...	...	2	2
Everton	...	...	1	1	...	...	1	...	2	1	3
Kirkdale	...	...	...	...	..	...	1	...	1	...	1
Edge Hill	...	1	...	...	...	...	...	1	...	2	2
Toxteth	1	1	...	...	1	...	1	2	3	3	6
Walton	1	...	...	...	...	...	...	1	1	1	2
West Derby	...	1	...	...	...	1	...	...	...	2	2
Wavertree	1	...	...	...	...	...	2	1	3	1	4
Fazakerley	1	...	...	...	1	...	1	1	3	1	4
Woolton	...	...	...	...	...	...	...	...	...	...	...
City	4	4	1	2	2	...	7	6	14	13	27

Ages at Death.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60 and upwards.	All Ages.
1	4	9	3	2	1	1	2	...	1	...	3	...	27

Ages of Notified Cases.

38	158	243	384	400	2398	1132	223	194	86	21	7	2	5286
		23·1%			45·5%	21·4%			10·1%				

Percentage Fatality at each age.

2·6	2·5	3·7	0·8	0.5	0·04	0·1	0 9	...	1·2	...	42·8	..	0·5

N.B.—Deaths in institutions are transferred to the districts from which the patients came.

During the second week in September there was a sharp rise in the number of scarlet fever cases notified, and from that date until the end of the year a severe epidemic prevailed. Whereas 2,347 cases were notified during the first eight months of the year, 2,939 cases were brought to notice during the last four months. Fortunately the disease has been of the mild type which has prevailed in England during recent years.

It has been the practice in Liverpool to admit to hospital a high proportion of the cases notified. For example, during 1932, 1,673 patients were admitted to hospital out of 1,925 cases notified, an admission rate of 87 per cent. However, with a total of 5,286 cases notified during 1933, over two and a half times as many as during 1932, it was impossible to maintain so high an admission rate. Nevertheless, 3,780 cases were admitted to hospital, or 71 per cent. of the total. This was no mean achievement in spite of the generous accommodation available.

It was principally during the last four months of the year that admissions to hospital had to be restricted. Of the 2,347 cases notified during the first eight months, 2,197 (93 per cent.) were admitted to hospital, and of the 2,939 notified during the last four months, 1,583 (54 per cent.) were admitted. The medical practitioners of Liverpool were asked to distinguish on their notifications the urgent from the non-urgent cases and many of them did so. With this information and with the assistance of home inquiries made by the staff, it was possible to distinguish between those who ought to be in hospital and those who could be treated adequately at home.

IMMUNIZATION AGAINST DIPHTHERIA AND SCARLET FEVER.

The development of the scheme for inoculation against diphtheria and scarlet fever during the years 1925 to 1932 was described in the annual report for 1932. During 1933 the work has been continued on similar lines with the results described in the tables which follow. It will facilitate description if inoculation against diphtheria and inoculation against scarlet fever are dealt with separately.

INOCULATION AGAINST DIPHTHERIA.

In Table XVI is given a numerical summary of the number of completed inoculations against diphtheria since 1925.

TABLE XVI.

NUMBER OF COMPLETED DIPHTHERIA INOCULATIONS.

Where or by whom inoculated.	1925	1926	1927	1928	1929	1930	1931	1932	1933
INOCULATION CLINICS :									
Carnegie	...	...	...	...	...	68	366	572	333
Townsend Avenue	...	...	...	...	...	...	...	381	340
SCHOOLS :									
Public Elementary	...	...	...	...	...	...	153	3904	3895
Residential	...	231	49	22	59	76	123	264	681
MUNICIPAL HOSPITALS :									
Fazakerley	...	...	...	...	31	116	493	635	1264
Fever Hospitals—North, South and East	...	...	...	...	...	...	57	151	141
Alder Hey	...	...	...	...	...	...	62	121	132
Olive Mount	...	...	...	...	...	38	...	174	277
Miscellaneous	16	98	55	90	93	171	190	272	173
Medical Practitioners ...	...	...	...	...	...	15	99	173	135
TOTALS	16	329	104	112	183	484	1543	6647	7371
								GRAND TOTAL ...	16,789

In addition to the 7,371 persons, each of whom during 1933 received three injections of diphtheria prophylactic, there were 701 persons each of whom received two injections only and who failed to attend for the third dose. In all probability these persons received from this incomplete treatment some degree of protection.

On two occasions the medical practitioners of Liverpool have been asked to avail themselves of the offer of diphtheria prophylactic provided free of charge by the Health Department, but the response has been very disappointing. During the year the work of private practitioners accounted for 2 per cent. only of the total work accomplished, 135 persons treated out of a total of 7,371.

An analysis according to age of the persons who had completed a full immunization course is given in Table XVII.

TABLE XVII.

Age at date of inoculation.	1925	1926	1927	1928	1929	1930	1931	1932	1933	
Under 1 year...	2	0	0	0	0	16	53	27	19	
1 year ...	3	0	1	0	0	35	150	183	187	
2 years ...	4	0	0	2	0	51	89	189	219	Total under 5 years of age at the end of 1933: 2,068
3 years ...	2	0	1	8	1	60	82	189	246	
4 years ...	1	3	10	14	7	39	103	253	466	
5 years ...	0	16	12	20	13	26	112	1,224	1,375	
6 years ...	0	15	9	22	44	13	94	1,405	1,583	
7 years ...	0	7	6	11	44	15	99	1,048	1,357	Total 5-9 years of age at the end of 1933: 10,346
8 years ...	1	23	9	11	14	18	81	585	519	
9 years ...	0	24	5	9	9	21	86	351	266	
10 years and over	3	241	51	15	51	190	594	1,193	1,134	Total 10 years of age and over at the end of 1933: 4,375

TABLE XVIII.

DETAILS of 24 CASES OF DIPHTHERIA OCCURRING MORE THAN 12 WEEKS AFTER THE THIRD INJECTION OF DIPHTHERIA PROPHYLACTIC. SCHICK TESTING AFTER INOCULATION WAS NOT DONE.

Initials.	Age.	Dates of inoculation.			Material used.	Doses on each occasion.	Interval in weeks between last dose and the illness.	Where treated.	Confirmation of Diagnosis.				Termination of illness.	Remarks.
									Clinical.	Morphological diphtheria bacilli.	Organism Virulent or Avirulent.	Result of Schick test.		
(1)	(2)	(3)			(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
D.P. ...	9	19.3.32	2.4.32	16.4.32	T.A.F.	1 c.c.	39	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case. 18,000 units of serum.
G.Q. ...	10	6.3.30	12.3.30	30.3.30	M.T. Toxoid	1 c.c.	150	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Moderately severe case. 60,000 units of serum. No sequelae.
R.O. ...	14	5.11.30	12.11.30	19.11.30	M.T. Toxoid	1 c.c.	118	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case. 16,000 units of serum. No sequelae.
M.W. ...	8	2.9.32	16.9.32	30.9.32	T.A.F.	1 c.c.	22	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Positive.	Recovery.	Mild case.
D.W. ...	10	2.2.32	10.2.32	16.2.32	M.T. Toxoid	1 c.c.	54	City Hospital North	Yes.	Yes.	Virulent.	Not done.	Recovery.	Severe case. Palatal paralysis. 100,000 units of serum.
K.G. ...	14	16.2.28	23.2.28	1.3.28	M.T. Toxoid	1 c.c.	263	City Hospital North	Yes.	Yes.	Virulent.	Not done.	Recovery.	Moderately severe case. 60,000 units of serum. No sequelae.
P.S. ...	11	30.9.30	9.10.30	16.10.30	M.T. Toxoid	1 c.c.	124	City Hospital North	Yes.	Yes.	Virulent.	Not done.	Recovery.	Moderately severe case. 64,000 units of serum. Heart muscle affected.
B.J. ...	8	3.10.32	24.10.32	7.11.32	T.A.F.	1 c.c.	25	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case. 16,000 units of serum. No sequelae.
K.V. ...	4	1.9.31	8.9.31	15.9.31	M.T. Toxoid	1 c.c.	84	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Death.	Severe case. 120,000 units of serum. Died of heart failure 3 days after admission.
J.K. ...	6	30.5.32 T.A.M.	13.6.32 T.A.F.	27.6.32 T.A.F.	T.A.M. and T.A.F.	1 c.c.	46	City Hospital South	Yes.	Yes.	Virulent.	Not done.	Recovery.	Moderately severe case. 28,000 units of serum. No sequelae.
B.C. ...	7	18.12.32	27.12.32	8.1.33	T.A.M.	1 c.c.	70	Home	Yes.	Yes.	Not known.	Not done.	Recovery.	Mild case.
D.F. ...	8	22.10.32	5.11.32	19.11.32	T.A.M.	1 c.c.	43	City Hospital, Fazakerley	Yes.	Yes.	Virulent.	Negative.	Recovery.	Very mild case. 4,000 units of serum.
R.W. ...	3	15.9.31	22.9.31	29.9.31	M.T. Toxoid	1 c.c.	103	City Hospital, Fazakerley.	Yes.	Yes.	Not known.	Not done.	Recovery.	Organisms too few for virulence test. Urgent tracheotomy needed, hence omission of Schick test.
L.F. ...	8	30.11.32	14.12.32	25.1.33	T.A.F.	1 c.c.	35	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case. 24,000 units of serum.
J.H. ...	7	2.3.32	17.3.32	8.4.32	M.T. Toxoid and T.A.F.	$\frac{1}{2}$ c.c. + 2×1 c.c.	79	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Death.	Very severe case. 160,000 units of serum. Death 24 days after admission.
R.W. ...	5	3.2.31	17.2.31	24.2.31	M.T. Toxoid	1 c.c.	139	City Hospital East	Yes.	Yes.	Virulent.	Negative.	Recovery.	Mild case. 20,000 units of serum. No sequelae.
W.D. ...	3	21.4.31	28.4.31	5.5.31	M.T. Toxoid	1 c.c.	133	City Hospital, Fazakerley.	Yes.	No.	—	Not done.	Recovery.	Mild case. 10,000 units of serum.
F.H. ...	7	5.10.32	26.10.32	9.11.32	T.A.F.	1 c.c.	54	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Negative.*	Recovery.	Moderately severe case. 16,000 units of serum. *Schick test may have been negative because serum was given four hours after the test was performed.
B.A. ...	7	8.1.32	15.1.32	22.1.32	T.A.M.	1 c.c.	94	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case. Serum before admission, hence omission of Schick test.
D.J. ...	7	8.11.32	16.11.32	23.11.32	T.A.M.	1 c.c.	53	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Not done.	Recovery.	Very mild case. Serum before admission, hence omission of Schick test.
D.B. ...	7	6.10.32	27.10.32	10.11.32	T.A.F.	1 c.c.	58	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Not done.	Recovery.	Severe case. Schick test not done for reasons of urgency.
C.B. ...	8	5.10.32	26.10.32	9.11.32	T.A.F.	1 c.c.	59	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Negative.	Recovery.	Mild case.
W.J. ...	7	11.5.33	25.5.33	15.6.33	T.A.F.	1 c.c.	24	City Hospital North	No.	Yes (Nasal swab)	Not known.	Not done.	Recovery.	Diagnosis based on palatal paralysis and myocardial damage. 26,000 units of serum.
J.B. ...	13	16.6.32	30.6.32	28.7.32	T.A.F.	1 c.c.	74	City Hospital North	Yes.	Yes.	Virulent.	Not done.	Recovery.	Moderately severe case. 40,000 units of serum. Heart muscle affected.

To face page 55.

TABLE XIX.

DETAILS OF 4 CASES OF DIPHTHERIA OCCURRING WITHIN 12 WEEKS OF THE LAST INJECTION OF DIPHTHERIA PROPHYLACTIC.

Initials. (1)	Age. (2)	Dates of inoculation. (3)			Material used. (4)	Dose on each occasion. (5)	Interval in weeks between last dose and the illness. (6)	Where treated. (7)	Confirmation of diagnosis.				Termination of illness. (12)	Remarks. (13)
									Clinical. (8)	Morphological diphtheria bacilli. (9)	Organism Virulent or Avirulent. (10)	Result of Schick test. (11)		
N.H. ...	16	27.2.33	13.3.33	27.3.33	T.A.F.	1 c.c.	7⅛	City Hospital, Fazakerley.	Yes.	Yes.	Virulent.	Positive.	Recovery.	Mild case.
E.McC.	5	23.1.33	9.2.33	16.2.33	T.A.F.	1 c.c.	11⅛	City Hospital North	Yes.	Yes.	Not known.	Not done.	Recovery.	Mild case.
F.F. ...	8	3.4.33	10.4.33	17.4.33	T.A.F.	1 c.c.	8	City Hospital East	Yes.	Yes.	Virulent.	Not done.	Recovery.	Mild case.
J.B. ...	6	9.5.33	25.5.33	13.6.33	T.A.F.	1 c.c.	3⅛	City Hospital East	Yes.	Yes.	Not known.	Not done.	Death.	Medical advice not sought until fourth day of illness. 80,000 units of serum.

TABLE XX.

DETAILS OF 7 DOUBTFUL CASES OF DIPHTHERIA OCCURRING MORE THAN 12 WEEKS AFTER THE THIRD INJECTION OF DIPHTHERIA PROPHYLACTIC. SCHICK TESTING AFTER INOCULATION WAS NOT DONE.

Initials. (1)	Age. (2)	Dates of inoculation. (3)			Material used. (4)	Dose on each occasion. (5)	Interval in weeks between last dose and the illness. (6)	Where treated. (7)	Confirmation of Diagnosis.				Termination of illness. (12)	Remarks. (13)
									Clinical. (8)	Morphological diphtheria bacilli. (9)	Organism Virulent or Avirulent. (10)	Result of Schick test. (11)		
P.L. ...	15	8.11.29	25.11.29	14.12.29	M.T. Toxoid	1 c.c.	168	City Hospital, Fazakerley.	Doubtful	Yes.	Virulent.	Not done.	Recovery.	Very doubtful case of diphtheria. Serum given before admission, hence omission of Schick test.
D.F. ...	8	9.3.32	23.3.32	11.4.32	M.T. Toxoid	½ c.c. followed by 2 × 1 c.c.	51	City Hospital East	Doubtful	No.	—	Not done.	Recovery.	
M.F. ...	7	3.10.32	24.10.32	7.11.32	T.A.F.	1 c.c.	21	City Hospital East	Doubtful	Yes.	Unknown.	Not done.	Recovery.	Probably tonsillitis in a diphtheria carrier.
H.W. ...	9	3 doses in 1930			T.A.M.	1 c.c.	130	City Hospital, Fazakerley.	Doubtful	Yes.	Unknown.	Not done.	Recovery.	Congestion of throat only, no membrane.
M.C. ...	5	3.12.32	18.12.32	4.2.32	M.T. Toxoid and T.A.M.	1 c.c.	25	City Hospital, Fazakerley.	Doubtful	Yes.	Virulent.	Negative.	Recovery.	Probably tonsillitis in a diphtheria carrier.
G.F. ...	5	17.10.32	31.10.32	14.11.32	T.A.F.	1 c.c.	50	City Hospital, Fazakerley.	Doubtful	Yes.	Virulent.	Negative.	Recovery.	Probably tonsillitis in a diphtheria carrier.
J.F. ...	8	29.2.32	7.3.32	14.3.32	T.A.F.	1 c.c.	99	City Hospital East	Doubtful	Yes.	Unknown.	Negative.	Recovery.	Probably tonsillitis in a diphtheria carrier.

It is the children under 10 years of age who are the more important, and the greater the number of persons of this age who are immunized the better. One of the practical difficulties in this work is that of securing the immunization of a high proportion of infants under 5 years of age. Clearly, it is more valuable to the community to protect very young children than it is to protect older ones, having regard to the fact that children, as they grow older, tend to become immune as the result of repeated sub-infections.

THE OCCURRENCE OF DIPHTHERIA IN INOCULATED PERSONS.

During the year 9 cases of diphtheria occurred in persons previously inoculated with T.A.F., 5 among persons inoculated with M.T. Toxoid, 4 among those inoculated with T.A.M., and 2 among a number who had been given one dose of either T.A.M. or M.T. Toxoid followed by two doses of T.A.F. These cases are described in detail in Table XVIII. In addition, 4 cases of diphtheria occurred in children within 12 weeks of the completion of their inoculation (Table XIX). Finally, 7 very doubtful cases of diphtheria in inoculated persons are described in Table XX.

COMPARATIVE CASE-RATES.

In table XXI are given the comparative case-rates among non-inoculated persons and those who had been inoculated either with T.A.F. or M.T. Toxoid.

TABLE XXI.

COMPARATIVE CASE-RATES DURING 1933 AMONG INOCULATED AND NON-INOCULATED PERSONS.

NOT INOCULATED.				INOCULATED.				
				T.A.F.			M.T. Toxoid.	
Age in 1933.	Population not inoculated.	Cases of diphtheria.	Case-rate per 1,000.	Population inoculated with T.A.F. at 31.5.33.	Cases of diphtheria during 1933.	Case-rate per 1,000. 1933.	Population inoculated with M.T. Toxoid at 31.5.33.	Cases of diphtheria during 1933.
Under 1	17,067	14	0·8	9	0	Nil.	0	0
1+	16,447	106	6·4	94	0	Nil.	3	0
2+	15,876	185	11·6	201	0	Nil.	103	0
3+	15,630	224	14·3	229	0	Nil.	199	2
4+	15,355	252	16·4	402	0	Nil.	132	1
5+	14,562	354	24·3	866	0	Nil.	142	1
6+	13,440	272	20·2	1,768	0	Nil.	239	0
7+	13,708	209	15·2	1,894	3	1·6	229	0
8+	15,308	162	10·6	1,081	4	3·7	222	0
9+	16,749	141	8·4	554	1	1·8	244	0
Total under 10	154,142	1,919	12·4	7,098	8	1·1	1,513	4
10+	684,828	974	1·4	2,020	1	0·5	1,608	5

It is noteworthy that the case-rate among children under 10 years of age who had been inoculated with T.A.F. was only one-eleventh the rate among children not inoculated. The rate among children inoculated with M.T. Toxoid was approximately one-fifth of that among children not inoculated, figures less favourable than those resulting from the use of T.A.F. It was for that reason that the use of M.T. Toxoid was discontinued in May, 1932.

A few persons (359) have been inoculated at one time or another with T.A.M. Among these, 4 cases of diphtheria occurred. The use of this material was discontinued at the end of 1933. Finally, a few

persons (412) were inoculated with one dose of M.T. Toxoid or T.A.M. followed by two doses of T.A.F. Among these, 2 cases of diphtheria occurred. As already mentioned, these cases are described in Table XVIII.

Towards the end of 1933 the recently introduced strong formol toxoid (F.T.) was given to children under 4 years of age who attended one or other of the two inoculation clinics. The absence of reactions has led to the inclusion of 4-year-old children among those to whom this prophylactic is now given with equally satisfactory results so far as freedom from reaction is concerned. By the end of the year 92 children had received three doses of F.T., and the experience gained has led to the decision to give during 1934 F.T. to all children under 5 years of age and reserve the use of T.A.F. for all persons of 5 years of age and over. There is reason to believe that the greater antigenic strength of F.T. will result in a higher resistance against diphtheria. However, its greater liability to produce reactions in older children limits its use to those who are young.

Two deaths from diphtheria occurred in children who had been inoculated. In one case the patient had been given three doses of M.T. Toxoid and in the other case there had been given one dose of M.T. Toxoid followed by two doses of T.A.F.

The efficacy of a diphtheria prophylactic is shown by the comparative case-rates among those inoculated and those not inoculated, and Table XXI above shows how great is the protection against diphtheria afforded by inoculation with T.A.F. Another way of checking the efficacy of a diphtheria prophylactic is that of Schick testing before and after inoculation in order to determine what proportion of Schick positive persons become Schick negative. During the year 110 Schick positive persons were inoculated with three 1c.c. doses of T.A.F. at fortnightly intervals, and all of them were found to be Schick negative three months later.

The total number of Schick tests carried out was 617, of which 137 were positive.

INOCULATION AGAINST SCARLET FEVER.

A numerical description of the number of persons inoculated against scarlet fever since 1927, the year in which this work commenced, is given in Table XXII, below.

TABLE XXII.

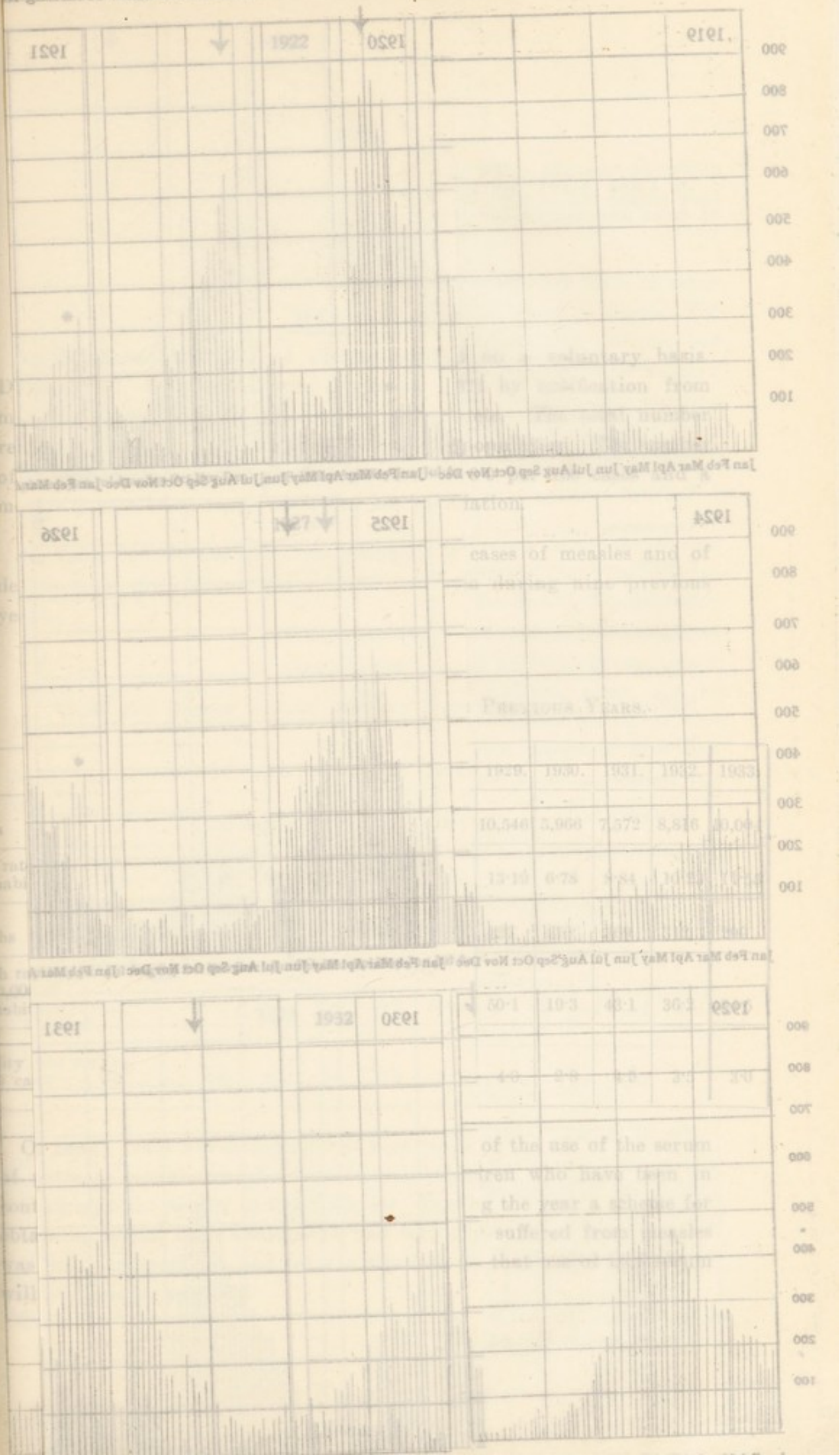
NUMBER OF COMPLETED SCARLET FEVER INOCULATIONS.

Where or by whom inoculated.	1927	1928	1929	1930	1931	1932	1933
INOCULATION CLINICS :							
Carnegie	—	—	—	60	352	508	303
Townsend Avenue	—	—	—	—	—	395	323
MUNICIPAL HOSPITALS :							
Fazakerley	—	—	—	—	165	197	121
Fever Hospitals—North, South and East	—	—	—	—	15	57	7
Alder Hey	—	—	—	—	36	111	132
Olive Mount	—	—	—	—	—	11	34
RESIDENTAL SCHOOLS	61	18	28	31	26	218	465
MISCELLANEOUS	—	65	195	9	178	191	74
MEDICAL PRACTITIONERS... ...	—	—	—	15	75	129	105
TOTALS ...	61	83	223	115	847	1,817	1,564

GRAND TOTAL ... 4,710

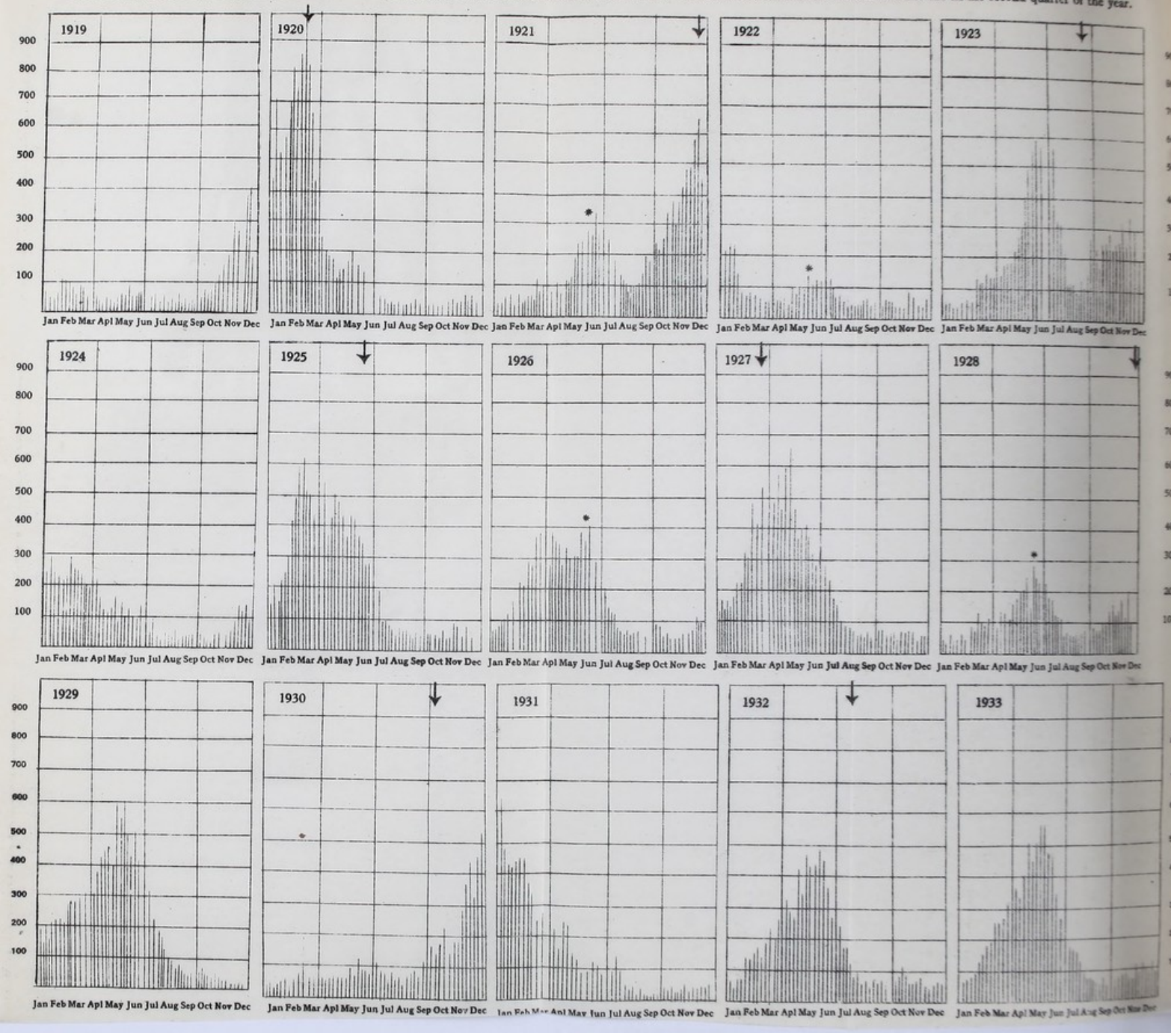
All these cases were given four doses of scarlet fever prophylactic and the majority of those inoculated during 1933 were given 500, 1,500, 6,000 and 20,000 skin test doses at weekly or fortnightly intervals.

During the year 294 Dick tests were carried out, of which 101 were positive.


1919.
1920
1921
1922
1924
1925
1926
1929
1930
1931
1932
900
800
700
600
500
400
300
200
100

CITY OF LIVERPOOL.

Cases of Measles during the years 1919 to 1933. The arrows show recurring intervals of 92 weeks. The asterisks indicate the normal seasonal rise in the second quarter of the year.



MEASLES.

In Liverpool measles is a disease notified on a voluntary basis. During 1933, 10,004 cases were reported, 8,372 by notification from medical practitioners and 1,632 from schools, etc. The total number represents a case-rate of 11·55 per 1,000 of the population. The number of deaths was 299, making a fatality-rate of 3·0 per 100 cases and a mortality-rate of 34·5 per 100,000 of the population.

In Table XXIII are given the numbers of cases of measles and of deaths from this disease during 1933 and also during nine previous years.

TABLE XXIII.

MEASLES.

CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
Cases	5,709	11,202	8,694	10,606	6,025	10,546	5,966	7,572	8,816	10,004
Case rate per 1,000 inhabitants	6·9	13·3	10·3	12·4	6·96	13·19	6·78	8·84	10·23	11·55
Deaths	148	406	221	345	177	427	170	369	312	299
Death rate per 100,000 inhabitants	17·7	48·3	26·0	40·3	20·4	50·1	19·3	43·1	36·2	34·5
Fatality rate per 100 cases	2·6	3·6	2·5	3·2	2·9	4·0	2·8	4·9	3·5	3·0

Of recent years increasing use has been made of the use of the serum of patients convalescent from measles in children who have been in contact with the disease in hospitals, etc. During the year a scheme for obtaining serum from adults who had formerly suffered from measles was put into operation and further reference to that use of this serum will be found on page 168.

In Table XXIV are given details relating to ages at death, ages of cases and percentage fatality at various ages, etc.

TABLE XXIV.
DEATHS FROM MEASLES.

DISTRICTS.	Quarters.								Year 1933		
	March		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Exchange	8	7	12	10	3	3	1	1	24	21	45
Abercromby	3	4	9	12	1	1	...	2	13	19	32
Everton	9	12	13	14	3	3	...	2	25	31	56
Kirkdale	3	2	5	7	4	3	1	1	13	13	26
Edge Hill	4	1	7	12	4	3	1	...	16	16	32
Toxteth	5	1	12	13	5	2	8	3	30	19	49
Walton	...	1	3	5	1	1	2	...	6	7	13
West Derby	2	4	5	4	...	...	...	...	7	8	15
Wavertree	2	3	1	5	...	1	...	1	3	10	13
Fazakerley	3	5	4	4	...	...	1	1	8	10	18
Woolton	...	...	...	...	...	...	...	...	...	...	...
City	39	40	71	86	21	17	14	11	145	154	299

Ages at Death.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
54	150	47	25	12	10	...	...	1	...	...	...	...	299

Ages of Cases.

638	1259	1129	1118	1148	4344	227	141	10004

Percentage Fatality at Each Age.

8·5	11·9	4·2	2·2	1·0	0·2	...	0·7	3·0

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

The mortality in measles depends mainly upon the age at which infection occurs. As shown in Table XXIV, 251 out of 299 deaths were in children under 3 years of age.

The experience of many years has shown that measles tends to recur in waves which follow each other at intervals of about 92 weeks. The periodic recurrences are very regular over considerable periods, but when the epidemic is due to reach its height in one of the three autumn months, August, September or October, it fails to do so, two maxima occurring instead, one before and the other after the expected date. On the other hand, when the epidemic is due to occur in the winter a severe outbreak may be anticipated.

An Order of the Ministry of Health authorises local authorities to provide medical assistance including nursing for the poorer inhabitants of their district, and two nurses of the Health Visitors' Staff are engaged on this work, assisted by other members of the staff as occasion requires. In consequence of the visits of these nurses, many children have benefited from the assistance and advice given, and in some instances children have been removed for hospital treatment who would otherwise have been left at home without adequate care and attention. The visits, etc., made by these nurses in the course of 1933 were as follows :—

New cases visited during the year	...	...	8,298
Cases nursed	,,	,,	...	...	559
Re-visits to cases	,,	,,	...	...	5,975

During 1933, 1,070 patients were admitted to hospital out of the 10,004 which came to the notice of the Health Department, an admission rate of 10·7%.

WHOOPING COUGH.

As whooping cough is not compulsorily notifiable, caution is necessary in drawing conclusions from the figures relating to cases and fatality-rates. During 1933, 987 cases came to the notice of the Health Department, a figure representing a case-rate of 1·14 per 1,000 of the population. Of these cases 93 proved fatal, corresponding to a death-rate of 10·7 per 100,000 of the population.

In Table XXV are given the numbers of cases of whooping cough and deaths from this disease during 1933 and also during nine previous years.

TABLE XXV.

WHOOPING COUGH.

CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

Years.	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Cases	2321	2274	1971	1988	2313	1876	1147	2267	1596	987
Deaths	169	227	188	125	269	198	75	189	148	93
Death rate per 100,000 of the population ...	20	27	22	15	31	23	8.5	22·1	17·2	10·7
Percentage of deaths to cases ...	7.3	9·9	9.5	6.3	11.6	10.5	5.5	8.3	9.3	9·4

Whooping cough is extremely fatal in the first two or three years of life and it is of the greatest importance that children of tender years be protected from possible sources of infection.

The considerable decline in the mortality from whooping cough during the last 80 years is shown in Table XXVI.

TABLE XXVI.

WHOOPING COUGH.

AVERAGE DEATH-RATE PER 100,000 INHABITANTS FROM 1850 TO 1933.

Year.	Average death-rate per 100,000.
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	23·4
1930	8·5
1931	22·1
1932	17·2
1933	10·7

CEREBRO-SPINAL FEVER.

Sixty-four cases of cerebro-spinal fever occurred during 1933, of which 45 (or 70 per cent.) proved fatal, making a death-date of 5·2 per 100,000 of the population. Fifty-eight (or 91 per cent.) of the cases were confirmed bacteriologically, and, in the remainder, there was clinical or post-mortem evidence of this disease.

In Table XXVII are given the numbers of cases of cerebro-spinal fever and of deaths from this disease during 1933 and also during nine previous years.

TABLE XXVII.

CEREBRO-SPINAL FEVER.

CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Cases	13	24	16	25	21	23	21	57	76	64
Deaths...	8	15	12	21	16	21	17	47	47	45
Fatality-rate per 100 cases	61·5	62·5	75·0	84·0	76·2	91·3	81·0	82·4	61·8	70·3

Details of the results of treatment of cases of cerebro-spinal fever are given in the sectional report on hospital administration.

ENCEPHALITIS LETHARGICA.

During 1933, 30 cases of encephalitis lethargica were notified to the Health Department for the first time. Of these cases 4 were suffering from the disease in an acute stage and in 26 the illness had passed the acute stage and become chronic. There were certified 21 deaths from encephalitis lethargica, of which 1 occurred in the 4 acute cases mentioned (a fatality-rate of 25 per cent.) and 20 occurred in chronic cases.

In Table XXVIII are given the numbers of cases of encephalitis lethargica and of deaths from this disease during 1933 and also during nine previous years.

TABLE XXVIII.

ENCEPHALITIS LETHARGICA.

CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
CASES:										
Acute	189	108	114	69	54	28	27	35	4	4
Chronic									17	26
DEATHS in										
Acute cases	22	44	29	25	24	26	18	26	2	1
Chronic cases ...									13	20
Fatality-rate per 100 acute cases ...	—	—	—	—	—	—	—	—	50·0	25·0

ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS).

During 1933, 10 cases of poliomyelitis were notified, of which 3, or 30 per cent., proved fatal. The cases were distributed through the year as follows:—January 1 case, April 1 case, August 5 cases, and September 3 cases. The notification of cases of poliomyelitis is undoubtedly very incomplete owing to the difficulties in diagnosis in respect of cases which do not proceed to the paralytic stage.

In Table XXIX are given the numbers of cases of poliomyelitis and of deaths from this disease during 1933 and also during nine previous years.

TABLE XXIX.

ACUTE ANTERIOR POLIOMYELITIS.

CASES AND DEATHS DURING 1933 AND NINE PREVIOUS YEARS.

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Cases	14	4	19	15	6	23	14	7	25	10
Deaths	4	1	5	2	5	10	6	4	11	3
Percentage of deaths to notified cases... ...	28·6	25·0	26·3	13·3	83·3	43·5	42·8	57·1	44·0	30·0

INFLUENZA AND OTHER RESPIRATORY DISEASES.

The mortality from respiratory diseases varies greatly from year to year being influenced by weather conditions and also by the prevalence of such diseases as influenza, measles and whooping cough.

During the Spring quarter of 1933 there was a very considerable epidemic of influenza which exerted a serious influence upon the death-rate of the city, as will be seen from an examination of Table XXXI. The outbreak began in December, 1932, and reached its maximum in the week ending February 4th. The total number of deaths ascribed to influenza was 342 against 128 in 1932. As in the more recent epidemics, the mortality was largely in the aged, but infants of tender years also suffered to a considerable extent and the rise in the infantile mortality rate in 1933 is partly to be ascribed to this cause. The increase over 1932 of 561 respiratory deaths, in addition to the deaths directly ascribed to influenza, was mainly the result of this epidemic. There was an increase of 402 in the notifications of influenza received.

The outbreak put a heavy tax upon the hospital accommodation of the city. The number of hospital beds was considerably extended, and in the week ending February 4th there were 3,980 general hospital beds occupied as against 3,480 in the corresponding week in 1934. It is evident that there should always be a margin of beds available in order to meet the recurrent demands of such outbreaks.

In Table XXX are given the average annual number of deaths due to respiratory diseases from 1871 to 1933, the percentage proportion of respiratory disease deaths to all deaths, the respiratory death-rate per 1,000 of the population and, finally, a comparison of the respiratory death-rate since 1880 with the average rate experienced in 1871-80 which has been called 100.

TABLE XXX.

DEATHS FROM RESPIRATORY DISEASES

(Including Influenza).

	Yearly average number of deaths.	Percentage proportion to all deaths.	Respiratory death-rate per 1,000 population.	Death-rates compared with the 1871-80 death-rate called 100.
1871-80 ...	2,976	20·2	5·7	100
1881-90 ...	3,251	23·2	5·9	104
1891-1900 ...	3,582	24·6	5·9	104
1901-10 ...	3,299	21·8	4·5	79
1911-20 ...	3,648	27·3	4·7	83
1921-30 ...	2,904	24·7	3·5	61·4
1931... ...	2,397	19·6	2·8	49·1
1932... ...	1,905	16·7	2·2	38·6
1933... ...	2,466	19·8	2·8	49·1

There has been a striking decline of the respiratory death-rate to a figure which is only 49·1 per cent. of the rate which prevailed during the years 1871-80.

In Table XXXI are shown the number of deaths from all causes, the number of deaths from influenza, pneumonia and bronchitis, and the total number of respiratory deaths which occurred week by week during 1933. These figures do not include the deaths of Liverpool residents which occurred outside the city.

TABLE XXXI.

WEEKLY DEATHS FROM RESPIRATORY DISEASES

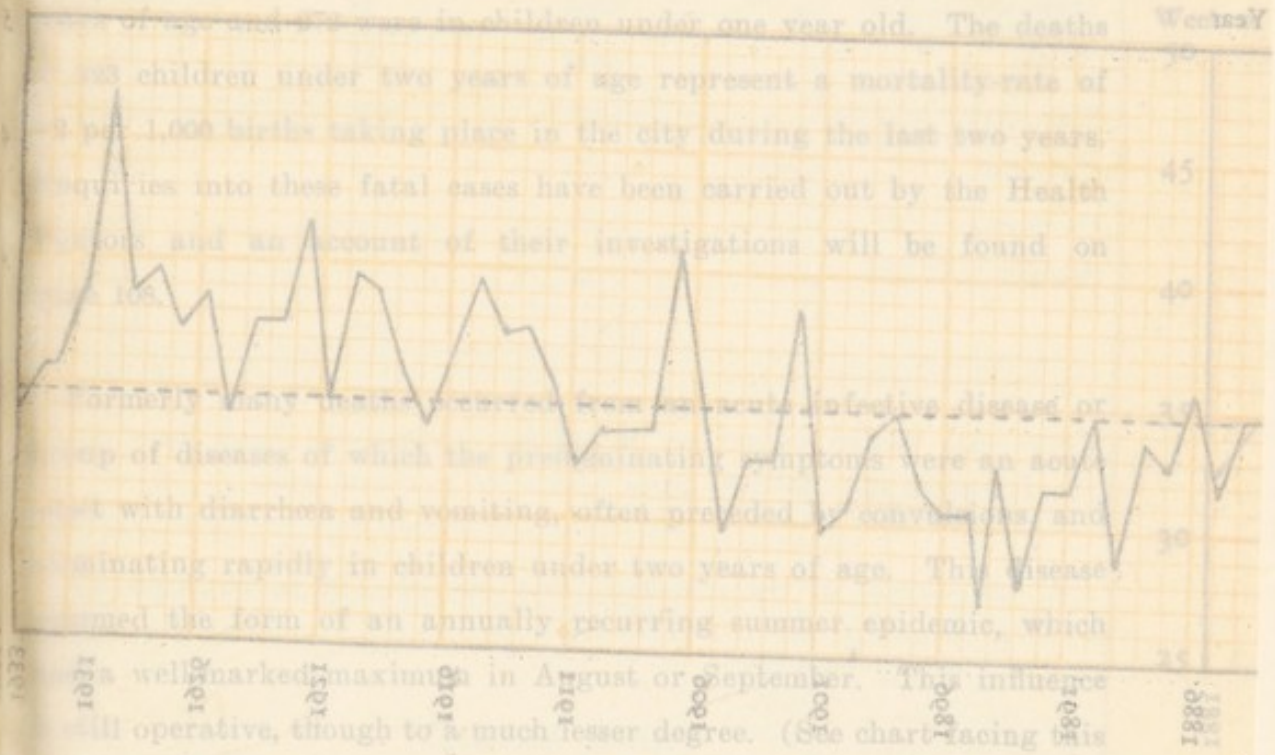
(INCLUDING INFLUENZA.)

1933. Week ended.	Total Deaths (all causes).	Weekly Death-rate per 1,000 of Estimated Population.	NUMBER OF DEATHS FROM				Percentage proportion of Respiratory Deaths to Total Deaths.
			Influenza.	Pneumonia and Broncho-pneumonia.	Bronchitis.	Total Respiratory Deaths.	
Jan. 7	344	20·7	23	65	32	100	29·0
,, 14	371	22·3	39	82	**46**	128	34·5
,, 21	404	24·3	**51**	60	42	108	26·7
,, 28	419	25·2	47	**83**	38	126	30·0
Feb. 4	**458**	**27·6**	49	79	42	129	28·1
,, 11	343	20·7	30	52	35	91	26·5
,, 18	245	14·8	18	38	24	64	26·1
,, 25	267	16·1	8	28	10	39	14·6
Mar. 4	250	15·1	4	33	14	52	20·8
,, 11	230	13·9	1	19	15	35	15·2
,, 18	255	15·4	4	24	16	43	16·9
,, 25	214	12·9	2	25	10	36	16·8
April 1	232	14·0	3	19	8	29	12·5
,, 8	229	13·8	2	16	16	38	16·6
,, 15	208	12·5	2	20	6	27	13·0
,, 22	204	12·3	1	23	9	35	17·1
,, 29	209	12·6	2	15	4	21	10·5
May 6	210	12·6	3	18	8	27	12·9
,, 13	222	13·4	2	20	8	28	12·6
,, 20	222	13·4	3	18	6	24	10·8
,, 27	187	11·3	1	11	1	15	8·0
June 3	187	11·3	—	15	4	22	11·7
,, 10	227	13·7	—	14	6	25	11·0
,, 17	197	11·9	1	21	4	30	15·2
,, 24	170	10·2	2	20	5	28	16·5

(The maxima are in heavy type.)

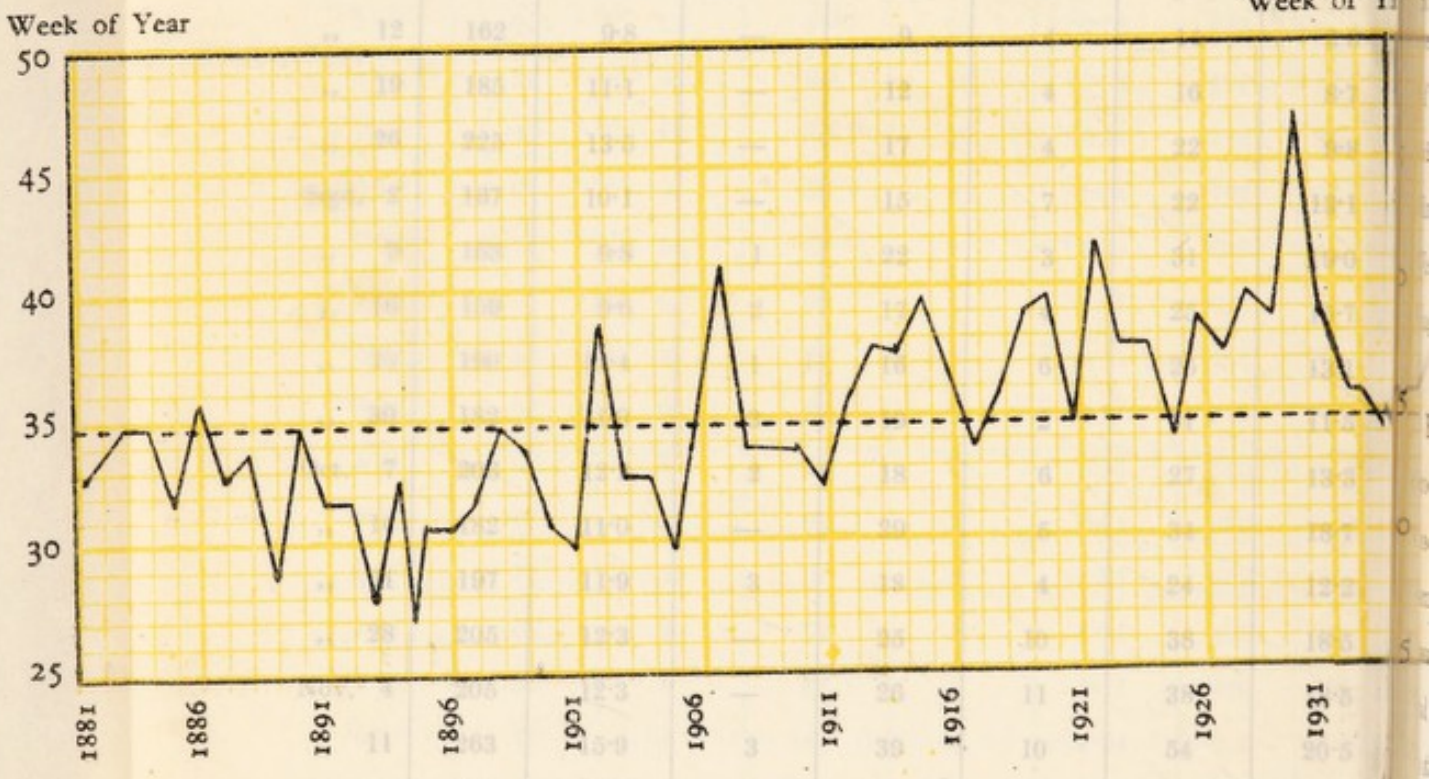
1933. Week ended.	Total Deaths (all causes).	Weekly Death-rate per 1,000 of Estimated Population	Number of Deaths from				Percentage proportion of Respiratory Deaths to Total Deaths.
			Influenza.	Pneumonia and Broncho-pneumonia.	Bronchitis.	Total Respiratory Deaths.	
July 1	189	11·4	—	18	3	24	12·7
,, 8	190	11·4	—	13	2	17	8·9
,, 15	178	10·7	—	5	1	8	4·5
,, 22	171	10·3	—	11	3	16	9·3
,, 29	168	10·1	—	9	3	16	9·5
Aug. 5	161	9·7	—	10	6	18	11·2
,, 12	162	9·8	—	9	4	14	8·6
,, 19	185	11·1	—	12	4	16	8·7
,, 26	225	13·5	—	17	4	22	9·8
Sept. 2	167	10·1	—	15	7	22	13·1
,, 9	163	9·8	1	22	3	31	19·0
,, 16	159	9·6	2	17	4	25	15·7
,, 23	190	11·4	1	16	6	25	13·1
,, 30	182	11·0	3	19	2	21	11·5
Oct. 7	203	12·2	2	18	6	27	13·3
,, 14	182	11·0	—	29	5	34	18·7
,, 21	197	11·9	3	18	4	24	12·2
,, 28	205	12·3	—	25	10	38	18·5
Nov. 4	205	12·3	—	26	11	38	18·5
,, 11	263	15·9	3	39	10	54	20·5
,, 18	216	13·0	2	23	8	32	14·8
,, 25	219	13·2	2	30	7	42	19·1
Dec. 2	234	14·1	2	33	7	40	17·1
,, 9	263	15·8	3	32	14	49	18·6
,, 16	262	15·8	4	24	10	38	14·5
,, 23	300	18·1	4	32	22	61	20·3
,, 30	301	18·1	—	28	16	44	14·6

DYSENTERY.



CITY OF LIVERPOOL.

Graph showing for each of the 53 years 1881-1933 the week in which the maximum number of deaths from Diarrhœal Diseases was recorded. This Graph shows the progressive retardation of the height of the seasonal wave, a retardation which has occurred concurrently with the great decline and virtual extinction of Diarrhœa, as a cause of death.



DYSENTERY.

During 1933, three cases of dysentery were reported in the city and two cases were brought into the Port of Liverpool from overseas. One of these cases died from dysentery and, in addition, one death from this disease was transferred to Liverpool by the Registrar-General.

DIARRHŒA AND ENTERITIS.

During 1933, there were 359 deaths recorded from diarrhœa and enteritis at all ages, of which number 323 were in children under two years of age and 272 were in children under one year old. The deaths of 323 children under two years of age represent a mortality-rate of 9·2 per 1,000 births taking place in the city during the last two years. Enquiries into these fatal cases have been carried out by the Health Visitors and an account of their investigations will be found on page 108.

Formerly many deaths occurred from an acute infective disease or group of diseases of which the predominating symptoms were an acute onset with diarrhœa and vomiting, often preceded by convulsions, and terminating rapidly in children under two years of age. This disease assumed the form of an annually recurring summer epidemic, which had a well-marked maximum in August or September. This influence is still operative, though to a much lesser degree. (See chart facing this page.) The year 1933 was exceptionally hot and dry, exceeding 1911 and 1921 in this respect and, as shown in Table XXXV there were 144 deaths in the third quarter of the year.

The mortality in the several districts of the city is shown in Table XXXII.

TABLE XXXII.

DIARRHŒA AND ENTERITIS.

MORTALITY-RATE IN CHILDREN UNDER 2 YEARS OF AGE.

	Registered births 1932-33.	Number of deaths in 1933.	Death-rate per 1,000 births registered during 1932 and 1933.
Exchange	4,564	101	22·1
Abercromby	1,736	15	8·7
Everton	5,138	74	14·4
Kirkdale	2,896	45	15·5
Edge Hill	3,460	17	4·9
Toxteth	5,566	32	5·7
Walton	2,514	15	5·9
West Derby	3,473	9	2·6
Wavertree	2,875	6	2·1
Fazakerley	2,671	8	3·0
Woolton	185	1	5·4
	35,078	323	9·2

NOTE.—All deaths occurring in public institutions have been transferred to the districts from which the patients came.

A comparison of the mortality-rate during 1933 in children under 2 years of age with the mortality-rates during the previous nine years is given in Table XXXIII.

TABLE XXXIII.

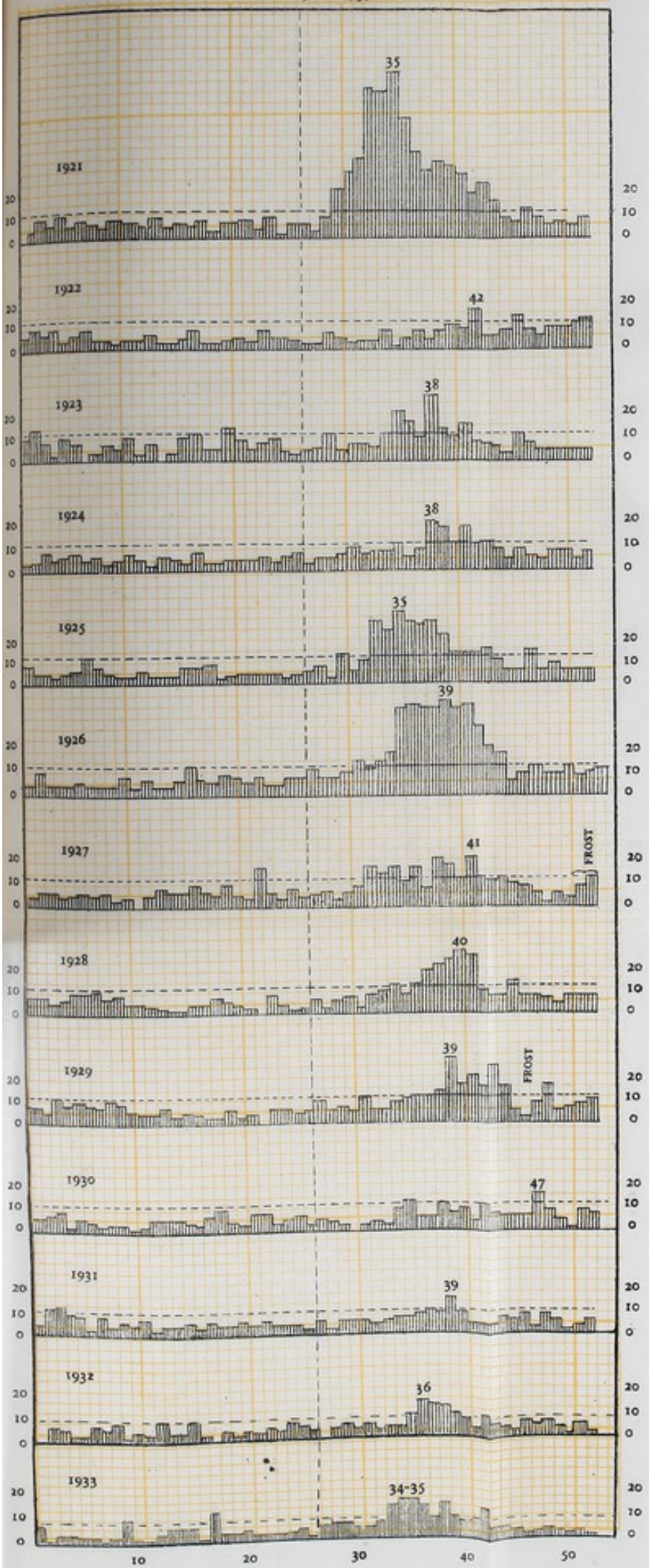
DIARRHŒA AND ENTERITIS.

MORTALITY RATES DURING 1933 AND NINE PREVIOUS YEARS.

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Mortality-rate per 1,000 births in year of record and preceding year	6·8	7·7	10·3	13·3	9·9	9·9	10·3	7·2	7·2	9·2

CITY OF LIVERPOOL.

DEATHS FROM DIARRHŒA & ENTERITIS (UNDER 2 YEARS OF AGE) DURING THE YEARS 1921—1933



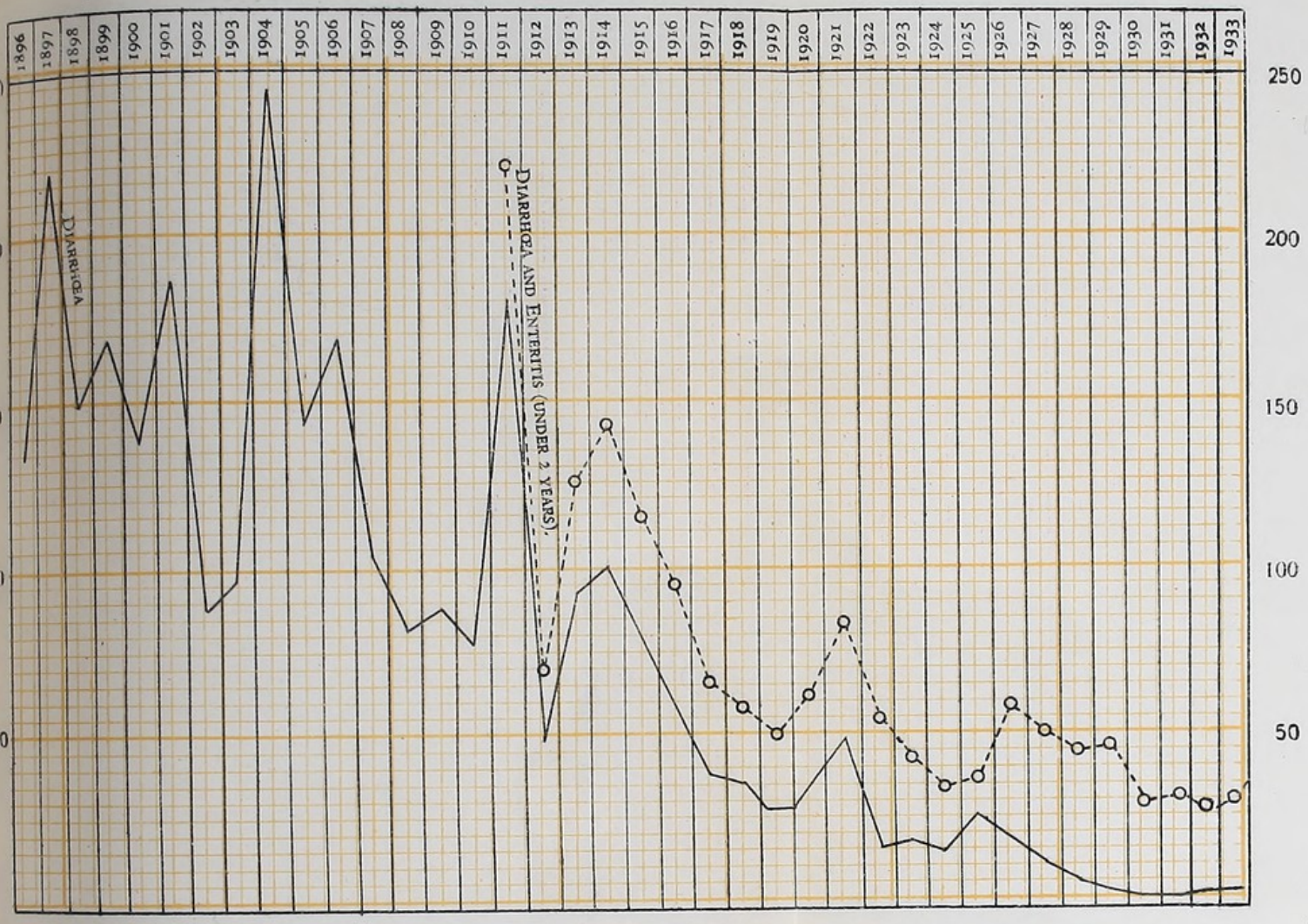
CITY OF LIVERPOOL.
DEATHS FROM DIARRHŒA & ENTERITIS (UNDER 2 YEARS OF AGE)
YEARS 1921—1933
70
TABLE XXXII.
DIARRHŒA AND ENTERITIS.
CHILDREN UNDER 2 YEARS OF AGE.
Registered births 1932-33.
Number of deaths in 1933.
Death-rate per 1000 registered 1932 and
1921
1922
1923
1924
1925
1926
1927
35
42
38
38
35
39
42

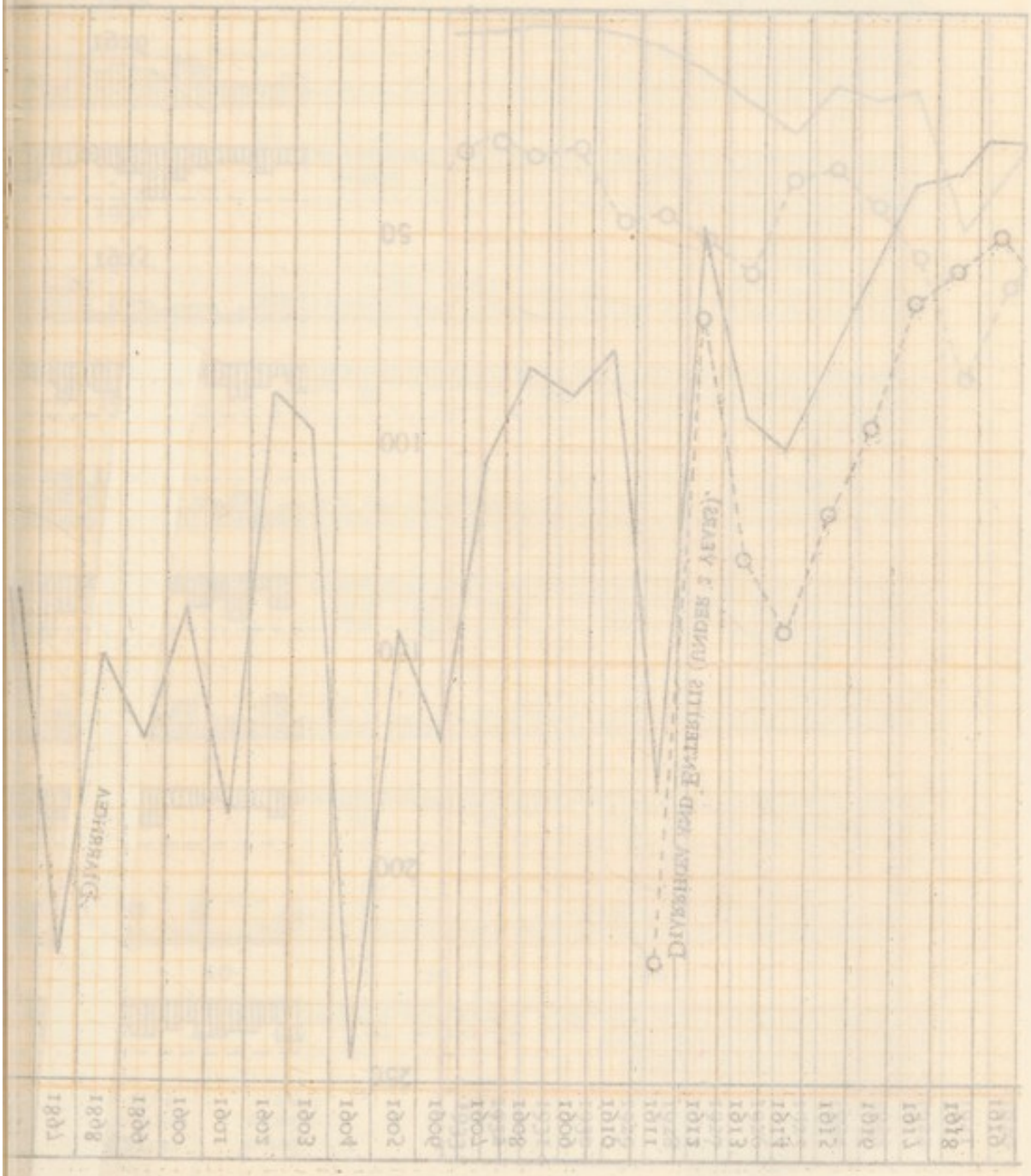
CITY OF LIVERPOOL.

DIARRHŒA DEATH RATES (ALL AGES), PER 100,000 POPULATION, 1896-1933

TOGETHER WITH THE COMBINED RATE FROM DIARRHŒA

AND ENTERITIS (UNDER 2 YEARS), FOR 1911-1933.




DIARRHŒA
DIARRHŒA AND ENTERITIS (UNDER 2 YEARS).

Of the 323 deaths under 2 years of age, 197 took place in public institutions as shown in Table XXXIV.

TABLE XXXIV.

DEATHS FROM DIARRHŒA AND ENTERITIS UNDER TWO YEARS OF AGE IN INSTITUTIONS DURING 1933.

Alder Hey Hospital	112
Olive Mount Children's Hospital	6
Mill Road Infirmary	12
Belmont Road Institution	1
Royal Liverpool Children's Hospital	25
David Lewis Northern Hospital	31
Royal Southern Hospital	2
Stanley Hospital	1
Garston Hospital	1
Walton Hospital	4
Babies' Hospital Woolton	1
Carnegie Welfare Centre	1
	197

The majority of the deaths occur in Alder Hey Children's Hospital to which 646 cases of gastro-intestinal disease were admitted during the year. There can be little doubt that this mortality was considerably reduced by the intensive treatment which is now available for acute cases of gastro-enteritis.

In Table XXXV are given details relating to the districts in which deaths from diarrhœa and enteritis took place, the ages at death and the distribution of the deaths over the four quarters of the year.

TABLE XXXV.

DEATHS FROM DIARRHŒA AND ENTERITIS (UNDER TWO YEARS).

DISTRICTS.	Quarters. March. M.	F.	June. M.	F.	Sept. M.	F.	Dec. M	F.	Year 1933. M.	F.	Total
Exchange	5	5	9	10	33	27	6	6	53	48	101
Abercromby	2	...	1	2	4	4	2	...	9	6	15
Everton	8	7	8	7	19	10	10	5	45	29	74
Kirkdale	4	4	5	2	12	13	2	3	23	22	45
Edge Hill	5	...	2	...	2	3	4	1	13	4	17
Toxteth	4	1	2	3	4	5	11	2	21	11	32
Walton	2	2	2	2	2	1	3	1	9	6	15
West Derby	...	1	1	2	1	...	2	2	4	5	9
Wavertree	...	1	...	2	1	1	1	...	2	4	6
Fazakerley	2	...	1	1	1	1	2	...	6	2	8
Woolton	...	...	1	...	...	...	...	...	1	...	1
City	32	21	32	31	79	65	43	20	186	137	323

Ages at death.	
Under 1 year	272
1 to 2 years	51
Total	323

Deaths from diarrhoea and enteritis separately.

	Quarters. 1st.	2nd.	3rd.	4th.	Year.
Diarrhœa	7	7	19	4	37
Enteritis	46	56	125	59	286
Total ...	53	63	144	63	323

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

The experience of many years points strongly to the importance of flies as carriers of infection. Collections of stable manure form the most important breeding places for these insects. Regular visits of inspection are paid to stables, and the occupiers are told of 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 frequent removal of manure :—

NOTICE.

REMOVAL OF MANURE FROM STABLES.

The Health Committee is 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.

PUBLIC HEALTH (INFECTIOUS DISEASES) REGULATIONS, 1927.

The following statement shows the number of notifications received under the regulations and the number of deaths during 1932 and 1933 :—

	1932.		1933.	
	Cases.	Deaths.	Cases.	Deaths.
Acute Pneumonia	2,704	1,228	3,106	1,391
Malaria	24	1	26	2
Dysentery	7	5	3	2
	2,735	1,234	3,135	1,395

Enquiries were made into all these cases; 1,041 cases of influenzal pneumonia were visited and 9 received assistance from nurses appointed for the purpose, 52 revisits being made.

INFECTIOUS DISEASES IN SCHOOLS.

The usual infectious diseases were more prevalent during 1933, 13,146 cases in children of school age being reported, as against, 10,832, 8,750, 9,876, 10,128 and 11,800 for the years 1928 to 1932 respectively.

Compared with the previous year, whooping cough, chickenpox and mumps showed a diminution in the number of cases, while there was a slight increase in measles and a considerable increase in scarlet fever.

Diphtheria, while still prevalent, showed a diminution of 115 cases in the year; 1,670 cases occurring in school children during 1933 as against 1,785 in 1932.

The arrangements made in 1932 for the inoculation of children attending the infants' departments of the public elementary schools were continued.

The following schools were visited and inoculation carried out:—

All Saints' R.C.
Ashfield Street Council.
Aspen Grove Council.
Beaufort Street Council.
Brae Street Council.
Breckfield Council, Granton Road.
Breckfield Council, Venice Street.
Chatsworth Street Council.
Clint Road Council.
Daisy Street Council.
Earle—Bective Street Council.
Earle—Webster Road Council.
Emmanuel Council.
Fonthill Road Council.
Garston C. of E.
Granby Street Council.
Gwladys Street Council.
Harrington Council.
Harrison Jones Council.
Heygreen Road Council.
Heyworth Street Council.
Kilrea Road Council.
Loraine Street Council.
Major Lester Council.
Morrison Council.
Newsham Council, Sheil Road.
Parkhill Council.
Penrhyn Street Council.
Pinehurst Avenue Council.
Pleasant Street Council.

Prince Edwin Street Council.
Queens Road Council.
Rathbone Council.
Salisbury—Netherfield Road.
Salisbury—Wm. Henry Street.
St. Anne's C.E., West Derby.
St. Anthony's R.C.
St. Augustine's R.C.
St. Bridget's R.C.
St. George's C.E.
St. James' Council.
St. John's C.E., Tuebrook.
St. Matthews' R.C.
St. Saviour's C.E., Everton.
St. Sylvester's R.C.
St. Teresa's R.C.
Stanley Road Council.
Steers Street Council.
Tiber Street Council.
Upper Park Street Council.
Walton Lane Council.
Walton C.E.
Walton R.C.
Wavertree R.C.
Wellington Road Council.
West Derby C.E.
Westminster Road Council.
Whitefield Road Council.
Windsor Street Council.
Winstone Road Council.

The response varied considerably from one school to another, but, taking the schools as a whole, approximately 26 per cent. of the children attending were inoculated.

No schools or department were wholly or partially closed during 1933 on account of infectious sickness.

In Tables XXXVI and XXXVII are given the numbers of cases of the common infectious diseases occurring among children of school age and the monthly distribution of the cases.

TABLE XXXVI.

SCHOOL CASES OF INFECTIOUS DISEASE OCCURRING DURING 1933.

AGE DISTRIBUTION.

DISEASE.	under 5	under 6	under 7	Total under 7	under 8	under 9	under 10	under 11	under 12	under 13	under 14	Over 14	Total above 7	Grand Total.
Diphtheria	48	286	272	606	214	171	155	133	124	123	129	15	1,064	1,670
Scarlet Fever ...	77	484	503	1,064	440	426	314	280	235	204	208	43	2,150	3,214
Measles	169	2,016	1,380	3,565	595	220	136	81	65	44	37	25	1,203	4,768
Whooping Cough ...	32	278	169	479	50	14	11	7	4	2	2	...	90	569
Mumps	27	235	231	493	122	61	61	51	39	27	12	1	374	867
Chickenpox ...	64	516	591	1,171	416	202	114	62	39	37	15	2	887	2,058
TOTALS ...	417	3,815	3,146	7,371	1,837	1,094	791	614	506	437	403	86	5,768	13,146

TABLE XXXVII.

SCHOOL CASES OF INFECTIOUS DISEASE DURING 1933.

MONTHLY DISTRIBUTION.

DISEASE.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Diphtheria ...	134	106	140	103	142	139	96	115	209	188	166	132	1,670
Scarlet Fever ...	130	137	203	198	226	224	179	150	342	488	506	431	3,214
Measles	121	349	721	836	1,236	665	170	57	97	128	182	206	4,768
Whooping Cough	53	26	54	28	56	43	16	60	38	40	81	74	569
Mumps	64	109	156	104	112	125	20	14	11	21	94	37	867
Chickenpox ...	213	176	231	164	301	244	71	46	48	132	188	244	2,058
TOTALS ...	715	903	1,505	1,433	2,073	1,440	552	442	745	997	1,217	1,124	13,146

CO-OPERATION BETWEEN THE HEALTH AND EDUCATION DEPARTMENTS.

Information is sent both to the Director of Education and also to the head teachers of the schools concerned when it is found that children from infected houses are attending school. During 1933 28,439 children who had been exposed to infection were reported in this way.

During the year, 3,243 visits to schools were paid by sanitary inspectors and 13 defects were found and subsequently remedied.

References from the Education Department to the Health Department concerning the occurrence of infectious or suspected infectious illness totalled 7,038 during the year.

MATERNITY AND CHILD WELFARE.

MATERNITY and CHILD WELFARE.

Summary of Vital Statistics for 1933 :—

Live births	...	16,929	Live birth rate	...	19·55
Still-births	...	680	Still-birth rate	...	0·78
		Total births ... 17.609			

Infant Mortality rate	98
Maternal Mortality rate	3·41

The maternity and child welfare work in this city is very comprehensive. The whole scheme is designed to reduce maternal and infantile mortality and morbidity, and entails not only the harmonious and co-ordinated action of all officially engaged in it, but also active co-operation with all voluntary agencies, medical and social, whose efforts are directed towards the improvement and maintenance of public health.

The maternity and child welfare scheme operative in this city is given in outline in the following pages.

THE MIDWIFERY DEPARTMENT.

In this are included :—

i. The quarterly routine visiting of midwives in their own homes for inspection of registers, records and equipment, under the Central Midwives' Board Rules.

ii. The investigation of all cases of :—

(*a*) Medical assistance sought by midwives (Central Midwives' Board Rules).

(*b*) Puerperal Pyrexia and Puerperal Fever, under the Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926.

(*c*) Claims for fees in indigent cases, under section 14 of the Midwives Act, 1918.

(*d*) Claims from midwives suspended so as to prevent the spread of infection (Midwives and Maternity Homes Act, 1926).

(e) Maternal deaths for the special report to the Ministry of Health.

(*f*) Ophthalmia Neonatorum, and the giving of treatment where required under Ophthalmia Neonatorum Regulations, 1926.

(*g*) Pemphigus.

iii. The visiting of Lying-in Homes registered under the Liverpool Corporation Act, 1921, and Midwives and Maternity Homes Act, 1926, also visiting of Nursing Homes under Nursing Homes Registration Act, 1927.

iv. Any other enquiries, investigations or advice relative to the practice of midwives in the city.

During the year, 296 midwives gave the required notice under section 10 of the Midwives Act, 1902, of their intention to practise midwifery in this city.

Notification of Live and Still Births.

A total of 9,696 births (9,414 live births and 282 still-births) were attended by midwives during the year, which represented 54·5 per cent. of the total (live and still) births notified in the city. The total number of births which took place in institutions during the year was 6,808 (6,436 live births, 372 still-births).

Statement of Notifications of Live and Still Births received during the Years 1932 and 1933.

Notifications Received from	1932.				1933.			
	Live Births.	Still Births.	Total.	Percentage of births notified.	Live Births.	Still Births.	Total.	Percentage of births notified.
Certified Midwives	8,888	323	9,211	48·7	7,916	247	8,163	45·9
Medical Attendants	1,440	66	1,506	8·0	1,235	48	1,283	7·2
Transferred Institutions	3,994	241	4,235	22·4	4,131	231	4,362	24·5
Liverpool Maternity Hospital	1,587	150	1,737	9·2	1,644	108	1,752	9·9
"Rest Home," Chatham Street	247	4	251	1·3	241	4	245	1·4
District Homes	1,450	35	1,485	7·9	1,498	35	1,533	8·6
Royal Infirmary	408	24	432	2·3	399	29	428	2·4
Other Institutions	28	—	28	0·2	21	—	21	0·1
Parents	1	—	1	0·005	4	—	4	0·002
	18,043	843	18,886	100·0	17,089	702	17,791	100·0

The number of still-births notified during the year was 702*, of which number 282 were notified by midwives, being at the rate of 2·9 per cent. of the births attended by them. Enquiries were made into the circumstances of all still-births and the number of visits paid was 696.

Routine Visits to Midwives.

Rule 25 laid down by the Central Midwives Board states :—

> "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.

During the year, 1,634 visits were paid to the homes of practising midwives for the purpose of inspection, and for special enquiries relating to their work.

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 aid was advised by midwives, the total number of medical records being 2,851.

Mother—

Obstructed labour, uterine inertia or requiring instrumental assistance	488
Ruptured perinæum	423
Ante-partum hæmorrhage	252
Pyrexia	139
Ante-natal treatment	138
Abortion or miscarriage	162
Post-partum hæmorrhage	67
Carried forward ...	1,669

* The total number of still-births registered under the Births and Deaths Registration Act, 1926, during the year 1933 was 680 (see p. 4).

Brought forward ...	1,669
Retained placenta or membranes	60
Varicose veins	48
Premature birth	14
Multiple births	10
Eclampsia	7
Deformed pelvis	7
Influenza	2
Abnormal presentation :	
Breech presentation	44
Occipito-posterior position	26
Cord presentation	7
Foot presentation	11
Brow or face presentation	10
Transverse presentation	17
Placenta prævia	6
Various	162
Child—	
Feebleness and prematurity	203
Ophthalmia	300
Skin eruption	46
Malformation	49
Convulsions	19
Injury at birth	2
Other conditions in child	132
	2,851

Claims for Fees in Emergency Cases.

Payment may be made by Local Supervising Authorities to medical practitioners called in by midwives under section 14 of the Midwives Act, 1918. During the year 3,047 visits were paid in regard to these accounts. Applicants are assessed on a scale of income, due consideration being given to cases where any special expenditure has been incurred in the interests of the mother or child. The whole or part of the doctor's fee is paid in almost all cases by the Health Committee.

During the year the total number of occasions on which the services of a consultant obstetrician in connection with cases of puerperal fever, puerperal pyrexia or complications during pregnancy were requisitioned was 13. The ability of the patient to pay was investigated, and in 8 of these cases, the whole fee was defrayed by the Health Committee.

During the year, 528 claims from midwives for necessitous midwifery were investigated and paid.

Claims from Midwives who were suspended from Practice.

Section 2 (1) Midwives and Maternity Homes Act, 1926, gives a midwife who is suspended from practice (not herself being in default) in order to prevent the spread of infection, the right to recover reasonable compensation from the Local Authority. Two claims under this section were paid as follows by the Health Committee during 1933:—

Contact with a case of scarlet fever	1
Case of dermatitis	1

Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926 and 1928.

These regulations require the notification to the Medical Officer of Health of any febrile condition occurring in a woman within 21 days of childbirth or miscarriage, in which a temperature of 100·4° Fahrenheit or more has been sustained during a period of 24 hours or has recurred during that period. Puerperal fever was, and still continues to be, notifiable under the Infectious Disease (Notification) Act, 1889, to which the above regulations are supplementary.

With the object of securing adequate treatment in the early stages of this somewhat ill-defined condition, the prescribed notification form provides that the medical attendant can ask for (1) a second opinion on the case, (2) certain bacteriological examinations, (3) admission of the patient to hospital or (4) the provision of trained nurses; or, alternatively, state that facilities for all necessary treatment exist.

The services of consultant obstetricians have been provided by the Health Committee, under the Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926 and 1928, and Memo. 156/M.C.W. Hospital accommodation has for some years been provided, in Walton and Smithdown Road Hospitals, and Mill Road Infirmary. Arrangements have been made by which the services of the nurses of the Queen Victoria District Nursing Association are available.

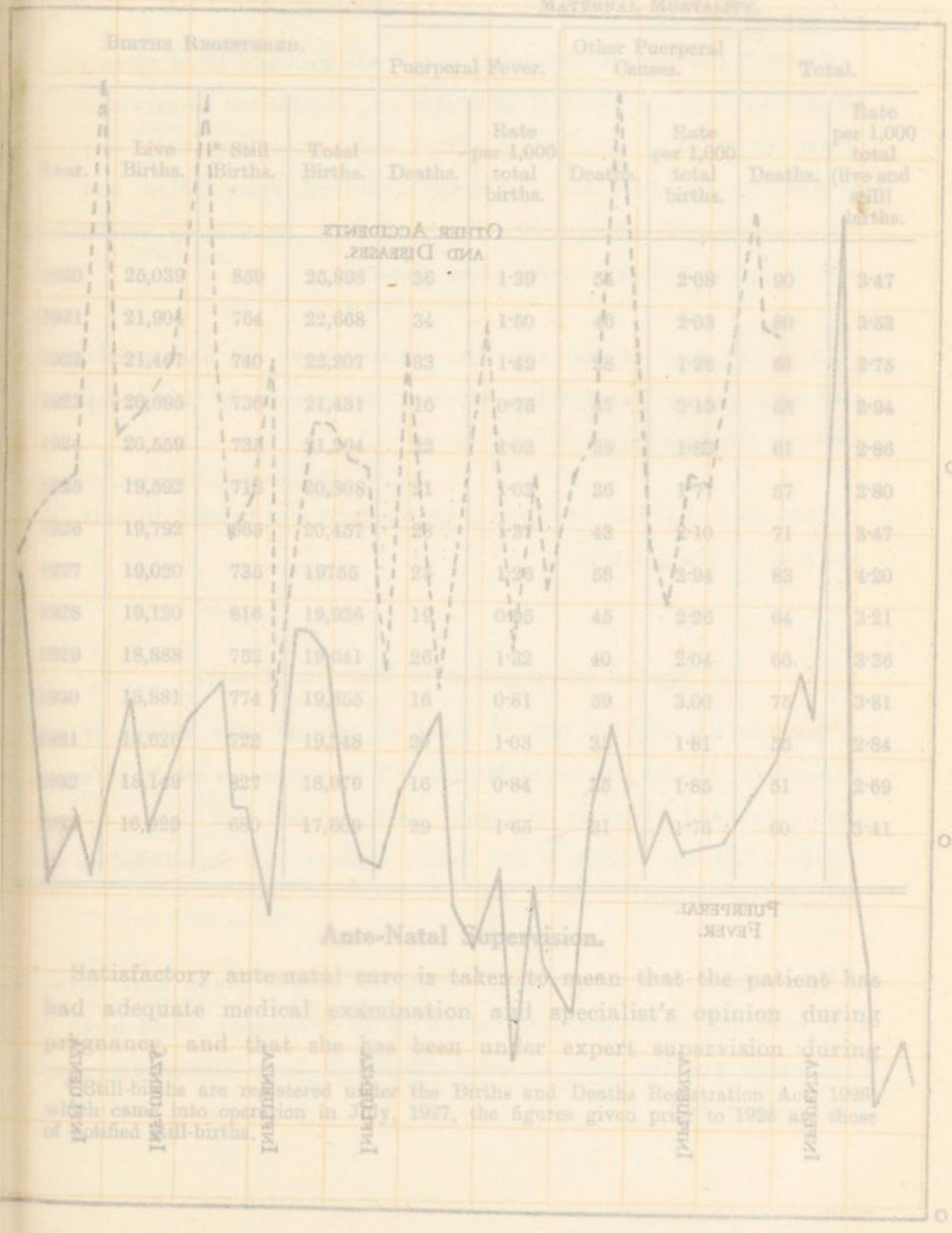
Puerperal Pyrexia.

The number of cases of puerperal pyrexia notified during the year was 344. Of these 22 were found to be puerperal septicæmia, and therefore fall within the definition of puerperal fever, four were cases of influenza, nine were cases of pneumonia, one of quinsy, one of bronchitis, and one of pulmonary tuberculosis. The remaining 306 were cases of pyrexia of puerperal origin of a lesser degree than is legally termed puerperal fever. Of these cases 279 were admitted to or occurred in hospitals, and 61 occurred in the practice of midwives. In five cases a consultant obstetrician was called in, and in 23 cases nurses were provided. The number of puerperal pyrexia cases notified from institutions where the patient resided outside the city was 68.

Puerperal Fever.

The number of cases of puerperal fever notified to the Medical Officer of Health during the year was 44, of which 29 proved fatal. This gives a puerperal fever death rate of 1·65 per 1,000 total (live and still) births in the city.

Forty-three cases of puerperal fever were admitted to or occurred in hospital, viz.:—3 Mill Road Infirmary, 26 Walton Hospital, 8 Smithdown Road Hospital, 3 Royal Infirmary, 2 Maternity Hospital, 1 Stanley Hospital. After the usual enquiries were made, 19 cases (of which 10 died) were found to have occurred in the practice of midwives. In 2 cases a consultant was called in, and in 5 cases nurses were provided. The number of puerperal fever cases notified from institutions where the patient resided outside the city was 6.


3·0
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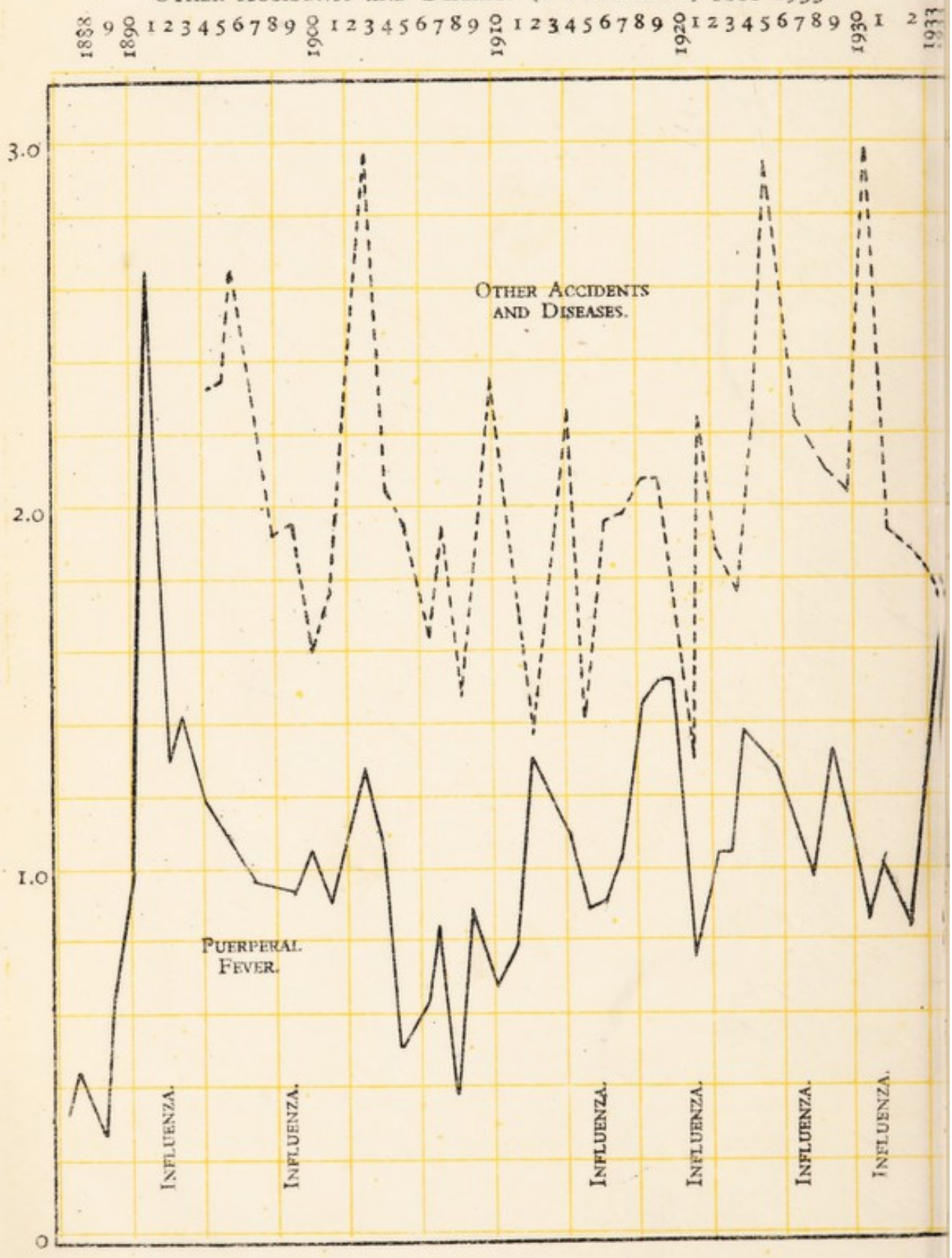
PUERPERAL FEVER.
INFLUENZA
INFLUENZA
INFLUENZA
INFLUENZA
INFLUENZA

CITY OF LIVERPOOL.

MORTALITY PER 1000 BIRTHS FROM PUERPERAL FEVER AND OTHER ACCIDENTS AND DISEASES OF PREGNANCY, 1888-1933.



Maternal Mortality.

Table showing the number of Live and Still Births registered in the City, together with Maternal Deaths and Maternal Death Rates, for the years 1920 to 1933.

Births Registered.				Maternal Mortality.					
				Puerperal Fever.		Other Puerperal Causes.		Total.	
Year.	Live Births.	* Still Births.	Total Births.	Deaths.	Rate per 1,000 total births.	Deaths.	Rate per 1,000 total births.	Deaths.	Rate per 1,000 total (live and still) births.
1920	25,039	859	25,898	36	1·39	54	2·08	90	3·47
1921	21,904	764	22,668	34	1·50	46	2·03	80	3·53
1922	21,467	740	22,207	33	1·49	28	1·26	61	2·75
1923	20,695	736	21,431	16	0·75	47	2·19	63	2·94
1924	20,559	735	21,294	22	1·03	39	1·83	61	2·86
1925	19,592	716	20,308	21	1·03	36	1·77	57	2·80
1926	19,792	665	20,457	28	1·37	43	2·10	71	3·47
1927	19,020	735	19755	25	1·26	58	2·94	83	4·20
1928	19,120	816	19,936	19	0·95	45	2·26	64	3·21
1929	18,888	753	19,641	26	1·32	40	2·04	66	3·36
1930	18,881	774	19,655	16	0·81	59	3.00	75	3·81
1931	18,626	722	19,348	20	1·03	35	1·81	55	2·84
1932	18,149	827	18,976	16	0·84	35	1·85	51	2·69
1933	16,929	680	17,609	29	1·65	31	1·76	60	3·41

Ante-Natal Supervision.

Satisfactory ante-natal care is taken to mean that the patient has had adequate medical examination and specialist's opinion during pregnancy, and that she has been under expert supervision during

* Still-births are registered under the Births and Deaths Registration Act, 1926 which came into operation in July, 1927, the figures given prior to 1928 are those of notified still-births.

periods when abnormalities would be expected to develop. It will be noticed that in certain cases of death, when ante-natal care has left nothing to be desired, there has been existing disease, which, coupled with the added strain of pregnancy and labour, has combated all efforts to ensure good results.

Under "Inadequate ante-natal care" are grouped those cases where there had been no medical examination, insufficient supervision, or where the patient had attended a clinic once, or perhaps twice, early in pregnancy, or where she had sought medical examination and aid when preventable abnormalities were already irrevocably established and no amount of care could avert disaster.

In 61 per cent. of the cases, the patients have not had satisfactory ante-natal care or supervision, which in 39 per cent. of this group had not been sought at all.

Good general health previous to confinement was present in only 15·7 per cent. of the patients.

Special Investigation of Maternal Deaths.

Towards the end of 1928, a form of enquiry was issued by the Ministry of Health Maternal Mortality Committee, on which information in regard to every maternal death is collected from doctors, hospitals, clinics, midwives and health visitors, and forwarded to the Ministry of Health.

As a result of these continued enquiries it was found that during the year 1933, 95 deaths occurred owing to pregnancy, child birth or concurrent diseases, such as heart disease or lung disease associated with pregnancy.

Class I.

Deaths directly due to childbearing.

1.	Puerperal Sepsis.		
	Sepsis following normal labour	7	
	Sepsis following forceps delivery	10	
	Sepsis following other abnormalities of labour...	5	29
	Sepsis following abortion...	7	
2.	Toxaemia (not eclampsia)		10
3.	Eclampsia		9
4.	Haemorrhage.		
	Ante-partum haemorrhage	2	8
	Post-partum haemorrhage	6	
5.	Shock		3
6.	Embolism		2
7.	Placenta praevia with gas gangrene		1
			62

Class II.

Deaths not primarily due to pregnancy.

1.	Lung disease (not tuberculosis)	13
2.	Pulmonary tuberculosis	4
3.	Heart disease	5
4.	Chronic renal disease	4
5.	Unclassified	7
		33

Deaths from Abortion.

Post-abortive sepsis	8	17
Abortion	9	
Patients dying undelivered		8
Infants stillborn		19
Infants premature, but alive		10

In the following tables, the cases are set out in detail under their appropriate headings :—

Puerperal Sepsis

Sepsis following Normal Labour.

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
28	31	Legitimate	7th	Poor	Good	Nil	Influenza before labour began, blood cultures contained haemolytic streptococci.
39	39	,,	10th	Poor	Poor	Nil	Anaemia, fatigue, malnutrition, chronic bronchitis, lung embolus.
41	23	,,	2nd	Fairly comfortable	Poor	Inadequate	Premature birth, slight albuminuria, malignant endocarditis.
43	28	,,	5th	Poor	Poor	Inadequate.	Anaemia, malnutrition, blood tranfusion given.
48	23	,,	2nd	Poor	Fair	Nil	Anaemia, blood transfusion given.
85	19	,,	1st	Fairly comfortable	Fair	Inadequate	Severe chill before delivery, not robust, operation for peritonitis, blood transfusion given.
95	19	Illegitimate	1st	Poor	Fair	Inadequate	Anaemia, premature birth, pelvic peritonitis.

Sepsis following Forceps.

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
12	24	Legitimate	2nd	Fairly comfortable	Poor	Satisfactory	Delicate patient, severe cold before confinement; forceps: lacerations; peritonitis; broncho-pneumonia, removal to hospital too late.
17	37	,,	7th	Poor	Poor	Nil	Malnourished; brow presentation, failed forceps, excessive lacerations and shock. Blood transfusion Peritonitis. Removal to hospital too late.
44	30	,,	2nd	Fairly comfortable	Good	Satisfactory	Premature twins, failed forceps, extensive laceration. Hospital refused till too late. Blood transfusion. Haemolytic streptococci in culture.
46	29	,,	1st	comfortable	Good	Satisfactory	Prolonged labour, forceps, slight lacerations. Pyelitis. Mania.
67	39	,,	9th	Poor	Fair	Satisfactory	Prolonged labour, failed forceps, severe lacerations. Blood transfusion. Septic peritonitis; paralytic ileus.
72	23	,,	1st	Poor	Fair	Inadequate	Twins, failed forceps for second twin; severe lacerations, Septic peritonitis, vescico vaginal fistula: blood transfusion. Advanced suppurative pyelo-nephritis. Intelligent co-operation of the patient was lacking.
77	23	Illegitimate	1st	Poor	Poor	Nil	Anaemia; delayed labour due to inertia, low forceps. Urinary infection before labour. Acute endo-metritis, acute pyelitis.
88	26	Legitimate	1st	comfortable	Poor	Satisfactory	Ailing; contracted pelvis, prolonged labour, forceps, severe lacerations. Blood transfusion. Haemo-lytic streptococci in blood culture. Septic peritonitis.
90	30	,,	2nd	Fairly comfortable	Fair	Satisfactory	Ailing; prolonged labour, low forceps, slight laceration. Septic peritonitis. Blood transfusion.
92	26	Illegitimate	2nd	Poor	Good	Nil	Delayed labour, high forceps, severe lacerations. Acute broncho-pneumonia, with multiple abscesses.

Sepsis following other Abnormalities of Labour.

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
7	23	Legitimate	1st	Poor	Poor	Inadequate	General debility and chronic otorrhoea; slight lacerations; acute purulent bronchitis, endocarditis, acute pyelitis.
25	39	,,	10th	Poor	Poor	Nil	Labour overdue, quinine induction, cellulitis of arm, hospital treatment refused till too late.
45	31	,,	3rd	Poor	Fair	Nil	Sharp attack of haemorrhage after delivery. Blood cultures contained haemolytic streptococci. Blood transfusion.
57	33	,,	3rd	Poor	Poor	Satisfactory	Bronchitis, asthma, toxaemia, retained products of conception.
63	27	,,	1st	Poor	Poor	Inadequate	Albuminuria, induction of labour, pyelitis. No intelligent co-operation from patient.

Sepsis following Abortion.

1	37	Illegitimate	8th	Poor	Poor	Nil	Streptococcal septicaemia following septic absorption from uterine wall after abortion. Inquest. Felo de se.
4	25	Legitimate	3rd	Poor	Poor	Inadequate	Six months abortion.
16	39	,,	10th	Poor	Poor	Nil	Sixteen weeks abortion, embolism of renal veins, nephritis, embolism of ophthalmic veins.
51	30	,,	5th	Poor	Poor	Nil	Eight weeks abortion, acute nephritis, old lacerations of cervix causing haemorrhage.
58	28	,,	3rd	Fairly comfortable	Poor	Satisfactory	Twenty-two weeks abortion, cardiac lesion present, multiple abscesses in lungs, pelvic peritonitis.
60	24	,,	2nd	Poor	Fair	Satisfactory	Twenty-eight weeks abortion, slight albuminuria, fibrinous pleurisy, lung abscess.
91	23	Illegitimate	1st	Poor	Good	Nil	Twenty weeks abortion, acute generalized peritonitis followed. Inquest; evidence not sufficient to show how abortion had been brought about.

No.	Age.		Pregnancies.	Conditions.	Health.	Supervision.	Remarks.
15	24	Legitimate	2nd	Fairly comfortable	Poor	Satisfactory	Albuminuria; Hyperemesis. Abortion six weeks.
21	29	,,	1st	Fairly comfortable	Good	Nil	Albuminuria; Hyperemesis. Abortion eight weeks.
42	22	,,	1st	Poor	Poor	Nil	Pyelitis; Hyperemesis. Abortion twenty-four weeks.
61	33	,,	2nd	Fairly comfortable	Poor	Satisfactory	Albuminuria; Hyperemesis; Ante-partum haemorrhage. Stillbirth.
64	37	,,	4th	Poor	Fairly Good	Satisfactory	Albuminuria; Puerperal mania.
80	22	Illegitimate	2nd	Poor	?	Nil	Acute yellow atrophy of liver; Post-partum haemorrhage. Stillbirth.
81	30	Legitimate	4th	Poor	Poor	Satisfactory	Rupture of uterus in labour. Chronic myocarditis. Post-mortem evidence of toxaemia. Stillbirth.
82	24	,,	1st	Poor	Poor	Satisfactory	Induction. Toxaemia. Sub-acute nephritis.
84	42	,,	2nd	Comfortable	Fair	Satisfactory	Albuminuria; Necrosis of kidneys, decapsulation; Uraemia. Stillbirth.
89	21	,,	1st	Poor	Poor	Inadequate	Albuminuria; Hyperemesis; Chorea. Abortion five months.

Eclampsia.

2	16	Illegitimate	1st	Poor	Good	Nil	Eclampsia, live birth.
29	26	Legitimate	1st	Comfortable	Good	Satisfactory	Eclampsia and Cerebral haemorrhage. Macerated stillbirth; premature.
34	36	,,	1st	Poor	Poor	Satisfactory	Eclampsia and Cerebral haemorrhage. Undelivered.
36	39	Illegitimate	8th	Poor	Poor	Nil	Eclampsia and Cerebral haemorrhage. Undelivered.
38	24	Legitimate	1st	Poor	Poor	Inadequate	Eclampsia and Cerebral haemorrhage. Undelivered.
52	31	,,	1st	Comfortable	Good	Satisfactory	Eclampsia. Stillbirth.
53	28	,,	5th	Poor	Poor	Nil	Eclampsia; Acute yellow atrophy of the liver Abortion, nine weeks.
71	26	,,	1st	Poor	Poor	Satisfactory	Eclampsia. Stillbirth.
86	36	,,	2nd	Fairly comfortable	Good	Satisfactory	Eclampsia. Instrumental delivery. Live birth.

Puerperal Hæmorrhage.

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
9	37	Legitimate	10th	Poor	Poor	Satisfactory	Unavoidable post-partum haemorrhage.
11	36	,,	8th	Poor	Poor	Nil	Ante-partum haemorrhage, concealed and revealed. Died undelivered.
22	45	,,	11th	Poor	Fair	Nil	Ante-partum haemorrhage, accidental, causing rupture of uterus. Stillbirth.
30	38	,,	3rd	Poor	Good	Inadequate	Slight ante-partum haemorrhage, due to placenta praevia. Severe post-partum haemorrhage due to adherent placenta.
33	29	,,	2nd	Poor	Good	Inadequate	Shock and haemorrhage, lacerated uterus, difficult forceps. Stillbirth.
50	41	,,	9th	Poor	Poor	Inadequate	Stillbirth. Post-partum haemorrhage due to adherent placenta. Albuminuria of pregnancy.
56	42	Illegitimate	14th	Poor	Good	Nil	Ante-partum haemorrhage due to placenta praevia. Post-partum haemorrhage due to lacerations. Albuminuria of pregnancy.
89	35	Legitimate	1st	Comfortable	Good	Satisfactory	Post-partum haemorrhage.

Embolism.

47	25	Legitimate	1st	Comfortable	Good	Inadequate	Embolism coronary artery, pelvic cellulitis.
95	27	,,	2nd	Poor	Poor	Satisfactory	Pulmonary embolism.

Shock.

20	35	Legitimate	1st	Poor	Good	Nil	Post-operative collapse. Faecal fistula. Caesarean section for difficult labour.
49	36	,,	4th	Fair	Fair	Satisfactory	Twin birth; retained placenta; shock.
68	32	,,	1st	Poor	Good	Inadequate	Post-partum shock; normal delivery. Adrenal insufficiency due to degenerated cystic supra-renals.

Unclassified (directly due to Childbearing).

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
5	33	Legitimate	5th	Poor	Poor	Satisfactory	Chronic bronchial asthma. Broncho-pneumonia. Undelivered.
8	40	,,	3rd	Poor	Poor	Nil	Lobar pneumonia; Ileus. Abortion, three months
13	36	,,	9th	Poor	Poor	Nil	Lobar pneumonia; Influenza. Premature confinement.
18	42	,,	11th	Poor	Poor	Nil	Lobar pneumonia. Premature confinement of twins.
24	38	,,	11th	Poor	Poor	Nil	Purulent broncho-pneumonia; Influenza.
31	19	,,	1st	Poor	Fair	Satisfactory	Lobar pneumonia; Influenza.
32	42	,,	12th	Poor	Poor	Satisfactory	Broncho-pneumonia. Operation for Caesarean section.
54	25	,,	3rd	Poor	Poor	Nil	Pneumonia. Successful operation for Caesarean section on account of haemorrhage and placenta praevia.
69	38	,,	8th	Poor	Poor	Nil	Pneumonia. Undelivered.
73	43	,,	7th	Poor	Poor	Satisfactory	Right basal pneumonia; chronic bronchitis, stillbirth.
75	26	,,	1st	Poor	Poor	Satisfactory	Lobar pneumonia; chronic bronchitis, difficult forceps stillbirth.
78	37	,,	8th	Poor	Poor	Inadequate	Pneumonia; mitral stenosis, premature confinement, stillbirth.
79	22	,,	1st	Poor	Fairly Good	Inadequate	Broncho-pneumonia, pericarditis.
Lung Disease—Pulmonary Tuberculosis.							
6	21	Legitimate	1st	Poor	Poor	Satisfactory	Bilateral pulmonary tuberculosis. Premature 8 months.
19	29	,,	4th	Poor	Poor	Nil	Chronic ulcerative phthisis. Broncho-pneumonia.
40	36	Illegitimate	2nd	Destitute	Poor	Nil	Bilateral pulmonary tuberculosis. Premature, 28 weeks.
74	31	Legitimate	6th	Poor	Poor	Inadequate	Pulmonary tuberculosis. Multiple abscesses—arms, etc.

Cardiac Disease.

Reg. No.	Age.		Number of Pregnancies.	Home Conditions.	General Health.	Ante-natal Supervision.	Remarks.
14	29	Legitimate	3rd	Poor	Poor	Satisfactory	Mitral stenosis, Endocarditis, Influenza, premature labour.
35	42	,,	5th	Fairly comfortable	Poor	Satisfactory	Mitral stenosis, Myocardial failure, Pulmonary oedema.
37	27	,,	3rd	Poor	Poor	Nil	Sub acute infective endocarditis. Abortion 4 months.
76	26	,,	3rd	Poor	Poor	Satisfactory	Auricular fibrillation ; existing cardiac lesion.
94	29	,,	5th	Poor	Poor	Satisfactory	Mitral stenosis and auricular fibrillation. Abortion 5 months.

Chronic Renal Disease.

3	40	Legitimate	10th	Poor	Fair	Inadequate	Chronic nephritis ; ante-partum haemorrhage ;— uraemia. Stillbirth.
62	37	,,	8th	Poor	Poor	Nil	Chronic nephritis; ante-partum haemorrhage; uraemia. Stillbirth.
66	44	,,	16th	Poor	Poor	Nil	Chronic nephritis. Full term ; died undelivered.
70	37	,,	8th	Poor	Poor	Inadequate	Chronic nephritis; myocarditis. Normal delivery.

Unclassified.

23	36	Legitimate	3rd	Fairly comfortable	Good	Satisfactory	Myocardial failure ; acute pulmonary oedema following an anaesthetic for forceps delivery.
26	24	,,	1st	Poor	Poor	Inadequate	Infected thrombus of superior longitudinal sinus of brain. Pyelitis. Bronchitis.
27	29	,,	5th	Poor	Good	Nil	Strangulated femoral hernia. 28 weeks pregnancy; undelivered.
55	45	,,	14th	Poor	Poor	Nil	Diabetes mellitus. Stillbirth.
59	20	Illegitimate	1st	Poor	Fair	Satisfactory	Cardiac failure; puerperal mania.
65	28	Legitimate	7th	Poor	Poor	Nil	Generalized peritonitis due to perforated duodenal ulcer. Normal delivery one week previously.
83	42	,,	5th	Poor	Poor	Satisfactory	Hypostatic pneumonia following fractured skull, due to a fall. Premature labour at 28 weeks.

Ophthalmia Neonatorum

Inflammation in the eyes of the newly-born.—The definition adopted for the purpose of dealing with this disease is that 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." It is considered advisable, therefore, to include inflammation of all degrees of severity in the term "Ophthalmia Neonatorum." The following figures give some details as to the source of information and character of the cases dealt with during the year :—

The number of cases brought to the notice of the Department during the year was 594, which consisted of :—

Mild cases	495
Severe cases	68
No information available (attended by doctors only)...	31
	594

These cases were dealt with as follows :—

Number treated in their homes by special nurse ...	170
,, attended at hospital as out-patients ...	122
,, admitted to hospital	12
,, treated by medical attendants and special nurse	108
,, treated by medical attendants alone	168
,, treated and cured in hospital	13
,, died in hospital	1
	594
,, of cases brought forward from previous year..	26
Total ...	620
Number of cases cured	581
,, died under treatment	9
,, under treatment 31/12/33	30
Total ...	620

There was one case of gonorrhœal ophthalmia in which vision was impaired in one eye.

In addition to the above, 34 cases notified were not cases of ophthalmia neonatorum.

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 the City Bacteriologist and at St. Paul's Hospital.	No. of cases of positive Gonorrhoea	Percentage to total cases examined.	Percentage to total notifications.
594	46	8	17	1·3

The total number of visits and re-visits paid in respect of the above cases was 4,797.

A very important part of the scheme for dealing with this disease is the provision at St. Paul's Eye Hospital of five 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. During the year 12 babies were admitted with their mothers.

Nursing Homes.

Midwives and Maternity Homes Act, 1926. *Nursing Homes Registration Act*, 1927.—During the year three applications for registration were received by the Town Clerk. After careful investigation of the premises and practice of the applicants, these were approved by the Health Committee and registered. Three registrations were cancelled, in two cases owing to removal, and in one because the keeper of the Nursing Home desired to give up practice. Six were cancelled and re-registered at a new address. No further exemptions other than those already granted were applied for.

The Nursing Homes on the register at the end of the year numbered 68, the approximate number of beds being 282.

Babies born in Nursing Homes during the year numbered 515 (including 8 twin births).

Visits of the Staff of the Midwifery Department to Special Cases.

These cases are not classifiable in any of the sections so far considered and include visits to women suffering from venereal disease, visits paid to cases of puerperal pyrexia and puerperal sepsis, visits relating to deaths of infants under 11 days old, cases of weaning, maternal mortality, etc. Such visits during 1933 numbered 1,150.

THE HEALTH VISITORS' DEPARTMENT.

This work is carried out by a staff of trained health visitors.

The work of the health visitors comprises the following :—

(1) Ante-natal or pre-maternity clinics for expectant mothers.

(2) Clinics for children up to five years of age.

(3) Instruction classes at the above clinics in cutting out, sewing, knitting, etc.

(4) Visiting in the homes under the Notification of Births Acts, 1907 and 1915.

(5) Home-visiting in connection with the ante-natal and post-natal clinics.

(6) Home-visiting of children up to five years of age to advise generally on their care and feeding

(7) Home-visiting of pre-school children in relation to defects, e.g., to arrange, in conjunction with the School Medical Department, for treatment of squint, otorrhœa, orthopædic defects, etc

(8) Visiting under Children Act, 1908, and Children and Young Persons Act, 1933.

(9) School medical inspection (see page 104).

(10) School Clinics—minor ailments and special ailments.

(11) Home-visiting in connection with school medical work.

(12) Cleansing of school children.

(13) Special visits :—

(*a*) Phthisis in women and children.
(*b*) Measles, whooping cough and pneumonia.
(*c*) Infantile diarrhœa.
(*d*) " House to house " inspection.

(14) Other special visits in connection with :—

(*a*) Aged and infirm people.
(*b*) Prevention of cruelty to children.
(*c*) Provision of fireguards.
(*d*) Relieving officers.
(*e*) Admissions to Day Nurseries.
(*f*) Certain areas in which infantile diarrhœa is likely to occur.
(*g*) After care of children under 1 year of age discharged from Alder Hey Hospital and Olive Mount Hospital.
(*h*) Supply of milk to expectant and nursing mothers and children.
(*i*) Voluntary agencies.
(*j*) Other special enquiries.

Ante-Natal Clinics.

Experience has shown that conditions productive of a high rate of mortality among mothers point also to a high rate of morbidity, which is, unfortunately, not calculable by available statistics. Among the arrangements for the care and supervision of expectant motherhood ante-natal clinics have a large place.

In Liverpool there are 21 centres at which 40 ante-natal clinics are held weekly. Of these clinics, 15 are under the auspices of the Liverpool Maternity Hospital, two are held at the Royal Infirmary, two at Walton Hospital, two at Mill Road Infirmary, two at Smithdown Road Hospital, three are administered by the Child

Welfare Association, and the remaining fourteen by the Health Committee. At an ante-natal clinic, specialised examination is provided, for the most part, by consultant obstetricians.

Classes for mothers are held at the ante-natal clinics in rotation. At these classes the mothers are advised on preparation for their confinements, hygienic maternity clothes for themselves, and suitable cot, bedding and clothing for the coming infant.

The attendances at classes held by the health visitors at Corporation ante-natal clinics amounted to 3,497.

Treatment, except of a minor or preventive character, is not given. Patients in need of treatment are referred to private doctors or, if necessary, to a suitable hospital. Milk is provided for expectant mothers on a doctor's order.

Expectant mothers come to the clinics from many sources, as will be seen by the following table which refers to the Municipal Clinics Liverpool Transferred Hospital Clinics, Royal Infirmary Clinic, the Liverpool Maternity Hospital Clinics, Child Welfare Association and the Royal Liverpool Babies' Hospital, Woolton.

Voluntary attendances	5,361
Sent by midwives	3,185
Recommended by friends	1,263
Return cases	3,157
Sent by Doctors	688
,, Health Visitors	134
,, Hospitals	61
,, Relieving Officers	12

All ante-natal clinics (including municipal and voluntary clinics).

Total new cases	13,861
Total attendances	69,174
Cases referred to all hospital clinics from the various ante-natal clinics, not included in the total attendances	999

It is interesting to note that approximately 77 per cent. of the mothers visited by the health visitors, under the Notification of Births Acts, attend the ante-natal clinics.

Mothers who stay at home for their confinements and have no women relations or friends to assist them in their housekeeping are very grateful for the provision of a home help. Home helps are women who can take the place of the housewife in the home, and cook, clean and attend to the children. They are provided by the Women's Service Bureau, Gambier Terrace. This organisation also provides maternity bags and sterilised accouchement sets, which are a great boon to very poor mothers and to those who unexpectedly bear twins. Midwives are encouraged to visit the homes of their patients and to investigate carefully the arrangements for confinement. Where these conditions are unsatisfactory, every effort is made to rectify them at once.

Post-natal supervision of recently confined mothers.—Mothers are encouraged to attend the ante-natal clinics after the birth of the infant has taken place. This is for the purpose of examination to ascertain the existence of any morbid condition which might have occurred owing to the confinement. Such lesions, if left untreated, may give rise to much disability and suffering later.

Child Welfare Clinics (for Children up to five years of Age.)

Child welfare clinics have a three-fold aim. First, to instruct mothers in the care and feeding of infants and young children; second, to supervise the progress of the young child and to prevent, as far as possible, unnecessary illness due to ignorance of mothers; and third, to assist in restoring the mother to health and in establishing natural feeding. Talks are given to mothers on hygiene, and classes are held in which instruction in knitting, cutting out and making children's clothes is given.

Attendances at Municipal Maternity and Child Welfare Clinic classes numbered 19,756 during the year.

It will be noted that these clinics do not in any sense take the place of a hospital, dispensary or private doctor's consultation. Accessory foods, such as cod liver oil, emulsion, and so forth, are given on a

doctor's order at cost price. In the case of infants whose mothers are unable to breast-feed them, Grade A (T.T.) milk, or dried milk may be ordered by the clinic doctors. (A fuller account of this subject comes under the section dealing with milk depots.)

The sources of admission to the child welfare clinics are similar to those of the pre-maternity clinics, but mothers having once attended an infant clinic frequently attend as a matter of course with each succeeding child, so that the number of mothers coming under this category shews a marked increase each year.

The value of the mother's attendance at a clinic is increased by visits to her home which are paid by the health visitor, who has either registered or weighed her baby or taken notes of the doctor's advice at the clinic.

Children who have been seen by the doctor at a clinic are visited in order to ascertain if the doctor's instructions are understood and are being properly carried out.

The following figures give the numbers of children admitted to the various child welfare clinics in the city :—

Admissions for year	10,827
Total attendances for the year	170,785

This shows an increased attendance of 5,183 over the previous year.

There are 17 centres at which 44 sessions are held per week.

The Health Visitors' Work carried out in the Homes.

Visiting in the homes under the Notification of Births Acts has been carried out since 1907 in Liverpool. This establishes contact with the mother and child as soon as the puerperium is over and follows on the attendance of the doctor or midwife or on the patient's discharge from hospital. At this time, advice is given and the mother (or child) referred to her own doctor or to an infant clinic.

Visits in this connection are continued, periodically, whether the child attends a clinic or not. Notes are made on the general progress and children are referred for appropriate treatment for defects, when required.

Home visiting is a necessary adjunct to the ante-natal, post-natal and child welfare clinics. Frequently the directions and advice given in the clinic are not clearly understood by the mother and require further explanation. This is best given informally in the home. The home conditions are sometimes found to be inimical to the welfare of the child or even of the whole family, and it is only by a careful investigation of the circumstances that suitable corrections can be made.

It is noted elsewhere in this report that infantile diarrhœa is much less prevalent now than in former years. To a large extent this is due to the careful visiting in the early part of the year of homes and areas likely to be affected, so that householders may be warned of the danger of flies and advised as to methods adopted for their destruction.

All notified cases of measles, whooping cough and pneumonia nursed at home are also visited by members of the health visiting staff. Appropriate assistance is given, either in the actual nursing of the child or in arranging for its efficient isolation from other members of the family.

The health visitors' duties in connection with the School Medical Department are very extensive and include attendances at the schools during the routine school medical examinations, concentration visits to schools, attendance at all school clinics and clinics for the treatment of special defects, e.g., defective vision, aural troubles, enlarged tonsils and adenoids, and ringworm.

By arrangement with the School Medical Department, pre-school children—that is those under the age of school attendance—suffering from defects of eyes or ears or from orthopædic defects may receive treatment and advice at the School Medical Department's special clinics. During 1933, 466 children under five years of age were referred for special treatment to this department.

Defective vision	218
Otorrhœa	124
Orthopædic defects	124

Home visits were paid in each case, and all the children were found to be unable to obtain the necessary treatment from private practitioners on account of poverty, or from hospital out-patient departments on account of the already long waiting lists, necessitating loss of time and consequent risk of irremediable defects. (Further details of the work of the health visitors are given in the report of the School Medical Officer, which is separately printed.)

Statistics Relating to Home Visits.

Visits to expectant mothers by health visitors	1,796
Visits under the Notification of Births Acts, 1907 *to* 1915.	
Number of births visited during the year	17,327
Re-visits to births during the year	53,558
Re-visits to infants of 1 year to 5 years of age	66,614
Visits paid to homes of nurse children under Part I *of the Children Act*, 1908	1,255
After care visits to children under one year of age discharged from Municipal Hospitals :—	
Visits to 452 cases from Alder Hey Hospital	875
,, ,, 357 cases from Olive Mount Hospital	619
Visits to cases of infectious disease, etc.	
Visits to cases of measles	14,374
,, ,, whooping cough	900
,, ,, pneumonia	1,068
,, ,, infantile diarrhœa	1,043
Re-visits to phthisis cases amongst women and children...	4,562
Number of visits paid to schools	9,107
,, hours spent in schools	16,327
,, children inspected in schools	50,872
,, re-inspections in schools	146,029
,, dental inspections in schools	72,085
,, home visits to cases of physical defects ...	7,428
,, home visits to neglected and verminous school children	19,491
,, home visits to school children suffering from infectious skin diseases, etc.	421

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

Number of visits to school clinics	9,708
,, hours spent at school clinics...	34,827
,, attendances at school clinics	368,824

Rickets Enquiry.

So many cases of rickets coming to the notice of the Public Health Department suggested that a special enquiry might, with advantage, be made into the mode of living of the children affected.

Consequently, all rachitic children who were sent to the Carnegie Welfare Centre for artificial sunlight or for admission to the wards, were the subject of careful enquiry. Cases added from Alder Hey Hospital make a total of 171.

This report deals with only a limited number of existing cases, but it serves to throw into prominence not only the established tenets as to the cause and prevention of rickets, but the fact that much closer supervision of early infancy is necessary and that much more attention should be paid to the education of mothers in matters concerned with the evil consequences of rickets and its prevention and cure.

In the severe type, regular attendance at the clinics is shown in only two cases. The tendency of severe cases of rickets to respiratory and infectious illness would account for a good deal of absence, but it was also noted that very few of these children attended the clinic sufficiently early to allow of measures being taken to ensure a healthy infancy and childhood under conditions of home life which would tend to act adversely on the child's well being.

The lack of regular provision, from early infancy, of cod liver oil, which is one of the most convenient and successful methods of administering the anti-rachitic vitamin, is clearly shown to be a factor influencing the incidence of rickets.

Investigation has also brought to light the important point that, in the large majority of breast-fed infants, the mother's diet and health have been poor, facts which tend to react adversely on the nutrition of the child.

The following table illustrates these points :—

	Severe Type.	Moderate Type.	Early Type.
No. of Cases	26	82	63
Breast Feeding :—			
Nil or under three months...	23%	33%	33%
Over three months	77%	67%	67%
Fresh Air and Good Conditions :—			
Satisfactory	27%	50%	55%
Unsatisfactory	73%	50%	47%
Illnesses :—			
Respiratory	19%	31%	14%
Infectious	50%	33%	25%
Other...	15%	19%	11%
Nil	26·6%	42%	42%
Attendance at a Child Welfare Clinic :—			
Regular	7·6%	29%	51%
Irregular	26·6%	28%	22%
Nil	65·8%	43%	27%
Provision of Cod Liver Oil :—			
Regular	Nil	17%	33%
Irregular	26·6%	29%	47%
Nil	73·4%	54%	20%

Administration of Part I of the Children Act, 1908.

(*a*) Number of persons receiving children for reward on the Register at the end of the year 1933 185

(*b*) Number of children on the Register—

(1) at the end of the year 227

(2) who died during the year...(1 in hospital and 2 in homes)

(3) on whom inquests were held during the year ... Nil

(c) Proceedings taken during the year ... ... Nil

Table showing the chief causes of deaths of Infants during the Neo-natal period (first 28 days after birth).

Cause of Death.	Aged 7 days and under.	Aged 1 to 4 weeks.	Total.
Prematurity	273	52	325
Respiratory Diseases	61	24	85
Congenital Malformation	46	30	76
Feebleness at birth	9	11	20
Convulsions	23	6	29
Want of attention at birth	2	—	2
Found dead	3	—	3
Haemorrhage	25	3	28
Birth injuries	17	1	18
Tetanus Neonatorum	—	1	1
Asphyxia	—	2	2
Scleroma	—	1	1
Diarrhoea and enteritis	1	4	5
Other causes	1	15	16
Total	461	150	611

It is evident that premature birth is responsible for more than half the total number of deaths of infants during the neo-natal period. In the majority of cases, it has not been possible to assign definite causes for prematurity. Seasonal influence appears to have no bearing on the occurrence of deaths in any of the above-mentioned groups. It will be noted, however, how few of the total deaths occur at this early age from gastro-enteritis.

Deaths from Diarrhœa and Enteritis.

Results of Enquiry.

Enquiries were made into 319 of the deaths recorded. In a few instances the parents could not be traced.

In 164 cases enteritis was the first symptom and the onset was sudden.

In 22 cases there was a predominant history of wasting or marasmus. In 55 cases the onset of enteritis had been preceded by an attack of pneumonia or bronchitis, and in 5 others by measles, or other infectious illness. In 7 instances, where deaths were ascribed to enteritis, there was no diarrhœa, but vomiting only.

Congenital conditions accounted for two deaths. In four cases the infant was known to have been premature; in 11 cases the infant was said to have been delicate from birth.

Neo-Natal Deaths.—Five deaths were of infants under one month old (28 days after birth) :—

0- 7 days	1
7-14 days	1
14-21 days	1
21-28 days	2

Acute intestinal infections are uncommon at these early ages, when the child is almost invariably breast-fed.

Other Associated Diseases.—Apart from the respiratory diseases, 55 in number, referred to above, the following conditions were present, and in most cases were the cause of the child's admission to hospital, enteritis being a terminal condition.

Operation	2 cases.
Glands in neck	2 ,,
Other skin diseases	1 ,,
Hernia	1 ,,
Otitis	1 ,,
Stomatitis	2 ,,
Pyelitis	2 ,,
Ophthalmia Neonatorum ...	1 ,,
Infantile Dyspepsia	21 ,,
Wasting and feebleness	33 ,,
Congenital Syphilis	1 ,,
Pemphigus	1 ,,
Acute Laryngitis	1 ,,
Convulsions	3 ,,

Inhalation Asphyxia	1 case.
Operation for circumcision ...	1 ,,
Intussusception	1 ,,
Jaundice	1 ,,

It seems almost certain that these various conditions played a large part in causing the deaths of the infants.

Maternal Illness or Death.—The care of the mother is so essential to the wellbeing of the new-born child that it is not surprising that in the following cases the serious illness or death of the mother was followed by the death of the child :—

Tuberculosis	2 cases.
Died at or shortly after birth ...	1 ,,
Respiratory disease	6 ,,
Insanity	1 ,,
Unclassified illness	26 ,,

Severe illness involved the weaning of the child.

Social Conditions.—Eight, at least, of the children were illegitimate, and the babies having been admitted to some institution at an early age had necessarily been weaned for this reason. In a further 9 cases of infants who died in institutions, the parents could not be traced at the address given. Husband and wife had separated in six cases. The home conditions or storage of food were unsuitable in 111 cases.

Methods of Feeding.—The majority of the children were artificially fed in whole or in part. Artificial feeding if not carefully carried out not only predisposes the child to a fatal infection, by rendering it more susceptible, but provides the medium, usually milk, by which the infection is conveyed. Classified according to the method of feeding, the cases were :—

Entirely breast-fed	41
Mixed breast-fed and artificially ...	59
First breast-fed, later artificially ...	197
No history obtainable or inadequate information	17
Artificially fed entirely	5
Total	319

Of the 319 children who died only 46 per cent. had attended an infant welfare clinic.

See also pages 69-73 for further details relating to Diarrhœa and Enteritis.

Carnegie Welfare Centre.

The Carnegie Welfare Centre has now completed 10 years as a most useful and educational welfare centre in the city.

During 1933 the work of former years has been carried on, but with an increased number of attendances in many departments.

Child welfare clinics are held on four afternoons per week. Two ante-natal clinics are held each week. The attendances at the clinics have shewn an increase each year on those of the year preceding. The classes for knitting, sewing, etc., have also been well attended.

Observation Wards.—The number of infants admitted during 1933 was 136, and the reasons for admissions were :—

1. Failure to make normal progress 36
   - 30 improved.
   - 5 taken home for medical treatment at home.
   - 1 still under treatment.

2. Infantile Dyspepsia 27
   - 20 cured.
   - 3 transferred to hospital.
   - 2 taken home for private medical attention.
   - 2 died.

3. Rickets 71
   - 48 improved.
   - 5 taken home for private medical attention.
   - 8 transferred for orthopœdic treatment.
   - 3 transferred to isolation hospital.
   - 5 still under treatment.
   - 2 poor result.

4. Observation... 2
   - 2 sent home well.

The average duration of stay in the wards has been 28 days, but the actual time has varied from a few days to several weeks.

Ultra-violet irradiation clinic.

Three sessions are held each week. During the summer months which were rather more than usually fine, the numbers attending were reduced, but on the onset of the colder weather, numbers rapidly increased.

Only those rachitic children definitely non-surgical are treated. Those admitted to the wards give better results on the whole than those attending as out-patients. (No inference of any value can be drawn from this fact, as cases are taken as they are sent from the clinics, and no control observations can conveniently be made).

The children who are classed under the heading of "Lack of normal progress" are those in whom no very definite cause for their failure to gain weight normally is apparent. Occasionally the condition is dated from some previous illness or even from weaning. It is frequently due to poverty, mismanagement, neglect, or overcrowding with resultant conditions of defective hygiene. Occasionally some latent infection is responsible, and more often than not a combination of adverse conditions is found.

New cases during 1933	263
Attendances	4,476

Rickets 148

50 good results.
17 fairly good results.
11 poor results.
39 discontinued treatment before the course was completed.
30 still under treatment.
1 referred to orthopædic clinic.

Failure to make normal progress 34

9 good results.
2 fairly good results.
9 poor results.
5 discontinued treatment.
9 still under treatment at end of year.

Dental Clinics.

Four Dental Clinics are held weekly for expectant mothers, nursing mothers and children up to five years of age. Three of these clinics are municipal and one is a voluntary clinic.

Attendances at all clinics :—

New cases	1,310
Ante-natal and post-natal mothers	1,106
Children	204
Number of extractions	5,864
,, fillings	26
Total attendances	2,716

Maternity and Rest Home.

"Quarry Bank," 162 Hawthorne Road.

The accommodation of the home consists of two wards, together with an emergency ward and two isolation wards, and a labour ward, containing 18 beds in all.

The statistics relating to the treatment of patients in the home during the year 1933 are as follows :—

Total number of cases admitted	233
Number of women confined in the home	205
,, pre-maternity cases	28
,, post-natal cases	Nil

The average duration of stay was 16·27 days.

Of the 205 cases of labour conducted in the home, the patients in all cases made a good recovery, and no maternal mortality occurred. The normal cases numbered 193, and the cases of complicated labour were 12. Five patients were transferred to hospital, 3 for caesarean section, 1 revealed accidental hæmorrhage, and 1 shoulder presentation. Of the total number of cases, 160 were primigravidæ. Former patients admitted for a second confinement at the home numbered 20, for a third time 2, for a fourth time 1, and for a fifth time 2.

Of the 205 babies born in the home, 200 were born alive and 5 were still-born. In the case of the still-births the causes of death were stated to be : 3 macerated fœtus, 1 cord round body and neck, 1 hydrocephalus and spinal bifida.

Of the 205 babies born alive, 5 died within 10 days of birth. Causes : Prematurity 1, atelectasis 3, congenital deformity 1.

The 28 pre-maternity cases were admitted on account of various complications associated with pregnancy, such as albuminuria, bacilluria, heart disease, varicose veins, hydramnios and contracted pelvis. Of these all remained in or returned to the home for confinement.

No case of ophthalmia neonatorum or pemphigus occurred in the home during the year. One puerperal sepsis occurred.

An ante-natal clinic is held at the home once per week, when the medical officer attends to see patients.

During the year 260 patients attended for the first time, and the total number of attendances was 1,267; the average attendance per week was 24·2.

Source of Patients.

Sent by friends	154
,, midwives	2
,, medical practitioners	40
,, health visitors	1
Referred from hospital	9
,, ,, Bootle Municipal Home ...	2
Return cases	25

DAY NURSERIES.

The Day Nurseries in Liverpool are 6 in number, 4 of which are under the control of the Health Committee. Children from the age of one month to five years are admitted, and may remain from 7 a.m. to 7 p.m. on week-days and 7 a.m. to 1 p.m. on Saturdays.

A daily or weekly charge is made for each child, which is based on an income and expenditure figure. Only the children of mothers who are obliged to work by reason of widowhood, unemployment or incapacity of their husbands, are admitted. The particulars given to the matron on admission of each child are investigated by a call made at the home by the health visitor for the district in which it is situated.

The two voluntary nurseries are administered on somewhat similar lines to those under the control of the Health Committee.

Statistics relating to Corporation Nurseries.

NEW ADMISSIONS.

Age.	Westminster Road.	*Edge Lane.	‡Shaw Street.	Smithdown Lane.	Gt. George Square.	Garston.
Under 1 year ...	20	6	8	21	20	19
1 year—2 years ...	32	4	9	18	15	29
Over 2 years ...	22	4	6	18	17	6
TOTAL	74	14	23	57	52	54
Total attendances ...	12,814	†716	1,213	9,058	7,324	10,026

Condition on Admission.

Good	9	5	5	12	25	20
Fairly good	17	4	14	22	21	20
Poor	48	5	4	23	6	14

Number of Cases of Illness contracted during the year.

Infectious	11	—	24	5	14	13
Other illness	3	—	6	5	4	3
TOTAL ...	14	—	30	10	18	16

* Day and Resident Nursery, closed in April, 1933. † These figures refer to Day Nursery only.

‡ This Nursery was closed in June, 1933.

Admissions to Resident Nursery, Edge Lane.

The Nursery was closed in April, 1933.

Number admitted during 1933	10
Average duration of residence	26·6 days.
Reasons for admission :—	
Mothers' confinement	7
Mothers ill at home	3

MILK DEPOTS.

The milk which is supplied from these centres and depots consisted entirely of Grade A Tuberculin-tested milk.

There were 4,852 persons on the books at the beginning of the year, 17,446 admitted during the year, and 2,858 who had milk previously and have been re-admitted, making a total of 20,304. The supply of milk is given on the presentation by the applicant of a note from a doctor, and in a few instances it was allowed on production of written requests from midwives. The following is a statement of cases admitted during the year :—

Centres.	Ante-Natal.	Nursing Mothers.	Infants.		Liverpool Child Welfare Association.	Totals.
			Under 1 year of age.	1 to 2 Years of Age.		
Netherfield Road ...	473	769	781	123	464	2,610
Earle Road ...	56	337	394	62	73	922
Park Road ...	251	446	368	87	373	1,525
Boaler Street ...	50	403	473	66	148	1,140
Holly Street ...	227	634	374	161	355	1,751
Rathbone Road ...	15	163	344	20	49	591
Mill Street ...	65	164	145	26	108	508
Scarisbrick Road ...	99	277	346	63	228	1.013
Agents	141	37	367	266	1,723	2,534
	1,377	3,230	3,592	874	3,521	12,594

The total quantity of milk supplied during the year was 136,237 gallons, and 39,378 bottles were filled. Prescription milk was discontinued 30/9/32. The amount of dried milk supplied was 155,261 lbs.

Total cases on books, January 1st, 1933	4,852
,, ,, admitted during the year	12,594
Total supplied during 1933	17,446
Remaining on the books at the end of the year ...	5,224

Quarterly Average—January, February, March ...	4,967
,, ,, April, May, June	4,769
,, ,, July, August, September ...	4,510
,, ,, October, November, December ...	5,165

The highest number supplied with milk at one time was 5,417 during the week ended December 8th.

Since the initiation of the scheme in 1901 down to the end of the year 1933, the number of persons supplied with milk has reached a total of 177,714.

On one day in each week mothers attend at the centre in their district for the purpose of reviewing family circumstances, when:—

The supply of milk is continued at the same price.

If the circumstances are improved, the charge is increased.

If the circumstances are worse than when last reviewed, the charge is lowered.

The number of attendances of persons at the centres during the year for advice, and payment for milk, etc., was 30,349.

The usual grant is for a period of 4 or 6 weeks, in exceptional cases 2 or 8 weeks.

The number of visits paid during the year to children in their own homes by the health visitors attached to the centres in order to see that the children were being properly fed and the milk properly used, was 6,000. From time to time information concerning cases is received from the district health visitors and from clinics.

TUBERCULOSIS

TUBERCULOSIS.

NOTIFICATION.

Public Health (Tuberculosis) Regulations, 1930.

Summary of Notifications during the period from 1st January, 1933, to 31st December, 1933:—

TABLE I.

Age-periods.	Notifications on Schedule A. Number of Primary Notifications of New Cases of Tuberculosis. 0–	1–	5–	10–	15–	20–	25–	35–	45–	55–	65–	Total Primary Notifications.	Total Notifications on Form A (including duplicates.)
Pulmonary—													
Males	6	33	75	51	70	124	232	222	205	110	36	1,164	1,482
Females	2	36	71	65	118	277	230	151	101	50	14	1,115	1,339
Non Pulmonary—													
Males	4	60	86	49	29	24	20	11	7	5	1	296	428
Females	6	68	78	53	39	38	35	20	10	7	4	358	466

Practically all cases notified under the above regulations are examined by the Tuberculosis Officer, the only exceptions being those cases in which, for some specific reason, exemption from examination is requested either by the patient or the medical practitioner concerned.

THE NOTIFICATION AND DISPENSARY REGISTERS.

The numbers of cases on the notification and dispensary registers are given in Table II.

The number of cases on the notification register at the end of the year was 9,346. This figure is greater than the number of patients suffering from tuberculosis who are under the supervision of the Tuberculosis Officers and whose names are therefore on the dispensary register, because a number of patients under public medical treatment terminate such treatment before they can be written off the notification register as cured cases, and a few notified persons do not wish to accept public medical treatment.

TABLE II

	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Totals.
	Males.	Females.	Males.	Females.	
Number of cases on the Notification Register ...	3,621	2,880	1,372	1,473	9,346
Number of established cases on the Dispensary Register	2,458	1,930	896	939	6,223
Difference	1,163	950	476	534	3,123

In Table III is given an analysis of the 3,123 persons whose names are on the notification register but are not on the dispensary register, according to the latest information concerning them.

TABLE III

	Pulmonary Tuberculosis.						Non-Pulmonary Tuberculosis.						Totals.
	Males.			Females.			Males.			Females.			
	State of the Disease.						State of the Disease.						
Whereabouts Known.	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	
Totals	137	360	666	45	295	610	98	137	241	112	181	241	3,123

TUBERCULOSIS CLINICS AND DISPENSARY SYSTEM.

Arrangements for the administration of the Tuberculosis Scheme in Liverpool continue to work smoothly and the three clinics are kept fully occupied. Whilst there is a further decrease in the number of deaths from non-pulmonary tuberculosis there is a slight increase in the deaths from pulmonary tuberculosis. This is very probably associated with the occurrence of an influenza epidemic in the Spring of 1933, 33·5 per cent. of the deaths being in the first quarter of the year as compared with 28·2 per cent. in the corresponding period of 1932.

The volume of work dealt with by the Tuberculosis Department has been increased considerably by the supervision of cases of tuberculosis in the transferred and appropriated hospitals. Since the last report the Ministry of Health has "approved" the use of a portion of the Walton Hospital, known as the Pavilion (100 beds), for the treatment of cases of pulmonary tuberculosis, whilst Alder Hey Hospital had already received similar approval for the treatment of non-pulmonary tuberculosis in children.

A statistical summary of the work of the Tuberculosis Clinics, so far as all cases on the dispensary registers are concerned, is given in Table IV, and at the foot thereof are included a few statistics of a general nature.

TABLE IV.

Diagnosis.	Pulmonary.				Non-Pulmonary				Total.				
	Adults.		Children		Adults.		Children		Adults.		Children.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
A.—New Cases examined during the year (excluding contacts):													
(*a*) Definitely tuberculous ...	622	458	77	80	62	103	149	175	684	561	226	255	1,
(*b*) Diagnosis not completed ...	—	—	—	—	—	—	—	—	19	24	14	12	
(*c*) Non-tuberculous	—	—	—	—	—	—	—	—	504	510	319	310	1,
B.—Contacts examined during the year :—													
(*a*) Definitely tuberculous ...	5	3	5	5	—	1	—	—	5	4	5	5	
(*b*) Diagnosis not completed ...	—	—	—	—	—	—	—	—	—	—	—	—	
(*c*) Non-tuberculous	—	—	—	—	—	—	—	—	53	148	315	328	
C.—Cases written off the Dispensary Register as :—													
(*a*) Recovered	49	48	14	11	9	12	28	34	58	60	42	45	
(*b*) Non-tuberculous (including any such cases previously diagnosed and entered on the Dispensary Register as tuberculous)	—	—	—	—	—	—		—	557	658	634	638	2,
D.—Number of Cases on Dispensary Register on Dec. 31 :													
(*a*) Definitely tuberculous ...	1,959	1,501	499	429	282	411	614	528	2,241	1,912	1,113	957	6,
(*b*) Diagnosis not completed ...	—	—	—	—	—	—	—	—	19	24	14	12	

TABLE IV.—*continued.*

Number of cases on Dispensary Register on January 1st	6,375	2. Number of cases transferred from other areas and cases returned after discharge under Head 3 in previous years ...	312
Number of cases transferred to other areas, cases not desiring further assistance under the scheme, and cases "lost sight of"	954	4. Cases written off during the year as Dead (all causes)	1,050
Number of attendances at the Dispensary (including Contacts)	18,501	6. Number of Insured Persons under Domiciliary Treatment on the 31st December	904
Number of consultations with medical practitioners:— (*a*) Personal ... ... (*b*) Other	65 4,437*	8. Number of visits by Tuberculosis Officers to homes (including personal consultations)	1,278
Number of visits by Nurses or Health Visitors to homes for Dispensary purposes	33,141	10. Number of:— (*a*) Specimens of sputum, etc., examined (*b*) X-ray examinations made ... ... in connexion with Dispensary work.	4,307 822
Number of "Recovered" cases restored to Dispensary Register, and included in A (*a*) and A (*b*) above...	6	12. Number of "T.B. plus" cases on Dispensary Register on December 31st ...	1,870

*In addition to 4,502 consultations, 2,336 reports concerning patients were sent to medical practitioners.

GENERAL REMARKS.

Every effort has been made to reach a greater degree of precision in diagnosis, and to this end full use is being made of X-Rays (822 examinations) and other methods of diagnostic investigation. This has resulted in a more conservative standard of diagnosis being reached, as a consequence of which a number of cases which otherwise might have been accepted as tuberculous has been shown to be non-tuberculous and referred for treatment elsewhere. It has thus been almost possible to meet the demands of residential treatment with the Council's own beds, thus considerably reducing the amount of accommodation leased in outside institutions and effecting a definite saving in maintenance charges. Though it is desirable to utilise sanatorium accommodation for cases in which the disease is not so advanced as to preclude a reasonable chance of recovery, it is, at the same time, essential to provide for the segregation of infectious cases, thus absorbing a certain proportion of the available bed accommodation. An endeavour has been made to meet this difficulty by the closer supervision, by the Tuberculosis Officers, of "open" cases in their own homes.

A number of persons seek the advice of the Tuberculosis Officer on their own initiative, which is very desirable, and a special pamphlet has been compiled for distribution, with a view to acquainting the public as to the modern views held regarding the spread of tuberculosis and the measures for combatting the disease.

The Committee of the Liverpool Hospital for Consumption and Diseases of the Chest has carried out extensive alterations and additions to that hospital, as a result of which the Central Tuberculosis Clinic, which occupies a portion of the building, has been housed in new and commodious quarters and now forms a self-contained unit on the ground floor as from December 14th, 1933. This arrangement should prove of great value in the future, and will permit of cases being dealt with without any undue congestion.

Ultra violet irradiation has been found to be of great assistance in the treatment of certain tuberculous conditions, and arrangements now exist whereby such treatment is carried out at Belmont Road Hospital when so prescribed by the Tuberculosis Officer.

THE CONDITION OF PATIENTS KNOWN TO THE TUBERCULOSIS OFFICERS.

A statistical return showing in summary form the condition of all patients whose case records are in the possession of the Tuberculosis Clinics at the end of the year, arranged according to the years in which the patients first came under public medical treatment, and according to their classification, is given in the two tables, Table V relating to pulmonary cases, and Table VI to non-pulmonary cases.

It is noteworthy that of 1,272 new pulmonary cases whose names were entered on the dispensary register during the year, 760 (59·7 per cent.) were in a very advanced stage of disease. By the end of the year, 308 (24·2 per cent.) of the new cases arising during that year were deceased, indicating that there continues to remain a considerable number of cases which only come to the notice of the Tuberculosis Officer when the disease is in a very advanced stage.

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TABLE V—PULMONARY TUBERCULOSIS.

(*a*) The condition at the end of 1933 of all patients remaining on the Dispensary Register; and (*b*) the reasons for the removal of all cases written off the Register. The Table is arranged according to the years in which the patients were first entered on the Dispensary Register as definite cases of pulmonary tuberculosis, and their classification at that time.

Condition at the time of the last record made during the year to which the return relates.			Previous to 1926.					1926.					1927.					1928					1929.					1930.					1931.					1932					1933.				
			Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.				Class T.B. Minus.	Class T.B. Plus.			
				Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.		Group 1	Group 2	Group 3	Total Class T.B. Plus.
(*a*) Remaining on Dispensary Register on 31st December	Disease Arrested.	Adults M.	50	16	6	2	24	13	1	1	...	2	24	1	...	...	1	29	3	3	...	6	32	...	2	...	2	17	1	1	...	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...
		Adults F.	46	2	2	...	4	7	...	1	...	1	16	...	1	...	1	15	4	3	...	7	20	2	...	...	2	19	1	1	...	2	10	...	1	...	1	...	...	...	...	...	...	...	...
		Children	70	3	...	...	3	14	...	...	...	...	21	...	...	...	...	26	...	...	...	...	47	...	...	1	1	35	...	...	...	...	21	...	...	...	...	...	...	...	...	...	...	...	...
	Disease not Arrested.	Adults M.	56	64	64	10	142	7	6	24	4	34	9	4	16	1	21	21	6	22	6	34	31	11	29	6	46	24	10	63	7	80	57	12	92	12	116	82	22	98	2	122	158	28	232	13	273
		Adults F.	59	20	33	2	55	9	2	10	...	12	19	6	12	1	19	12	4	23	5	32	34	5	26	6	37	26	11	32	4	47	46	13	53	8	74	69	23	88	3	114	117	19	168	15	202
		Children	38	3	8	...	11	12	...	2	...	2	20	...	...	...	...	20	...	...	...	...	32	...	...	1	1	41	1	4	...	5	78	...	2	2	4	80	2	2	...	4	134	...	7	1	8
	Condition not ascertained during the year		228	45	53	3	101	54	5	11	1	17	65	2	14	1	17	66	5	11	4	20	60	6	22	2	30	38	4	24	2	30	88	2	33	2	37	92	9	50	5	64	...	...	...	...	...
	Total on Dispensary Register at 31st December		547	157	166	17	340	116	14	49	5	68	174	13	43	3	59	189	22	62	15	99	256	24	79	16	119	200	28	125	13	166	304	27	181	24	232	323	56	238	10	304	409	47	407	29	483
(*b*) Not now on Dispensary Register and reasons for removal therefrom.	Discharged as Recovered.	Adults M.	282	40	5	1	46	10	...	...	...	...	5	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Adults F.	274	16	4	...	20	15	...	1	...	1	4	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Children	340	2	1	1	4	20	...	...	...	...	16	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Lost sight of, or otherwise removed from Dispensary Register.		3,897	342	193	35	570	293	21	42	4	67	254	14	40	7	61	260	9	42	9	60	228	12	35	5	52	168	15	96	6	57	132	8	40	4	52	75	12	25	1	38	41	2	25	4	31
	Dead	Adults M.	650	543	831	699	2,073	92	32	176	108	316	80	21	142	125	288	89	18	144	140	302	84	16	131	133	280	56	9	141	133	283	49	10	126	137	273	46	15	108	95	218	28	1	42	99	142
		Adults F.	458	292	508	484	1,284	57	10	107	80	197	67	11	94	103	208	65	11	87	101	199	67	5	104	88	197	73	8	111	89	208	41	7	86	105	198	33	13	78	73	164	18	...	38	61	99
		Children	234	24	46	61	131	39	2	8	11	21	29	1	9	13	23	29	1	5	8	14	41	...	5	7	12	21	1	3	12	16	14	...	6	11	17	28	...	2	7	9	16	...	2	3	5
	Total written off Dispensary Register		6,135	1259	1588	1281	4,128	526	65	334	203	602	455	47	285	248	580	449	39	278	258	575	420	33	275	233	541	318	33	291	240	564	236	25	258	257	540	182	40	213	176	429	103	3	107	167	277
Grand Totals			6,682	1416	1754	1298	4,468	642	79	383	208	670	629	60	328	251	639	638	61	340	273	674	676	57	354	249	660	518	61	416	253	730	540	52	439	281	772	505	96	451	186	733	512	50	514	196	760

TABLE VI—NON-PULMONARY TUBERCULOSIS.

(a) The condition at the end of 1933 of all patients remaining on the Dispensary Register; and (b) the reasons for the removal of all cases written off the Register.

Condition at the time of the last record made during the year to which the return relates.	Previous to 1926.					1926.					1927.				
	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL
(a) Remaining on Dispensary Register on 31st December — Disease Arrested — Adults M.	6	...	...	1	7	1	...	...	1	2	2	1	...	1	4
Disease Arrested — Adults F.	4	1	...	1	6	1	...	1	2	4	2	...	...	...	2
Disease Arrested — Children	11	10	1	14	36	8	9	1	3	21	9	6	...	6	21
Disease not Arrested — Adults M.	13	...	2	3	18	1	...	...	1	2	...	...	...	...	...
Disease not Arrested — Adults F.	7	...	2	10	19	2	...	...	2	4	5	1	...	1	7
Disease not Arrested — Children	11	2	2	10	25	8	...	2	3	13	7	1	...	8	16
Condition not ascertained during the year	38	18	4	51	111	4	1	...	8	13	16	7	1	5	29
Total on Dispensary Register at 31st December	90	31	11	90	222	25	10	4	20	59	41	16	1	21	79
Transferred to Pulmonary	18	15	4	37	74	6	3	2	11	22	3	...	4	4	11
(b) Not now on Dispensary Register and reasons for removal therefrom — Discharged as Recovered — Adults M.	23	3	6	10	42	1	...	2	1	4	...	...	...	...	...
Discharged as Recovered — Adults F.	18	7	5	22	52	1	1	...	5	7	1	1	2	4	8
Discharged as Recovered — Children	125	100	12	138	375	35	25	4	26	90	9	18	4	24	55
Lost sight of, or otherwise removed from Dispensary Register.	449	310	106	781	1,646	63	57	18	131	269	58	41	29	101	229
Dead — Adults M.	52	15	15	12	94	5	1	1	3	10	10	2	1	2	15
Dead — Adults F.	38	14	11	9	72	3	5	4	1	13	5	1	1	3	10
Dead — Children	58	82	65	20	225	10	22	13	1	46	10	17	16	2	45
Total written off Dispensary Register	763	531	220	992	2,506	118	111	42	168	439	93	80	53	136	362
GRAND TOTALS of (a) and (b) (excluding those transferred to Pulmonary).	853	562	231	1,082	2,728	143	121	46	188	498	134	96	54	157	441

Condition at the time of the last record made during the year to which the return relates.	1928.					1929.					1930.				
	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL
(a) Remaining on Dispensary Register on 31st December — Disease Arrested — Adults M.	5	...	...	...	5	1	1	...	1	3	2	4	...	4	10
Disease Arrested — Adults F.	1	...	...	2	3	5	...	1	4	10	3	4	1	8	16
Disease Arrested — Children	9	9	1	13	32	14	15	3	29	61	14	11	5	36	66
Disease not Arrested — Adults M.	4	...	2	...	6	6	1	1	2	10	9	...	2	2	13
Disease not Arrested — Adults F.	2	3	2	4	11	1	1	5	2	9	6	4	1	6	17
Disease not Arrested — Children	10	1	2	7	20	6	4	2	9	21	17	13	1	18	49
Condition not ascertained during the year	12	5	1	10	28	13	10	3	12	38	17	7	1	13	38
Total on Dispensary Register at 31st December	43	18	8	36	105	46	32	15	59	152	68	43	11	87	209
Transferred to Pulmonary	3	3	1	3	10	2	...	...	3	5	2	1	1	5	9
(b) Not now on Dispensary Register and reasons for removal therefrom — Discharged as Recovered — Adults M.	2	1	3	1	7	...	...	...	...	...	...	1	...	...	1
Discharged as Recovered — Adults F.	...	...	...	3	3	...	...	...	2	2	...	1	...	...	1
Discharged as Recovered — Children	9	10	1	15	35	4	4	...	4	12	1	2	...	...	3
Lost sight of, or otherwise removed from Dispensary Register.	44	34	14	103	195	40	34	14	92	180	38	33	12	65	148
Dead — Adults M.	8	1	4	...	13	6	2	8	2	18	5	...	1	2	8
Dead — Adults F.	4	2	2	1	9	6	5	2	3	16	5	5	2	...	12
Dead — Children	10	18	17	1	46	10	18	17	6	51	9	8	20	2	39
Total written off Dispensary Register	77	66	41	124	308	66	63	41	109	279	58	50	35	69	212
GRAND TOTALS of (a) and (b) (excluding those transferred to Pulmonary).	120	84	49	160	413	112	95	56	168	431	126	93	46	156	421

Condition at the time of the last record made during the year to which the return relates.	1931.					1932.					1933.				
	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL
(a) Remaining on Dispensary Register on 31st December — Disease Arrested — Adults M.	4	3	1	4	12	3	...	4	2	9	...	...	...	1	1
Disease Arrested — Adults F.	4	2	2	6	14	2	4	2	9	17	2	...	...	...	2
Disease Arrested — Children	9	13	3	29	54	6	16	1	37	60	...	2	...	8	10
Disease not Arrested — Adults M.	9	...	2	1	12	15	4	3	6	28	17	4	8	20	49
Disease not Arrested — Adults F.	9	3	5	10	27	8	9	4	18	39	26	15	15	27	83
Disease not Arrested — Children	13	10	2	21	46	36	31	7	45	119	55	68	7	102	232
Condition not ascertained during the year	27	23	6	25	81	55	20	4	35	114	...	...	...	...	...
Total on Dispensary Register at 31st December	75	54	21	96	246	125	84	25	152	386	100	89	30	158	377
Transferred to Pulmonary	4	...	1	3	8	3	3	1	...	7	...	...	...	...	...
(b) Not now on Dispensary Register and reasons for removal therefrom — Discharged as Recovered — Adults M.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Discharged as Recovered — Adults F.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Discharged as Recovered — Children	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lost sight of, or otherwise removed from Dispensary Register.	30	24	13	67	134	22	14	10	37	83	6	9	3	26	44
Dead — Adults M.	7	1	2	...	10	4	2	2	...	8	1	1	1	2	5
Dead — Adults F.	5	4	2	1	12	4	1	1	1	7	3	1	...	...	4
Dead — Children	5	11	24	1	41	7	10	53	...	70	1	8	50	2	61
Total written off Dispensary Register	47	40	41	69	197	37	27	66	38	168	11	19	54	30	114
GRAND TOTALS of (a) and (b) (excluding those transferred to Pulmonary).	122	94	62	165	443	162	111	91	190	554	111	108	84	188	491

In Table VII is given a statistical analysis of the patients under dispensary treatment at the end of the year.

TABLE VII.

PATIENTS UNDER DISPENSARY TREATMENT AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.	
Insured Persons	Males	—	—	—	—
	Females	—	—	—	
Non-Insured Persons	Male Adults	18	7	25	154
	Female Adults ...	21	16	37	
	Male Children* ...	23	20	43	
	Female Children* ...	23	26	49	
Totals ...	... ...	85	69	154	

* Under 15 years of age.

In Table VIII is given a statistical summary of the patients who, not needing active treatment, were under dispensary supervision at the end of the year.

TABLE VIII.

PATIENTS NOT NEEDING TREATMENT WHO WERE UNDER DISPENSARY SUPERVISION AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.	
Insured Persons	Males	555	102	657	956
	Females	188	111	299	
Non-Insured Persons	Male Adults	221	75	296	2657
	Female Adults ...	514	177	691	
	Male Children* ...	417	488	905	
	Female Children* ...	353	412	765	
Totals ...	... ...	2248	1365	3613	

* Under 15 years of age.

HOME NURSING.

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 Port Sanitary and Hospitals Committee has an agreement and to whom is made a grant-in-aid. During the year, 186 pulmonary and 111 non-pulmonary cases were nursed in their homes, and to these cases 10,286 visits were paid.

DOMICILIARY TREATMENT.

This form of treatment is arranged where indicated and close co-operation obtains between the medical practitioners and the tuberculosis officers. At the end of the year, 1,559 patients remained under domiciliary treatment, of whom 904 were persons insured under the National Health Insurance Act, and were in receipt of treatment from their panel doctors, and 655 were not insured and were under the treatment of doctors of their own choice. The domiciliary reports received relating to insured persons numbered 4,057, and those relating to non-insured persons numbered 3,714. Table IX shows the position at the end of the year.

TABLE IX.

PATIENTS UNDER DOMICILIARY TREATMENT AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.	
Insured Persons	Males	626	36	662	904
	Females	216	26	242	
Non-insured Persons	Male Adults ...	145	17	162	655
	Female Adults ...	345	48	393	
	Male Children*	27	28	55	
	Female Children*	25	20	45	
Totals ...	... ...	1384	175	1559	

* Under 15 years of age.

CO-OPERATION AND CO-ORDINATION.

The closest co-operation exists between the Tuberculosis Officers and the School Medical Officers, as well as with the Maternity and Child

Welfare Department, so that children presenting any suspicious symptoms are at once brought under observation and it is thus possible to arrange, where necessary, for the provision of that early treatment which is so essential in any scheme which has for its object the prevention or cure of tuberculosis.

In the case of school children alone, 3,405 reports were rendered by the Tuberculosis Officer during the year.

The Tuberculosis Department also derives valuable assistance from the co-operation of such Voluntary Social Services as the Child Welfare Association, the Personal Service Society, and the Roll of Honour Fund.

A large number of examintions has been carried out by the Tuberculosis Officers at the request of the Divisional Medical Officer (Ministry of Health), the District Commissioner of Medical Services (Ministry of Pensions), and the Chief Medical Officer (Silicosis Scheme, 1931), to whom appropriate reports have been rendered.

SANATORIA.

TABLE X.

FAZAKERLEY SANATORIUM. Beds, 335.

NORMAL ALLOCATION OF BEDS.

	Observation.	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sanatorium" Cases.	"Advanced" Cases.	Disease of Bones and Joints.	Other Conditions	
Adult Males	2	32	94	45	15	188
Adult Females ...	1	20	58	30	10	119
Children under 15...	1	—	—	20	7	28
TOTAL ...	4	52	152	95	32	335

TABLE XI.

BROADGREEN SANATORIUM. Beds, 340.

NORMAL ALLOCATION OF BEDS.

	Observation.	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sanatorium" Cases.	"Advanced" Cases.	Disease of Bones and Joints.	Other Conditions	
Adult Males	2	94	80	—	—	176
Adult Females ...	2	62	60	—	—	124
Children under 15...	—	26	14	—	—	40
TOTAL ...	4	182	154	—	—	340

In order that patients may derive full benefit from residential treatment, a certain amount of dental attention is, in many cases, necessary, and during 1933 the following dental operations were carried out at Fazakerley and Broadgreen Sanatoria :—

Extractions under anæsthesia	596
Fillings and scalings	72
Miscellaneous	96

TABLE XII.

ALDER HEY HOSPITAL. Tuberculosis Beds, 90.

This Table shows the cases dealt with during the period from 1st January, 1933 to 31st December, 1933 :—

	In Alder Hey, 31.12.32.	Subsequent Admissions.	Discharged.	Deaths.	Remaining, 31.12.33.
Pulmonary	9	102	91	10	10
Non-Pulmonary ...	71	290	242	46	73
TOTALS ...	80	392	333	56	83

The total accommodation in approved institutions made use of for patients suffering from tuberculosis was 1,028 beds, allocated in the following manner :—

TABLE XIII.

TOTAL NUMBER OF BEDS NORMALLY AVAILABLE FOR PATIENTS.

	Observation.	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sanatorium" Cases.	"Advanced" Cases.	Disease of Bones and Joints.	Other Conditions	
Adult Males	4	150	350	30	12	546
Adult Females ...	3	73	50	20	15	261
Children under 15...	3	58	10	90	60	221
TOTAL ...	10	281	510	140	87	1,028

The extent of residential treatment afforded during the year is shown in Table XIV.

TABLE XIV.

	In Institutions on Jan. 1st.	Admitted during the year.	Discharged during the year.	Died in the Institutions.	In Institutions on Dec. 31st.
NUMBER OF PATIENTS:—					
Adults—Male					
Pulm. ...	374	929	639	273	391
Non-pulm. ...	56	67	74	7	42
Female					
Pulm. ...	200	472	336	119	217
Non-pulm. ...	34	96	91	8	31
Children*—Male					
Pulm. ...	37	78	79	4	32
Non-pulm.	96	190	184	24	78
Female					
Pulm. ...	36	76	66	18	28
Non-pulm.	58	215	169	35	69
NUMBER OF OBSERVATION CASES:—					
Adults—Male	3	38	40	—	1
Female... ...	—	22	20	—	2
Children*—Male ...	1	18	19	—	—
Female ...	2	10	12	—	—
TOTALS	896	2,211	1,729	488	891

* Under 15 years of age.

A return showing the immediate results of treatment of patients discharged from residential institutions during the year is given in Table XV.

TABLE XV.

Classification on Admission to the Institution.		Condition at time of Discharge.	DURATION OF RESIDENTIAL TREATMENT												Totals.		
			Under 3 months.			3-6 months.			6-12 months.			More than 12 months.					
			M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.
PULMONARY TUBERCULOSIS.	Class A.	Quiescent ...	31	17	29	21	15	9	7	8	9	4	7	21	63	47	68
		Not Quiescent ...	55	15	59	17	8	3	7	2	3	3	—	2	82	25	67
		Died in Institution	17	4	9	3	—	1	4	—	—	—	1	—	24	5	10
	Class B. Group 1.	Quiescent ...	—	1	—	5	2	1	2	3	—	1	1	—	8	7	1
		Not Quiescent ...	18	4	—	11	1	—	4	3	—	2	1	—	35	9	—
		Died in Institution	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—
	Class B. Group 2.	Quiescent ...	13	5	—	13	10	—	9	7	—	8	8	1	43	30	1
		Not Quiescent ...	143	76	2	79	34	—	48	16	—	29	17	1	299	143	3
		Died in Institution	10	8	—	6	2	—	—	—	—	3	2	—	19	12	—
	Class B. Group 3.	Quiescent ...	2	—	—	—	—	—	2	1	—	3	1	1	7	2	1
		Not Quiescent ...	66	33	4	14	15	—	9	12	—	13	13	—	102	73	4
		Died in Institution	140	65	3	35	22	4	26	8	1	28	7	4	229	102	12
Totals (Pulmonary)...			495	228	106	204	109	18	118	60	13	95	58	30	912	455	167
NON-PULMONARY TUBERCULOSIS.	Bones and Joints.	Quiescent ...	6	5	43	1	1	9	5	—	11	6	10	38	18	16	101
		Not Quiescent ...	8	2	24	—	1	1	2	1	4	3	2	10	13	6	39
		Died in Institution	—	1	3	1	1	—	2	2	—	2	1	5	5	5	8
	Abdominal.	Quiescent ...	2	7	40	—	3	9	1	3	4	—	1	5	3	14	58
		Not Quiescent ...	2	6	31	1	1	1	—	—	1	1	—	—	4	7	33
		Died in Institution	—	1	6	—	—	—	—	—	—	—	—	—	—	1	6
	Other Organs.	Quiescent ...	3	1	2	—	—	—	—	—	—	1	—	—	4	1	2
		Not Quiescent ...	2	5	8	1	1	—	—	—	—	1	—	—	4	6	8
		Died in Institution	1	1	45	—	—	—	—	—	—	1	1	—	2	2	45
	Peripheral Glands.	Quiescent ...	13	26	65	5	2	7	2	2	1	—	—	—	20	30	73
		Not Quiescent ...	7	10	37	—	—	2	1	—	—	—	1	—	8	11	39
		Died in Institution	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals (Non-Pulmonary)			44	65	304	9	10	29	13	8	21	15	16	58	81	99	412

TABLE XV.—*continued.*

	Pulmonary Tuberculosis						Non-Pulm. Tuberculosis						Totals			Grand Total.
	Under 4 wks.			Over 4 wks.			Under 4 wks.			Over 4 wks.			M.	F.	Ch.	
Tuberculosis ...	—	1	1	—	—	—	—	1	1	—	—	—	—	2	2	4
Non-Tuberculosis	20	9	3	17	2	4	—	—	13	2	7	8	39	18	28	85
Doubtful... ...	—	—	—	1	—	—	—	—	1	—	—	—	1	—	1	2
	20	10	4	18	2	4	—	1	15	2	7	8	40	20	31	91
													Grand Total			2,217

Cleaver Sanatorium. Beds, 200.

This Sanatorium has proved particularly useful for the treatment of tuberculosis in children, and in addition to pulmonary disease it is now possible to treat here many cases of non-pulmonary tuberculosis which are quiescent, or in which active surgical measures are not required. Convalescence is thus achieved under particularly favourable conditions, and pressure on the accommodation at Alder Hey and Fazakerley Hospitals considerably reduced.

AFTER-CARE.

The after-care arrangements in force are as follows :—

(1) The periodic examination by the Tuberculosis Officers of all cases under public medical treatment.

(2) Visits paid to patients in their homes by the nurses attached to the Tuberculosis Clinics, and by the health visitors and sanitary inspectors employed by the Health Committee.

(3) Visits paid to patients in their homes by the nurses of the Queen Victoria District Nursing Association.

(4) The reference of cases presenting peculiar difficulties to voluntary associations, such as the Child Welfare Association, the Personal Service Society, etc.

During the year the nurses attached to the Tuberculosis Institutes made 12,855 home visits. The health visitors and sanitary inspectors made

9,218 home visits. All these visits are the subject of report to the Tuberculosis Officer concerned. The home visits of the nurses of the Queen Victoria District Nursing Association, to the number of 10,286, have already been referred to.

MILK SUPERVISION.

A description of one direction in which the Tuberculosis Department is playing an active part in the supervision of milk supplies may be of interest. One of the initial steps taken by the Tuberculosis Officer, in connection with new cases of tuberculosis, is an enquiry into the environmental conditions obtaining in each particular case. Note is made at this time of the name of the dealer supplying milk to the case, and when it is observed that a number of patients are obtaining milk from the same retailer, steps are taken whereby a sample of such milk is obtained and submitted for examination at the City Laboratories. Should such sample prove to contain Tubercle Bacilli, further steps are taken with a view to tracing, if possible, the original source of supply in an endeavour to detect the actual animal or animals yielding infected milk. As an instance, the case may be quoted where the Tuberculosis Officer referred a sample of milk for examination only to find that a tuberculous beast has been discovered at the source of supply of this particular milk six months previously. It would appear to be quite possible that this infected milk was the cause of the initial infection in the case noted, though clinical evidence was not obvious until after the lapse of a number of months from the presumed date of infection. Steps are also taken to preclude persons suffering from tuberculosis in an infectious state taking any part in the handling of milk (Public Health (Tuberculosis) Regulations, 1925).

TABLE XVI.

NON-PULMONARY TUBERCULOSIS.

Enquiries were made by the Public Health Department into 687 new cases of non-pulmonary tuberculosis arising during 1933, with the following results :—

Districts.	Cases.	Rate per 10,000 of population.
Exchange	75 ...	10·0
Abercromby	43 ...	10·2
Everton	92 ...	8·3
Kirkdale	55 ...	8·6
Edge Hill	53 ...	6·5
Toxteth	115 ...	8·5
Walton	59 ...	6·6
West Derby	88 ...	8·6
Wavertree	69 ...	6·8
Fazakerley	35 ...	6·2
Woolton	3 ...	4·2
Whole City	687 ...	7·9

The following figures summarise the cases of non-pulmonary tuberculosis inquired into during the 10 years 1924-1933 inclusive, divided into two groups, namely, A and B. In group A are included all cases in which there has been no history of exposure to infection from a patient suffering from pulmonary tuberculosis; whereas in group B are placed all those cases in which there was a history of exposure to infection from a human source. Presumably group A consists of cases which may have been infected from either human or bovine sources, but group B consists almost entirely of infections of human origin.

TABLE XVII.

Site of disease.	Group A. No history of exposure to human infection. Possibly infected from either a human or a bovine source.	Group B. History of exposure to human infection. Presumably infected from a human source.	Percentage of total Group A cases.	Percentage of total Group B cases.
Bones and Joints	1,600	160	25·7%	25·2%
Abdominal	1,346	144	21·6%	22·7%
Peripheral Glands ...	1,977	197	31·8%	31·1%
Meninges and Brain ...	605	77	9·7%	12·1%
Skin...	185	25	3·0%	3·9%
Urino-genital	136	6	2·2%	0·9%
Other sites and ill-defined	383	25	6·1%	3·9%
Totals	6,232	634		

The figures appear to show that there occurs an excess of patients suffering from abdominal tuberculosis and from meningitis among those exposed to infection from a human source, a conclusion which tends to support the more recent views expressed on this question.

NOTIFICATION AND DEATHS.

During the year an enquiry was made into the circumstances which led to the non-notification of cases which first came to notice on the death returns of local registrars. These cases were 91 in number, made up of 41 cases of pulmonary tuberculosis and 50 cases of non-pulmonary tuberculosis. The reasons for the absence of notification are classified in Table XVIII.

TABLE XVIII.

Disease.	Number of persons who died within the city.	Number of city deaths not notified before death.	Reasons for Non-notification.			
			Diagnosis made at a post-mortem examination. *	Diagnosis delayed owing to clinical difficulties.	The doctor thought that the case had been notified previously by another medical practitioner.	Notification forgotten.
Pulmonary tuberculosis	952	41 4·3%	17 1·7%	12	7	5 ·52%
Non-pulmonary tuberculosis	145	50 34·4%	21 14·4%	22	3	4 2·7%

* Includes Coroner's cases.

It will be seen from the above table that in a number of cases notification was not effected because a diagnosis of tuberculosis was only reached at autopsy. Likewise, in another group of cases, diagnosis presented difficult features, so that notification did not reach the Medical Officer of Health until after death had supervened. On the other hand, the number of cases in which notification has been neglected or overlooked, forms but a small percentage of the whole, and cannot be regarded as unsatisfactory.

Every endeavour is made to encourage early notification of cases of tuberculosis, and it is satisfactory to note the decrease in the number of such as have not been notified prior to death as compared with the average figure for the period 1923-1929 (Table XIX).

A large number of patients die from tuberculosis within a short period of notification and investigation tends to show that in very many cases this is due to their failure to seek early medical advice or to their objection, for social or economic reasons, to being regarded as tuberculous.

TABLE XIX.

Year.	Total Number of Deaths Investigated. *	Number of Deaths in Cases not Notified or otherwise referred. *	Notifications or other References prior to Death within the periods indicated in each column.					
			Within 2 weeks of Death.	Within 2-4 weeks of Death.	Within 1-3 months of Death.	Within 3-6 months of Death.	Within 6-12 months of Death.	Over 12 months prior to Death.
erage for 7 years (1923-1929) ...	1,202	233	91	69	163	120	123	400
2...	1,137	121	132	52	144	117	109	427
3...	1,157	115	127	55	109	95	126	494

* Includes inward Transferable Deaths returned by the Registrar General, but such deaths are not included in the other columns of the table, which only refer to notifications by doctors in the Liverpool area.

Additional to the deaths which took place within the city boundary, there were 57 deaths from pulmonary tuberculosis taking place outside Liverpool but transferred to Liverpool by the Registrar General. Of these cases 23 had not been notified in Liverpool, but may have been notified elsewhere. Similarly, 3 deaths from non-pulmonary tuberculosis were transferred by the Registrar General, of which one case had not been previously notified in Liverpool.

DEATHS FROM PULMONARY TUBERCULOSIS.

The number of deaths from pulmonary tuberculosis in Liverpool from 1871 to 1932, together with the number of new cases notified, and the death rates which prevailed in England and Wales are given in Table XX.

TABLE XX.

DEATHS FROM PULMONARY TUBERCULOSIS.

Years.	Cases notified.		Number of deaths.	Death rate per 1,000 Liverpool.	Death rate per 1,000 England and Wales.
1871 to 1880	Average yearly figures	Nil	1,506	2·90	2·13
1881 to 1890		Nil	1,260	2·35	1·73
1891 to 1900		Nil	1,171	1·92	1·39
1901 to 1910		2,216*	1,233	1·68	1·16
1911 to 1920		2,812*	1,214	1·55	1·08
1921 to 1930		2,356	1,042	1·23	0·81
1931.....	2,358		989	1·15	0·74
1932.....	2,005		969	1·12	0·69
1933.....	2,279		1,009	1·16	—

* Voluntary notification from 1901 to 1911.

In Table XXI a similar return is made in respect of deaths from non-pulmonary tuberculosis, etc.

TABLE XXI.

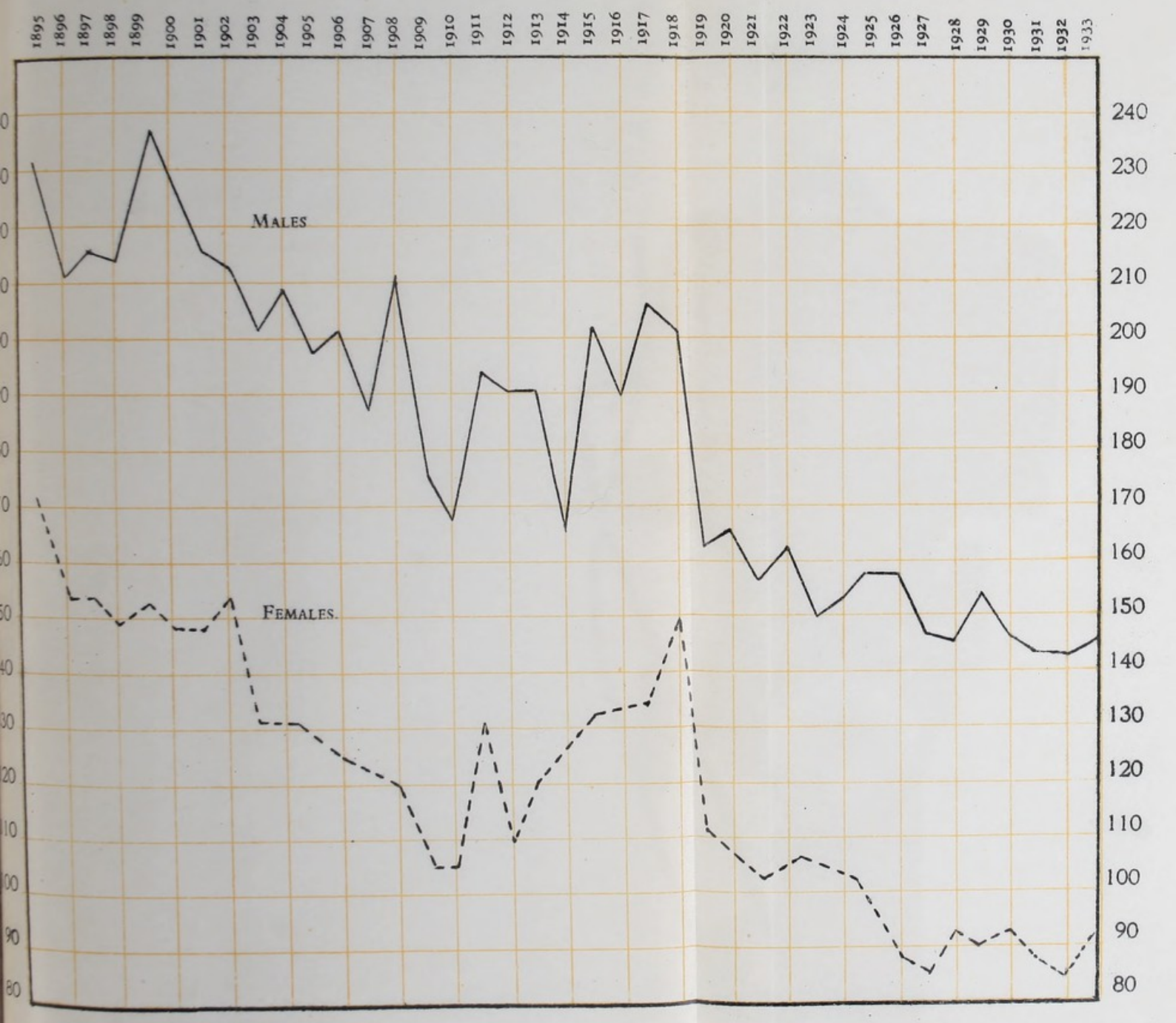
DEATHS FROM NON-PULMONARY TUBERCULOSIS.

Years.	Cases notified.		Number of deaths.	Death rate per 1,000 Liverpool.	Death rate per 1,000 England and Wales.
1871 to 1880	Average yearly figures	Nil	481	·90	·75
1881 to 1890		Nil	527	·98	·70
1891 to 1900		Nil	500	·82	·63
1901 to 1910		100*	416	·56	·50
1911 to 1920		716*	349	·45	·35
1921 to 1930		640	234	·27	·20
1931.....	719		164	·19	·15
1932.....	672		170	·19	·15
1933.....	654		148	·17	—

* Voluntary notification from 1901 to 1911.

CITY OF LIVERPOOL.

PHTHISIS DEATH RATES PER 100,000 OF POPULATION.



CITY OF LIVERPOOL

PHTHISIS DEATH RATES PER 100,000

1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871

240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80

MALES

FEMALES

FOLDOUT FOLDOUT FOLDOUT FOLDOUT

The age and sex distribution of deaths from both pulmonary and non-pulmonary tuberculosis are given in Table XXII.

TABLE XXII.

AGE PERIODS OF DEATHS FROM TUBERCULOSIS DURING 1933.

Age Periods.	PULMONARY.		NON-PULMONARY.	
	Males.	Females.	Males.	Females.
0—1	—	2	3	11
1—5	2	2	18	18
5—10	7	5	12	6
10—15	3	16	5	10
15—20	37	61	7	8
20—25	80	78	8	5
25—35	125	106	7	6
35—45	113	63	7	2
45—55	128	48	6	4
55—65	80	27	1	1
65 and upwards	19	7	1	2
TOTALS ...	594	415	75	73

The distribution of deaths from pulmonary tuberculosis according to the districts in which the patients resided and according to the quarter of the year during which death took place is given in Table XXIII.

TABLE XXIII.

Deaths from Pulmonary Tuberculosis in Districts.

DISTRICTS.	Quarters.								Year 1933 Totals.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.&F.
Exchange	26	18	27	19	14	11	26	15	93	63	156
Abercromby...	11	7	9	10	5	2	9	3	34	22	56
Everton...	36	21	20	21	14	13	24	16	94	71	165
Kirkdale	20	14	16	9	7	5	9	9	52	37	89
Edge Hill	21	9	8	12	12	7	17	10	58	38	96
Toxteth...	29	14	16	9	13	10	18	12	76	45	121
Walton	21	16	11	11	10	7	9	13	51	47	98
West Derby...	19	7	9	8	12	7	10	10	50	32	82
Wavertree	14	7	11	3	11	14	14	5	50	29	79
Fazakerley	15	9	6	6	7	5	4	8	32	28	60
Woolton	2	2	2	1	—	—	—	—	4	3	7
City	214	124	135	109	105	81	140	101	594	415	1,009
	338 33·5%		244 24·2%		186 18·4%		241 23·9%		58·9 %	41·1 %	

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

A similar return in respect of deaths from non-pulmonary tuberculosis is given in Table XXIV.

TABLE XXIV.

Deaths from Non-pulmonary Tuberculosis in Districts.

DISTRICTS.	Tubercular Peritonitis.		Tubercular Meningitis.		Other forms of Tuberculosis.		Year 1933. Totals		
	M.	F.	M.	F.	M.	F.	M.	F.	M.&F.
Exchange	—	1	5	2	1	5	6	8	14
Abercromby	3	2	1	4	5	2	9	8	17
Everton...	1	1	2	5	5	2	8	8	16
Kirkdale	—	2	2	3	2	1	4	6	10
Edge Hill	—	1	2	1	2	2	4	4	8
Toxteth...	1	3	7	6	7	3	15	12	27
Walton	3	—	5	2	6	4	14	6	20
West Derby	2	1	1	3	4	3	7	4	11
Wavertree	—	2	2	3	1	3	3	8	11
Fazakerley	1	—	2	2	2	5	5	7	12
Woolton	—	—	—	—	—	—	—	—	—
City	11	13	29	32	35	28	75	73	148
	24		61		63				

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

VENEREAL DISEASES

VENEREAL DISEASES.

A very important subject which has close association with seafaring life is the prevalence of venereal diseases. As a result of the Report of the Royal Commission, the Public Health (Venereal Diseases) Regulations were passed in 1916. The regulations were issued in order that the treatment of affected persons should be carried out so as to effect their cure and to prevent the further spread of infection. The various county and borough councils were required to prepare schemes for free treatment at or in hospitals or institutions of persons suffering from these diseases and for the free distribution of suitable drugs to properly qualified medical practitioners. The Government originally paid 75 per cent. of the expenditure, but this payment by the Government is now included in the Block Grant and subject to revision from time to time. The public were generally to be informed by a scheme of educational propaganda of the dangers of contracting these disorders and the facilities provided for free treatment should they unfortunately be contracted. The Regulations came into force in Liverpool in 1917.

The scheme has had an extensive trial and very good results may be claimed for it. The free facilities and supply of special drugs have been fully taken advantage of by many classes of patients and their medical advisers. The accompanying graph shows the total number of new cases of the two principal venereal diseases year by year. There was a high prevalence of venereal disease following the War, but subsequently the numbers fell, and it is believed that there is a real reduction in the prevalence of venereal disease, especially of syphilis. Seamen have been especially catered for at centres situated near the docks and in the vicinity of places where they congregate or sign off. A special centre known as the Seamen's Dispensary, which was opened in 1924 for the treatment of venereal diseases in sailors, has proved a great success and has now a high average attendance. During the year plans were drawn up and approved for a new Central Clinic at Mill Road Infirmary, to be opened on January 1st, 1934. Like the Seamen's Dispensary it will be open daily from 9-30 a.m. to 8-0 p.m. for continuation treatment and there will be two clinics daily for both males and females. A description of the clinic is given in a later section.

To face page 142.

Services rendered at the Venereal Diseases Treatment Centres during the Year, 1933.

	Syphilis.		Soft Chancre.		Gonorrhœa.		Conditions other than Venereal.		Totals.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Totals.
1. Number of cases on 1st January under treatment or observation	957	428	35	2	1,005	406	36	26	2,033	862	2,895
2. Number of cases removed from the register during any previous year which returned during the year under report for treatment or observation of the same infection	106	23	5	...	124	26	...	...	235	49	284
3. Number of cases dealt with for the first time during the year under report (exclusive of cases under Item 4) suffering from :—											
Syphilis, primary	168	25	...	...	...	...	...	...	168	25	193
,, secondary	60	33	...	...	...	...	...	...	60	33	93
,, latent in 1st year of infection	14	12	...	...	...	...	...	...	14	12	26
,, all later stages	221	89	...	...	...	...	...	...	221	89	310
,, congenital	20	47	...	...	...	...	...	...	20	47	67
Soft Chancre	...	...	143	...	...	...	...	...	143	—	143
Gonorrhœa, 1st year of infection ...	...	...	...	...	1,195	174	...	...	1,195	174	1,369
,, later	...	...	...	...	168	30	...	...	168	30	198
Conditions other than venereal ...	...	...	...	...	...	...	958	105	958	105	1,063
4. Number of cases dealt with for the first time during the year under report known to have received treatment at other Centres for the same infection	181	21	14	...	230	20	...	...	425	41	466
	1,727	678	197	2	2,722	656	994	131	5,640	1,467	7,107
5. Number of cases discharged after completion of treatment and final tests of cure	90	24	66	...	594	49	969	122	1,719	195	1,914
6. Number of cases which ceased to attend before completion of treatment and were, on first attendance, suffering from :—											
Syphilis, primary	155	47	...	...	...	...	...	...	155	47	202
,, secondary	32	26	...	...	...	...	...	...	32	26	58
,, latent in 1st year of infection	21	22	...	...	...	...	...	...	21	22	43
,, all later stages	166	105	...	...	...	...	...	...	166	105	271
,, congenital	20	45	...	...	...	...	...	...	20	45	65
Soft Chancre	...	...	27	1	...	...	...	...	27	1	28
Gonorrhœa, 1st year of infection ...	...	...	...	...	557	175	...	...	557	175	732
,, later	...	...	...	...	99	37	...	...	99	37	136
7. Number of cases which ceased to attend after completion of treatment but before final tests of cure	67	34	11	...	174	46	...	...	252	80	332
8. Number of cases transferred to other centres or to institutions, or to care of private practitioners	375	167	66	1	471	173	...	...	912	341	1,253
9. Number of cases remaining under treatment or observation on 31st December ...	801	208	27	...	827	176	25	9	1,680	393	2,073
	1,727	678	197	2	2,722	656	994	131	5,640	1,467	7,107
10. Number of cases in the following stages of syphilis included in Item 6 which failed to complete one course of treatment :—											
Syphilis, primary	62	21	...	...	...	...	...	...	62	21	83
,, secondary	16	7	...	...	...	...	...	...	16	7	23
,, latent in 1st year of infection	7	7	...	...	...	...	...	...	7	7	14
,, all later stages	42	22	...	...	...	...	...	...	42	22	64
,, congenital	8	25	...	...	...	...	...	...	8	25	33
11. Number of attendances :—											
(a) for individual attention of the medical officers	14,880	5,646	792	...	26,833	4,071	2,013	303	44,518	10,020	54,538
(b) for intermediate treatment, e.g., irrigation, dressing	991	38	1,076	...	63,432	5,761	...	...	65,499	5,799	71,298
Total Attendances ...	15,871	5,684	1,868	...	90,265	9,832	2,013	303	110,017	15,819	125,836
12. In-patients :—											
(a) Total number of persons admitted for treatment during the year ...	2	4	2	...	5	19	...	...	9	23	32
(b) Aggregate number of "in-patient days" of treatment given	39	156	11	...	18	1,959	...	...	68	2,115	2,183

	Under 1 year.		1 and under 5 years.		5 and under 15 years.		15 years and over.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
13. Number of cases of congenital syphilis in Item 3 above classified according to age periods	...	4	1	4	6	15	13	24	20	47

	Arsenobenzene Compounds.	Mercury.	Bismuth.
14. (a) Total number of injections given (out-patients and in-patients) ...	10,229	21	9,996
(b) Number of injections *included in* (a) given to patients who on first attendance at this Centre were suffering from primary and secondary syphilis...	4,538	...	4,188

	Microscopical		Serum Tests		
	for spirochetes.	for gonococci.	Wassermann.	Others for Syphilis.	for Gonorrhœa.
15. Pathological Work :—					
(a) Number of specimens examined at and by the medical officers of the treatment centres	116	3,414	...	...	...
(b) Number of specimens from patients attending at the centres sent for examination to an approved laboratory	109	3,989	4,461	...	...

The clinics established by the Corporation were as follows during 1933 :—

Seamen's Dispensary—Males only.
†Royal Infirmary—Males and Females.
David Lewis Northern Hospital—Males and Females.
†Royal Southern Hospital—Males and Females.
†Stanley Hospital—Males and Females.
†Edge Lane Hospital—Females.

The following summarises the work of the treatment centres for the year 1933 :—

Return showing the number of *New Cases* attending the Venereal Diseases Clinics during the year 1933, also *Total Attendances and In-Patient Days* of *Old and New Patients* during the same peried :—

	Seamen's Dispensary. Males only.	Royal Infirmary. Males and Females.	Royal Southern Hospital. Males and Females.	David Lewis* Northern Hospital. Males and Females.	Stanley* Hospital. Males and Females.	Edge Lane Medical Home. Females.	TOTAL. Males and Females.
cases ...	1,944	1,295	285	109	295	120	4,048
nd new patients							
tal attendances	48,024	50,542	14,049	3,476	9,745	—	125,836
-patient days	—	59	2,060	—	64	7,103	9,286

The Seamen's Dispensary, Mill Road Special Clinic and the Royal Infirmary are open all day for treatment of these diseases in the male, while at Mill Road Special Clinic and at the Royal Infirmary treatment for females is provided each day at hours convenient to the greatest number of patients. At the other centres clinics are held at specified times which are set out in the time table below :—

† Beds for In-patients are reserved at these Institutions.
* Closed as from January 1st, 1934.

Venereal Diseases.—Time Table of Treatment Centres.

	New Patients. Males.	New Patients. Females.	Continuation Treatment. Males.	Continuation Treatment. Females.
Monday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...
Royal Infirmary ...	10 a.m. to 1 p.m. 5.30 to 6.30 p.m.	2 p.m.	9.30 a.m. to 8 p.m.	2 p.m.
R. Southern Hospital ...	...	...	5 p.m.	5 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.	10 a.m. to 1 p.m. and 5.30 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.
Tuesday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...
Royal Infirmary ...	10 a.m. to 1 p.m.	5.30 to 6.30 p.m.	9.30 a.m. to 4.30 p.m.	2 p.m.
R. Southern Hospital ...	4.30 to 6 p.m.	...	5 p.m.	5 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m., 6 to 8 p.m.	10 a.m. to 1 p.m. and 5.30 to 8 p.m.	2 to 4 p.m., 6 to 8 p.m.
Wednesday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...
Royal Infirmary ...	10 a.m. to 1 p.m. 5.30 to 6.30 p.m.	2 p.m.	9.30 a.m. to 8 p.m.	2 p.m.
R. Southern Hospital ...	...	...	5 p.m.	5 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.	10 a.m. to 1 p.m. and 5.30 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.
Thursday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...
Royal Infirmary ...	5 to 6 p.m.	12 noon to 1 p.m.	9.30 to 11.30 a.m. and 2 to 8 p.m.	2 p.m.
R. Southern Hospital ...	4.30 to 6 p.m.	...	5 p.m.	5 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.	10 a.m. to 1 p.m. and 5.30 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.
Friday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...	9.30 a.m. to 1 p.m. and 3 to 8 p.m.	...
Royal Infirmary ...	10 a.m. to 1 p.m. and 7 to 8 p.m.	2 p.m.	9.30 a.m. to 8 p.m.	2 p.m.
R. Southern Hospital ...	...	5 p.m.	...	5 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.	10 a.m. to 1 p.m. and 5.30 to 8 p.m.	2 to 4 p.m., 6 to 8 p.m.
Saturday—				
Seamen's Dispensary ...	9.30 a.m. to 1 p.m.	...	9.30 a.m. to 1 p.m.	...
Royal Infirmary ...	By arrangement	...	9.30 a.m. to 1 p.m.	By arrangement.
R. Southern Hospital ...	1 p.m.	...	1 p.m.	1 p.m.
Mill Road Infirmary ...	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.	10 a.m. to 1 p.m. and 6 to 8 p.m.	2 to 4 p.m. 6 to 8 p.m.

Laboratory services for the diagnosis and control of treatment are provided at the City Laboratories, the Thompson Yates Laboratory of the University and the Mill Road Infirmary Laboratory.

At the Seamen's Dispensary and at the Mill Road Clinic all the necessary microscopic examinations are done on the premises, but the other clinics send their material to the City Laboratories, except the Royal Infirmary, which works with the University Laboratory.

At the City Laboratory, Wassermann reaction tests are done three times weekly, rapid diagnosis obviating delay in treatment.

Wherever possible an effort is made to ascertain the person responsible for the patient's infection, with a view to bringing him or her under observation and treatment.

Seamen's Dispensery.

The primary function of this clinic is to provide free and expert treatment for seamen of all nations, to act in an advisory capacity to medical officers of ships, ships' captains, and foreign consulates, and to provide a laboratory service for rapid diagnosis. The majority of the patients are seafaring men, but patients of all classes of occupation avail themselves of the facilities afforded.

The clinic is open all day and is well equipped for the services demanded of it. The staff consists of four part-time medical officers and four highly trained orderlies.

Excellent results have been recorded both in the treatment of gonorrhœa and of syphilis, and special schemes of treatment particularly suited to the needs of the seafaring population have proved efficient.

By carful interrogation of patients and the keeping of records over several years it has been established that usually the seaman who becomes infected has not practised any prophylaxis, and that the taking of alcohol to excess is not such a contributory factor in the acquisition of venereal disease as is generally supposed. It would appear, however, that in men over thirty years of age, venereal disease is frequently associated with the taking of alcohol, not necessarily to excess.

During the year under review, 2,985 cases have been advised and treated, of whom 1,944 reported for the first time. Of these, 586 were found not to be suffering from venereal disease.

The classifications of the persons dealt with at the Seamen's Dispensary for the first time during the year, and for the five previous years, were as under :—

	1928	1929	1930	1931	1932	1933
Syphilis	435	413	419	346	293	304
Soft chancre ...	131	150	141	92	106	136
Gonorrhœa	1,031	1,112	1,113	970	834	918
Non-Venereal Cases...	446	446	589	563	440	586
	2,043	2,121	2,262	1,971	1,673	1,944

Experience has shown that close personal touch with the patient and interest in his case stimulates the sufferer to continue treatment, otherwise the absence of any feeling of ill-health or discomfort tends to develop a sense of indifference and a neglect of routine attendance.

Many patients who are suffering from gonorrhœa unfortunately do not report for treatment until a few weeks after infection and the disease has extended considerably from the original point of infection, many cases having complications involving important organs. This neglect or inability to seek medical advice may be attributed to the nature of employment or absence at sea, but those who reside locally frequently can and do come for treatment at an earlier stage; the disease, however, is well established in the majority before they present themselves for treatment.

An analysis of the various types of the total actual number of new venereal disease cases met with at the clinics is as follows :—

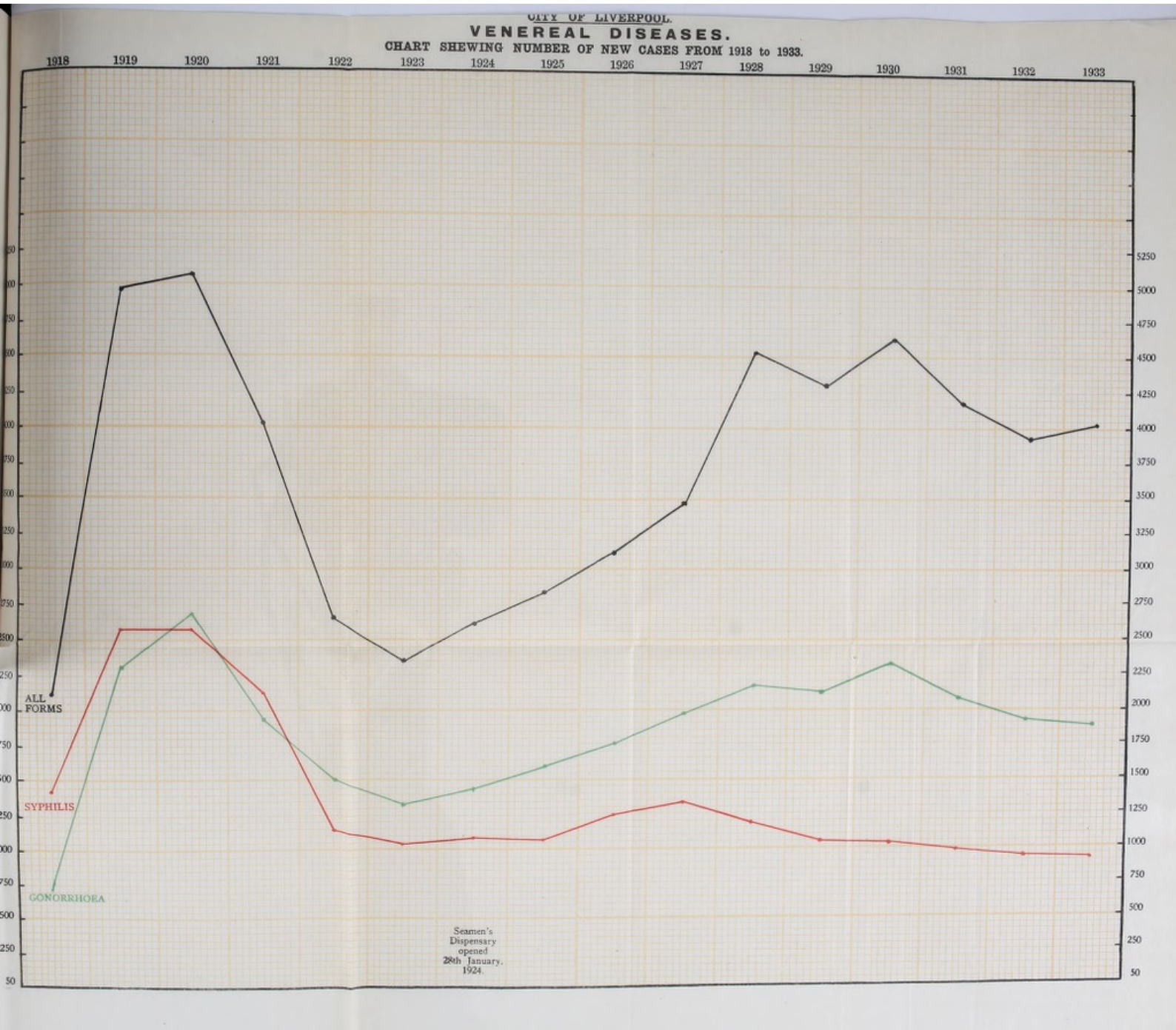
	Percentage of total cases of diagnosed Venereal disease.
Syphilis	30·5%
Soft chancre	5·3%
Gonorrhœa	64·2%

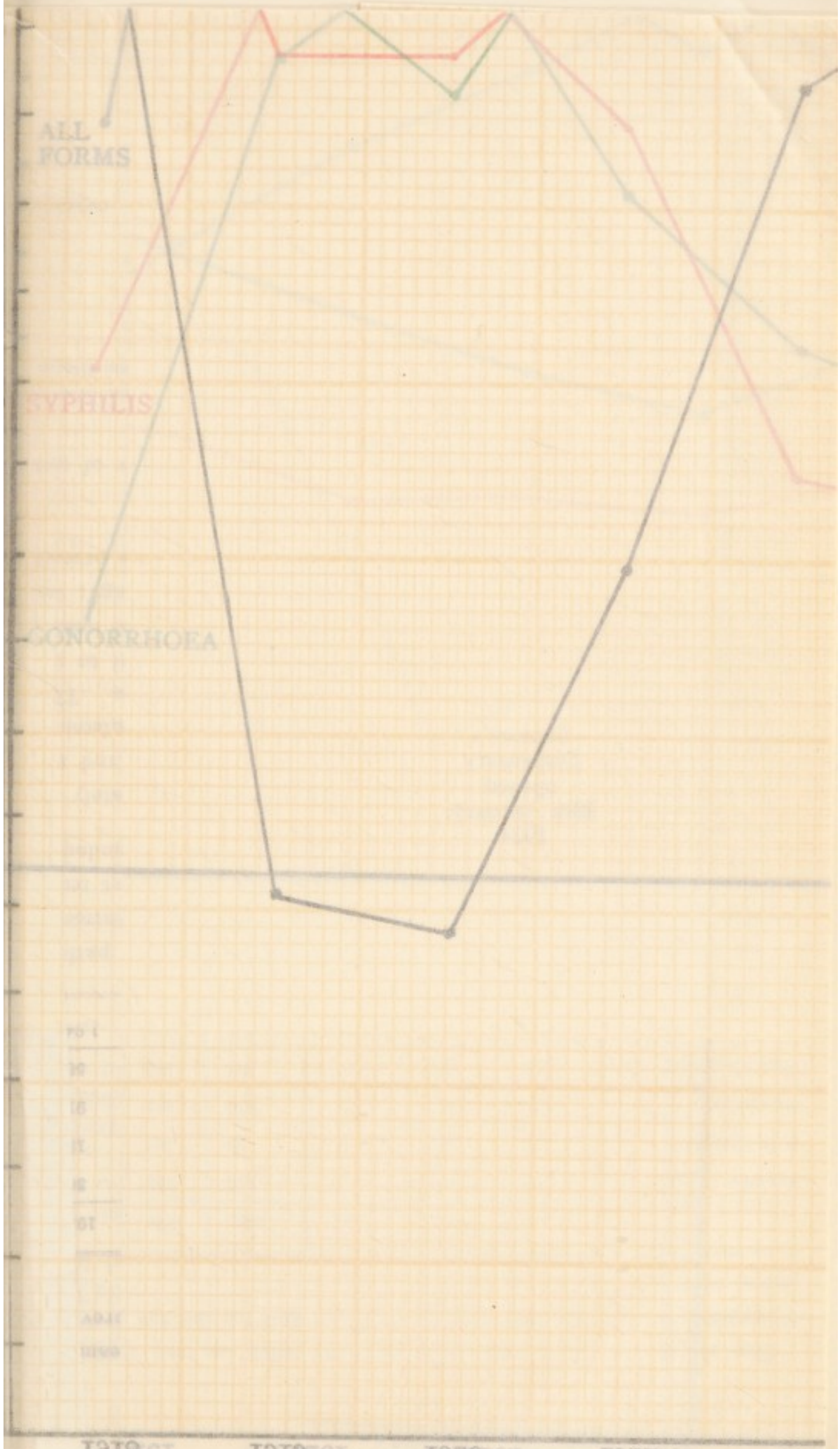
The figures for Liverpool correspond to those for the country generally.

CITY OF LIVERPOOL.

VENEREAL DISEASES.

CHART SHEWING NUMBER OF NEW CASES FROM 1918 to 1933.




ALL
FORMS
SYPHILIS
GONORRHOEA

Educational Propaganda.

At the inauguration of the venereal diseases scheme the Ministry of Health approved of certain educational work being conducted to acquaint the general public and those likely to come into contact with venereal disease of the dangers arising therefrom. After several years' effort in Liverpool, the work culminated in the merging of the various Merseyside boroughs into a scheme for this and general health purposes under the Merseyside Boroughs Health Education Committee.

Unfortunately, owing to financial stringency, the connection with the Merseyside Boroughs Health Education Committee has had to be terminated. Arrangements were made, however, for the showing, early in 1934, of an educational film entitled "Damaged Lives," at a number of cinemas in the city.

Central Clinic at Mill Road Infirmary.

The establishment of a central all-day clinic, similar in character to the Seamen's Dispensary, has been under consideration for some time past, and the principle was fully endorsed and approved by the Ministry of Health. Such a clinic, it was felt, should be available for female patients equally with male. The main difficulty was to find a suitable site which should be accessible from all parts of the city.

The transfer of the poor-law hospitals to the municipality presented an opportunity for this purpose. A ward-block, formerly occupied by mental patients, was vacated at Mill Road Infirmary, off Caird Street, West Derby Road, the patients having been transferred in 1931 to more suitable accommodation at Smithdown Road hospital, and the ground floor proved to be suitable for a central clinic with entirely separate accommodation for men and women.

In 1932 a full report was prepared by the Medical Officer of Health upon the provision of facilities for the treatment of venereal diseases in the city, and a proposal was put forward for the conversion of the ground floor of "F" and "G" ward-block into a central clinic. This report was considered by a special sub-committee of the Port Sanitary and Hospitals Committee and approved. The report also suggested that with the establishment of the central clinic certain small clinics

held at the outlying voluntary hospitals would become redundant and should be closed. Accordingly arrangements were made with the authorities at the David Lewis Northern Hospital and the Stanley Hospital that the clinics held there should be closed when the new clinic was opened.

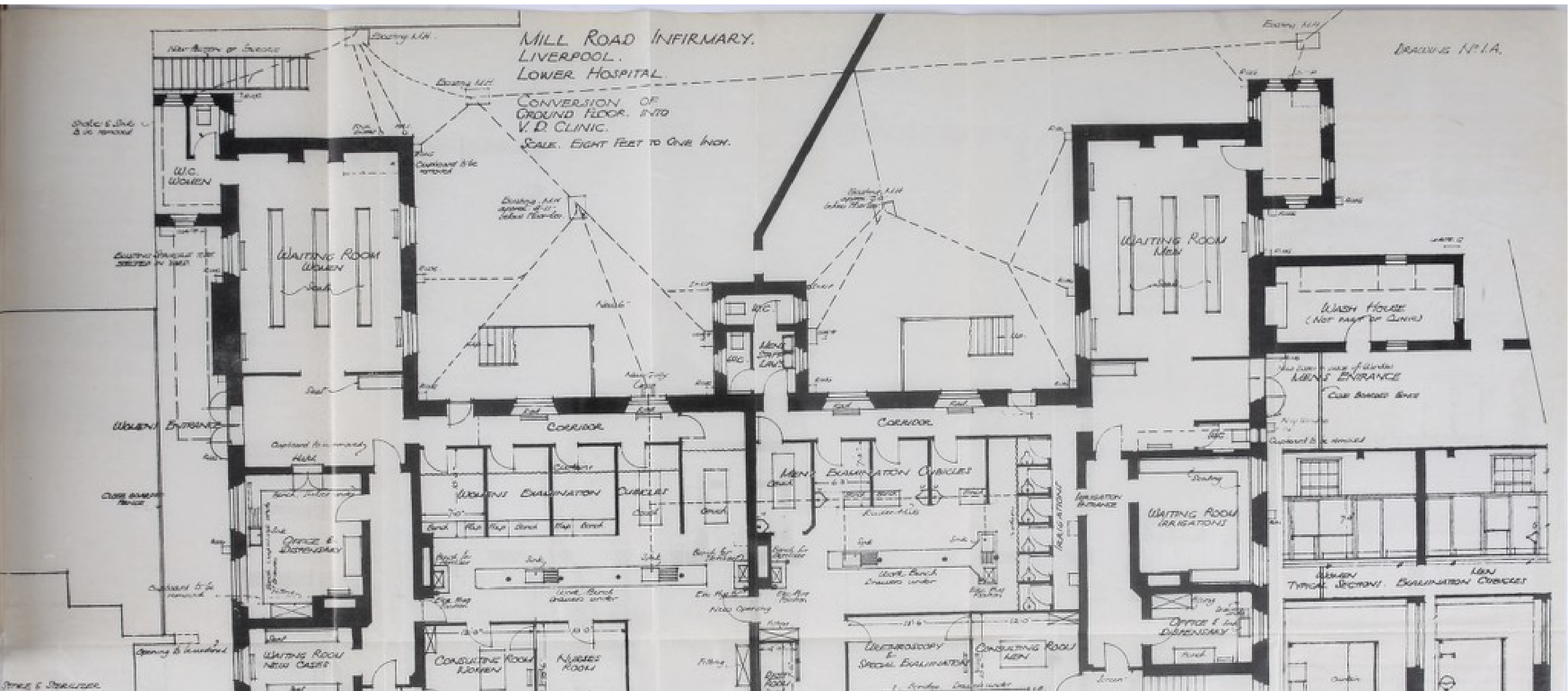
Plans were prepared by the Land Steward and Surveyor with the advice of officers of the Ministry of Health and were then submitted to the Ministry. With certain minor modifications these plans were approved in August, 1933; the final plans are shown in the attached drawing. The clinic was completed during 1933 and will be opened on January 1st, 1934. The clinic is well planned and is easy to run and economical in structure and use. The cost of conversion was £1,697.

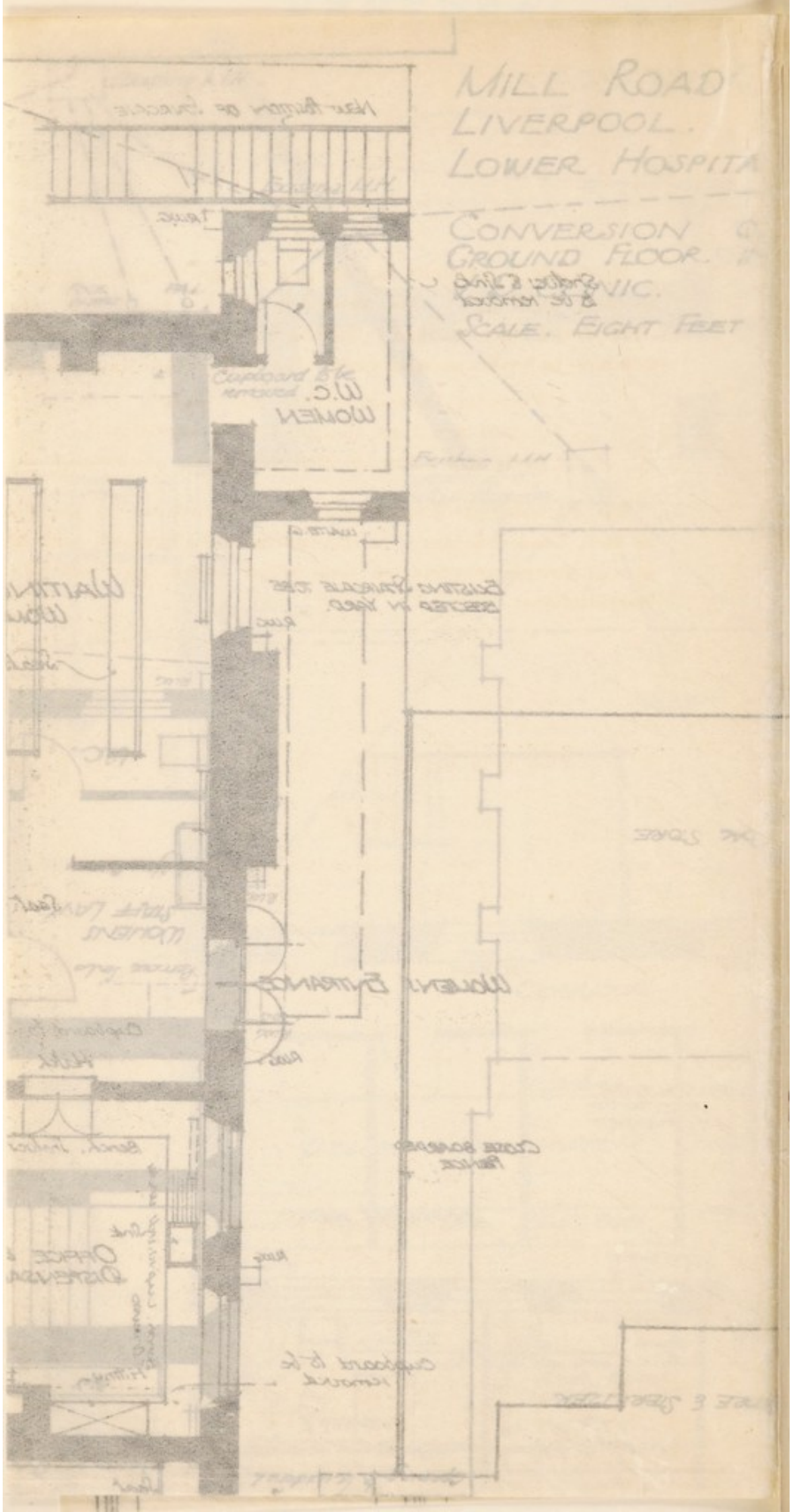
Patients upon entering the Infirmary gate are directed, the men to the east and the women to the west, past the main building. They then enter the clinic through entirely separate doors into waiting rooms on opposite sides of the building. The male and female clinics are distinct, the only communication between the two is reserved for the medical staff.

The men's clinic lies to the east. It contains (*a*) 4 cubicles for medical examination, (*b*) 6 cubicles of smaller dimensions, for irrigation. These cubicles (*a*) and (*b*) are entered by the patients from the outer side and are separated by curtains from an inner corridor in which the medical officers and orderlies work, enabling these officers to pass freely from one patient to another. The outer doors of the cubicles, when opened, show a red light bearing a number, corresponding to that of the cubicle, in the waiting-room.

In addition to the above, the male clinic contains (*c*) medical officer's room, (*d*) urethroscopy room, (*e*) recovery room, (*f*) dispensary and store, and (*g*) small waiting room for patients attending for continuation treatment.

The women's clinic is closely similar to the men's. There is, however, only one range of five cubicles, two of which are fitted with gynœcological chairs.


MILL ROAD INFIRMARY.
LIVERPOOL.
LOWER HOSPITAL.
CONVERSION OF
GROUND FLOOR. INTO
V.D. CLINIC.
SCALE. EIGHT FEET TO ONE INCH.
DRAWING No 1A.
W.C. WOMEN
WAITING ROOM WOMEN
WAITING ROOM MEN
WASH HOUSE
(NOT PART OF CLINIC)
MEN'S ENTRANCE
WOMEN'S ENTRANCE
CORRIDOR
CORRIDOR
WOMEN'S EXAMINATION CUBICLES
MEN'S EXAMINATION CUBICLES
IRRIGATION
WAITING ROOM IRRIGATIONS
OFFICE & DISPENSARY
OFFICE & DISPENSARY
WAITING ROOM NEW CASES
CONSULTING ROOM WOMEN
NURSES ROOM
URETHROSCOPY & SPECIAL EXAMINATION
CONSULTING ROOM MEN
STAFF ENTRANCE
STAFF ENTRANCE
WOMEN'S STAFF LAVY
W.C.
MEN'S STAFF LAVY
WOMEN MEN
TYPICAL SECTIONS. EXAMINATION CUBICLES
WOMEN MEN
SIDE ELEVATIONS EXAMINATION CUBICLES
ELEVATION SECTION
IRRIGATION CUBICLES
COAL STORE
LIVERPOOL


MILL ROAD
LIVERPOOL.
LOWER HOSPITA
CONVERSION
GROUND FLOOR.
SCALE. EIGHT FEET

The clinic is centrally heated and is not overlooked by the hospital or other buildings. The approaches to the clinic are indicated by illuminated signs marked "Special Clinic." The clinic is open from 9-30 a.m. to 8 p.m. on week-days. The staff of the clinic is as follows :—

1 Venereal Diseases Officer, part-time.
1 Senior Assistant Medical Officer, part-time.
1 Male and 1 Female Medical Officer, whole-time.

The Pathological Examinations are carried out by the Pathologist to Mill Road Infirmary, in the Infirmary Laboratory, with the exception of complement-fixation tests which are carried out by the City Bacteriologist.

HOSPITAL AND HEALTH SERVICES.

INFECTIOUS HOSPITALS and SANATORIA.

During the year 1933 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	168 beds.
,,	South	101 ,,
,,	East	156 ,,
,,	Fazakerley	300 ,,
,,	Fazakerley Annexe	150 ,,
,,	Sparrow Hall	160 ,,
Fazakerley Sanatorium		264 ,,
Broadgreen Sanatorium		336 ,,
		1,635 ,,

At the City Hospital, Fazakerley, 71 beds are set aside for the treatment of tuberculous patients, in addition to the beds at the Fazakerley Sanatorium.

At the beginning of the year the City Infectious Hospitals were well occupied, a large number of cases of diphtheria being under treatment. The number of patients suffering from this disease steadily decreased from 450 at the beginning of the year to 358 at the beginning of May, and 280 at the middle of August. Towards the close of the year further cases were reported, and by December there were 419 diphtheria patients under treatment.

With regard to scarlet fever, the year commenced with 318 patients in hospital. This figure had increased to 397 in April and remained fairly stationary until August, when it fell to 300. A considerable increase then took place, and by October 500 scarlet fever cases were in hospital. This number remained steady until the end of the year, when there were 515 patients under treatment.

There were 70 patients suffering from measles in the city hospitals at the beginning of the year, but this figure steadily increased from

month to month, rising to 100 in February, 150 in March, and 168 in April. A decrease then set in, and by the end of the year the figure was reduced to 61.

Whooping cough was not very prevalent at the beginning of the year 1933, when there were 83 patients in hospital. This figure was reduced to 45 by the end of March and to 32 by the middle of June. Later on there was a slight rise, and at the end of the year 56 patients were under treatment.

Some of the beds at the Walton Hospital and at the Olive Mount Hospital were utilised for the treatment of minor infectious cases and for convalescent scarlet fever cases. This assistance proved very useful in dealing with the large number of cases reported for hospital treatment.

Beds were provided at the various hospitals during the year for patients suffering from the following diseases, viz. :—scarlet fever, diphtheria, measles, whooping cough, enteric fever, erysipelas, cerebro-spinal fever, encephalitis lethargica, anthrax, influenzal pneumonia and chickenpox.

The value of the hospitals, and the immense amount of useful work performed, is shown by the fact that no less than 9,187 patients were admitted during the year.

The Hospitals Committee have agreed with various local authorities to receive cases of infectious disease from districts beyond the city boundary, namely, Waterloo and Seaforth, Great Crosby, Leasowe Hospital, the Children's Convalescent Home, West Kirby, and the Royal Liverpool Children's Hospital, Heswall.

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.

Outside Areas and Smallpox.

The question of smallpox cases in neighbouring areas was specially considered by the Port Sanitary and Hospitals Committee in 1928. Arrangements had been in force for some years with several of the local authorities in the district for any cases of smallpox occurring in their areas to be accommodated in Liverpool hospitals.

It has always been recognised that the presence of smallpox in areas adjoining or close to Liverpool is a matter in which the city is vitally interested, as an outbreak of this disease, unless promptly dealt with, might result in the spread of the infection to the Liverpool area, and also do considerable harm to the trading interests of the city and port.

A number of the adjoining local authorities have entered into an agreement to pay a retaining fee each year towards the upkeep of a smallpox hospital, the payment being based on census population. A further charge is made for the maintenance of each patient sent into the hospital for treatment.

The following tables, prepared by the medical staff of each of the city hospitals, show the number of patients admitted, the nature of the illness in each case and the results of treatment, during the year 1933 :—

Diseases.	Remaining Dec. 31st, 1932.	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
City Hospital North, Netherfield Road.											
Scarlet Fever ...	91	1,098	10	1,199	204	8	882	102	—	3	
Diphtheria	53	309	8	370	—	2	300	53	2	15	
Measles	—	5	—	5	—	—	5	—	—	—	
Other diseases ...	7	50	—	57	—	—	50	7	—	—	
Observation cases ...	2	10	—	12	—	—	10	2	—	—	
Totals	153	1,472	18	1,643	204	10	1,247	164	2	18	
City Hospital South, Grafton Street.											
Scarlet fever	45	619	—	664	152	1	433	72	1	6	
Diphtheria	42	316	—	358	—	—	316	26	3	16	
Other diseases ...	5	17	—	22	—	—	8	14	—	—	
Totals	92	952	—	1,044	152	1	757	112	4	22	

Diseases.	Remaining Dec. 31st, 1932.	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.
City Hospital East, Mill Lane, Old Swan.											
Scarlet fever	—	22	—	22	—	3	16	2	—	1	4·5
Diphtheria	160	1,118	—	1,278	—	6	1,049	160	23	63	5·6
Measles	—	9	—	9	—	—	7	—	1	2	22·2
Whooping Cough ...	—	3	—	3	—	—	3	—	—	—	—
Other diseases ...	—	48	—	48	—	1	42	4	1	1	2·1
Observation Cases ...	—	197	—	197	—	—	195	2	—	—	—
Totals	160	1,397	—	1,557	—	10	1,312	168	25	67	4·8
City Hospitals, Fazakerley.											
Scarlet fever	169	2,089	98	2,356	—	110	1,999	233	3	14	0·6
Enteric fever group ...	6	25	—	31	—	—	26	4	—	1	4·0
Diphtheria	214	1,141	49	1,404	—	33	1,146	162	12	63	5·5
Measles	14	131	11	156	—	8	139	—	2	9	6·8
Whooping Cough ...	4	18	—	22	—	—	20	—	—	2	11·1
Other diseases ...	74	990	20	1,084	—	19	891	108	13	66	6·6
Totals	481	4,394	178	5,053	—	170	4,221	507	30	155	3·5
Fazakerley Sanatorium.											
Tuberculosis	340	454	—	794	—	—	376	322	—	96	
Broadgreen Sanatorium.											
Tuberculosis	309	518	95	922	—	19	430	309	—	164	

City Hospitals and Sanatoria.

Statement of Admissions, Discharges, Deaths, and Transfers.

Hospital or Sanatorium.	Remaining Dec. 31st, 1932.	Admitted	Transferred to	Discharged	Transferred from	Died.	Remaining Dec. 31st, 1933.
Broadgreen Sanatorium	309	518	95	430	19	164	309
Fazakerley Sanatorium	340	454	...	376	...	96	322
City Hospitals, Fazakerley	481	4,394	178	4,221	170	155	507
City Hospital North	153	1,472	18	1,247	214	18	164
City Hospital East	160	1,397	...	1,312	10	67	168
City Hospital South	92	952	...	757	153	22	112
TOTAL	1,535	9,187	291	8,343	566	522	1,582

Transferred Hospitals and Institutions.

Statement of Admissions, Discharges, Births, Deaths, and Transfers.

Hospital or Establishment	Remaining Dec. 31st, 1932	Admitted.	Transferred to	Born.	Discharged.	Transferred from	Died.	Remaining Dec. 30th, 1933.
Administered under the Poor Law Acts :—								
Walton Hospital	1,615	15,638	229	1,927	15,584	555	1,897	1,373
Belmont Road Institution ...	1,329	4,494	767	...	4,402	474	391	1,323
Smithdown Road Hospital ...	992	8,559	230	1,159	7,893	926	1,204	917
Kirkdale Homes	1,304	144	390	...	287	125	196	1,230
Olive Mount Children's Hospital ...	311	2,194	1,325	...	2,853	493	184	300
Cottage Homes, Fazakerley ...	460	40	235	...	144	142	...	449
Shaw Street Boys' Home	54	30	34	...	45	18	...	55
Seafield House	230	35	6	...	30	5	...	236
Cleaver Sanatorium	159	86	122	...	145	28	1	193
Administered under the Public Health Acts :—								
Mill Road Infirmary	451	8,025	95	1,061	8,224	215	745	448
Alder Hey Hospital	767	8,525	530	...	6,959	1,371	810	682
TOTAL	7,672	47,770	3,963	4,147	46,566	4,352	5,428	7,206
CASUAL WARDS— Belmont Road...	19	5,550	...	...	5,552	...	...	17

FAZAKERLEY HOSPITALS.

REPORT OF THE MEDICAL SUPERINTENDENT.

During the year, 4,394 patients were admitted to the Fazakerley Hospitals (excluding Fazakerley Sanatorium), an increase of 616 as compared with the previous year. These admissions were as follows:—

Fazakerley Isolation Hospital	2,158
Fazakerley Annexe Hospital	1,131
Sparrow Hall Hospital	1,105

Anthrax.

No case of anthrax occurred within the city boundary, the two patients treated residing in an adjacent area and being employed there.

As suggested in a previous report, the decrease in the importation of foreign hides and wool into this country might account for the relative infrequency of anthrax infection during the past few years. The efficient supervision of animal products which is exercised in the Argentine has made the possibility of infection from that locality a less likely event. More frequently what are termed "China" and "East Indian" hides and wool constitute a potential danger. The importation of this latter type has increased in recent months, and it is possible that a higher incidence of anthrax may be anticipated in consequence.

Seventeen persons, mainly employed at the docks, or in tanneries or wool factories, attended at the hospital with suspicious boils, pimples, skin abrasions and the like, for anthrax investigation. In no instance was that disease found.

This practice is at all times encouraged, since early discovery of an infection implies early treatment and a greatly increased hope of recovery. In the past four years during which these facilities have been offered, 146 individuals suffering from various local infections and injuries have been specially examined and of these, seven were found to be cases of anthrax and as such reaped the benefit of prompt serum treatment.

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HOSPITALS, SANATORIA, AND INSTITUTIONS UNDER THE CONTROL OF THE PORT SANITARY AND HOSPITALS COMMITTEE.

Name of Institution.	Built by	Date of Foundation.	No. of Beds Dec. 31st, 1933.	Original User.	Present User.
Walton Hospital ...	West Derby Union	1864	1,895	General Mixed Institution	Mainly a General Hospital, but 264 male and female, healthy and infirm adults. (*a*) acute and subacute medical, surgical, gynaecological and special. (*b*) Adult pulmonary tuberculosis unsuitable for sanatorium treatment. (*c*) Maternity. (*d*) Female Venereal Disease. (*e*) Isolation for minor infectious diseases in children. (*f*) Nursery for newly born and illegitimate children.
Belmont Road Institution	West Derby Union	1890	1,552	General Mixed Institution	Healthy adults including casuals, aged, infirm, and bedridden men and women. Skin diseases. Male Venereal Diseases. Casual Wayfarers.
Smithdown Road Hospital	Township of Toxteth Park	1858	1,207	General Mixed Institution	General Hospital. (*a*) Acute and subacute Medical, Surgical and Gynaecological and special cases. (*b*) Acute mental disease. (*c*) Chronic senile dementia (females). (*d*) Low grade mentally defective children. (*e*) Female epileptics. (*f*) Maternity. (*g*) A few healthy adults.
Kirkdale Homes ...	Liverpool Select Vestry	1843	1,461	School for Destitute Boys	Homes for aged and infirm men and women. Chronic and senile mental diseases (males). Chronic Encephalitis Lethargica (Males). Male Epileptics.
Mill Road Infirmary ...	West Derby Union	1838	829	General Mixed Institution, but present buildings intended only for Hospital use.	General Hospital for acute disease, Medical, Surgical, Gynaecological, Maternity and Special.
Alder Hey Children's Hospital	West Derby Union	1914	956	Infirm and Aged	General Children's Hospital. Medical, Surgical, Orthopaedic (including Surgical Tuberculosis).
Olive Mount Children's Hospital	Liverpool Select Vestry	1903	513	Receiving Home for Children, Cottage Homes for Children.	Receiving Home for Children. Nursery for destitute children, 4 years. Acute infectious diseases (Measles, Whooping Cough, and Chicken Pox). Convalescent Children.
Cottage Homes, Fazakerley	West Derby Union	1887	586	Homes for Resident Children	Homes for Resident Children up to 14 years.
Shaw Street Home for Boys	Purchased by West Derby Union	Opened 1913	79	Private House	Home for working boys over 14 years.
Seafield House	Leased from Mersey Docks & Harbour Board by West Derby Union	Leased 1912 Renewed 1932	235	Hydropathic adapted for present use	Mentally defective children (mainly imbecile and ineducable of higher grade).
Cleaver Sanatorium ...	West Derby, L'pool, and Toxteth Park Joint Hospital Committee.	1903	200	Pulmonary Tuberculosis	Pulmonary Tuberculosis in Children.
Deysbrook House ...	Purchased by West Derby Union	1911	—	Private Home for Children	Not in use.
Broadgreen Sanatorium	Liverpool Select Vestry	1906	336	Infirm and aged	Sanatorium for Tuberculosis. Male and Female, Adult and Children. Pulmonary.
Fazakerley Sanatorium	Liverpool City Council	1920	264	Pulmonary Tuberculosis in Adults	Original use.
Fazakerley Isolation ...	Liverpool City Council	1906	300	All Types of Infectious Disease except Small Pox	Original use, and Tuberculosis, both Pulmonary and mixed Pulmonary and Surgical.
Fazakerley Annexe ...	Liverpool City Council	1901	150	All Types of Infectious Diseases except Small Pox	Original use.
Sparrow Hall	Liverpool City Council	1917	160	Small Pox Hospital	Available for Small Pox, but mainly used for Infectious Diseases.
City Hospital North ...	Dr. Gee	1866	168	Infectious Disease	Scarlet Fever, Diphtheria and Measles.
City Hospital East ...	Wavertree Urban District Council	1888	156	Infectious Disease	Diphtheria.
City Hospital South ...	Liverpool City Council	1884	101	Infectious Disease	Scarlet Fever, Diphtheria, and Measles.
			11,148		

Cases of Anthrax treated at Liverpool City Hospital, Fazakerley, during 1933.

Age.	Sex.	Occupation.	Days ill on admission.	Site of Infection.	Clinical Notes.	Serum injected daily. Each dose expressed in ccs.	Complications.	Result.
24	M.	Tannery hand	3	Root of neck in front	Local oedema, dysphagia and some aphonia	300 300 300	Nil	Recovery.
34	M.	Tannery hand	3	Right cheek	Mild infection	300 200 200	Serum rash	Recovery.

serum was given intravenously. Both cases received, in addition to the serum, 0·3 mgm. and ngm. of Neokharsivan intravenously on the first and third day of treatment respectively.

MUNICIPAL HOSPITALS and INSTITUTIONS.

The Hospitals and Institutions under the management of the Port Sanitary and Hospitals Committee number twenty, in addition to the Port Sanitary Hospital at New Ferry. They may be classified as follows :—

(*a*) Isolation Hospitals and Sanatoria, the property of the Liverpool Corporation prior to 1930	8
(*b*) Hospitals transferred under the Local Government Act, 1929, and subsequently appropriated	2
(*c*) Hospitals and other Institutions transferred under the Local Government Act, 1929, and not appropriated ...	10
Total	20

A description of these Institutions is appended in the accompanying table.

Under the Local Government Act, 1929, twelve Institutions were transferred from the West Derby Board of Guardians and became vested in the Public Assistance Committee on April 1st, 1930. In November, 1930, these transferred Institutions were placed under the general management of the Port Sanitary and Hospitals Committee.

GENERAL REVIEW.

The year 1933 is again a year of continued progress in the work of the transferred hospitals and institutions and in their co-ordination with the city infectious hospitals and the other branches of public health work.

In the transferred hospitals there has been a further increase both in the numbers of patients admitted and in the quality of the work carried out. The patients admitted to the four general hospitals in 1933 numbered 40,747. Thus there has been an increase of 4,095 in the number of patients admitted to these four hospitals, an increase of 11·2 per cent. over the admissions in 1932. The total number of persons admitted to all the hospitals and institutions during the year was 56,957, an increase of 5,484 over 1932. This increase has only been made possible —without an extension of the number of beds available—by a more rapid turnover of the beds resulting from a shorter stay in hospital, and by making a much greater use of the continuation departments.

The numbers attending the continuation departments at the four general hospitals show the enormous increase of 28,299 attendances. The total attendances, including Belmont Road Skin Clinic, were 118,856. There is a pressing need for the provision of adequate premises in which to carry out this work, Alder Hey Children's Hospital being the only hospital adequately provided in this respect. Provision has accordingly been made in the estimates for the construction of special buildings for this purpose at the three other general hospitals. This increase in continuation treatment necessarily calls for a corresponding increase in the medical staff; a relatively small increase in nursing staffs is also needed for this purpose.

There are corresponding advances in the work carried out in the hospitals. The number of surgical operations performed at the four general hospitals has increased from 7,493 to 8,121. Radiographic and pathological examinations have also greatly increased. These statements, however, are only representative of the general increase in the work carried out by the staffs of the hospitals, medical, nursing, technical and others, and the Medical Officer of Health would desire to pay tribute to the high quality of the services rendered, at times under great pressure of work, by the hospital staffs. A severe epidemic of

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DETAILS OF ADMISSIONS, DISCHARGES, ETC., AND WORK UNDERTAKEN AT THE FOUR TRANSFERRED HOSPITALS FOR PERIOD 1929 to 1933.

	Walton Hospital.					Smithdown Road Hospital.					Mill Road Infirmary.					Alder Hey Hospital.				
	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933	1929	1930	1931	1932	1933
Admissions	12,247	12,948	13,662	14,958	15,638	4,928	5,214	6,400	7,365	8,559	8,533	7,989	7,840	7,200	8,025	5,967	5,887	6,071	7,129	8,525
Transferred to	415	290	303	301	229	319	312	465	403	230	303	366	380	230	95	634	450	344	408	530
Born	1,099	1,334	1,410	1,827	1,927	561	758	1,015	1,127	1,159	834	766	896	990	1,061	—	—	—	—	—
Discharged	11,421	12,289	13,069	14,651	15,584	4,438	5,087	6,090	6,872	7,893	7,760	7,282	7,463	7,479	8,224	4,246	4,383	4,812	6,027	6,959
Transferred from	771	670	770	669	555	310	556	682	1,122	926	1,037	1,034	985	344	215	1,509	1,212	861	852	1,371
Died	1,680	1,639	1,689	1,690	1,897	990	805	1,046	1,015	1,204	962	812	749	609	745	932	705	781	712	810
Surgical Operations	1,761	2,142	2,287	2,868	2,993	342	383	664	800	1,077	1,299	1,433	1,552	1,927	2,209	1,076	1,189	1,264	1,496	2,242
Out-Patient (Attendances) ...	8,612	14,579	12,845	26,563	29,592	No	Record		9,352	12,016	No Record		5,744	12,635	32,184	No R'd	9,336	14,691	20,048	24,005
Pathological Examinations ...	18,250	24,325	25,603	22,147	20,630	553	630	3,200	4,463	5,745	3,439	3,225	4,634	5,425	8,640	1,359	1,423	2,115	2,718	5,611
Post-mortems	250	340	417	978	1033	No	Record			101	76	99	108	141	176	4	9	135	210	216
X-Ray Examinations... ...	3,485	3,768	3,575	3,685	7,913	1,181	1,235	1,892	2,335	4,457	3,793	4,588	5,395	7,472	8,288	4,164	4,308	4,176	6,204	8,182

* These figures correspond with the returns to the Ministry of Health and are made up to the last week-end of each year. This accounts for the slight variation between the figures returned by the respective Hospitals which are for the actual Calendar year.

influenza and pneumonia in the first quarter of the year taxed the resources of beds and personnel to the utmost and required the provision of several hundred additional beds for medical cases and a temporary increase of staff. In the autumn concurrent epidemics of diphtheria and scarlet fever made severe calls upon the accommodation for infectious cases. The number of births taking place in hospital has again increased from 3,944 in 1932 to 4,147 in 1933.

To meet these increasing needs the staffs have been strengthened in many respects. During the year the Medical Officer presented two reports to the Co-ordination (Special) Committee on the Development of Hospital Services, in which the work of the transferred hospitals was reviewed and a two-year programme of increases of staff was submitted for consideration and approved. Investigation showed that whilst in the past five years (1928-1932) there has been no increase in the number of beds available, the numbers of patients admitted to the General Hospitals had increased from 28,266 to 36,652. There was a corresponding reduction in the average length of stay from 62 to 29 days and of the cost per patient admitted. The character of the work carried out has, therefore, entirely altered, and the type of case now admitted is preponderately acute and much more likely to benefit by medical treatment than was formerly the case. The outlook is one of hope and of progress.

Such acute cases make much greater calls upon the nursing staffs which have had accordingly to be considerably increased. As was pointed out by the Medical Officer in a report submitted in 1931, there is an immediate need for an extension of the Nurses' Homes at the four general hospitals and also at Fazakerley Isolation Hospital. Provision has been made in the estimates for this purpose. In the meantime the utmost use had been made of existing premises, some of which were temporarily adapted for this purpose. At Smithdown Road Hospital, however, there was no available space which could be temporarily occupied, and a considerable extension will be shortly carried out.

A hospital service comprises a number of accessories such as laundries, bakeries and ambulances. Much of the machinery in the laundries is out of date and requires to be replaced by new machines which will be more efficient and economical. It is desirable to concentrate the work in a limited number of well-equipped institutions. Work on

these lines is now in progress but will probably take some years to complete. The additional numbers of patients removed has made heavy calls upon the ambulance staffs, further accentuated by the longer runs required to be made to the new housing areas.

During the year the City Treasurer put into operation an improved service for the assessment of patients and their liable relatives. The opportunity was taken of improving the methods of collecting and analysing the medical statistics. This procedure came into operation on April 1st and figures are not, therefore, available for the whole year, but much valuable information has been already obtained.

Despite the increase in the work carried out in the Hospitals and Institutions, a number of economies were effected and the costs do not exceed those of the preceding year.

Medical Services.

The development of the medical services has progressed on lines laid down in earlier annual and special reports. Each of the four main hospitals, together with the Fazakerley group and Broadgreen Sanatorium, is under the general direction of a whole-time medical superintendent or medical officer who, with the exception of Walton Hospital, is the administrative principal officer. He is assisted, in most instances, by a deputy medical superintendent who is competent to take his place and who normally supervises the detailed work of the resident medical officers. In addition, at the larger hospitals, there are senior resident medical officers who are similarly in charge of sections. Thus at Walton Hospital the Deputy is in charge of the obstetrical and gynaecological section, whilst two Senior Assistants have charge of the medical and surgical sections.

In addition to the resident staff there are a number of visiting specialists, medical, surgical, orthopaedic, gynaecological, ophthalmic and oto-laryngological; wherever possible these officers are in actual charge of wards or beds and the attached continuation clinics. The skin and venereal disease department at Belmont Road has been under the charge of Dr. Mitchell and his assistant Dr. Glyn Hughes, and these officers also visited the other hospitals. Dental officers are also attached to all the hospitals and institutions.

The laboratories are in charge of two whole-time pathologists stationed at Walton and Mill Road respectively. There are two radiologists, one being a whole-time and one a part-time officer. Each of the four general hospitals has a whole-time radiographer and one or more whole-time laboratory technicians, Alder Hey Hospital being an exception in this latter respect. These services are continually expanding to meet the needs of modern medicine and surgery.

Progress, therefore, is on the lines of team work. What is aimed at is that each special branch has one or more visiting specialists, a senior and one or more junior resident medical officers. The services of other specialists are available for consultation and report. Such team work affords the highest type of medical service and is in line with the organisation of the most advanced hospitals both in this country and abroad.

Increased Admissions.

As already stated, there was again a marked increase in the admissions during 1933. The increases were confined to the hospitals, in all of which a rise in the number of cases treated is recorded. The institutions for the healthy and infirm showed a slight fall in the numbers discharged or died. This increase was largely attributable to the epidemic of influenza which prevailed in the first quarter of the year. In the whole year there were 820 cases of influenza or influenzal pneumonia admitted to hospital (an increase of 411 compared with 1932), and 6,157 other cases of respiratory disease (an increase of 1,195). This epidemic taxed the hospital resources severely and every possible bed was made available for medical cases.

By the use of every possible means, an additional 400 hospital beds were brought into use, the number of "sick" in hospital, apart from infectious, tuberculosis, maternity and skin cases, rising to 3,980 in the week ending February 4th. The nursing staff was temporarily augmented. Numerous cases of influenza occurred in the hospital staffs, and the utmost credit is due to the manner in which the work of the hospitals was carried on under difficult circumstances.

But, apart from influenza, it will be seen that there was a general increase in medical and surgical cases, accidents and mental diseases

excepted. The increase of 926 cases of diseases of the digestive system is worthy of comment, as many of these patients require very careful examination. It would appear, therefore, that the next major influenzal epidemic which affects the city will reveal a shortage in the number of available beds.

Diagnostic Services and Equipment.

The pathological laboratories again show an increase in the amount and character of the work done. Every year adds new methods of investigation. The number of specimens examined in the laboratories was 40,626, an increase of 5,873 over those examined in the previous year.

Increasing reliance is placed upon X-ray examinations both for diagnosis and also for controlling the treatment of certain cases, such as fractures. The ambulant treatment of fractures entails an increasing reliance upon radiography. The number of X-ray examinations increased from 19,696 in 1932 to 28,840 in 1933. It is very probable that this increased user of the apparatus entails an undue degree of stress upon it owing to the effects of heating. This can be met to some extent by the use of portable X-ray plant in the wards. Provision has been made for portable plants in the estimates for 1934, at Walton and Mill Road Hospitals, and certain of the wards will be wired specially for this purpose. A whole-time radiographer was appointed to Alder Hey Hospital.

Electrocardiographs were installed at Walton and Smithdown Road Hospitals during the year and have proved very valuable in the treatment of obscure heart conditions. At Smithdown Road, by carrying the leads into certain wards, it will be possible to carry out this investigation in the cases of patients who are too seriously ill to be moved from the wards.

Nursing Services.

The extensions, some of a temporary nature, to the available accommodation for nurses, which were described in the report for 1932, enabled much-needed increases of the nursing staffs to be made. These

extensions were fortunately available during the influenza epidemic of the spring of 1933, but the large increase in the number of patients treated also necessitated the employment of temporary non-resident nurses.

The accommodation for nurses nevertheless remains inadequate. As foreshadowed in the report to the Co-ordination (Special) Committee, the continued increase in the volume and character of the work carried out in the hospitals adds every year to the calls upon the nursing staff. Provision has accordingly been made in the estimates for 1934 for extensions of the nursing homes at all four general hospitals and also at Fazakerley Isolation Hospital.

Buildings and Equipment.

No considerable building construction or alteration was effected during 1933, but very careful consideration was given to the needs for extension, and much preparatory work was carried out.

The enclosure of the balcony at Mill Road Infirmary permitted a much-needed extension of the Central Laboratory to be effected at the small cost of £967. This extension provides for (*a*) chemical laboratory, (*b*) histological laboratory, and (*c*) office. The new hospital laboratory at Smithdown Road is now completed. All the main hospitals have now an adequate laboratory.

The ground floor of blocks F and G at Mill Road Infirmary were converted into a central male and female venereal diseases clinic during the year, and this was opened on January 1st, 1934. The clinic is in every way up to date, and provides the fullest facilities at a very moderate cost. A full description is given on page 147.

At Kirkdale Homes a day-room was provided for higher grade mental patients in the West Block, and permits of further classification of inmates and for occupational therapy. A craftsman attendant was appointed to supervise this work. Plans were prepared for a second day-room for female mentally-defective patients, and this work is well in hand.

A start was made in the provision of hospital libraries. After a meeting in their premises at Rodney Street, an arrangement was made with Toc. H. whereby a voluntary service was provided by them to enable a choice of reading to be available for the patients in the municipal hospitals. A room at Walton Hospital was equipped as a hospital stock room, and books are also obtainable from the central library at the Lord Street Arcade. This service has been very much appreciated by the patients, and has worked quite smoothly; the Medical Officer desires to express his appreciation of the manner in which this experiment has been organised and carried out. Extensions are foreshadowed at Smithdown Road Hospital and Belmont Road Institution.

The keeping of medical records is an important function of a hospital. In order to have the fullest information on the re-admission of a patient it is necessary that old case-sheets should be available at once, even though several years have elapsed since first entry. At Walton Hospital a large room has been equipped for this purpose. The completion of the new dispensary at Alder Hey Hospital vacated a basement room which is now used for records.

Further bedrooms for resident medical officers have been provided at Walton Hospital, and more will shortly be needed at the other general hospitals and at Alder Hey Hospital.

Laundries.

A laundry is an essential portion of a large hospital. Walton Hospital laundry is well equipped with modern machinery; neither Belmont Road nor Smithdown Road can be considered up to date. This applies especially to Smithdown Road, where the laundry is badly arranged and the machinery out of date. Plans have been drawn up by the Land Steward and Surveyor after consultation with the Baths Superintendent for the complete overhaul and modernisation of this laundry. This work will probably take two or three years to complete.

Both at Smithdown Road and at Belmont Road there is inadequate provision for the needs of the laundry workers. Accommodation for this purpose is included in the plans for Smithdown Road laundry; a special building is to be erected at Belmont Road Institution.

There are fairly well-equipped laundries at Fazakerley Isolation Hospital and at Broadgreen Sanatorium. With some extensions of these laundries and the re-organisation of Smithdown Road it will probably be possible to close one or more of the small laundries attached to the smaller isolation hospitals.

The safeguarding of the machinery in the laundries has received anxious consideration during the year, and an amount has been placed in the estimates for 1934 to cover the provision of self-acting guards on a number of machines, more especially hydro-extractors.

Infectious Disease.

The isolation hospitals were fully occupied during a large part of the year. The number of infectious cases admitted to the isolation hospitals was 8,215, an increase of 1,245 over the number admitted in 1932. For the third year in succession there was an outbreak of measles in the spring. As in the years 1929 and 1930 the exceptionally hot summer was followed by a rapid rise in the numbers of cases of diphtheria and more especially of scarlet fever notified and admitted to hospital. The beds available were inadequate to admit all the cases of scarlet fever, and care had to be exercised that admission was secured for those who were seriously ill or who could not be adequately isolated at home. The following figures show the numbers admitted for the principal infectious diseases in 1932 and 1933 :—

	1932	1933	Increase	Decrease.	
Scarlet Fever	1,673	3,780	2,107	—	
Diphtheria	3,223	2,799	—	424	784
Whooping Cough	281	199	—	82	
Measles	1,311	1,070	—	241	
Chicken Pox	269	132	—	137	

The isolation blocks at Olive Mount Children's Hospital and at Walton were fully occupied, a number of convalescent cases of scarlet fever being transferred to the former. The 56 cubicles at Alder Hey again proved most serviceable. There is still a great need for this

type of ward, and provision is made for further cubicles at Alder Hey, Olive Mount and Fazakerley during 1934.

The prevention of measles is one of the most desirable objects in public health. The discovery that the use of the serum of persons convalescent from measles prevented or greatly attenuated the disease led further to the use of serum from adults who had previously suffered an attack. During the year a scheme was inaugurated at Alder Hey Children's Hospital for the collection of this serum. Some sixty-two volunteers provided 24,310 c.c. of blood, an average of 392 c.c. per donor, and from this about 46 per cent. of serum was available. The blood was sent to the Runcorn Laboratories of Messrs. Evans, Sons, Lescher and Webb, and was then tested for sterility and by the Wassermann Reaction and pooled. From this pool serum in phials of 10 c.c. each was available as required.

The use of this serum proved of the greatest value in the prevention of measles among contacts of cases of measles who are introduced into the wards in the incubation period. It is now possible to control the disease to a very large degree.

To face page 168.

CLASSIFICATION OF IN-PATIENTS WHO WERE DISCHARGED FROM OR WHO DIED IN TRANSFERRED INSTITUTIONS DURING THE YEAR ENDED 31ST DECEMBER, 1933.

Disease Groups.	Smithdown Road.		Walton.		Mill Road.		Alder Hey.		Olive Mount.		Kirkdale Homes.		Belmont Road.		Seafield.		Cleaver Sanatorium.		1933. Total.		Grand Total	1932 Total		Grand Total
	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	Discharged	Died		Discharged.	Died	
Acute Infectious Disease	72	13	852	82	54	12	557	65	1,566	169	—	—	142	6	2	—	—	—	3,245	347	3,592	2,774	512	3,286
Influenza	198	18	289	14	180	21	69	4	—	—	—	—	22	3	2	—	—	—	760	60	820	397	12	409
Tuberculosis—																								
Pulmonary	80	29	394	208	81	26	96	11	—	—	—	—	—	2	—	—	124	1	778	277	1,055	738	268	1,006
Non-Pulmonary	11	7	103	22	14	4	224	52	—	—	—	—	—	—	—	—	51	—	403	85	488	324	76	400
Malignant Disease	96	147	448	391	90	67	2	1	—	—	—	—	5	17	—	—	—	—	641	533	1,174	518	483	1,001
Rheumatism—																								
(1) Acute Rheumatism (Rheumatic Fever) together with sub-acute Rheumatism and Chorea	58	—	167	2	98	6	483	—	—	—	—	—	6	—	—	—	—	—	812	8	820	637	15	652
(2) Non-articular manifestations of so-called "Rheumatism" (muscular rheumatism, fibrositis, lumbago and sciatica)	165	3	211	—	78	—	—	—	—	—	—	—	3	—	—	—	—	—	457	3	460	390	—	390
(3) Chronic Arthritis	110	1	367	32	152	—	—	—	—	—	—	—	21	—	—	—	—	—	650	33	683	497	7	504
Venereal Disease	29	2	141	5	40	6	8	2	—	—	—	—	236	2	—	—	—	—	454	17	471	542	21	563
Puerperal Pyrexia	6	—	86	1	8	—	—	—	—	—	—	—	—	—	—	—	—	—	100	1	101	50	2	52
Puerperal Fever—																								
(a) Women confined in hospital	1	2	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	4	3	7	—	6	6
(b) Admitted from outside	2	—	9	14	—	1	—	—	—	—	—	—	—	—	—	—	—	—	11	15	26	25	7	32
Other diseases and accidents connected with Pregnancy and Childbirth	248	37	938	12	562	64	—	—	—	—	—	—	—	—	—	—	—	—	1,748	113	1,861	1,556	101	1,657
Mental Diseases—																								
(a) Senile Dementia	88	42	14	—	7	—	—	—	—	—	47	85	34	4	—	—	—	—	190	131	321	197	207	404
(b) Other	1,015	10	86	1	24	—	—	—	—	—	9	1	—	—	31	—	—	—	1,165	12	1,177	1,216	47	1,263
Senile Decay	105	69	72	10	26	8	—	—	—	—	—	—	46	21	—	—	—	—	249	108	357	192	121	313
Accidental Injury and Violence	547	29	820	57	769	35	747	9	—	—	—	—	—	—	—	—	—	—	2,883	130	3,013	3,183	162	3,345
In respect of cases not included above :—																								
Disease of the Nervous System and Sense Organs	528	141	674	104	308	41	710	51	—	—	38	5	59	18	—	—	—	—	2,317	360	2,677	2,447	267	2,714
,, ,, Respiratory System	809	250	1,385	388	841	192	1,924	248	—	—	—	18	81	31	—	—	—	—	5,030	1,127	6,157	4,207	755	4,962
,, ,, Circulatory ,,	457	276	826	233	317	136	122	31	—	—	—	22	64	265	—	—	—	—	1,786	963	2,749	1,712	801	2,513
,, ,, Digestive ,,	842	33	1,822	95	1,440	75	1,514	270	—	—	—	—	41	10	—	—	—	—	5,659	483	6,142	4,776	440	5,216
,, ,, Genito-urinary,,	473	85	880	130	631	60	305	6	—	—	—	—	23	5	—	—	—	—	2,312	286	2,598	1,938	245	2,183
,, ,, Skin	195	3	572	19	417	4	59	1	—	—	—	—	2,477	4	—	—	—	—	3,720	31	3,751	3,378	38	3,416
Other Diseases	67	15	584	155	157	2	1,521	57	—	—	—	—	113	4	—	—	—	—	2,442	233	2,675	3,039	252	2,291
Mothers and Infants discharged from Maternity Wards and not included in above figures—																								
Mothers	1,452	—	1,966	—	1,104	—	—	—	—	—	—	—	—	—	—	—	—	—	4,522	—	4,522	4,473	—	4,473
Infants	1,151	—	1,810	—	1,016	—	—	—	—	—	—	—	—	—	—	—	—	—	3,977	—	3,977	3,865	—	3,865
Any persons not falling under any of the above headings	—	—	497	2	18	—	—	—	—	—	—	—	—	—	—	—	—	—	515	2	517	Not classified	under	this heading.
Totals	8,805	1,212	16,014	1,888	8,427	760	8,341	808	1,566	169	94	131	3,373	392	35	—	175	1	46,830	5,361	52,191	43,071	4,845	47,916

SANITATION.

SANITARY ADMINISTRATION.

Complaints of Nuisances.

The district sanitary inspector visits, at the earliest possible moment, all premises where a nuisance is complained of, and on his report an informal notice is served upon the person responsible for the nuisance. If this notice is not complied with the matter is referred to the prosecuting inspector, upon whom is placed the responsibility of seeing that the nuisance is abated.

The number of occasions upon which the advice and assistance of the health department is sought fluctuate year by year; in 1910 they were 9,354; in 1920, 18,730; in 1930, 21,478; in 1931, 20,636; in 1932, 16,436; and in 1933, 14,620. Complaints in many cases were made to the department only after repeated requests addressed to the persons causing or allowing the nuisance, or to the owners or agents of property, had been ignored. A great deal of the time of the inspectors is 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.

During the year, 19,139 nuisances were discovered as the result of complaints.

House-to-House Inspection.

One of the most important duties placed upon sanitary authorities is that of house-to-house inspection. The Public Health Act provides that this should be done systematically, and the importance of the work is indicated by the extent to which house-to-house inspection is carried out, the number of houses inspected during the year being no fewer than 101,833.

The value of this work is also recognised by owners of property who prefer to receive all notices at the same time, thus avoiding the

unnecessary expenditure which would result if the notices were served at different periods.

In the course of house-to-house inspection, 54,630 nuisances were discovered, to remedy which preliminary notices were served on either the owner or the occupier. A number of defects was also referred to other departments.

On re-inspection, the number of nuisances found not abated was 16,655, 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.

Inspection of Nuisances.

The following is a summary of the work of the district sanitary inspectors :—

Number of complaints made by inhabitants...	14,620
,, nuisances discovered on above complaints ...	19,139
,, ,, ,, on house to house inspection	54,630
Total ...	73,769
,, visits by district sanitary inspectors to re-inspect above nuisances	42,575
,, notices issued (owners)	50,571
,, ,, ,, (occupiers)	328
Total ...	50,899
,, visits to premises under observation	1,465
,, incidental calls	28,459
,, visits made by prosecuting inspectors to re-inspect nuisances	77,457
,, notes sent to comply with notices	5,504
,, informations laid	156
Number of magistrates' orders	69
,, fined	14
,, acquitted or withdrawn	73

All nuisances were subsequently found abated.

Departmental References.

The co-operation which the Public Health Department receives from other departments of the Corporation is fully appreciated, and as a result many sanitary defects are brought to notice, and at once dealt with by the Department. Were it not for this early intimation it is possible that defects might remain undiscovered until such time as the district inspector visits the premises in the course of house-to-house inspection.

References from other Departments.

From the City Engineer	5,019
,, ,, Water Engineer	6,683
,, ,, Education Department (suspected infection in school children)	7,038

The officers of the Health Department co-operate with other departments by referring to them matters which are outside the scope of the Health Department, such as waste of water, choked street gullies, defective street and passage pavings, dangerous walls, floors and roofs.

References to other Departments.

To the City Engineer	3,697
,, ,, Building Surveyor	3,299
,, ,, Water Engineer	5,683
,, ,, Education Department (school children suffering from infectious diseases)	28,439
,, ,, Food Inspectors	154
,, other departments	1,129

Infected Houses.

The following table shows the number of houses visited where notifiable infectious diseases have occurred, with the number of visits made by sanitary inspectors to these houses, and to houses where cases of non-notifiable infectious diseases have been reported to the Health Department by the Education Department :—

Number of houses where infectious diseases occurred ...	30,182
,, visits to infected houses (notifiable cases) ...	30,366
,, ,, ,, ,, ,, (school cases) ...	7,338
,, ,, and re-visits to phthisis cases	4,990
,, enquiries *re* suspected smallpox contacts ...	137

Court and Alley Examinations.

Number of inspections of courts and alleys	14,702
,, ,, water closets	22,866
,, water closets found dirty, but afterwards cleansed on inspectors' instructions	11,229

Cellars.

In view of the shortage of housing accommodation there is a tendency to re-occupy cellars as separate dwellings, many of which have been closed for several years; an annual inspection is therefore made of all cellars, and if any are found re-occupied, the usual notice is served.

Examination of Cellars and Cellar Dwellings.

Number of inspections of street cellars	21,521
,, found illegally occupied	108
,, of notices issued to cease letting or occupying ...	121
Number of cellars at present unoccupied	428
,, occupied as kitchens or wash-cellars	488
,, occupied as kitchens and separately let with the front parlour	115
,, permanently closed	468
,, demolished	24
*Number of cellars, occupied as separate dwellings, 31st December, 1933	93

Offensive Trades.

There are 66 offensive trades carried on in the city, viz., 3 bone boilers, 9 dripping factories, 10 fat and tallow melters, 1 fell monger,

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* The number of cellars occupied as separate dwellings at 31st December, 1912, was 1,614.

4 fertilizer works, 3 gut scrapers, 3 hide and skin works, 2 lard refiners, 2 paint and resin works, 1 palm oil works, 14 soap boilers, 5 tanneries, 1 tar and naphtha works, and 8 tripe boilers.

When permission is granted to carry on an offensive trade, 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 nuisances be caused, and that the business be discontinued whenever the Council shall so require.

During the year the number of inspections of premises where offensive trades are carried on was 1,621.

Inspection of Stables and Removal of Manure.

Stables within the city are systematically visited by three inspectors, a great portion of whose time is devoted to the work, constant attention being paid to the frequent removal of the manure and to general sanitation.

Leaflets are served on the occupiers of stables intimating the grave danger to public health which may arise from flies, and the necessity of adopting all possible precautions and of attacking their breeding places. The co-operation of the occupiers of all stables is asked, in order that the means adopted by the Health Committee for the extermination of flies may be successful, and as a result, in a large number of cases, middensteads have been dispensed with, the manure being removed daily by the City Engineer's Department.

The Medical Officer of Health has communicated with the occupiers of all stables with a view to securing their co-operation in connection with the removal of manure.

The total number of visits to stables during the year was 14,218.

Middensteads in connection with stables are systematically sprayed with lime, by the disinfecting staff, to check the breeding of flies, and

the number of occasions when spraying took place during the year was 10,642.

During the year all the premises formerly occupied as stables have been re-visited, and the following figures indicate the position to date :

Number of stables existing and in use	1,290
,, ,, unoccupied and disused	1,350
,, horses	5,134
,, middensteads	836

Rats and Mice (Destruction) Act, 1919.

Active measures have been taken within the city throughout the year to ensure the destruction of rats, and to bring to the notice of the public the necessity of reducing the rat population to the lowest possible dimensions. There are special reasons for a constant campaign against rats in Liverpool. One reason is the possibility of the spread of plague, a disease which may be brought into the port on ships arriving from foreign countries. The destruction and damage to property, foodstuffs, etc., by means of rats further justifies the stringent measures which are constantly being taken against these vermin. In this connection the co-operation of warehouse owners and occupiers of rat-infested premises is always sought and obtained.

Ten rat-catchers are constantly employed, four being engaged in warehouses, which are visited every three months, in accordance with arrangements made with the Ministry of Health. For the purpose of inspection the city has been divided into six districts, and six rat-catchers systematically visit cafés, fried fish shops, grocery shops, foodstores, bread shops, and other places where rats are likely to be found. When a rat-catcher visits rat-infested premises, he operates for a few days, and indicates to the occupier methods whereby he can help in the extermination of rats. In the event of the occupiers failing to

take action a notice is served under the Rats and Mice (Destruction) Act, 1919.

The assistance given by the rat-catchers is appreciated by occupiers and owners of premises, who are always willing and anxious to forward the extermination of rats. To save the time of the rat-catchers and to provide for the destruction of the rats as quickly as possible, each rat-catcher is met at a certain place every morning, the rats being collected and labelled and a proportion taken the same day for examination by the City Bacteriologist.

The City Engineer's Department has also done valuable work in catching rats in public sewers, the rats being collected and dealt with in the same way.

Copies of the memorandum prepared by the Medical Officer of Health as to the destruction of rats have been widely circulated, and postcards are left with warehouse keepers so that information may be at once obtained in the event of any unusual mortality amongst rats. An office record is kept indicating the number of complaints received and a register of all premises visited, whilst the rat-catcher enters in his daily report book full details of each day's work.

It has not been found necessary to take any proceedings for non-compliance with the provisions of the Rats and Mice (Destruction) Act, 1919.

To ascertain from time to time the condition of the city in regard to rat infestation a weekly return is obtained from all the officers employed by the health department who in the ordinary course of their daily duties visit different types of premises, and at the same time make inquiries in regard to the presence of rats. In the event of an intimation of the presence of rats a visit is at once paid by the rat-catcher to the premises.

Number and Species of Rats caught in the City and Port of Liverpool, during the year 1933.

1933.	Warehouses.		Sewers.		Other Places		Total.		Ships.		Quays.		Other Sources.		Total.	
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.
January ...	8	83	—	829	3	422	11	1,334	271	—	115	14	49	1	435	15
February ...	14	161	—	681	13	344	27	1,186	259	—	121	3	27	15	407	18
March	67	233	—	691	49	432	116	1,356	220	—	105	35	13	20	338	55
April	132	266	—	644	7	333	139	1,243	225	—	145	15	22	16	392	31
May	115	249	—	902	—	362	115	1,513	216	—	126	10	34	16	376	26
June	70	221	—	744	23	316	93	1,281	130	—	76	16	27	13	233	29
July	57	160	—	811	14	291	71	1,262	194	—	83	14	19	12	296	26
August ...	30	120	—	791	18	322	48	1,233	131	—	120	6	11	37	262	43
September ...	19	147	—	894	17	359	36	1,400	195	—	175	24	21	14	391	38
October . .	67	200	—	794	13	307	80	1,301	256	—	195	9	43	44	494	53
November ...	64	159	—	795	4	323	68	1,277	187	—	133	30	26	5	346	35
December ...	45	170	—	599	2	187	47	956	164	—	148	9	15	3	327	12
TOTAL ...	688	2,169	—	9,175	163	3,998	851	15,342	2,448	—	1,542	185	307	196	4,297	381

Number and Species of Rats examined or destroyed in the City and Port of Liverpool during the year 1933.

1933.	Examined (City).		Destroyed (City)		Examined (Port).		Destroyed (Port).		Total Caught. City and Port.
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black and Brown.
January	2	310	9	1,024	228	15	207	—	1795
February	4	236	23	950	224	18	183	—	1,638
March	15	304	101	1,052	257	55	81	—	1,865
April	29	238	110	1,005	201	30	191	1	1,805
May	14	334	101	1,179	269	26	107	—	2,030
June	5	268	88	1,013	137	29	96	—	1,636
July	12	253	59	1,009	143	23	153	3	1,655
August	10	252	38	981	203	33	59	10	1,586
September	10	293	26	1,107	304	38	87	—	1,865
October	11	291	69	1,010	287	52	207	1	1,928
November	5	281	63	996	239	35	107	—	1,726
December	7	175	40	781	223	12	104	—	1,342
TOTAL	124	3,235	727	12,107	2,715	366	1,582	15	20,871

Special Visits.

Complaints are occasionally received from passengers directing attention to the dirty condition of railway carriages. These carriages are from time to time inspected, and if they are found in an unclean condition the railway company concerned is informed and the matter receives prompt attention.

The manure depots are situated in close proximity to the north corporation destructor, and visits are made to them to see that the manure which has been received from the stables in the centre of the city is frequently removed so as to avoid the possibility of breeding places for flies.

There are 700 fried fish shops within the city, all of which are visited systematically to see that the requirements of the Byelaws are carried out.

Number of visits to railway carriages	161
,, ,, ,, platforms (fish arrivals) ...	89
,, ,, poultry depots	678
,, ,, manure depots	71
,, ,, marine stores	796
,, ,, fried fish shops	3,641

Picturedromes.

At the request of the Licensing Justices, officers of the Health Committee systematically visit all picturedromes to see that the means provided for the ventilation of the auditorium is in use, attention also being directed to the condition of the sanitary conveniences, provision of seats for the attendants, the general cleanliness of the premises, and the water supply. A female inspector also makes systematic visits to inspect the sanitary conveniences used by females.

During the year 619 night visits were paid, and on each occasion the premises were found to be in a satisfactory condition. A day inspection is also made so that closer attention may be given to the examination of the sanitary conveniences.

Rag Flock Acts, 1911 and 1928.

There are two factories in which rag flock is manufactured in this district. Four visits have been made and four samples of rag flock have been taken, which were in accordance with the standard of cleanliness required by the rag flock regulations. Twenty-six visits have been made to premises where rag flock was used and eight samples were taken, which were in accordance with the regulations.

Factory and Workshop Act, 1901.

Factories, Workshops, and Workplaces—All factories, workshops and workplaces are visited by four inspectors appointed under the Act, the various premises being grouped in districts so as to secure the maximum number of visits in the minimum time.

Total number of	factories	2,360
,,	workshops	2,660
,,	workplaces	299
,,	visits to factories (including factory bakehouses)	11,198
,,	visits to workshops (excluding workshop bakehouses)	15,483

Bakehouses.—There has been a gradual but marked decline in the use of underground bakehouses. Since the passing of the Factory and Workshops Act, 1901, 346 underground bakehouses have been closed.

Many causes have led to the closing of underground bakehouses, but the main cause has been due to the retirement of the small master baker, the merging of smaller businesses into larger firms, business competition of larger firms, and the centralisation of baking in well equipped up-to-date factories, provided with modern baking appliances. In a few instances, bakehouses have been closed owing to the premises having been acquired and used for other purposes.

During the year, 1,642 visits were paid to bakehouses.

Number of bakehouses on register, 31st December, 1933 ...		517
,,	special visits to bakehouses on complaints ...	37
,,	ordinary visits to bakehouses	1,591
,,	re-inspections of incorrect premises	14
	Total visits	1,642

Number of occasions on which bakehouses were found incorrect		48
,,	sanitary defects found	85
,,	notices issued	56

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

Homework.—In accordance with the provisions of the Act, outworkers returns are received twice yearly, and the premises referred to in the returns are visited by the district sanitary staff to ascertain the sanitary condition of the premises, and if the premises are used as "workshop" or "domestic workshop." The following statement shows the work undertaken during the year, viz.:—

Number of outworkers' returns received		172
,,	visits to premises	89
,,	premises incorrect	Nil.

Outworkers' premises are also visited by a female inspector to ascertain that the sanitary conditions are satisfactory.

Administration of the Factory and Workshop Act, 1901, in connection with Factories, Workshops, Workplaces and 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	Occupiers Prosecuted.
Factories ... ... (Including Factory Laundries.)	11,198	287	—
Workshops ... ... (Including Workshop Laundries).	17,125	482	—
Workplaces ... ... (Other than Outworkers' premises).	3,675	53	—
TOTAL	31,998	822	—

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

Particulars.	Number of Defects.			Number of offences in respect to which Prosecutions were instituted.
	Found.	Remedied.	Referred to H.M. Inspector.	
*Nuisances under the Public Health Acts :**				
Want of cleanliness	458	458	2	—
Want of ventilation	30	30	—	—
Overcrowding	7	7	—	—
Want of drainage of floors	14	14	—	—
Other nuisances	569	569	22	—
Sanitary accommodation –				
Insufficient	52	52	—	—
Unsuitable or defective	378	378	—	—
Not separate for sexes	35	35	—	—
Offences under the Factory and Workshop Acts :—				
Illegal occupation of underground bakehouse (s. 101)...	1	1	—	—
Other offences ... ... (Excluding offences relating to outwork and offences under the sections mentioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order, 1921)	—	—	—	—
TOTAL	1,543	1,543	24	—

There were no cases of outwork in unwholesome premises (sec. 108) during the year.

Restaurant Kitchens.

All kitchens in connection with cafés and restaurants are regularly visited, particular attention being paid to the cleanliness of the premises and of the workers employed in the kitchen.

Total number of visits during the year	3,675
Number found incorrect	109

Shop Acts, 1912-1930.

In accordance with the provisions of the Shops Acts, a register of all shops within the city is kept up to date by systematic visitation. The Health Committee has made 15 half-holiday orders, and nine closing orders under the Act, and day and night visits are made to see that the provisions of these orders are carried out.

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

With regard to the half-holiday orders, the majority of the shops are closed at 1.0 p.m. on Wednesdays.

An Order has been made by the City Council suspending the closing hour on the Thursday preceding Good Friday each year, for the retail sale of fish, game and vegetables, also the retail business of bread and flour dealers.

The shops inspectors, in addition to their duties under the above Acts are also concerned in the provision of sanitary conveniences in shops and the carrying out of that portion of the Public Health (Meat) Regulations which have reference to the sanitary condition of premises in which meat is sold or exposed for sale. They are also responsible for seeing that the shops are provided with suitable receptacles for trade refuse.

The officers of the Health Committee have received valuable assistance from the city police in carrying out the provisions of the Shops Acts and Orders made thereunder.

A female inspector, in addition to her duties under the Shops Acts, has also carried out the provisions of the order made by the Ministry of Health (Circular 235) with reference to "prohibition of the employment of women after childbirth," and in this connection 541 visits have been made to factories and workshops within the city. In each case, the female overseer was interviewed and the requirements of the order explained and, as a result of the visit and explanation, it may be anticipated that every precaution will be taken to see that the provisions of the order are carried out.

During the year complaints were received mainly in regard to the contravention of the Half-Holiday Order, with the following results :—

Number of complaints	309
,, visits after 1 p.m.	70,073
,, ,, ,, 7 p.m.	61,850
,, ,, ,, 8 p.m.	96,048
,, ,, ,, 9 p.m.	34,154
,, ,, ,, 9-30 p.m.	9,304
,, ,, ,, 10 p.m.	1,136
Total number of visits	272,565

Number of informations	149
Number fined	85
,, withdrawn	3
,, discharged cautioned	61
Amount of fines and costs	£45-1-0

In addition to the above, it was found necessary to caution persons by letter for minor infringements of the Acts.

Employment Agencies.

These premises are controlled by Byelaws made under the Liverpool Corporation Act, 1927, and visits are made from time to time to ascertain that the requirements of the Byelaws are being carried out. There are at present 44 licensed Employment Agencies on the Register.

Liverpool Corporation (General Powers) Act, 1930, Section 27.

The above Section provides for the adequate lighting of common staircases in tenement buildings.

All staircases in tenement buildings have been inspected, and, it was found that in every instance the staircases were adequately lighted.

Common Lodging Houses.

At the end of the year 1932 there were on the register (including emigration houses), 104 lodging houses. During the year 1933, 11 houses were given up and removed from the register, and 2 new houses added, leaving, at the end of 1933, 95, providing accommodation for 4,917 lodgers.

Under Part 5 of the Public Health Acts Amendment Act, 1907, Sections 69 to 72 (adopted in 1912), 82 keepers were re-registered and 7 deputy-keepers registered.

Byelaws with respect to "Common Lodging Houses" were allowed by the Ministry of Health on the 2nd September, 1931, which

repealed the Regulations respecting "Common Lodging Houses" made by the Council of the Borough of Liverpool on August 14th, 1869.

These Byelaws give additional powers for the well ordering of such houses.

Twenty-nine written notices were served on registered keepers, also 61 verbal notices, for infringements of the Byelaws.

Infringements of the byelaws had reference to: defects in sanitary fittings and paving, windows requiring cleansing or re-glazing, insufficient bedding and bath accommodation, verminous bedding, and rooms overcrowded, no hot water supply, choked wastepipes, gullies and w.c. basins, floors not swept or washed, slops not emptied, etc.

Inspection of Lodging Houses.

Visits by day	2,326
,, night	44
,, to houses not on the register	58

No informations were laid against keepers during the year.

Infectious Disease in Lodging Houses.

Four cases of infectious disease were notified during the year, the necessary disinfection and cleansing of the premises being carried out after each case.

Sixty-one persons living in common lodging houses were notified as suffering from phthisis. In all cases where patients on discharge from a sanatorium return to these houses, instructions are given regarding the isolation of the patient, and the precautions to be taken to prevent the spread of infection.

Women's Lodging Houses.

There are 13 houses providing accommodation for 477 women lodgers.

Inspection of Houses let in Lodgings.

Houses on register, December 31st, 1932	15,884
,, removed from register during 1933	Nil.
,, added to register during 1933	2,337
,, on register, December 31st, 1933	18,221

Day Visits :—

Total day visits for the purpose of registration ...	101,274
Rooms measured	351

Overcrowding :—

Infringements found	693
Re-inspections	1,710
Infringements abated	104

Non-separation of Sexes :—

Infringements found	205
Re-inspections	417
Infringements abated	11

Floors, Stairs, etc., found dirty	668
Cleansed on re-visit	668

No informations were laid during the year.

Cleansing of Walls and Ceilings.

The following notices were served on landlords of houses let in lodgings during the year under Section 7 of the 1911 byelaws: —

Preliminary notices to cleanse walls and ceilings ...	4
Statutory ,, ,, ,, ,, ...	Nil.
Houses cleansed	4
Rooms ,, ...	24

Canal Boats Acts, 1877 and 1884, and Canal Boats Orders, 1878, 1922 and 1925.

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 the locks which lead to the docks, is about three miles.

The number of inspections of canal boats during the year was 3,448, and the condition of the boats and their occupants as regards matters dealt with in the acts and regulations is indicated in the following table :—

Boats on register 1st January, 1933	418
New boats registered	35
Boats removed from register	21
Boats on register, 31st December, 1933	432

Contraventions occurred on 90 boats, of which number 32 were registered by other authorities.

Nature of Contraventions :—

Unregistered boats used as dwellings	12
No certificate on board or certificate not legible ...	13
Leaky decks	10
Defective stoves or stove-pipes	31
Cabins requiring re-painting	7
Incorrect marking of boats	14
Defective cabin fittings	1
Dirty cabins	3
Indecent occupation of cabin	2
Defective bulkhead	1
Cabin overcrowded	2
Defective skylight	1
	97

Written notices were issued to owners in 80 instances, and verbal notices were given to masters in 10 instances. Of these notices 80 have been complied with. No informations were laid during the year against owners or masters for infringement of the Acts or regulations. No case of infectious sickness was reported as having occurred during the year on any canal boat visiting the district. Thirty-seven motor-propelled boats and 79 steam-propelled boats are registered by this Authority.

On May 1st, 1923, the Ministry of Health, under section 10 of the Canal Boats Act, 1884, issued an order cited as the Canal Boats Order, 1922. This order brings within the scope of the Canal Boats Acts all similar vessels which had hitherto been registered under the Merchant Shipping Acts, and consequently were exempt from inspection.

The inspectors of the Port Sanitary Authority made 631 inspections during the year and 27 contraventions were discovered, which were subsequently dealt with. These figures are included in the foregoing table.

Details of Visits to Boats Plying on the Canal.

349 boats were visited, which were registered as follows:—206 at Liverpool, 59 Runcorn, 5 Leigh, 1 Wigan, 34 Manchester, 11 Chester. Thirty-three boats were not registered (not used as dwellings).

All were "wide" boats, 8 being propelled by steam, 161 steam-towed, 29 motor-driven, and the remainder horse-drawn.

The number of inspections of these 349 boats was 2,817, and the population comprised:—Men, 602; women, 55; children, 31; a total of 688 persons, the sexes and ages being as follows:—

Males over 14 years of age	602
,, ,, 5 and under 14	14
,, under 5 years of age	3
Females over 12 years of age	55
,, ,, 5 and under 12	8
,, under 5 years of age	6
	688

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.

(Under Reg. III, etc., Sec. 2, Canal Boats Act, 1877.)

Twenty-two children of school age were found on canal boats during the year, who were on trips with their parents during the school

holidays. One was dealt with by the Education Authority. One family was found on a boat on the canal who had not a home ashore in addition to that on board.

Ambulance and Disinfecting Staff.

There were 10,171 cases of infectious diseases removed to hospital by officers of the ambulance staff during the year. The number of rooms disinfected was 75,637, and 8,081 library books were also disinfected. The number of articles of bedding, clothing, etc., disinfected at the disinfecting apparatus was 85,335, in addition to 27,129 other articles.

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 may be utilised.

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. During the year the number of bodies removed to Prince's Dock Mortuary was :—From the river 8, and from the city, 219.

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 Chief Constable, with a firm of undertakers to supply a hearse on short notice, together with a shell coffin. This arrangement has proved satisfactory.

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 has taken place, without possible injury to the health of the inmates, and is also used for the reception of stillbirths. The number of bodies received during the year was 215.

Crematorium.

The Crematorium, which is situated in Anfield Cemetery, 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.

That cremation is steadily becoming more popular is shown by the fact that in 1885 there was one crematorium, whereas now there are 24 crematoria in this country; the total number of cremations during 1933 being 7,480.

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

1896	2	1917	62
1897	10	1918	70
1898	27	1919	88
1899	23	1920	70
1900	40	1921	74
1901	40	1922	74
1902	54	1923	62
1903	35	1924	74
1904	40	1925	75
1905	35	1926	96
1906	46	1927	101
1907	34	1928	103
1908	32	1929	103
1909	46	1930	160
1910	37	1931	163
1911	50	1932	171
1912	52	1933	247
1913	66		
1914	49		2,622
1915	53		
1916	58		

Smoke Abatement.

Manufacturers now understand that smoke abatement is fuel economy, and this recognition has played an important part in the results so far obtained. Greater discrimination is shown than formerly in the selection and use of equipment and fuel, consistently better results are being obtained year by year, and although there is a wide difference between smoke reduction and elimination, figures show that on the average industrial chimneys in the city are smokeless for 53·5 minutes per hour, black smoke issues for 1·31 minutes per hour and smoke of any density or colour for 6·48 minutes per hour.

Manufacturers are advised and cautioned when the smoke emission exceeds a light grey colour and are reported when black smoke exceeds two minutes in the aggregate for a continuous period of 30 minutes.

Working under a new byelaw under Section 2 of the Public Health (Smoke Abatement) Act, 1926, was commenced in June, 1933. A copy of the byelaw, accompanied by a circular letter, was sent to every manufacturer and furnace owner in the city. This byelaw reduces the limit of black smoke, and very careful attention to furnace control is required. Although 24 cases were reported during the six months' working, and 23 statutory notices issued, there was no recurrence of the nuisance in any of the factories reported.

Boiler Installations.—During the year several large factories installed complete new boiler plants which are of a type mechanically supplied with fuel and air, and, the smoke nuisance from these factories has been reduced to a minimum. Others have reconstructed existing plant, and installed electrical machinery to reduce the load on the boilers.

Complaints.—During the year, 73 complaints were answered in relation to smoke nuisance from industrial chimneys.

Fifteen chimneys were raised and alterations made in 17 boiler furnaces and flues. In 7 cases a complete new boiler plant was installed, and in 34 other cases, either a change of fuel was advised, or the complaints kept under regular systematic observation. These complaints necessitated 753 visits and periodical observations.

Smoke Nuisance from Steamers.—The improvement as regards smoke nuisance from the regular trading vessels and river craft has been fully maintained; trade depression, however, is still an important factor in the diminution of the total smoke nuisance from steamer sources.

During the year there were 95 reports of excessive smoke from steamers in dock and on the river, 44 of which related to foreign-going vessels. No proceedings were taken with regard to this class of vessel, but the owners were communicated with in respect of the nuisance. The number of summonses issued in regard to other vessels was 51, and in every case a conviction was obtained.

Domestic Smoke.—There is no legislation against domestic smoke. That a continual reduction is taking place is certain but progress in the campaign against domestic smoke is slow, and the evils from this nuisance are visible in many districts of the city.

The gas and electricity industries show once again, in spite of the industrial depression, considerable increases in the consumption of their products and the solid smokeless fuels also show, on the whole, a wider use and increased popularity.

In addition to the natural fuel, Anthacite, the other solid smokeless fuels sold locally are "Dryco" and "Coalite."

The demand for domestic fuel in Liverpool during the winter months is approximately 19,000 tons weekly. The demand for the solid smokeless fuels is approximately 1,000 tons per week.

The advantages of mixing coal and coke for use in open firegrates and kitchen ranges is not fully recognised, nor the influence of this practice upon the formation and emission of smoke from domestic chimneys. The effect of mixing the two fuels in equal proportions is to reduce by one half the production of domestic smoke, to lower costs, and to tend to improve materially the radiation efficiency of the fire.

The Firing of Domestic Chimney Flues.—This year the number of convictions for this form of offence was 1,997, as against 2,295 the previous year, which shows a decrease of 298 convictions. It is deplor-

able that certain householders wilfully fire their chimney flues or allow them to become so dirty that they inadvertently fire and clear themselves, to the detriment of the surrounding neighbourhood.

The Medical Officer of Health wishes to make an appeal to householders to assist him in the general cleanliness of the city, and in maintaining the purity of the atmosphere, by having house flues swept and cleaned at least twice per year where coal is used as fuel.

Prosecutions for this class of offence are carried out by the police, who are thus assisting greatly in the prevention of atmospheric pollution.

Smoke Nuisances.

Proceedings for abatement of nuisances caused by the emission of excessive smoke from factories, steamers, etc., were taken under the following Acts, namely, The Liverpool Corporation Act, 1921, Sections 472 and 473, and The Public Health (Smoke Abatement) Act, 1926.

Liverpool Corporation Act, 1921, *Section* 472.

Number of reports on factories	13
,, ,, ,, ,, steamers in dock	8
,, ,, ,, ,, steamers in river	87
	108

Forty-four steamship owners were communicated with in respect of nuisances caused by the emission of excessive smoke, and 832 manufacturers and 75 steamship owners were cautioned for unnecessary smoke.

Informations against occupiers of factories	13
,, ,, owners of steamers in river ...	51
	64

	Discharged with costs.	Fined.	Amount of Fines.
			£ s. d.
Informations :—Factories	1	12	7 4 0
,, Steamers	2	49	31 8 0
	3	61	38 12 0

Public Health (Smoke Abatement) Act, 1926. (*June-December*, 1933).

Number of chimney observations recorded	960
,, minutes black smoke emitted	628·4
Average minutes black smoke per hour recorded ...	1·31
,, ,, all ,, ,, ,, ,, ...	6·48
Number of intimations of black smoke served	23
,, statutory notices issued	22
,, advisory visits	358

West Lancashire and Cheshire Regional Smoke Abatement Committee.

During the year there was formed an advisory committee of representatives of 19 Local Authorities within the Lancashire and Cheshire area.

The objects of this Committee are :—

(*a*) To stimulate interest among manufacturers throughout the area in the cause of smoke abatement ;

(*b*) To secure a better understanding between local authorities and manufacturers, thus facilitating the administration of the smoke laws throughout the area ;

(*c*) To provide facilities for discussion of questions arising in connection with present and future smoke abatement legislation, and to promote research and propaganda work.

There is every reason to hope that the work of this committee will contribute towards an amelioration of the smoke conditions which obtain in this area.

Atmospheric Pollution.

The accompanying tables show the results of the analyses in the two atmospheric pollution gauges in Liverpool. The first, which has been

in operation for thirteen years, is placed in the grounds of the North Tuberculosis Clinic, 332, Netherfield Road. The second, which is in the grounds of the Carnegie Welfare Centre, Mount Pleasant, came into operation in March, 1929; it is situated in a much less crowded area.

As usual the figures of deposits from the Carnegie gauge are much lower than those from the one at Netherfield Road. The principal figures are:—

	Netherfield Road Gauge.	Carnegie Welfare Centre Gauge.
Total Solids	522·38	320·42
Undissolved matter—		
tarry matter, etc.	4·81	5·27
Other organic matter	82·46	66·49
Mineral matter	244·23	121·01
Total undissolved matter	331·50	192·77
Total dissolved matter	190·88	127·65
Chlorine as Cl.	29·38	27·75
Sulphate as SO_3	51·22	23·19
Rainfall in inches	22·08	23·10

The year was remarkable for its long periods of drought. It will be observed that the rainfall at Netherfield Road was only three-fourths and that at the Carnegie Centre was only two-thirds of the 1932 amounts.

The small rainfall is reflected in the total amount of impurities washed out from the air. In the case of Netherfield Road this was 80 tons less than in 1932. The rise of 22 tons at the Carnegie Centre compared with 1932 may be due to undissolved matter emitted from a conspicuous chimney in the neighbourhood.

The total acidity, calculated as sulphuric acid, is only two-thirds of the figure for 1932 in the case of Netherfield Road and is about one-half in the case of the Carnegie Centre. At Netherfield Road the rainwater was distinctly acid during nine months of the year but the months of July, August and September were the only ones in which the acidity could reasonably be attributed to dissolved carbon dioxide. At the Carnegie Centre the rainwater was distinctly acid during ten months of the year but the months of August and September were the only ones in which the acidity might have been due to carbon dioxide.

Atmospheric Pollution, 1933.

(332, Netherfield Road)

RESULTS OF ANALYSES BY THE CITY ANALYST (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	29·99	43·02	33·48	41·64	36·44	46·28	44·19	33·53	30·37	63·70	48·19	71·55	522·38
UNDISSOLVED MATTER—													
Tarry Matter and Bitumen	0·43	0·51	0·51	0·49	0·38	0·39	0·46	0·26	0·15	0·41	0·46	0·36	4·81
Other Organic Matter	5·28	6·76	5·94	7·27	7·32	7·17	6·96	5·48	4·00	9·05	6·63	10·60	82·46
Mineral Matter	10·38	21·78	13·31	21·39	14·89	22·35	24·05	14·43	16·27	32·62	17·44	35·32	244·23
Total Undissolved Matter ...	16·09	29·05	19·76	29·15	22·59	29·91	31·47	20·17	20·42	42·08	24·53	46.28	331·50
DISSOLVED MATTER—													
Organic Matter by Ignition	6·58	5·99	6·61	6·50	6·15	5·64	6·36	5·46	5·23	9·00	11·04	12·55	87·11
Mineral Matter	7·32	7·98	7·11	5·99	7·70	10·73	6·36	7·90	4·72	12·62	12·62	12·72	103·77
Total Dissolved Matter	13·90	13·97	13·72	12·49	13·85	16·37	12·72	13·36	9·95	21·62	23·66	25·27	190·88
Acidity as H_2SO_4	0·69	1·43	0·99	0·20	0·38	0·18	0·15	0·15	0,05	0·99	1·10	0·33	6·44
Chlorine as Cl	1·56	2·91	2·04	1·68	1·86	2·40	1·90	2·22	1·35	5·18	3·42	2·86	29·38
Ammonia as NH_3	0·23	0·36	0·26	0·26	0·36	0·36	0·36	0·56	0·31	0·84	0·48	0·28	4·66
Sulphate as SO_3.....	3·80	4·92	4·26	3·06	3·93	3·39	2·98	3·39	2·42	5·71	6·50	6·86	51·22
Lime as CaO	2·83	1·99	1·43	1·43	1·15	0·84	1·46	1·35	1·40	2·70	1·71	2·47	20·76
RAINFALL { Millimetres ...	35·84	78·34	49·76	25·52	50·27	56·30	41·60	48·49	17·10	88·29	51·55	18·63	561·69
RAINFALL { Inches	1·41	3·08	1·96	1·01	1·98	2·18	1·64	1·91	0·67	3·48	2·03	0·73	22·08
PH. Value	3·8	3·8	3·9	4·4	4·7	5·3	5·5	5·5	5·8	5·0	4·2	4·2	—

* The January results are all low as frost caused breakage of one bottle, resulting in considerable loss of water and some deposits. The rainfall figures are computed.

Atmospheric Pollution, 1933. *(Carnegie Infant Welfare Centre, Cambridge Street)*

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

	January	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total for 12 months
Sum Total Solids	24·22	22·21	19·71	21·47	26·39	21·42	38·83	35·27	21·27	29·78	30.63	29·22	320.42
UNDISSOLVED MATTER—													
Tarry Matter and Bitumen	0·30	0·48	0·36	0·23	0·30	0·33	0·65	0·63	0·36	0·61	0·46	0·56	5·27
Other Organic Matter	4·47	4·21	4·26	4·74	6·71	3·62	7·17	8·34	4·23	5·30	6·63	6·81	66·49
Mineral Matter	10·71	9·36	8·67	9·92	10·71	8·95	14·26	11·12	9·08	7·65	9·87	10·71	121·01
Total Undissolved Matter	15·48	14·05	13·29	14·89	17·72	12·90	22·08	20·09	13·67	13·56	16·96	18·08	192·77
DISSOLVED MATTER—													
Organic Matter by Ignition	4·46	4·08	3·21	3·68	5·13	2·37	10·96	8·83	4·00	5·79	6·84	7·22	66·57
Mineral Matter	4·28	4·08	3.21	2·90	3·54	6·15	5·79	6·35	3·60	10·43	6·83	3·92	61·08
Total Dissolved Matter	8·74	8·16	6.42	6·58	8·67	8·52	16·75	15·18	7·60	16·22	13·67	11·14	127·65
Acidity as H_2SO_4	0·82	1·91	0·36	0·26	0·59	0·08	0·16	0·05	0·03	1·23	0·82	0·54	6·85
Chlorine as Cl.	1·84	2·42	1·38	1·05	1·05	1·63	2·47	2·50	1·04	6·94	3·42	2·01	27·75
Ammonia as NH_3	0·15	0·13	0·05	0·07	0·03	0·01	0·36	0·48	0·26	0·23	0·20	0·26	2·23
Sulphate as SO_3	2·04	2·86	1·58	1·41	1·73	1·23	2·30	1·91	1·61	1.96	2·70	1·86	23·19
Lime as CaO	1·35	0·82	1·05	1·18	1·28	0·46	2·58	1·25	1·25	1·15	1·58	1·15	15·10
RAINFALL — Millimetres	38·03	79·92	45·11	25·78	38·67	46·40	56·72	54·14	20·62	113·43	51·56	16·11	586·49
RAINFALL — Inches	1·50	3·15	1·78	1·02	1·52	1·83	2·23	2·13	0·81	4·47	2·03	0·63	23·10
PH. Value	3·8	3·8	4·6	4·6	3·9	5·3	5·2	5·9	5.6	4·6	4·2	3·8	—

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 681 miles of streets within the city, together with their back passages, the periodical emptying of ashbins, street gullies, street and court bins and ashpits, and the disposal of the refuse collected therefrom, etc. During 1933, the quantity of domestic and trade refuse collected was 360,327 tons, and the quantity disposed of was 385,162 tons. The quantity dealt with per working day was 1,259 tons.

The whole of the 681 miles of streets with their passages, with the exception of a few on the outskirts of the city, 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. During 1933 street washing was carried out as follows :—

58 streets washed once a week;

1 street washed twice a week;

1 street washed daily; and

326 streets washed as occasion required.

Five sweeping machines are employed regularly, three on night work (one of which collects as well as sweeps), covering approximately 100 brush miles of roadway nightly, and two on day work, brushing the roadway and picking up the sweepings in side streets.

On Sunday mornings a number of the principal streets and streets in congested areas are cleansed, and all street and court bins emptied

During 1933, 40,255 tons of street sweepings were collected and disposed of as manure and top dressing.

In connection with street watering upwards of five and a quarter million gallons of water were distributed during the season, in addition to the large quantity used for street washing.

Two mechanical gully emptiers are now in use, which perform the work in a very satisfactory and sanitary manner.

487,937 square yards of carriageway were treated with dust-laying compositions, of which 47,277 square yards were in various 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, 1933, was 508.

There are 32 underground urinals with 305 stalls and 132 overground urinals with 576 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 regularly 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 1933 the number of bins in use of this type was approximately 90,700, the number of ashpits being reduced from 65,000 to approximately 1,430. In addition, more than 100,000 loose bins have been supplied. In the year 1900 an improved sanitary ashbin 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 964; these are emptied daily. Ash-bins and ashpits on domestic premises are emptied approximately once weekly. 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. Horse middens are emptied weekly and more often if required.

Ashpits.—To assist in the abolition of ashpits within the city, the Health Committee applied for and obtained special powers under the Liverpool Corporation Act, 1927, Section 157, which is as follows:—

> "Section 467 (Regulation Dustbins) of the Act of 1921 is hereby "repealed and the Corporation may by notice in writing require "the owner or occupier of any dwelling-house, warehouse or shop "to provide and maintain in proper order and condition "galvanised iron dust-bins in lieu of ash-pits or ash-tubs or other

" portable receptacles for refuse, and such bins shall be of such " size and construction as may be approved by the Corporation, " and any owner or occupier who fails within fourteen days after " notice given to him to comply with the requirements of the Cor- " poration shall for every such offence be subject to a penalty not " exceeding five shillings. Provided that in any case where the " Corporation under this Section require a galvanized iron dust- " bin to be provided in lieu of any ash-pit or ash-tub or other " portable receptacle for refuse in use on the 4th day of August, " 1905, which at the time such requirement is made is of suitable " size and construction and in good order and condition, the " Corporation shall pay the cost of providing such galvanized iron " dust-bin."

Numerous applications have been received by owners who desire to take advantage of this section of the provisions. Up to 31st December, 1933, approximately 3,200 ashpits have been abolished under these powers.

All ashpit and ashbin refuse is emptied direct into the carts and motors, and all loaded carts and motors traversing the streets are covered.

The refuse collected is disposed of by burning at three destructors, by disposing at sea, by sale to farmers, and by controlled tipping for reclamation of land, operations being carried out in accordance with suggested regulations of the Minister of Health, to comply with which 57,035 tons of soil were used for covering the refuse disposed of at tips during the year.

During the year, 78,782 tons were burned at the destructors, 60,119 tons were deposited at sea by hopper barge, 12,291 tons were sold to farmers, ets., 233,246 tons were otherwise disposed of at tips and for agricultural purposes, etc. In addition, approximately 10,600 tons of clinker residue from destructors were used almost entirely in the construction and maintenance of roads and tramways and in the manufacture of mortar and concrete slabs, etc.

FOOD INSPECTION

including the supervision of dairies, the cleanliness of milk and ice-cream, tuberculous milk, diseases of cattle, and adulteration of food and drugs.

INSPECTION OF FOOD.

The duties in connection with the supervision of food supplies imposed upon the officers of the Health Department by various Acts and Orders are carried out by a fully qualified staff of food inspectors, and entail the examination of the carcases of animals slaughtered for food at the abattoir and private slaughter-houses; the inspection of meat, fish and fruit at the various wholesale and retail markets and cold stores; and the inspection of shops, factories, etc., where foodstuffs are sold, prepared or stored for human food.

A numerical summary of the visits paid to premises by the food inspectors is given in Table I.

TABLE I.

VISITS PAID TO PREMISES BY THE FOOD INSPECTORS.

Slaughter houses.	Butchers' shops.	Fruit shops.	Fish & Fruit shops.	Food Hawkers' premises.	Jam factories.	Pickle factories.	Food factories	Knackers' yards.	Total Visits paid.
850	23,852	31,932	27,011	1,712	56	89	839	34	86,375

Knackers' Yards.

A "knackers' yard" means a building or place used to kill horses, asses, mules and cattle, the flesh of which is not intended for use as human food. There are two such knackers' yards in Liverpool.

Private Slaughter-houses.

There are ten private slaughter-houses in the city at which, during 1933, 3,171 animals were slaughtered. All the carcases are inspected before being allowed to leave the premises. Two of these slaughter-houses are used solely for the slaughter of horses for export abroad as human food.

The Public Slaughter-house or Abattoir.

Slaughtering may take place at the Abattoir at any time during the day or night. It is continuous during one night per week, and sometimes during two, and Sunday is a very busy day. The work of inspection of animals and meat, therefore, is almost continuous.

During the slaughter of calves a close watch is kept for evidence of tuberculosis, and several instances have occurred of marked infection in very young animals. Where the origin of the animal is known inquiries are made as to the source of the infection. It may be from the milk which has been used as food or congenital infection from the mother. In the latter event the mother is slaughtered under the Tuberculosis Order of 1925.

The carcases of 8,147 animals showed abnormal conditions, and a detailed examination was made in each case.

During the year, 3,457 carcases were rejected as being unfit for human food. Of these, 2,440 were destroyed at the Abattoir and 1,017 were destroyed at knackers' yards.

During 1933, 501,811 animals of different kinds were slaughtered in Liverpool for human food. An analysis of this figure is given in Table II.

TABLE II.

NUMBER OF ANIMALS SLAUGHTERED IN LIVERPOOL FOR HUMAN FOOD.

	Bulls	Bullocks	Cows	Heifers	Calves	Sheep	Lambs	Swine	Horses
Public Abattoir ...	1,412	24,887	10,736	2,507	22,256	28,170	354,005	54,667	—
Private Slaughter-houses ...	—	50	—	36	5	7	1,392	1,248	433
TOTALS ...	1,412	24,937	10,736	2,543	22,261	28,177	355,397	55,915	433

Many carcases of home killed animals are brought into Liverpool from other districts. A summary is given in Table III.

TABLE III.

CARCASES OF ANIMALS (HOME-KILLED) BROUGHT INTO LIVERPOOL FROM OTHER DISTRICTS.

Brought into the—	Beef.	Veal.	Mutton.	Lamb.	Pork.
Meat Market	3,755	1,204	681	20,981	11,566
Factories, Shops, etc. ...	9	2	3,293	365	1,530
TOTALS	3,764	1,206	3,974	21,346	13,096

A large number of carcases of imported meat, both frozen and chilled, pass through the meat market. The figures for 1933 are given in Table IV.

TABLE IV.

CARCASES OF IMPORTED (FROZEN AND CHILLED) MEAT PASSING THROUGH THE MEAT MARKET.

Beef.	Veal.	Mutton.	Lamb.	Pork.
54,351	202	122,217	604,869	3,383

In addition to the above, 21,848 cuts of beef and 134,720 boxes and packages of meat and offal were dealt with in the meat market.

Diseased Conditions.

A description of the diseased conditions found during 1933 which led to the total or partial destruction of carcases is given in Table V.

TABLE V.

DISEASES FOR WHICH CARCASES WERE TOTALLY OR PARTIALLY DESTROYED.

Disease.	No.	Disease.	No.
Contamination (partial)	5	Neoplasms, Malignant	3
Abscess (partial)	19	Joint Ill	16
Arthritis, Septic (total)	51	Nephritis	1
,, Simple (partial)	27	Pyæmia	14
Asphyxia	196	Peritonitis Septic	19
Caseous Lymphadenitis	1	Pneumonia	44
Dropsy	552	Pleurisy	18
Decomposition (total)	157	Septicæmia	3
,, (partial)	118	Septic Mastitis	11
Distomatosis	295	,, Metritis	9
Enteritis	117	,, Pericarditis	6
Immaturity	17	Swine Fever	397
Injury (total)	28	Swine Erysipelas	6
,, (partial)	509	Tuberculosis (total)	424
Johnes Disease	11	,, (partial)	434
Jaundice	25	Peritonitis (partial)	2
Melanosis	1	Uræmia	6
Presternal Calcification (partial) ...	1	Tenuicollis Cysts	2
Pleurisy (partial)	5	Contravention Meat Reg.	10

In addition to the number of carcases totally destroyed because diseased conditions made them unfit for human food, a number of organs with localised disease were condemned. A summary is given in Table VI.

TABLE VI.

NUMBER OF ORGANS DESTROYED ON ACCOUNT OF DISEASE, EXCLUSIVE OF ORGANS DESTROYED IN CARCASES TOTALLY CONDEMNED.

Disease.	No.	Disease.	No.
HEADS AND TONGUES :—		SPLEENS :—	
Tuberculosis	4,501	Tuberculosis	1,200
Abscess	59	Decomposition	71
Actinomycosis	82		
Decomposition	412		
Melanosis	1	STOMACHS :	
		Tuberculosis	1,122
		Abscess	9
LUNGS :—		Decomposition	2
Tuberculosis	5,228	Peritonitis	5
Congestion	7,432		
Unclassified Cystic Conditions...	2,785		
Abscess	249	KIDNEYS :—	
Pneumonia	347	Tuberculosis	1,211
Decomposition	639	Decomposition	456
Pleurisy	254	Cysts	215
Melanosis	2	Cirrhosis	136
Emphysema	114	Nephritis	16
LIVERS :—		UDDERS :—	
Tuberculosis	4,262	Tuberculosis	56
Distomatosis	19,803	Mammitis	1,374
Unclassified Cystic Conditions...	3,068	Abscess	186
Decomposition	2,428	Decomposition	5
Abscess	410	Actinomycosis	2
Cirrhosis	2,002		
Cavernous Angioma	417		
Congestion	2,029		
		INTESTINES :—	
		Tuberculosis	4,606
HEARTS :—		Enteritis	2
Tuberculosis	3,332	Johnes Disease...	30
Decomposition	63	Abscess	2
Pericarditis	28	Emphysema	1

Incidence of Tuberculosis in Bovine Animals.

During 1933, 39,628 bulls, bullocks, heifers and cows were killed. Of these, 3,597 (9·08 per cent.) were affected with tuberculosis and rejected accordingly.

An analysis of these rejections is given in Table VII.

TABLE VII.

ANALYSIS OF REJECTIONS ON ACCOUNT OF TUBERCULOSIS.

	Total number slaughtered.	Carcase and Organs completely rejected.		Carcase and Organs partially rejected.		Rejection of Organs only.		Totals.	
		Number.	Per cent. of animals killed.	Number.	Per cent. of animals killed.	Number.	Per cent. of animals killed.	Number.	Per cent. of animals killed.
BULLS	1,412	6	0·42	10	0·70	119	8·42	135	9·56
BULLOCKS	24,937	13	0·05	66	0·26	400	1·60	479	1·92
HEIFERS	2,543	11	0·43	6	0·23	29	1·14	46	1·80
COWS	10,736	260	2·42	352	3·27	2,325	21·65	2,937	27·35
TOTALS	39,628	290	0·73	434	1·10	2,873	7·25	3,597	9·08

When a bovine animal is infected with tuberculosis, the lungs and associated lymph glands are the organs most commonly diseased. This is shown in Table VIII, wherein is an analysis of the tuberculous organs found in bovine animals, expressed as a percentage of the total bovine animals infected.

TABLE VIII.

ANALYSIS OF TUBERCULOUS ORGANS IN BOVINE ANIMALS.

Organs infected with tuberculosis.	Number of organs.	Expressed as a percentage of tuberculous bovine animals.
Lungs and associated lymph glands	2,965	83%
Liver	1,834	51%
Intestine	1,505	42%
Head and associated lymph glands	1,446	40%
Stomach	1,056	29%
Spleen	1,087	30%
Kidneys and genital organs	1,103	31%

(Table VIII does not include the diseased organs from 290 animals totally rejected.)

Cows with Tuberculous Disease of the Udder.

During the year 52 cows slaughtered in the ordinary course of trade were found to be suffering from tuberculous disease of the udder. This figure is 0·48 per cent. of the total cows killed.

Calves with Tuberculosis.

During the year, 22,261 calves were slaughtered. Seventeen carcases were totally rejected on account of tuberculosis, and in 10 cases the carcases were passed after rejection of infected organs.

Quantities of Food Materials Condemmed.

The quantities of food material condemned as being unfit for human food are given in Table IX.

TABLE IX.

FOOD MATERIALS CONDEMNED AS BEING UNFIT FOR HUMAN FOOD.

Beef, Veal, Mutton, Pork.	Offal.	Fish.		Crabs, Lobsters, Oysters, Crayfish, Shrimps, Prawns, Scallops.	Mussels, and Winkles.	Poultry.	Game.	Rabbits and Hares.	Fruit.	Vegetables.	Nuts, Cokernuts, Almonds, etc.	Grains, Barley.	Eggs.	Canned Food-stuffs.
		Wet.	Dry.			Fowls, Ducks, Geese, Turkeys, etc.	Partridges, Grouse, etc.		Apples, Pears, Bananas Oranges, Lemons, etc.	Potatoes, Cabbages, Sprouts, Onions, Turnips, etc.				
Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Bags.	Head.	Head.	Head.	Lbs.	Lbs.	Lbs.	Lbs.	No.	Tins.
429,779	510,601	213105	31863	4,970	39	3,901	215	3,453	386,047	276,379	12,612	672	295	2,400

A few samples of food materials were submitted for bacteriological or chemical examination as follows :—

TABLE X.

SAMPLES OF FOOD MATERIALS SUBMITTED FOR BACTERIOLOGICAL OR CHEMICAL EXAMINATION.

Fresh Meats and Offals.	Canned Foodstuffs.	Shell-Fish.	Fresh Fish.	Sweets.	Miscellaneous.
10	24	20	1	4	4

Fruit, Vegetable and Fish Markets.

In Table XI are given the quantities of fish, rabbits, poultry and game which passed through the Wholesale Market during the year.

TABLE XI.

QUANTITIES OF FISH, RABBITS, POULTRY AND GAME WHICH PASSED THROUGH THE WHOLESALE MARKET.

Fish				Rabbits.	Poultry.	Game.
Wet Fish.	Dry Fish.	Shell-Fish.	Salmon.			
16,329 tons	3,449 tons	793 tons	54 tons	8,383 packages	10,592 packages	483 packages

The figures in Table IX include only the quantities of these food materials dealt with by firms associated with markets controlled by the Markets Committee.

The wholesale depôt in Queen Square and the Wholesale Fruit Market are two of the principal distributing centres in the country for imported fruit. During the year, 119,072 tons of vegetables passed through the Vegetable Market.

Public Health (Meat) Regulations, 1924.

These Regulations are based on the recommendations of the Departmental Committee on Meat Inspection. They are designed to secure more adequate inspection of animals slaughtered in this country as well as improvements in the handling, transport and distribution of meat.

The objectionable practice of exposing meat in open shop fronts has ceased. However, carcases and meats brought to Liverpool for sale from other places by road or rail or steamer are sometimes insufficiently protected from contamination.

The use of a thin transparent wrapping or covering for foodstuffs exposed for sale in shop windows or on counters or in show-cases is becoming more frequent and is a great help in the protection of food from dust, flies and handling.

The Tuberculosis Order, 1925.

This Order aims at the destruction of cows suffering from tuberculosis in a form that is a source of danger to human beings and to other animals. During 1933, 53 cows were slaughtered under this Order(1).

Merchandise Marks Act, 1926.

This Act requires an indication of origin to be given in the case of imported foodstuffs. From time to time an Order in Council names a food material which, on importation from abroad, must be labelled "Foreign" or "Empire," or must bear a description of the actual country of origin. The food materials so far named are honey and fresh apples; currants, sultanas and raisins; eggs in shell, both hen and duck, and dried eggs; oat products; raw tomatoes; frozen or chilled salmon or sea trout; and butter.

The marking of imported foodstuffs in this way enables the buying public to distinguish between home produced food and that which has come from abroad.

In Liverpool this marking has been well done on the whole, but it has been necessary to prosecute for offences under this Act on six occasions.

Agricultural Produce (Grading and Marking) Acts, 1928 and 1931.

These Acts provide for the grading and marking of agricultural and fishery produce of England and Wales, so that the purchaser shall be in the position to know what is the standard of quality of the food that he is buying.

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(1).—See page 230.

From time to time the Ministry of Agriculture and Fisheries make regulations prescribing "grade designations" for particular commodities and defining the quality indicated by these grade names. For example, the words "Select," "Prime" and "Good" have been chosen to describe three qualities of home-killed beef.

In order that the public may be able to recognise readily a graded food material, it is marked with a prescribed "grade designation mark," consisting of a silhouette map of England and Wales bearing a circular representation of the Union Jack in the centre, around which are the words "Produce of England and Wales." This design has come to be known as "The National Mark." Associated with the National Mark is the grade name descriptive of the quality of the article.

Buyers now realise that the National Mark is a reliable indication of quality, and it is essential that the high standard associated with this mark be maintained.

During 1933 it has not been necessary to prosecute for offences under these Acts.

THE SUPERVISION OF DAIRIES, COWSHEDS AND MILKSHOPS.

Under the Milk and Dairies Order, 1926, dairies and dairymen must be registered. The expression "dairy" includes any farm, cowshed, milk-store from which milk is supplied on, or for, sale; and the expression "dairyman" includes any occupier of a dairy, any cow-keeper, or any purveyor of milk.

TABLE XII.

Registration of Dairies.

(*Milk and Dairies Order*, 1926.)

Number of registered dairies at the end of 1932.	New applications for registration.	Registration refused.	Dairies removed from the register.	Number of registered dairies at the end of 1933.
818	35	6	32	815

During the year, 81 dairies were transferred from one owner to another. These opportunities were taken to effect improvements both in structure and apparatus.

The numbers of registered dairies during the five years 1929-1933 were : 795, 785, 791, 818 and 815, respectively.

Inspection of Dairies.

During the year, 7,600 visits of inspection were paid to dairies. In 42 instances infringements of the Milk and Dairies Order, 1926, were found and caution notices were sent. These were complied with at once and no prosecution was necessary.

The corresponding visits for 1932 were 8,202.

Registration of Dairymen.

The number of registered dairymen is described in Table XIII.

TABLE XIII.

REGISTERED DAIRYMEN.

Number of registered dairymen on Jan. 1st, 1933.	Applications for registration.	Applications refused.	Ceased to be dairymen.	Remaining on the register, Dec. 31st, 1933.
954	147	19	139	943

Of the 943 dairymen on the register at the end of the year, 128 were milk-hawkers who, having no premises of their own, are registered at the dairy from which they obtain their supplies and where they store their utensils.

Conveyance and Distribution of Milk Churns.

Observations were made at railway stations to ensure that Sections 28 and 29 of the Milk and Dairies Order, 1926, relating to the marking, construction and cleanliness of milk churns, were complied with.

During the year 14 notices were sent to farmers outside the city drawing their attention to defects in milk churns. In every case the defects were remedied.

The Licensing of Places for Keeping Cattle.

(*Liverpool Corporation Act*, 1921.)

Under Sections 475 to 483 of the Liverpool Corporation Act, 1921, every person who keeps cattle shall be required to hold a license from the Corporation both in respect of himself and also in respect of the premises. On the licence shall be specified the number and description of the animals. The expression "cattle" includes bulls, cows, heifers, oxen, calves, rams, sheep, wethers, ewes, lambs, swine and goats and all other ruminating animals. The Corporation is required to keep a register of the licences granted, in which are entered particulars of the premises and the cattle.

In Table XIV is a summary of the register of licences in respect of cows.

TABLE XIV.

REGISTRATION OF PREMISES ON WHICH COWS ARE KEPT.

	End of 1932.	End of 1933.
Number of licensed cowsheds...	275	272
Number of cows specified on the licences	5,134	5,036
Approximate average number of cows kept ...	3,730	3,500

During the year there were 4 new licences to keep cows applied for, involving the keeping of 59 cows. All these applications were granted. Fifteen licences were transferred from one person to another. Applications from 4 licensees to keep additional stock, amounting in all to 14 cows, were granted.

A comparison of the numbers of licensed cowsheds during the years 1929-1933, together with the numbers of cows to which the licences referred, is given in Table XV.

TABLE XV.

A COMPARISON OF THE NUMBERS OF COWSHEDS AND COWS LICENSED DURING THE YEARS 1929-1933.

Year.	Number of licensed cowsheds.	Number of cows approved.
1929	282	4,916
1930	281	4,931
1931	276	4,878
1932	275	5,134
1933	272	5,036

During the year, 2,053 visits of inspection were paid to cowsheds. Twenty-one of the cowsheds visited were the subject of notices drawing the attention of the occupiers to contraventions of the Liverpool Corporation Act, 1921. All the notices were complied with, and no prosecutions were necessary nor was any license forfeited because premises were not properly kept.

A summary of the register of licences in respect of pigs is given in Table XVI.

TABLE XVI.

REGISTRATION OF PREMISES ON WHICH PIGS ARE KEPT.

	End of 1932.	End of 1933.
Number of licensed piggeries	133	130
Number of pigs specified on the licences	4,777	4,532
Approximate average number of pigs kept	3,229	3,000

During the year, two new licences to keep pigs were applied for involving the keeping of 40 pigs. Both applications were granted. Three licences were transferred from one person to another.

During the year, 490 visits of inspection to piggeries were made. Five piggeries visited were the subject of notices drawing the attention of the occupiers to contraventions of the Liverpool Corporation Act, 1921, and in every case the notice was complied with.

A comparison of the numbers of licensed piggeries during the years 1929-1933, together with the numbers of pigs to which the licences referred, is given in Table XVII.

TABLE XVII.

A COMPARISON OF THE NUMBERS OF PIGGERIES AND PIGS LICENSED DURING THE YEARS 1929-1933.

Year.	Number of licensed piggeries.	Number of pigs approved.
1929	139	4,945
1930	143	4,678
1931	131	4,543
1932	133	4,777
1933	130	4,532

The Daily Supply of Milk to Liverpool.

The milk requirements of Liverpool are satisfied partly by the milk produced by cows within the city and partly by milk brought into the city by road and by train. It is the growth of road transport which has led to increased difficulties in sampling on arrival and which is leading to the more widespread distribution of tuberculous infection owing to the use of exceedingly large containers.

The approximate daily quantities used in Liverpool in 1933 were as follows:—

TABLE XVIII.

DAILY SUPPLY OF MILK DURING 1933.

Produced from cows kept within the City.	Brought into the City by road.	Brought into the City by rail.
10,500 gallons	27,152 gallons	8,316 gallons

Total, 46,000 gallons approximately.

Graded Milk.

In Table XIX is given the number of producers and dealers in Liverpool who are licensed in accordance with the Milk (Special Designations) Order, 1923, either by the Ministry of Health or by the Local Authority, to produce or to sell a graded milk.

TABLE XIX.

PRODUCERS AND VENDORS OF GRADED MILK IN LIVERPOOL.

Nature of licence or licences.	Certified Milk.	Grade A (TT) Milk.	Grade A Milk.	Pasteurised Milk.
Producer only	0	1	1	0
Producer and Retail Vendor ...	1	1	17	1
Retail Vendor only	16	15	31	0

During the year the following changes in licence holders took place, namely, 14 new licences were issued to producer-retailers of Grade "A" milk, 2 new vendor's licences were issued for the sale of Certified Milk, 2 new vendor's licences were issued for the sale of Grade "A" (Tuberculin Tested) Milk and 3 new vendors' licences were issued for the sale of Grade "A" Milk. No licences were cancelled or surrendered.

The Daily Supply of Graded Milks.

The approximate daily supply of graded milk from sources within and without the city is given in Table XX.

TABLE XX.

DAILY SUPPLY OF GRADED MILKS.

Graded Milks produced in the City.	Gallons	Graded Milks produced outside the City.	Gallons
Certified	15	Certified	55
Grade A (T.T.)	480	Grade A (T.T.)	986
Grade A	392	Grade A	493
Pasteurised	1,000	Pasteurised	Nil
	1,887		1,534

Total daily graded milk supply — 3,421 gallons.

Ungraded Milk.

Ungraded milk may be divided into raw milk, heat-treated milk and sterilised milk. The following quantities from all sources are sold in Liverpool daily.

TABLE XXI.

APPROXIMATE DAILY SUPPLY FROM ALL SOURCES OF UNGRADED MILK IN GALLONS.

Raw Milk.	Heat-treated Milk.	Sterilised Milk.
20,734	16,315	5,498

THE CLEANLINESS OF MILK.

The bacterial content of milk is a measure of the cleanliness of production, handling and storage. During 1933, 135 samples of graded milk and 420 samples of ungraded milk produced in Liverpool were submitted to the City Bacteriologist for bacterial counts. The results are given in Tables XXII, XXIII, XXIV, below.

TABLE XXII.

BACTERIAL COUNTS IN SAMPLES OF CERTIFIED MILK.

Supplied by	No. of samples	Where taken	Number of bacteria per c.c.		Presence or absence of colon bacilli		
			Under 30,000	Over 30,000	Absent in 1 c.c.	Present in 1 c.c.	Present in $\frac{1}{10}$ c.c.
A	9	Wholesale Milk Depot...	9	0	5	3	1
B	6	Milkshop in City... ...	6	0	2	2	2
C	4	Milkshop in City... ...	2	2	2	1	1
Totals ...	19		17	2	9	6	4

The bacterial standard for certified milk laid down in the Milk (Special Designations) Order, 1923, is that the bacteria per c.c. shall not exceed 30,000, and that colon bacilli must be absent in $\frac{1}{10}$ c c. It will be observed that 17 samples out of 19 complied with the bacterial standard in respect of total count, but that 4 samples showed an excessive number of colon bacilli, indicative of manurial contamination.

Of the 17 samples with less than 30,000 organisms per c.c., 15 yielded a count of less than 5,000 organisms per c.c.

TABLE XXIII.

BACTERIAL COUNTS IN SAMPLES OF GRADE A (TUBERCULIN TESTED) MILK

olied y	Number of samples.	Where taken	No. of bacteria per c.c.		Presence or absence of colon bacilli.			
			Under 200,000	Over 200,000	Absent in 1 c.c.	Present in 1 c.c.	Present in $\frac{1}{10}$ c.c.	Present in $\frac{1}{100}$ c.c.
A	20	Hospitals and Institutions	14	6	10	3	3	4
A	12	Infant Welfare Centres ...	12	0	6	0	0	6
3	12	do.	12	0	9	3	0	0
)	12	do.	12	0	8	3	1	0
)	12	Hospitals and Institutions	12	0	8	3	0	1
2	12	do.	12	0	9	1	2	0
2	12	do.	12	0	8	4	0	0
3	12	Wholesale Milk Depot ...	10	2	5	5	0	2
H	12	Farm in City	12	0	10	1	1	0
ALS	116		108	8	73	23	7	13

The bacterial standard of Grade "A" (Tuberculin Tested) milk laid down in the Milk (Special Designations) Order, 1923, is that the bacteria per c.c. shall not exceed 200,000, and that colon bacilli must be absent in $\frac{1}{100}$ c.c It will be observed that 108 samples out of the 116 complied with the bacterial standard in respect of the total count,

but that 13 samples showed an excessive number of colon bacilli, indicative of manurial contamination.

Of the 108 samples with less than 200,000 organisms per c.c., 88 yielded a count of less than 30,000 organisms per c.c., which is the bacterial standard for Certified Milk, and 72 yielded a count of less than 10,000 organisms per c.c., a high standard of cleanliness.

TABLE XXIV.

BACTERIAL COUNTS IN SAMPLES OF UNGRADED AND UNTREATED MILK PRODUCED IN LIVERPOOL.

Month.	Number of samples	No. of bacteria per c.c.			Presence or absence of colon bacilli.				
		Under 30,000	30,000 to 200,000	200,000 and over	Absent in 1 c.c.	Present in			
						1 c.c.	$\frac{1}{10}$ c.c.	$\frac{1}{100}$ c.c.	$\frac{1}{1000}$ c.c.
January ...	27	11	13	3	13	4	3	3	4
February...	37	20	10	7	14	11	5	4	3
March ...	43	21	17	5	17	10	7	4	5
April ...	30	18	9	3	9	12	7	2	0
May ...	38	20	11	7	15	7	8	3	5
June ...	34	10	12	12	3	5	7	8	11
July ...	30	12	8	10	4	6	4	8	8
August ...	26	7	12	7	0	4	4	5	13
September	34	10	12	12	3	2	5	6	18
October ...	32	12	15	5	3	5	4	11	9
November	58	36	17	5	21	15	9	11	2
December	31	21	9	1	16	8	5	2	0
TOTAL...	420	198	145	77	118	89	68	67	78
Percentage ot total Samples	—	47·1	34·6	18·3	28·1	21·2	16·2	15·9	18·6

The samples of ungraded and untreated milk tabulated in Table XXIV were taken from milk produced in Liverpool by 218 cowkeepers. The milk is from cows milked at 6 a.m., and may have been kept on the counter of the milkshop for several hours before the sample is taken. During this time the milk measure may have been dipped into the milk a number of times as sales have taken place. In these circumstances the results described in Table XXIV create a very favourable impression as to the cleanliness of the milk produced within the city. It will be observed that of the total of 420 samples, 198 contained under 30,000 bacteria per c.c., the recognised bacterial standard for Certified Milk, and that 343 contained less than 200,000 bacteria per c.c., the standard for Grade "A" (Tuberculin Tested) Milk. Furthermore, 118 showed the absence of colon bacilli in 1 c.c., and a further 89 exhibited this organism only in so large a quantity of milk as 1 c.c., indicating remarkable freedom from manurial contamination. A very great improvement has been effected in clean milk production in Liverpool.

Ice Cream.

During the year, 5,484 visits of inspection were paid to the premises of 1,828 makers of ice-cream.

In April, 1933, a memorandum on sanitary and other requirements was issued to all makers and vendors of ice-cream. This memorandum is published in full in the Report for 1932.

During June, July and August, 68 samples of ice-cream were submitted to the City Bacteriologist for bacteriological examination. The results are given in Table XXV. It is noteworthy that in many cases the bacterial counts were very high.

TABLE XXV.

BACTERIAL COUNTS IN ICE CREAM.

1933 Month	Number of bacteria per c.c.					Presence of bacillus enteriditis sporogenes	Colon Bacilli						
							Absent in 1 c.c.	Present in					
	Over 10,000,000	Between 1,000,000 and 10,000,000	Between 100,000 and 1,000,000	Between 10,000 and 100,000	Under 10,000			1 c.c.	$\frac{1}{10}$ c.c.	$\frac{1}{100}$ c.c.	$\frac{1}{1000}$ c.c.	$\frac{1}{10000}$ c.c.	$\frac{1}{100000}$ c.c.
June ...	0	10	10	3	2	1	13	1	2	2	1	1	5
July ...	5	8	5	3	5	2	8	3	2	0	4	1	8
August ...	1	2	9	2	3	1	3	1	3	4	0	2	4
Totals	6 (8·8%)	20 (29·4%)	24 (35·3%)	8 (11·8%)	10 (14·7%)	4	24	5	7	6	5	4	17

TUBERCULOUS MILK.

The following propositions on the subject of bovine tuberculosis are well-authenticated and deserve to be widely known :—

(1) Raw milk, as at present distributed for human consumption, shows on an average the presence of living tubercle bacilli in some 6 to 7 per cent. of the specimens examined;

(2) About 2,000 children die annually from tuberculous infection of bovine origin, while many others suffer disabling and deforming illnesses;

(3) These disasters are due mainly, if not entirely, to the infection of the children through the milk supply;

(4) Pasteurisation properly performed, or failing this, the boiling of the milk, reduces the risk of tuberculosis and other milk-borne infections to the vanishing point.

It is evident, therefore, that the examination of milk for the presence of tubercle bacilli is a very important part of the work of a Health Department.

During the year 528 samples of milk produced within the City and 793 samples of milk sent into the City from outside areas were submitted for bacteriological examination for tubercle bacilli. The results are given in Tables XXVI (town milk) and Table XXVII (country milk). In the same tables comparable figures are given for 1925 and subsequent years.

TABLE XXVI.

THE EXAMINATION FOR TUBERCULOSIS OF MILK PRODUCED WITHIN THE CITY.

Year.	Number of bulk samples taken.	Tubercle bacilli present.	Percentage tuberculous.
1925	211	8	3·8
1926	234	13	5·6
1927	253	10	4·0
1928	258	8	3·1
1929	327	13	3·9
1930	332	14	4·2
1931	375	21	5·6
1932	373	14	3·7
1933	528	22	4·2

Of the 528 samples examined in 1933, 66 (including 11 graded milks) were of milk supplied under contract by farmers within the city to Corporation Hospitals and Institutions, and 32 were of graded milks on sale to the public. None of these was found to be tuberculous.

Deducting from the 528 samples taken the samples of graded milks as well as those of milk supplied from farms kept under close supervision for hospital supply purposes, 430 samples of raw milk untreated by heat produced and sold within the city yielded 22 specimens which were tuberculous, a rate of 5·1 per cent. This compares favourably with country milk (see below) and is lower than the accepted figure for the country as a whole, namely, 6 to 7 per cent.

TABLE XXVII.

THE EXAMINATION FOR TUBERCULOSIS OF MILK PRODUCED IN AREAS OUTSIDE THE CITY.

Year.	Number of bulk samples taken.	Tubercle bacilli present.	Percentage tuberculous.	Farms affected.
1925	482	36	7·5	29
1926	449	34	7·6	36
1927	523	24	4·6	21
1928	488	34	7·0	22
1929	596	26	4·4	23
1930	673	36	5·3	32
1931	746	30	4·0	29
1932	794	34	4·3	30
1933	793	39	4·9	37

Of the 793 samples examined in 1933, 161 were samples of graded milks, of which 3 proved to be tuberculous. The grades were : one Certified, one Grade " A " (T.T.) and one Grade " A."

In addition, 58 of the samples were of milk which, after being brought into the city, was treated by heat and bottled. The samples were tubercle free.

Deducting from the 793 samples taken, the 161 graded milk samples (which yielded 3 tuberculous specimens) and the 58 heat-treated milk samples, 574 samples of country milk yielded 36 specimens which were tuberculous, a rate of 6·3 per cent., a figure which is about the same as that generally accepted for the country as a whole, namely, 6 to 7 per cent. As already remarked, this rate is higher than that in Liverpool-produced milk, namely, 5·1 per cent.

As the proportion of country milk to town milk sold in Liverpool is 3·6 to 1, the proportion of raw milk from all sources on sale which is tuberculous is 6 per cent. This is a measure of the risk of infection with bovine tuberculosis to which the Liverpool public is exposed.

DISEASES OF CATTLE AND THE MILK SUPPLY.

The statistical information and observations in the paragraphs that follow have been kindly supplied by the Chief Veterinary Officer.

Anthrax and Foot-and-Mouth Disease.

No case of anthrax or foot-and-mouth disease has occurred within the City during 1933.

Tuberculosis occurring in Cows within the City.

There are in Liverpool approximately 3,500 cows in milk. Details of the veterinary examinations of these cows, together with similar figures for the previous five years, are given in Table XXVIII.

TABLE XXVIII.

THE VETERINARY EXAMINATION OF COWS IN LIVERPOOL COWSHEDS.

Year.	Visits to cases notified by owners.	Routine and other visits.	Total visits.	Samples of milk from suspected town cows examined microscopically.	Cows examined.	Cows with tuberculosis of the udder, or giving tuberculous milk.
1928	54	796	850	68	10,613	25
1929	55	904	959	66	12,105	25
1930	34	879	913	123	11,463	20
1931	52	779	831	131	10,201	35
1932	83	484	567	134	7,636	27
1933	54	526	580	169	7,718	28

Nine of these tuberculous cows were discovered during routine clinical examinations, 9 as the result of reports from owners and 10 were traced as the result of the discovery of the tuberculous milk which they yielded.

The 7,718 veterinary examinations mentioned in Table XXVIII represent approximately two examinations per cow per annum. It would be an additional safeguard against undiscovered tuberculosis if each cow were examined 4 times a year.

The number of routine Sanitary Inspectors' visits paid to cowsheds was 1,498, of which 37 were special visits to supervise the disinfection of premises from which diseased cattle had been removed.

Tuberculosis occurring in Cows outside the City.

Tuberculous milk coming into Liverpool from an outside area is reported to the Medical Officer of Health of the place of origin, whose duty it is to arrange for a suitable investigation. It is the practice of the Chief Veterinary Officer to be present at the first examinations of the suspected herds. During 1933, 38 such visits of inspection were made.

During the year, tuberculous milk was sent into Liverpool from Cheshire, Denbighshire, Flintshire, Lancashire and Shropshire. In Table XXIX is given a description of the action taken as the result of the discovery of tuberculous milk coming from these areas. In those cases where no cow was detected with a tuberculous udder, the contamination had either ceased or the affected cow had been sold for slaughter. In all cases the infection was proved to have been eliminated.

TABLE XXIX.

TUBERCULOUS MILK SENT INTO LIVERPOOL.

County of origin.	Number of farms to which tuberculous milk was traced.	Number of cows examined and re-examined.	Number of cows destroyed with tuberculous disease of the udder.*	Instances in which no tuberculous udder was discovered.
Cheshire	21	723	15	6
Denbighshire	4	183	8	1
Flintshire ...	3	57	2	1
Lancashire ...	7	410	4	3
Shropshire ...	3	137	3	1
TOTALS ...	38	1,510	32	12

* In some cases more than one diseased animal was discovered on a farm.

So far as is known, Cheshire is the only county among those mentioned in Table XXIX which possesses a whole-time veterinary staff whose duty it is to examine regularly milk-producing cattle. It is greatly to be hoped that the other county authorities will follow suit at an early date. At the present time the people of Liverpool are unduly exposed to the risk of infection with bovine tuberculosis from milk entering the city from outside.

The Milk Supply of Corporation Institutions.

The Port Sanitary and Hospitals Committee purchases approximately 472 gallons of Grade "A" (Tuberculin Tested) milk and 1,079 gallons of ordinary milk per day. The former is used for drinking and the latter for culinary purposes. The Health Committee takes 460 gallons of Grade "A" (Tuberculin Tested) milk per day for Infant Welfare purposes.

The Grade "A" (Tuberculin Tested) Milk supplied was found to be tuberculous on one occasion. The source of this infection was not discovered.

The non-graded milk supply was found to be tuberculous on 7 occasions. One cow suffering from tuberculous disease of the udder was detected, and in three other cases a diseased animal had already been removed from the herd.

When the milk contracts are made, each firm tendering is required to submit the addresses of the farms from which it is intended to draw supplies. The eighteen firms tendering during 1933 submitted a list of 41 farms situated in Lancashire, Cheshire, Denbighshire and Shropshire. These farms were all visited and 1,725 cows were examined. Thirty-three of the farms were found to be satisfactory and eight were not.

The farms which supply successful contractors are visited about once a quarter. The 30 farms supplying milk were visited thus on 99 occasions, and 5,460 examinations of cows were carried out. In addition to these routine visits, 126 visits were paid to farms for the purpose of testing 752 animals with tuberculin.

The Tuberculosis Order of 1925.

Under the Tuberculosis Order of 1925 certain forms of bovine tuberculosis are notifiable by owners and by veterinary surgeons.

This Order aims at the destruction of cows suffering from tuberculosis in a form that is a source of danger to human beings and to other animals.

Owners are compensated for cattle which are slaughtered, the scale being three-quarters of the market value when the disease on *post-mortem* examination is found to be "not advanced," and one-quarter when the disease is "advanced," as defined in the Order.

The Ministry of Agriculture and Fisheries bears the cost of 75 per cent. of the compensation payments and the Local Authority pays the remainder. In most cases the payment by the Local Authority is counter-balanced by the amount received for salvage, so much so that, except in 1932, there has been a yearly credit balance to the city since the introduction of the Order.

In Table XXX are given the number of animals dealt with during 1932 and 1933 and the nature and degree of disease from which they suffered.

TABLE XXX.

SLAUGHTER OF CATTLE SUFFERING FROM TUBERCULOSIS.

Year.	Total number of animals examined.	Number slaughtered.	Classification of the Disease.				Result of Post-mortem examination.	
			Tuberculous disease of the udder.	Giving tuberculous milk.	Tuberculous emaciation.	Chronic cough and definite signs of tuberculosis.	Advanced disease.	Disease not advanced.
1932	1,136	66	22	4	7	33	53	13
1933	1,037	53	26	2	5	20	44	9

The total market value of the animals slaughtered was £458 0s. 0d.

The amount paid in compensation and recovered from the Ministry of Agriculture and Fisheries as well as from the sale of carcases is given below:—

	£	s.	d.		£	s.	d.
Compensation refunded by the Ministry of Agriculture	151	6	3	Compensation paid to owners	202	14	9
Amount recovered by sale of carcases	82	12	3	Credit balance	31	3	9
	£233	18	6		£233	18	6

THE ADULTERATION OF FOOD AND DRUGS.

The adulteration of food (including milk) and drugs is discovered by sampling followed by chemical analysis. The procedure adopted is that described in the Food and Drugs (Adulteration) Act, 1928. The addition of preservatives to food is now forbidden except in the case of foods mentioned and in respect of the preservatives specified in the Public Health (Preservatives, etc., in Food) Regulations.

During the year a total of 8,307 samples of food and drugs was purchased or taken and submitted for examination. Of these samples 5,002 were formal samples and 3,305 were informal samples.* The results are summarised in Table XXXI.

* An "informal" sample is one purchased without intimation to the vendor that it is to be analysed. Valuable information as to sources of fraud may sometimes be obtained in this way. Prosecution for adulteration cannot be undertaken, however, until a "formal" sample has been taken subsequently in accordance with the procedure described in The Food and Drugs (Adulteration) Act, 1928.

TABLE XXXI.

SUMMARY OF OFFENCES UNDER THE FOOD AND DRUGS (ADULTERATION) ACT, 1928, DURING THE YEAR 1933.

Informal Samples.				Nature of Sample.	Formal Samples.					
Number of samples taken.	Number found genuine.	Number adulterated.			Number of samples taken.	Number found genuine.	Number adulterated.		Number of vendors cautioned.	Informations laid.
		Seriously.	Slightly.				Seriously.	Slightly.		
—	—	—	—	Arrowroot...	18	18	—	—	—	—
7	7	—	—	Baking Powder	6	6	—	—	—	—
4	4	—	—	Barley	160	156	4	—	4	—
52	52	—	—	Beer and Stout	—	—	—	—	—	—
28	28	—	—	Bread	—	—	—	—	—	—
171	171	—	—	Butter	570	570	—	—	—	—
7	7	—	—	Cake and Flour Mixtures ...	3	3	—	—	—	—
43	43	—	—	Cheese and Wrapped Cheese ...	33	33	—	—	—	—
13	13	—	—	Cocoa and Mixtures	46	46	—	—	—	—
50	40	10	—	Condensed Milk	—	—	—	—	—	—
6	6	—	—	Coffee and Mixtures	73	73	—	—	—	—
118	118	—	—	Confectionery	1	1	—	—	—	—
14	14	—	—	Cake and Biscuits	—	—	—	—	—	—
38	38	—	—	Condiments and Spices	103	101	1	1	1	—

Informal Samples.				Nature of Sample.	Formal Samples.					
Number of Samples taken.	Number found genuine.	Number adulterated.			Number of Samples taken.	Number found genuine.	Number adulterated.		Number of Vendors cautioned.	Informations laid.
		Seriously.	Slightly.				Seriously.	Slightly.		
11	11	—	—	Corn Flour	23	23	—	—	—	—
10	10	—	—	Cream of Tartar	21	20	1	—	1	—
42	42	—	—	Cream and Tinned Cream ...	1	1	—	—	—	—
30	30	—	—	Custard Powder	6	6	—	—	—	—
12	12	—	—	Dripping and Compounds ...	12	12	—	—	—	—
24	24	—	—	Dried Fruits	100	99	1	—	1	—
99	98	1	—	Drugs	4	3	1	—	1	—
15	15	—	—	Egg Substitute Powder	—	—	—	—	—	—
20	20	—	—	Flour	40	40	—	—	—	—
2	2	—	—	Ground Almonds	11	11	—	—	—	—
13	12	1	—	Honey	—	—	—	—	1	—
86	83	2	1	Jams, Jellies and Marmalade ...	12	10	2	—	4	—
31	31	—	—	Lard	87	87	—	—	—	—
32	32	—	—	Lemon Cheese and Curd ...	—	—	—	—	—	—
144	144	—	—	Margarine	14	14	—	—	—	—
1712	1666	27	19	Milk	2674	2487	120	67	33	62

SUMMARY OF SAMPLES, &c.—*continued.*

Informal Samples.				Nature of Sample.	Formal Samples.					
Number of Samples taken.	Number found genuine.	Number adulterated.			Number of Samples taken.	Number found genuine.	Number adulterated.		Number of Vendors cautioned.	Informations laid.
		Seriously.	Slightly.				Seriously.	Slightly.		
12	11	1	—	Oatmeal and Preparations ...	46	46	—	—	1	—
11	11	—	—	Olive Oil	4	4	—	—	—	—
8	8	—	—	Rice and Ground Rice	272	248	—	24	—	—
17	17	—	—	Self Raising Flour	137	137	—	—	—	—
—	—	—	—	Sugar	125	125	—	—	—	—
11	11	—	—	Syrup and Treacle	—	—	—	—	—	—
2	2	—	—	Tapioca	—	—	—	—	—	—
—	—	—	—	Temperance Beverages	105	105	—	—	—	—
10	9	—	1	Tinned and Potted Meats ...	2	2	—	—	—	—
34	26	4	4	Tinned and Potted Fish... ...	1	1	—	—	4	—
28	22	1	5	Tinned Fruits	—	—	—	—	1	—
15	15	—	—	Vinegar	1	1	—	—	—	—
9	8	1	—	Wines and Spirits	13	11	2	—	—	2
314	301	13	—	Miscellaneous	278	273	4	1	14	—

Milk was the food material which accounted for the greatest number of samples, namely, 4,386. All the milk samples were examined for added water, fat deficiency, added colouring matter and added preservative. The results of the legal proceedings taken are given in Table XXXIII below. In no milk sample was any added preservative found.

In Table XXXII is an analysis of where and when milk samples were taken, together with the number of subsequent prosecutions.

TABLE XXXII.

MILK SAMPLES.

Where the samples were taken or purchased.	NUMBER OF SAMPLES TAKEN ON			
	Weekdays.	Subsequent Prosecutions.	Sundays.	Subsequent Prosecutions.
City Milkshops	1,640	33	297	11
Wholesale Milk Depots	552	5	20	—
Railway Stations	325	13	18	—
Hospitals and Public Assistance Institutions	1,173	—	—	—
Infant Welfare Centres and Day Nurseries	361	—	—	—

In the course of the collection of samples enumerated in Table XXXI, 4,620 visits were paid to shops, 179 visits to premises of wholesale dealers in margarine, and 1,493 visits to other places.

In Table XXXIII is a summary of the prosecutions during 1933 for offences under the Food and Drugs (Adulteration) Act, 1928, together with the fines inflicted and the costs recovered.

TABLE XXXIII.

OFFENCES UNDER THE FOOD AND DRUGS (ADULTERATION) ACT, 1928.

No. of informations laid.	Nature of Sample.	Nature of Offence.	Result of Legal Proceedings.				
			No. of convictions.	Withdrawn on payment of costs.	Withdrawn and dismissed without costs.	Fines.	Costs.
						£ s. d.	£ s. d.
30	Milk	Addition of Water	29	—	1	17 0 0	34 2 6
24	,, ...	Deficient in Milk Fat	23	—	1	15 10 0	23 2 0
8	,, ...	Coloured with Annatto	7	—	1	8 0 0	7 7 0
1	Whiskey	Excess of Water (18·5)	1	—	—	10 0 0	1 6 0
1	Rum	Excess of Water (10·6%)	1	—	—	10 0 0	1 1 0
64			61	—	3	60 10 0	66 18 6

Fertilizers and Feeding Stuffs.

During 1933, 142 samples of fertilisers and feeding stuffs were submitted for analysis. It was necessary to take legal proceedings in one case only, namely, Sussex Oats, adulterated with 40 per cent. of barley meal, resulting in a conviction with payment of costs.

Poisons and Pharmacy Act, 1908, Section 2.

Section 2 of this Act regulates the sale of certain poisonous substances, for example, sheep dips and weed killers, used for agricultural and horticultural purposes. Vendors of these materials must be licensed by the Local Authority.

During 1933 the number of licences issued was 21.

REPORT OF THE CITY BACTERIOLOGIST, 1933.

During the year 1933, 57,115 specimens were examined for the Public Health, Port Sanitary, and Water Departments, as compared with 56,665 specimens for the year 1932.

These specimens may be grouped as follows :—

1. **Milk and other foodstuffs.**
2. **Water.**
3. **Rats, etc., for possible infection with the bacillus of plague.**
4. **Material from infectious diseases in man—diphtheria, vincent's angina, typhoid fever, tuberculosis, etc.**
5. **Venereal diseases.**
6. **Material from animals with suspected infection.**
7. **Other specimens.**

The following samples have been examined :—

Milk and other Foodstuffs.

(I) Fresh milks—		
City Hospitals and other institutions	402	
Maternity and Child Welfare institutions	36	
Milk shops, railway stations, etc.	1,005	
		1,443
(II) Tinned milks		23
(III) Other foodstuffs, shell fish, tinned and potted meats, etc.... ...		98
		1,564

(I) Fresh Milk—*City Hospitals and other Institutions.*—Of the 402 samples examined, 173 showed no evidence of B. coli in 1 c.c., 23 contained B. enteritidis sporogenes in 10 c.cs., and B. tuberculosis was found in 21 samples. A bacterial count was done in 399 samples.

Maternity and Child Welfare Institutions.—Of the 36 samples examined, 25 shewed no evidence of B. coli in 1 c.c., and none contained B. enteritidis sporogenes in 10 c.cs. A bacterial count was done in each sample.

Milk Shops, Railway Stations, etc.—Of the 1,005 samples examined, 263 shewed no evidence of B. coli in 1 c.c., 91 contained B. enteritidis sporogenes in 10 c.cs., and B. tuberculosis was found in 62 samples. A bacterial count was done in 541 samples.

Thus, in 1,443 samples of milk, 83 were found to be infected with B. tuberculosis. This, at first sight, appears to be a large proportion, but many of the samples were in duplicate or triplicate, and it is impossible to draw any conclusions from these figures as to the percentage of tuberculosis in the milk supply of the city.

(II) Tinned milks.—Of the 23 samples of tinned milk and tinned cream examined, 5 were sterile and the remainder shewed no organisms of the food-poisoning group.

(III) Other foodstuffs.—There were 98 samples of other foodstuffs examined, as follows:—

(*a*)	Tinned and potted meats, etc.	8
(*b*)	Shell-fish	19
(*c*)	Ice-Cream	68
(*d*)	Miscellaneous	3

None of these samples call for any special comment.

Water.

There were 601 samples of water examined, viz.:—

Daily samples		555
Monthly samples—		
Prescot: Vyrnwy...	12	
Prescot: Rivington	12	
George Holt Well	10	
John Holmes Well	8	
Dudlow Lane	4	
	—	46
		601

The water throughout the year, whether from the wells or from Prescot, was, from a bacteriological standpoint, satisfactory.

Rats.

During the year 3,361 rats from warehouses, etc., within the city were examined, and no evidence of the bacillus of plague was found in any of them.

Material from Infectious Diseases in Man.

(*a*) Swabs from suspected cases of diphtheria :—

	Positive.	Doubtful.	Negative.	Total.
City hospitals...	2,905	7	25,929	28,841
Maternity and Child Welfare institutions...	3	1	629	533
Private practitioners, etc.	479	7	3,657	4,143
	3,387	15	30,215	33,617

(*b*) Swabs from suspected cases of Vincent's angina :—

City hospitals...	8	—	24	32
Private practitioners	25	—	55	80
	33	—	79	112

(*c*) Blood from suspected cases of typhoid fever, undulant fever, dysentery and food-poisoning, etc. :—

	Positive.	Doubtful.	Negative.	Total.
City hospitals...	55	—	88	143
Private practitioners	5	—	17	22
	60	—	105	165

(*d*) Urine and faeces, etc., from suspected cases of typhoid fever, dysentery and food-poisoning :—

City hospitals...	26	—	244	270
Private practitioners	1	—	9	10
	27	—	253	280

(*e*) Sputa, etc., from suspected cases of tuberculosis :—

City hospitals...	50	—	185	235
Maternity and Child Welfare institutions...	11	—	19	30
Private Practitioners, etc.	272	—	1,242	1,514
	333	—	1,446	1,779

(*f*) Anthrax Infection.

13 specimens of tissues, swabs, etc., were examined, chiefly for the city hospitals, but no evidence of anthrax infection was found in any.

(*g*) Vaccines.

7 vaccines were prepared from specimens sent from the city hospitals.

(*h*) Miscellaneous.

402 specimens of tissues, secretions, fluids and other specimens were examined, chiefly for the city hospitals, and the Maternity and Child Welfare institutions.

4 samples of disinfectant and 5 samples of water from the Baths and Washhouses Department were examined, but none call for any special comment.

A sample of flour was examined from a public institution, and evidence of the presence of ropiness was proved.

Venereal Diseases.

The following specimens have been examined from persons known, or suspected, to be suffering from venereal diseases :—

CLINICS.

	Positive.	Doubtful.	Negative.	TOTAL.
Wassermann reactions	644	129	3,788	4,561
For gonococci	117	—	725	842
For spirochaetes	3	—	7	10
	764	129	4,520	5,413

HOSPITALS, PRIVATE PRACTITIONERS, ETC.

	Positive.	Doubtful.	Negative.	TOTAL.
Wassermann reactions	974	164	4,431	5,569
For gonococci	110	5	435	550
For spirochaetes	1	—	2	3
Still-born infants	6	3	205	214
For ophthalmia neonatorum	7	—	43	50
	1,098	172	5,116	6,386
GRAND TOTALS	1,862	301	9,636	11,799

As the majority of these specimens were sent from patients suspected to be suffering from venereal diseases, or undergoing treatment, several specimens of blood may have been sent from one case at different times, and therefore no percentage as to positive and negative results can be obtained from these figures.

Six of the still-born infants examined shewed positive evidence of syphilis.

The cases of ophthalmia neonatorum shewing positive evidence of gonococci amount to 14 per cent.

Material from Animals with Suspected Infection.

For tuberculous infection: 8 specimens of tissues, etc., were examined, but all proved negative.

For Anthrax Infection: There were 3 samples of shaving brushes, etc., examined, and no evidence of anthrax infection was found in any sample.

One specimen of animal material was examined for food-poisoning, but it proved negative.

Port Sanitary Authority.

During the year 70 samples of treated and untreated wool, hair, etc., were examined for the Government Wool Disinfecting Station, and 7 untreated samples shewed positive evidence of anthrax infection.

Rats: There were 3,320 rats examined from ships, quays, etc., but no evidence of plague infection was found in any.

Two swabs were examined for diphtheria, and proved negative.

One sample of frozen meat was examined, but does not call for any special comment.

Comparative Summary of Examinations for 1932 and 1933.

Description of Specimens	1932	1933
Milk and other food-stuffs	1,421	1,564
Waters	641	601
Rats, etc.	6,358	6,681
Material from infectious diseases in man :—		
Swabs for diphtheria	34,089	33,619
Swabs for Vincent's angina	99	112
Blood for typhoid fever, etc.	144	165
Urine and faeces for typhoid fever, etc.	308	280
Sputa, etc., for tuberculosis	1,884	1,779
Anthrax infection	24	13
Vaccines...	3	7
Miscellaneous	657	402
Venereal diseases	10,936	11,799
Material from animals with suspected infection :—		
Tissues, etc., for tuberculous infection	8	8
Hair, shaving brushes, etc., for anthrax infection	75	73
Animal material for Br. abortus	2	—
,, ,, ,, food-poisoning	—	1
,, ,, ,, dysentery	—	—
Other specimens...	16	11
TOTALS	56,665	57,115

HOUSING

HOUSING.

Removal of Insanitary Property.

The following summary gives the number of houses which have been dealt with from the year 1865 to 1933 inclusive :—

Date	Powers	Approximate number of houses dealt with
1865 to 1904	The Liverpool Sanitary Amendment Act, 1864.	6,300
1905 to 1933	Housing Acts.	
	(a) Unhealthy Areas (25)...	3,798
1906	(b) As the result of a circular letter directing the owner's attention to the insanitary condition of the property	1,020
1906 to 1933	(c) Closing Orders	2,054
	(d) Demolition Orders	225

Unhealthy Areas dealt with.

Date of Representation.	Area.	Population.	Houses.	Dwellings erected.
July, 1901	Hornby Street	2,431	534	455
,, 1901	Upper Mann Street	743	176	88
Sept. 1906	Burlington Street	607	144	114
Mar. 1907	Beau Street	532	128	...
,, 1907	Bevington Street	1,154	295	224
,, 1907	Holly Street	563	124	78
,, 1907	Frank Street	627	127	68
,, 1907	Grafton Street	304	70	60
Aug., 1907	Saltney Street	88	68	48
June, 1912	Prince Edwin Street	737	187	60
,, 1912	Rathbone Street	445	128	...
,, 1912	Mason Street	301	107	28
	Carried forward ...	8,532	2,088	1,223

Unhealthy Areas dealt with.—*continued.*

Date of Representation.	Area.	Population.	Houses.	Dwellings erected.
	Brought forward ...	8,532	2,088	1,223
June 1912	Saltney Street	415	93	48
„ 1912	Blenheim Street	230	48	18
„ 1912	Penrhyn Street	488	116	26
„ 1912	Gore Street	78	76	24
„ 1912	Sparling Street	153	33	16
„ 1912	Jordan Street	...	...	31
June, 1922	Burlington Street	1,407	307	159
„ 1922	Hopwood Street	343	52	30
Jan., 1923	Great Richmond Street ...	148	35	21
„ 1923	Rankin Street	476	96	46
Dec., 1925	Pitt Street	92	22	48
Jan., 1928	Queen Anne Street	2,876	434	44
Dec., 1929	Gerard Street	3,430	398	...
	TOTAL ...	18,668	3,798	1,734

Since operations were commenced under Section 19, Housing Act, 1930, the Medical Officer of Health has submitted 437 houses to the Housing Committee which, in his opinion, were unfit for human habitation, and the position in respect to these houses is as follows :—

	No. of Houses
Demolition Orders made	201
Undertaking given not to use for human habitation.	60
Plans submitted in respect of re-construction ...	173
Number adjourned	3

SLUM CLEARANCE.

Following is the Report of the Medical Officer of Health, submitted to the City Council, 6th September, 1933, relating to Slum Clearance, in accordance with the Ministry of Health's Circular No. 1331 :—

CITY OF LIVERPOOL.

Housing Act, 1930.
Ministry of Health Circular 1331.
Slum Clearance.

Report of the Medical Officer of Health.

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1. As instructed by the Housing Committee, the Medical Officer of Health begs to submit herewith a report on the amount and extent of slums and insanitary houses within the city, in regard to which an investigation has recently been undertaken by the Inspectors of the Public Health Department.

2. Before presenting the information obtained as a result of this investigation, it may be of interest to mention some relevant facts in regard to the genesis of the slum problem in Liverpool during the 19th century. That century was a period of unexampled growth in the size and importance of the city, both commercially and industrially, coinciding, as it did, with the establishment of the cotton industry in Lancashire on a large scale basis. The population of the city, therefore, increased at a rapid rate. At the census in 1801 it was 77,653, whereas in 1901 it had reached 686,332, and at the 1931 census it was 855,688.

This rapid increase of population within a relatively limited period of time, together with the absence of control over the erection of houses, were the main factors in the causation of acute housing problems during several generations, giving rise to appalling overcrowding and to rapid wear and tear in houses so congested. Further, absence of adequate transport facilities rendered inevitable the congestions of dwellings on limited site of land, and thus arose systems of narrow courts in the central areas of the city which, until recent years, have been the cause of so much mortality and morbidity in the families of the unfortunate people who were forced by economic circumstances to live in such localities. During the period under discussion, public attention was constantly being directed to the bad effects upon health as the result of overcrowding, unsatisfactory housing conditions, dampness and insufficient sanitary accommodation, and as far back as 1845 public meetings were held fortnightly, under the auspices of the Committee of the Liverpool Health of Towns Association; the monthly publications of this Association are still available for reference.

3. It is interesting to find that the working classes were so interested that on one occasion 2,000 operatives signed a requisition inviting a special lecturer to their meetings in Liverpool.

The Liverpool City Council, urged by the force of public opinion and the dread of disease, obtained special powers, in an Act of 1846, prohibiting the erection of dwelling-houses in courts less than 15 feet wide, also regulating the height of houses in courts, and by a further Act of 1854 all new streets were not to be less than 30 feet in width, and the height of houses not to exceed the width of the street. As the result of further legislation, in 1864, the construction of the court houses practically came to an end. In 1864 the first bye-law was adopted providing for open space at the rear or side of every new dwelling-house, and this bye-law also provided for a minimum distance across such open space, which varied from 10 feet to 25 feet according to the height of the dwelling-house.

Unfortunately, the building bye-laws could only apply to newly constructed houses, and they left the houses built during the preceding fifty years, most of which did not possess damp-proof courses and were deficient in respect of ventilation and air-space, and were in bad sanitary condition generally, either as slums or rapidly passing into that category.

Careful attention has, therefore, been paid, in the investigation of housing properties in Liverpool, into all houses constructed before the issue of the first bye-law in 1864. It may also be said that houses of the cottage type which are between 80 and 100 years old have been found to be in an extremely bad state of repair, and in most cases are obviously worn out. Such are very numerous in that portion of the city coloured *yellow* on the map of the city which accompanies this report, and extends from the city boundary on the north side to Harlow Street on the south side, with Heyworth Street and Everton Road on the east side. That portion of the city known to the Committee as the "Central Area" lies within these boundaries.

The old maps of the city indicate that some of the houses referred to in this report existed in 1823, and also show that heavily built-up areas then existed as far as Eldon Street, Soho Street, Boundary Place, and extending to Parliament Street.

The greater number of such houses are still standing, although many indicated in these maps have been demolished for industrial and commercial purposes, street widenings, or under the operation of the various Housing Acts. Such as remain, however, are, with few exceptions, insanitary and will require to be dealt with.

4. Nowhere in the Housing Acts is the term "slum" precisely defined, but it is evidently intended in the Housing Act, 1930, that a slum should be regarded as an aggregation of insanitary houses such as would constitute an unhealthy area which might be dealt with by the local authority as a "Clearance Area," or, in certain circumstances, as an "Improvement Area."

The criteria which require consideration are—(i) dwelling-houses which by reason of disrepair or sanitary defects are unfit for human habitation, and (ii) bad arrangement of the houses themselves, or narrowness or bad arrangement of the streets, and in consequence danger or injury to the health of the inhabitants arises.

In the usual case there will be found both insanitary property and congestion and bad arrangement in the same area, but blocks of property in such a state of disrepair or presenting so many serious sanitary defects as to be dangerous or injurious to the health of the inhabitants may be found without bad arrangement of the streets, and such property would properly be dealt with.

5. The criteria for determining an insanitary house are laid down, both in the Ministry's Manual of Unfit Houses and Unhealthy Areas, 1919, and also in the Housing Act, 1930; and such tests have been applied in the determination of the fitness or unfitness of houses for the present report. Section 62 of the Housing Act, 1930, defines the term "sanitary defects" as follows:—

> "The expression sanitary defects includes lack of air-space or "of ventilation, darkness, dampness, absence of adequate and "readily accessible water supply or sanitary accommodation or of "other conveniences, and inadequate paving or drainage of courts, "yards or passages."

6. It will be observed that the interpretation of the term "sanitary defects" is very broad, yet such a standpoint is necessary when deciding the fitness or unfitness of any individual house. With regard to the question of dampness, when inspecting houses due regard is given to the extent and degree of dampness, also the duration and cause of the dampness. Houses in Liverpool are of many different types, built at different periods, and in widely varying stages of repair or disrepair. Many small houses are arranged in rows, possess adequate air-space front and rear, the rear space abutting on to a passage-way ranging from three feet to nine feet in width. These houses have been erected within the last fifty years, and are to be found in the Walton, West

Derby, Wavertree, and Toxteth districts. Others, such as are found between Great Homer Street and Netherfield Road, are of an earlier type, and possess smaller yards abutting on a very narrow passage (three feet), so that the amount of air-space between them and the backs of corresponding houses in the street behind is definitely restricted. Granted an adequate state of repair in individual units, such houses, while not up to modern requirements, appear to be too good to be condemned at the present time. Many houses in the city possess through ventilation on the ground floor only, and a small proportion of such houses, in satisfactory general repair, could be reconditioned. Others of this type, certainly the majority, cannot be rendered satisfactory at any reasonable expense. Several hundred houses which have been inspected are of the terrace type, and really consist of a flat below and above, access to the upper floor being by a terrace approached by steps from either end of the block of buildings. These houses are of a bad type, being dark, badly ventilated and without yard space. There is little to be said for this kind of house, and they are included in the list for demolition.

7. The great majority of the unfit houses can be dealt with in areas, mainly as Clearance Areas, but in certain cases as Improvement Areas. The number of possible Improvement Areas is, however, small.

Scattered throughout the city are numbers of individual insanitary houses which should be dealt with under Section 19 of the Housing Act, 1930.

There are, fortunately, comparatively few narrow courts remaining, although at one time there were many; but the efforts of the City Council during the last fifty years have practically done away with this most undesirable type of property. There remain a number of wide courts with entrances of 15 to 20 feet. Actually the condition, as regards repair, of such houses is almost always very bad, and appropriate action will be necessary in practically every case.

The following summary indicates the number of houses which have been dealt with from the year 1865 to 1932, inclusive :—

Date.	Powers.	Approx. No. of houses dealt with.
1865 to 1904	The Liverpool Sanitary Amendment Act, 1864.....	6,300
1905 to 1932	Housing Acts: (a) Unhealthy Areas (25)	3,798
	(b) As the result of a circular letter directing the owners' attention to the insanitary condition of the property	1,020
1906 to 1932	(c) Closing Orders	2,046
	(d) Demolition Orders	122
	TOTAL	13,286

Result of Survey.

8. The result of the survey is indicated to the Committee on the ordnance sheets which accompany the present report. That portion of Liverpool coloured *yellow* on the accompanying map of the City indicates the localities where the worst types of unhealthy dwellings, coming within the scope of Circular 1331, are to be found. For the further assistance of the Committee, the Medical Officer has divided the portion coloured *yellow* on the map of the city into sections, and has indicated on ordnance sheets 1/2,500 the dwelling-houses, existing in either areas or individually, which in his opinion are unfit for human habitation, and ought to be demolished.

The unhealthy areas may be considered under three headings:—

"A." Unhealthy dwelling-houses previously scheduled, but not finally disposed of Coloured BLUE.

Area.	No. of Houses.
Saltney Street	44
Blenheim Street	49
Burlington Street	116
Rathbone Street	5
Queen Anne Street	434
Gerard Street	398
TOTAL ...	1,046

The usual Order of the Ministry has been made in respect to the above areas, and the work of demolition and erection of tenements has been commenced in the Burlington Street and Queen Anne Street Areas. Regarding the remaining four areas, a number of the houses are still occupied, and tenements are being erected in Trowbridge Street and Blackstock Street which will be used as decanting blocks.

"B." Unhealthy areas previously scheduled, but have not reached the stage of being subject to Ministry inquiry ; coloured RED with Deep BLACK Outline.

Area.	No. of Houses.
Bancroft Street...	82*
Comus Street	71*
Lawrence Street	65
Leeds Street	34
Mount Vernon View	56
Roscoe Lane	98*
Slade Street	104
Whitley Street	118*
Quarry Street, Woolton	80
TOTAL ...	708

The boundaries of the areas marked thus (*) will now be extended so as to include houses not included when the area was first under consideration.

"C." Unhealthy dwelling-houses in respect to which no action has been taken; coloured RED.

A return in respect to these dwelling-houses is now submitted in accordance with the resolution of the Committee dated 7th June, 1933, and indicates how these insanitary houses can be dealt with as :—

(a) Clearance Areas.
(b) Improvement Areas. } With number of houses to be demolished, and approximate population.

(c) Individual Houses.

Clearance Areas.

A group of areas in which *clearance* is necessary in respect of houses in these areas :—

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 1	Juvenal Street, Islington, Soho Street, Byrom Street, Scotland Road	520	2,340
	This area contains 53 separate areas with the following analysis :—		
	Areas with over 100 houses 1		
	„ „ over 50 and under 100 ... 1		
	„ „ over 20 and under 50 1		
	„ „ under 20 houses... 50		
	TOTAL ... 53		
No. 2	Boundary Street, Bentinck Street, Hedley Street, Regent Road	339	1,531
	This area contains 32 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 6		
	„ „ under 20 houses... 26		
	TOTAL ... 32		
No. 3	Dublin Street, Sherwood Street, Vauxhall Road, Waterloo Road	324	1,458
	This area contains 32 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 6		
	„ „ under 20 houses... 26		
	TOTAL ... 32		
No. 4	Leeds Street, Vauxhall Road, Tithebarn Street, Pall Mall	227	1,022
	This area contains 26 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 1		
	„ „ under 20 houses... 25		
	TOTAL ... 26		
No. 5	Galton Street, King Edward Street, Gibraltar Row, Bath Street...	72	324
	This area contains 5 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 1		
	„ „ under 20 houses... 4		
	TOTAL ... 5		

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 6	Old Leeds Street, East Street, Edmund Street, King Edward Street ... ... This area contains 11 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 „ „ under 20 houses... ... ... 10 TOTAL ... 11	68	306
No. 7	Gt. Crosshall Street, Dale Street, Byrom Street, Hackins Hey ... ... This area contains 16 separate areas with the following analysis :— Areas with under 20 houses... ... ... 16 TOTAL ... 16	87	391
No. 8	Everton Terrace and Courts ... ... This consists of 1 area with the following analysis :— Area with over 20 and under 50 houses ... 1 TOTAL ... 1	40	180
No. 9	Gregson Street, Plumpton Street, Village Grove... This area contains 9 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 „ „ under 20 houses... ... ... 7 TOTAL ... 9	134	603
No. 10	Brunswick Road, Pembroke Place, Low Hill, Wilde Street ... ... This area contains 27 separate areas with the following analysis :— Areas with under 20 houses... ... ... 27 TOTAL ... 27	114	513
No. 11	Miscellaneous areas : Priory Mount, College Lane, Grafton Street, Elm Grove ... ... These areas contain 4 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 „ „ under 20 houses... ... ... 2 TOTAL ... 4	67	302

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 12	Christopher Street, Barlow Lane, Springfield Square	74	333
	This area contains 5 separate areas with the following analysis :—		
	Areas with under 20 houses... 5		
	TOTAL ... 5		
No. 13	Archer Street, Church View, Summer Gardens ...	80	360
	This area contains 3 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 3		
	TOTAL ... 3		
No. 14	Morley Street, Whittle Street, Kirkdale Road, Smith Street	100	450
	This area contains 5 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 1		
	,, ,, under 20 houses... 4		
	TOTAL ... 5		
No. 15	Devonshire Place	207	932
	This area contains 7 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 4		
	,, ,, under 20 houses... 3		
	TOTAL ... 7		
No. 16	Wye Street, Petton Street, Beacon Lane, St. Domingo Road	101	455
	This area contains 6 separate areas with the following analysis :—		
	Areas with over 20 and under 50 houses ... 2		
	,, ,, under 20 houses... 4		
	TOTAL ... 6		
No. 17	Redcross Street, South Castle Street, Canning Place Strand Street	30	135
	This area contains 5 separate areas with the following analysis :—		
	Areas with under 20 houses... 5		
	TOTAL ... 5		

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 18	Skelhorne Street, Hilbre Street, Copperas Hill, Lime Street ... ... This area contains 3 separate areas with the following analysis :— Areas with under 20 houses... ... ... 3 TOTAL ... 3	46	207
No. 19	Brownlow Hill, Pembroke Place, Mount Pleasant This area contains 30 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 „ „ under 20 houses... ... ... 29 TOTAL ... 30	199	895
No. 20	Crown Square, Jasper Street, Elm Road... ... This area contains 6 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 „ „ under 20 houses... ... ... 4 TOTAL ... 6	80	360
No. 21	Blundell Street, Chaloner Street, Simpson Street, Parliament Street ... ... This area contains 6 separate areas with the following analysis :— Areas with under 20 houses... ... ... 6 TOTAL ... 6	25	113
No. 22	Grayson Street, Cornhill, Shaws Alley, Hurst Street ... ... This area contains 2 separate areas with the following analysis :— Areas with under 20 houses... ... ... 2 TOTAL ... 2	10	45
No. 23	Argyle Street, Mersey Street, Forest Street, Canning Place ... ... This area contains 21 separate areas with the following analysis :— Areas with under 20 houses... ... ... 21 TOTAL ... 21	114	513

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of person to be displaced.
No. 24	Grenville Street, Jamaica Street, Parliament Street, Forest Street ... ... This area contains 72 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 ,, ,, under 20 houses... ... ... 70 TOTAL ... 72	346	1,557
No. 25	Blundell Street, Greenland Street, Jamaica Street, Simpson Street ... ... This area contains 8 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 ,, ,, under 20 houses... ... ... 7 TOTAL ... 8	49	220
No. 26	Slater Street, Berry Street, Renshaw Street, Duke Street ... ... This area contains 18 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 ,, ,, under 20 houses... ... ... 16 TOTAL ... 18	112	504
No. 27	Duke Street, Grenville Street, Gt. George Street, York Street ... ... This area contains 10 separate areas with the following analysis :— Areas with under 20 houses... ... ... 10 TOTAL ... 10	38	171
No. 28	Vickers Street, Penrith Street, Emison Street, Windsor Street ... ... This area contains 10 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 3 ,, ,, under 20 houses... ... ... 7 TOTAL ... 10	198	891

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 29	Bembridge Street, Bessemer Street ... ... This area contains 2 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 „ „ under 20 houses... ... ... 1 TOTAL ... 2	45	203
No. 30	Highgate Street, Back Highgate Street, Mason Street ... ... This area contains 7 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 „ „ under 20 houses... ... ... 6 TOTAL ... 7	69	310
No. 31	Grinfield Street, Blucher Street, Brydges Street, Myers Street ... ... This area contains 7 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 2 „ „ under 20 houses... ... ... 5 TOTAL ... 7	126	567
No. 32	Falkner Street, Pine Grove, Harding Street, Oliver Street ... ... This area contains 8 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 4 „ „ under 20 houses... ... ... 4 TOTAL ... 8	180	810
No. 33	Maynard Street, Harold Street, and Courts ... This area contains 11 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 1 „ „ under 20 houses... ... ... 10 TOTAL ... 11	129	580

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 34	Low-wood Street, Mount Vernon Street ... ... This area contains 7 separate areas with the following analysis :— Areas with over 20 and under 50 houses ... 3 „ „ under 20 houses... ... ... 4 TOTAL ... 7	136	612
No. 35	Hampton Street and Courts ... ... This area contains 2 separate areas with the following analysis :— Areas with over 50 and under 100 houses... 1 „ „ under 20 houses... ... ... 1 TOTAL ... 2	104	468
No. 36	Stanhope Street, Hill Street, Caryl Street, Sefton Street ... ... This area contains 7 separate areas with the following analysis :— Areas with under 20 houses... ... ... 7 TOTAL ... 7	40	180
No. 37	Minshull Street, Lyner Street ... ... This area contains 2 separate areas with the following analysis :— Areas with over 50 and under 100 houses... 1 „ „ under 20 houses... ... ... 1 TOTAL ... 2	37	167

Improvement Areas.

The majority of the unfit houses can be dealt with in areas mainly as Clearance Areas, but in certain cases as *Improvement Areas.*

The number of possible Improvement Areas is relatively small, but the Medical Officer submits plans on which the advice of the Ministry might be obtained in respect to three large areas which can be divided into smaller areas.

The Committee will recall that under the provisions of Section 7, Housing Act, 1930, before passing a resolution declaring the area so

defined to be an Improvement Area, it is necessary to satisfy the Minister in regard to size, re-housing, and other particulars in regard to the area.

The Improvement Areas referred to above are as follows:—

Area.	Boundaries.	Approx. No. of houses to be demolished.	Approx. No. of persons to be displaced.
No. 1	Vauxhall Road, Boundary Street, Boundary Street East, Kirkdale Road, Gt. Homer Street, Juvenal Street, Scotland Road, Byrom Street, Great Crosshall Street	2,058	9,261
	This area contains 99 separate areas with the following analysis:—		
	Areas with over 100 houses... 6		
	,, ,, over 50 and under 100 6		
	,, ,, over 20 and under 50 7		
	,, ,, under 20 houses... 80		
	TOTAL ... 99		
No. 2	Soho Street, Fox Street, Gt. Homer Street, Kirkdale Road, Netherfield Road North, and South, Shaw Street, Islington	2,086	9,387
	This area contains 47 separate areas with the following analysis:—		
	Areas with over 100 houses... 10		
	,, ,, over 50 and under 100 1		
	,, ,, over 20 and under 50 2		
	,, ,, under 20 houses... 34		
	TOTAL ... 47		
No. 3	Parliament Street, Upper Parliament Street, Windsor Street, North Hill Street, Harlow Street, Sefton Street	2,001	9,000
	This area contains 40 separate areas with the following analysis:—		
	Areas with over 100 houses... 8		
	,, ,, over 50 and under 100 6		
	,, ,, over 20 and under 50 1		
	,, ,, under 20 houses... 25		
	TOTAL ... 40		

Individual Houses.

There are approximately 88 individual insanitary houses which are not so grouped together as to be included in a Clearance or Improvement Area.

These houses will be required to be dealt with under Section 19, and accommodation made available for the persons who will be dispossessed.

Unhealthy dwelling-houses in respect to which no action has been taken and situated outside the portion coloured YELLOW on the map of the City.

Area.	Approx. No. of Houses.
Morris Street	45
Hygeia Street	54
Dawber Street	44
Rothwell Street...	46
The Barracks, West Derby	34
Hurst Street, Old Swan	46
Pye Street	53
Breckfield Place	24
Etna Street, Old Swan	17
Rock View, Rock Mount	52
TOTAL ...	415

9. The result of the survey gives the following numbers :—

"A." Unhealthy dwelling-houses previously scheduled but not finally disposed of, coloured **blue** 1,046

"B." Unhealthy dwelling-houses in areas previously scheduled, but have not reached the stage of being subject to the Ministry inquiry, coloured **red with deep black outline** 708

"C." Unhealthy dwelling-houses in respect of which no action has been taken :—

(i) Unhealthy dwelling-houses, coloured **red** and situate inside portion coloured **yellow** on map for new areas.

(a) Clearance Areas 4,667
(b) Improvement Areas 6,145 } 10,812

(ii) Unhealthy dwelling-houses coloured **red** and situated outside portion coloured **yellow** on map for new areas 415

(iii) Unhealthy dwelling-houses coloured **red** to be dealt with under Section 19 situated inside the portion coloured yellow... 88

Total Houses to be dealt with under Circular 1331 13,069

10. So far the present report has been dealing with houses which the Medical Officer is prepared to recommend for demolition, but there remain in the city numbers of houses which require either extensive repair or reconditioning, and there is no exact definition available of the latter term.

The Committee have, however, no legal powers to require reconditioning of houses, but much might be done by securing the co-operation of owners, and if the Committee agree, it is proposed to make such suggestions to owners as may be found necessary. By this procedure it is hoped not to save houses which ought to be demolished, but to raise the general standard of houses occupied by the working classes.

As regards general repairs, the Corporation have adequate legal powers under the Public Health and Housing Acts, but, in the Medical Officer's opinion, it is desirable to exercise powers contained in Section 18 of the Housing Act, 1930, to carry out repairs in default and charge the owners. The use of such powers would enable the Department to secure satisfactory repairs in certain cases which from time to time arise.

(Signed) W. M. FRAZER,
MEDICAL OFFICER OF HEALTH.

PUBLIC HEALTH DEPARTMENT,
LIVERPOOL,
11*th July*, 1933.

In November, 1933, the Medical Officer of Health submitted official representations to the Housing Committee in respect of the following areas :—

Clearance Areas.

PLAN NO.

1. Portland Street Clearance Area.
   Vauxhall Road Clearance Area.
   Burlington Street Clearance Areas, Nos. 1, 2 and 3.
2. Penrhyn Street Clearance Area.
3. Upper Stanhope Street Clearance Area.

4. Hill Street Clearance Areas, Nos. 1 and 2.
5. Bancroft Street Clearance Area.
   Hop Street Clearance Area.
   Corlett Street Clearance Area.
6. Quarry Street, Woolton, Clearance Areas, Nos. 1 and 2.
7. The Barracks, West Derby Village, Clearance Area.
8. East Prescot Road Clearance Area (Lord Nelson Cottages).
9. East Prescot Road Clearance Areas, Nos. 1 and 2.
10. Smithy Yard, Wavertree, Clearance Area.
    Pye Street Clearance Area.
    Waterloo Street Clearance Area.

Replacement of Insanitary Houses.

SALTNEY STREET, DUBLIN STREET AND BLENHEIM STREET. The erection of dwellings on these areas is still in abeyance owing to the difficulty of providing accommodation for the dispossessed.

BURLINGTON STREET AREA. The work in connection with the removal of unhealthy dwellings, and the provision of new dwellings is well in progress; 385 houses have been demolished, 187 houses erected, and 28 houses are in course of erection; the remaining insanitary houses are to be dealt with shortly.

IMPROVEMENT AREAS. An Improvement Scheme for a large area in the south end of the City involving the demolition of 1,889 houses out of a total of 5,992 houses included in the area, has been approved in its preliminary form, and it is hoped will be submitted to the Ministry of Health shortly.

QUEEN ANNE STREET UNHEALTHY AREA. The official representation in respect to this area was made in 1928, involving 434 houses, and a population of 2,876. The whole of the property has been purchased. The first block of 44 tenement flats have been built, 55 are almost completed, and a third block of 114 will shortly be commenced. A block of 134 tenement flats to rehouse a portion of the tenants displaced from this area has been completed in Blackstock Street.

Gerard Street Clearance Areas. The official representation in respect to this area, involving 398 houses and a population of 3,430, was dated 5th December, 1929, and the Order of the Ministry of Health was made on 3rd July, 1931. Although none of the houses has yet been demolished, a portion of the property has been purchased, and the remainder will be the subject of arbitration proceedings at an early date.

A commencement has been made in the erection of tenement flats on the old abattoir site in Trowbridge Street. A block of 75 flats has been completed and occupied, and a further block of 45 is well advanced, while a contract will shortly be entered into for a third section of 156 flats. All these are designed to accommodate tenants displaced from these areas.

New Tenements in South Hill Road, Dingle Mount, and Speke Road, Garston. The tenements in South Hill Road and Dingle Mount are now occupied, and 14 houses are almost completed in Dingle Road; the few which are still unoccupied are required for persons dispossessed from individual insanitary houses under Section 19, Housing Act, 1930.

New Tenements in St. James Street. A block of 54 tenement flats is under construction for the accommodation of persons dispossessed from individual insanitary houses in the district.

Provision of Dwellings. The obvious difficulty in the removal of unhealthy dwellings is the vital necessity of replacing the persons who may be dispossessed. The pivot of all housing operations must be the provision of suitable dwellings before the necessary appropriate action can be taken.

New Dwellings in Suburbs.

In the year 1919 the Housing Committee commenced to erect houses in the suburbs, and up to the present 23,531 houses and 169 flats have been completed, and 1,596 houses are in course of erection.

The following table gives details relating to the districts where these houses have been erected, and the accommodation provided.

	"A" (Non-parlour)	"B" (Parlour)	Total.
Elms House Estate ...	252	—	252
Larkhill Estate	476	1,828	2,304
Fazakerley Estate... ...	1,030	410	1,440
Edge Lane Drive Estate...	560	311	871
Walton-Clubmoor Estate ...	1,525	1,671	3,196
Springwood Estate ...	250	1,249	1,499
Partly developed Estates..	—	554	554
Woolton	77	—	77
Knotty Ash Estate ...	389	253	642
Highfield Estate	—	618	618
Pinehurst Road Estate ...	287	395	682
King Street, etc., Garston	76	—	76
Ronald Street	78	—	78
Norris Green Estate ...	4,701	2,950	7,651
Dovecot Estate	1,964	686	2,650
Speke Estate	286	—	286
Huyton Farm Estate ...	651	4	655
	12,602	10,929	23,531

All these dwellings are completed and occupied.

At Larkhill and Springwood Estates 120 and 49 flats, respectively, have also been erected.

During the same period (1919-1933), 9,054 houses have been erected by private enterprise, and of these 4,294 were eligible for subsidy under the Housing Acts of 1923 and 1924.

Re-housing in Old City Area.

The number of dwellings provided by the Corporation up to the present is 4,071, their situations and dates of opening are as follows :—

Situation.	Date opened.	Number of tenements (Including houses with shops attached).
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	182
Kempston Street	1902	79
Kew Street	1902/3	114
Adlington Street Area	1902/3	273
Stanhope Cottages	1904	60
Mill Street	1904	55
Hornby Street	1904 1906/7	454
Clive Street and Shelley Street	1905	83
Eldon Street	1905	12
Upper Mann Street	1905/6	88
Combermere Street	1909	49
Burlington Street	1910	114
Saltney Street	1911	48
Grafton Street	1911	60
Bevington Street Area	1912	224
Northumberland Street Area	1913	68
St. Anne Street Area	1914	77
Gore Street	1916	24
Jordan Street	1916	31
Sparling Street	1916	16
Penrhyn Street	1921	26
Mason Street	1921	28
Blenheim Street	1923	18
Prince Edwin Street	1924	60
St. Augustine Street	1925	6
Bond Street	1925	24
Pitt Street	1928	48
South Hill Road	1928	198
Melrose Road	1929	260
Rankin Street	1929	46
Hopwood Street	1930	30
Holly Street	1931	34
Burlington Street	1931	71
Great Richmond Street	1931	21
Beloe Street	1931	69
Burnet Street	1932	16
Burlington Street	1932	36
Dingle Mount	1932	118
Kew Street	1932	9
Queen Anne Street	1933	44
Burlington Street	1933	28
Total		4,071

Description of Tenements.

Number of 1-roomed dwellings	196
Number of 2-roomed dwellings	1,481
Number of 3-roomed dwellings	1,602
Number of 4-roomed dwellings	792
	4,071
Number of self-contained dwellings (included in above)	173
Number of lock-up shops	27

Rentals.

The rentals of the tenements vary from 2s. 9d. to 9s. 10d., and those of the self-contained cottages from 9s. 1d to 14s. 1d. per week.

Corporation Tenements (Old City Area.)
Comparative Statement of Vital Statistics.

UNRESTRICTED DWELLINGS.

Population, 1930	2,090
Population, 1931	2,102
Population, 1932	2,108
Population, 1933	2,052

	1930.		1931.		1932.		1933.	
	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate per 1,000.
Births....	75	35·88	101	48·04	79	37·47	81	39·47
Deaths	29	13·87	40	19·03	33	15·65	45	21·44
Infantile Mortality..... Deaths under 1 year	2	26·66 per 1,000 Births.	10	90·09 per 1,000 Births.	6	75·95 per 1,000 Births.	8	98·76 per 1,000 Births.
Phthisis.....	9	4·21	2	0·95	1	0·47	2	0·97

RESTRICTED DWELLINGS.

Population, 1930	15,317
Population, 1931	15,495
Population, 1932	16,174
Population, 1933	16,874

	1930.		1931.		1932.		1933.	
	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate p 1,000
Births	491	32·04	475	30·65	548	32·64	495	29·33
Deaths	209	13·63	253	16·32	255	15·76	293	17·34
Infantile Mortality..... Deaths under 1 year	46	93·68 per 1,000 Births.	52	109·47 per 1,000 Births.	59	107·66 per 1,000 Births.	78	157·57 per 1,0 Birth
Phthisis.....	35	2·28	31	2.00	23	1·42	21	1·24

ALL DWELLINGS.

Population, 1930	17,407
Population, 1931	17,597
Population, 1932	18,282
Population, 1933	18,926

	1930.		1931.		1932.		1933.	
	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate per 1,000.	Total.	Rate 1,000
Births	566	32·51	576	32·73	627	34·29	576	30·43
Deaths	238	13·67	293	16·65	288	15·75	338	17·86
Infantile Mortality..... Deaths under 1 year	48	84·80 per 1,000 Births.	62	107·63 per 1,000 Births.	65	103·66 per 1,000 Births.	86	149·30 per 1,0 Birth
Phthisis.....	44	2·52	33	1·87	24	1·31	23	1·2

Housing Act, 1930, Section 17.

Statistics for the year ended 31st December, 1933 :—

Number of dwelling-houses inspected	2,080
Number of defects found	10,587
Number of notices issued	1,946

In the majority of cases the work has been carried out by the owners. A reference has been sent to the Town Clerk and Director of Housing, in respect to outstanding notices.

Return Required by Ministry of Health.

General Statistics.

Area (acres)	27,321
Estimated Population	866,013
Number of inhabited houses	183,779
Number of structurally separate dwellings occupied (1931 Census)	173,938
Rateable value	£6,543,493
Sum represented by a Penny Rate	£23,623
Number of New Houses erected during the year :—	
(*a*) Total	3,274
(*b*) With State Assistance under the Housing Acts, 1923 and 1924 :—	
(i) By the Local Authority ...	1,402
(ii) By other bodies or persons ...	1,872

Housing Statistics.

1. *Inspection of Dwelling-houses during the Year.*

(1) (*a*) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	89,376
(*b*) Number of inspections made for the purpose	106,833
(2) (*a*) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925	89,376
(*b*) Number of inspections made for the purpose	106,833
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation ...	1,648

(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation ... ... Nil.

2. *Remedy of Defects during the year without Service of Formal Notices.*

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers ... 1,172

3. *Action under Statutory Powers during the Year.*

(*a*) *Proceedings under Sections* 17, 18 *and* 23 *of the Housing Act*, 1930.

(1) Number of dwelling-houses in respect of which notices were served requiring repairs ... 1,946

(2) Number of dwelling-houses which were rendered fit after service of formal notices—

(*a*) by owners 316

(*b*) by local authority in default of owners ... ... Nil.

(*b*) *Proceedings under Public Health Acts.*

(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied 25,624

(2) Number of dwelling-houses in which defects were remedied after service of formal notices:—

(*a*) By owners 25,624

(*b*) By local authority in default of owners ... ... Nil.

(*c*) *Proceedings under Sections* 19 *and* 21 *of the Housing Act*, 1930.

(1) Number of dwelling-houses in respect of which Demolition Orders were made 157

(2) Number of dwelling-houses demolished in pursuance of Demolition Orders 136

(*d*) *Proceedings under Section* 20 *of the Housing Act*, 1930.

(1) Number of separate tenements or underground rooms in respect of which Closing Orders were made ... ... **Nil.**

(2) Number of separate tenements or underground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit ... ... **Nil.**

Housing of the Working Classes.

Number of houses *owned* by the Local Authority distinguishing those built in the last two years and held as under : —

Number of houses owned by the Local Authority... 28,029

,, built in the last two years under :—

1. Part III of the Housing Act, 1925 ... 2,787
2. Part II do. ... 457
3. Other powers ... ... Nil.

Erection of New Houses.

The following information has been kindly supplied by the City Building Surveyor :—

Return of Houses erected 1929-1933.

NUMBER OF ROOMS, (Exclusive of bathrooms, sculleries, &c.)	1929	1930	1931	1932	1933
4 Rooms or less	1,161	612	1,547	1,558	1,526
5 or 6 Rooms	1,234	1,622	1,499	1,693	1,595
7 or 8 Rooms	183	118	132	94	148
9 or 10 Rooms	3	4	3	5	4
More than 10 Rooms	1	2	1	—	1
Totals	2,582	2,358	3,182	3,350	3,274

The numbers of houses which have been erected by or for the Housing Committee, and which form parts of Government-assisted schemes, during the last six years, are :—

1928 = 2,440.
1929 = 1,411.
1930 = 1,169.
1931 = 1,810.
1932 = 1,882 (includes 179 tenement dwellings).
1933 = 1,402 (,, 318 ,, ,,)

Number of Houses erected and taken down during the year ended December, 1933.

DISTRICTS.	Number Erected.	Number Taken Down.
Exchange	73	85
Abercromby	—	18
Everton	7	11
Kirkdale...	—	—
Edge Hill	—	4
Toxteth	4	5
Walton	241	2
West Derby	1,035	15
Wavertree	638	12
Fazakerley	105	—
Norris Green	60	1
Croxteth	—	—
Woolton	210	2
Speke	246	—
*Huyton Farm	655	—
Totals	3,274	155

* Huyton Farm is outside the city boundary. The houses erected on this area form part of a Corporation Government Assisted Housing Scheme.

Of the 3,274 dwelling-houses erected during 1933, 1,402 were built under the direction of the Housing Committee, these forming parts of Government-assisted schemes, and including 318 tenement dwellings.

Residential Flats. During the year 1933, 66 houses were converted into 205 residential flats, giving a net increase of 139 " new " dwelling-houses.

WELFARE OF THE BLIND.

During 1933, 337 applicants for benefits due to the blind under the Blind Persons Act, 1920, were examined by ophthalmic surgeons. Of these, 204 were found to be blind within the meaning of the Act and 133 were not blind. The corresponding figures for 1932 were 326 applicants, of whom 187 were blind.

During the year it was decided to undertake the re-examination of partially-sighted "blind" persons when there was reason to believe that the necessary condition of blindness was not fulfilled or where there was not in existence a certificate of blindness from an ophthalmic surgeon. This work commenced in April, and by the end of the year 613 persons had been re-examined. Of these, 91 (15 per cent.) were found to be no longer blind, and their names were removed from the register of blind persons accordingly.

In Table I is given the number of registered blind persons in Liverpool.

TABLE I.

PERSONS REGISTERED AS BLIND.

Age.	Males.	Females.	Total.
0+	4	5	9
5+	24	11	35
16+	21	12	33
21+	55	46	101
30+	102	61	163
40+	102	86	188
50+	184	151	335
60+	192	231	423
70+	175	289	464
	859	892	1,751

In Table II, 1,707 blind who are 16 years of age and over, are classified according to their ability to work, etc.

TABLE II.

BLIND PERSONS 16 YEARS OF AGE AND OVER.

	Males.	Females.	Total.
Employed	166	57	223
Trained but not employed	8	8	16
Under training	27	18	45
Trainable but not under training ...	15	3	18
Unemployable	615	790	1,405
	831	876	1,707

In Table III, 251 blind persons who are sufferering from some other serious physical defect, or who are mentally defective, are analysed.

TABLE III.

BLIND PERSONS WHO ARE PHYSICALLY OR MENTALLY DEFECTIVE.

	Males.	Females.	Total.
Mentally defective	39	16	55
Physically defective	42	32	74
Deaf	42	54	96
Combinations of above disabilities ...	15	11	26
	138	113	251

CARE OF ANIMALS.

The Corporation of Liverpool makes yearly donations to the Royal Society for the Prevention of Cruelty to Animals, Liverpool Branch, and to the Liverpool Dogs' Home, on account of the work done by those institutions, and the following brief extracts from their reports are therefore of interest.

Liverpool Cats' Shelters.

The objects of these institutions is to provide a humane end for unwanted animals, and to prevent, as far as possible, such animals becoming waifs and strays, diseased and injured, on the public streets. From this point of view, the large figures recorded will be appreciated in their right significance. During 1933, the total received and humanely lethalised was 32,681. Of these, over one-quarter were in a state of suffering. A light motor van is maintained for the special purpose of collecting unwanted animals direct from their owners' houses in any and every part of Liverpool and district, and during 1933, the number so collected was 12,322. A certain proportion of these totals represents animals received from the Borough of Bootle. Those who own cats are urged not to keep litters unless sure of a good home for them. The services of the collecting van can be secured by sending a post card to the Caretaker, Cats' Shelter, 41, Russell Street, Liverpool, 3, or by telephone (Royal 4174). The other shelters are situated at 90, Smith Street, Kirkdale, and 230, Mill Street, Toxteth.

Liverpool Horses' Rest, Broadgreen.

This is a grazing farm of some 30 acres, with first class stabling and loose box accommodation, and it is now used regularly every year by a considerable number of horse and pony owners, also donkey owners, who are in a modest way of business. These animals, when in need of rest or simple treatment, are grazed at the Horses' Rest for varying periods, with considerable benefit. Moderate fees are charged, though in one or two cases the animal is kept *gratis* for a sick or indigent owner. In addition, one or two pensioners are received. The number of animals on the pastures during 1933 was 88.

LIVERPOOL ANIMALS' HOSPITAL.

Certain changes have been brought about at the principal hospital, namely, in Larch Lea, Everton, with beneficial results. Only those animals whose owners are unable to pay veterinary charges are treated, and the treatment is carried out by qualified veterinary surgeons, who attend in rotation on an honorary basis. There is a branch dispensary at 230, Mill Street, Toxteth, and the total attendances at the two places during 1933 was 3,995.

All the above institutions are conducted by the R.S.P.C.A., Liverpool Branch, 3, Crosshall Street, Liverpool, 1 (Tel. Central 645).

LIVERPOOL DOGS' HOME.

The number of dogs received from all sources at the home in Edge Lane during 1933 was 8,545. This figure marks a further slight decrease on figures previously recorded, and it may reasonably be inferred that the ready and cheap facilities for the humane disposal of unwanted animals provided by the Home have been an important factor in reducing the number found wandering in the streets. Two collecting vans are maintained by the institution, one of which collects animals which have been picked up by the police and lodged at the various pinfolds, while the other collects unwanted animals from private houses upon their owners' request. The number received from the police during the year was 3,478, while the number received direct from their owners was 4,492. A certain number of boarders were received. Included in these totals are dogs received from the Borough of Bootle. Owners are urged not to allow a litter of puppies to grow up unless they are sure of good homes. The services of the collecting van can be secured by addressing a post card to the keeper, Dogs' Home, Edge Lane, Liverpool, 7, or by telephone (Old Swan 1340). The incinerator at the home is largely patronised by owners desirous of disposing of the body of a pet in this way.

The city office is at 3, Crosshall Street, Liverpool, 1.

APPENDIX A.

CITY OF LIVERPOOL.

Vital Statistics of the Whole District during 1933 and 5 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.						Under 1 year of age		At all ages.	
			Number.	Rate.	Number. *	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Number. *	Rate per 1000 Nett Births.	Number. *	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1928.....	845093	19374	19120	22·6	12009	14·2	998	421	1789	94	11432	13·5
1929.....	848873	19162	18888	22·2	13781	16·2	1048	448	1822	96	13181	15·5
1930.....	852669	19199	18881	22·1	11882	13·5	993	399	1544	82	11288	12·8
1931.....	856483	18973	18626	21·7	13024	15·2	1138	357	1740	93	12243	14·3
1932.....	861935	18548	18149	21·0	12044	13·9	1038	364	1646	91	11370	13·2
1933.....	866013	17457	16929	19·5	13076	15·1	1032	400	1655	98	12444	14·4

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 net 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 included the whole of the deaths registered during the calendar year as having actually occurred within the district.

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) 27,321.

Total population at all ages .....855,688 } At Census of 1931

No. of structurally separate dwellings occupied...173,938 }

APPENDIX B.

CITY OF LIVERPOOL.

Birth-Rates, Death-Rates, and Analysis of Mortality during the year 1933.

England and Wales, 118 County Boroughs and Great Towns, and 132 Smaller Towns.

(*Provisional figures. The rates for England and Wales, and for London, have been calculated on a population estimated to the middle of 1933, but those for the towns have been calculated on populations estimated to the middle of 1932.*)

—	Rate per 1,000 Total Population.		Annual Death-Rate per 1,000 Population.									Rate per 1,000 Live Births.		Percentage of Total Deaths.			
	Live Births.	Still-births.	All Causes.	Typhoid and Paratyphoid Fevers.	Small-pox.	Measles.	Scarlet Fever	Whooping Cough.	Diphtheria.	Influenza.	Violence.	Diarrhœa and Enteritis (under two years).	Total Deaths under one year.	Certified by Registered Medical Practitioners.	Inquest Cases.	Certified by Coroner after P.M. No Inquest.	Uncertified Causes of Death.
England and Wales ...	14·4	0·62	12·3	0·01	0·00	0·05	0·02	0·05	0·06	0·57	0·54	7·1	64	90·9	6·3	1·9	0·9
118 County Boroughs and Great Towns, including London ...	14·4	0·67	12·2	0·00	0·00	0·06	0·02	0·06	0·08	0·55	0·49	9·4	67	91·0	6·0	2·5	0·5
132 Smaller Towns (Estimated Resident Populations 25,000 to 50,000 at Census 1931)	14·5	0·63	11·0	0·00	0·00	0·04	0·02	0·04	0·04	0·53	0·44	4·9	56	91·7	5·8	1·5	1·0
London	13·2	0·45	12·2	0·00	0·00	0·02	0·02	0·08	0·08	0·51	0·58	11·6	59	88·3	6·3	5·4	0·0
*Liverpool	19·5	0·78	14·4	0·00	0·00	0·34	0·03	0·11	0·20	0·39	0·39	19·1	98	93·5	4·2	1·7	0·6

The maternal mortality rates for England and Wales are as follows:

	Puerperal Sepsis.	Others.	Total.
per 1,000 Live Births ...	1·79	2·63	4·42
,, ,, Total Births ...	1·71	2·52	4·23

* The rates for Liverpool have been calculated on a population estimated locally to the middle of 1933.

APPENDIX C.

CITY OF LIVERPOOL.

Causes of, and ages at, Death during the year 1933.

Causes of Death.	Net Deaths at the Subjoined Ages of "Residents" whether occurring within or without the District.									Total Deaths in Institutions in Liverpool District, whether of "Residents" or "non-Residents."
	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.	
All Causes — Certified	12369	1642	521	418	407	562	1422	3222	4175	7457
All Causes — Uncertified	75	13	3	2	1	—	—	11	45	4
1. Typhoid and Paratyphoid Fevers	2	—	—	—	—	—	1	—	1	1
2. Measles	299	54	150	84	10	1	—	—	—	208
3. Scarlet Fever	27	1	4	14	2	2	2	2	—	25
4. Whooping Cough	93	39	37	16	1	—	—	—	—	73
5. Diphtheria	177	4	14	65	85	3	3	2	1	175
6. Influenza	342	10	11	6	6	11	56	119	123	90
7. Encephalitis Lethargica	21	—	—	—	—	1	9	9	2	2
8. Cerebro-spinal Fever	45	21	9	4	7	1	1	2	—	49
9. Tuberculosis of Respiratory System	1009	2	1	3	31	256	407	283	26	579
10. Other Tuberculous Diseases	148	14	10	26	33	28	22	12	3	136
11. Syphilis	41	4	—	—	2	1	11	16	7	40
12. General Paralysis of the Insane	28	—	—	—	—	1	9	16	2	7
13. Cancer	1232	1	—	3	—	4	106	587	531	789
14. Diabetes	100	—	—	—	2	2	5	37	54	63
15. Cerebral Haemorrhage	399	—	—	—	—	—	16	138	245	235
16. Heart Disease	2019	1	—	1	14	39	151	646	1167	920
17. Aneurysm	18	—	—	—	—	—	—	14	4	7
18. Other Circulatory Diseases	708	1	—	—	—	1	10	167	529	319
19. Bronchitis	595	52	18	4	4	8	51	145	313	224
20. Pneumonia (all forms)	1391	343	164	92	65	35	170	308	214	867
21. Other Respiratory Diseases	138	6	3	6	4	3	17	44	55	78
22. Peptic Ulcer	73	—	—	—	—	1	12	51	9	80
23 Diarrhoea, etc.	359	272	51	14	—	4	5	5	8	250
24. Appendicitis	53	—	—	3	8	12	17	10	3	52
25. Cirrhosis of Liver	16	—	—	—	1	1	2	11	1	11
26. Other Diseases of Liver	39	—	—	1	—	2	3	16	17	37
27. Other Digestive Diseases	189	32	6	9	13	6	14	48	61	171
28. Acute and Chronic Nephritis	371	1	—	2	7	11	39	147	164	251
29. Puerperal Sepsis	29	—	—	—	—	9	20	—	—	33
30. Other Puerperal Causes	31	—	—	—	—	7	24	—	—	33
31. Congenital Debility, Premature Birth, Malformations, etc.	657	652	2	3	—	—	—	—	—	407
32. Senility	366	—	—	—	—	—	—	12	354	236
33. Suicide	117	—	—	—	—	11	39	57	10	24
34. Other Violence	288	16	10	27	27	36	53	69	50	179
35. Other Defined Causes	1011	127	32	36	86	65	147	251	261	802
36. Causes Ill-defined or unknown	13	2	2	1	—	—	—	3	5	8
Totals	12444	1655	524	420	408	562	1422	3233	4220	7461

APPENDIX D.

CITY OF LIVERPOOL.

Infant Mortality during the year 1933.

Net Deaths from stated Causes at various Ages under One Year of Age.

CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks 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	407	58	50	50	565	266	322	248	241	1642
All Causes. { Uncertified	9	—	2	—	11	—	1	1	—	13
Small-pox	—	—	—	—	—	—	—	—	—	—
Chicken-pox	—	—	—	—	—	—	—	—	—	—
Measles	—	—	—	—	—	—	2	19	33	54
Scarlet Fever	—	—	—	—	—	—	—	—	1	1
Whooping Cough	—	—	—	—	—	4	11	11	13	39
Diphtheria	—	—	—	—	—	—	—	2	2	4
Influenza	—	—	—	—	—	1	5	4	—	10
Erysipelas	—	1	—	—	1	6	5	4	2	18
Tuberculous Meningitis	—	—	—	—	—	—	3	3	2	8
Abdominal Tuberculosis	—	—	—	—	—	—	1	1	—	2
Other Tuberculous Diseases	—	—	—	—	—	—	3	1	2	6
Meningitis	—	—	—	1	1	—	5	1	1	8
Convulsions	16	1	3	—	20	1	3	5	1	30
Laryngitis	—	—	—	—	—	—	—	—	—	—
Bronchitis	—	1	1	4	6	8	15	11	11	51
Pneumonia (all forms)	5	2	7	9	23	61	95	87	77	343
Diarrhœa	1	—	—	—	1	5	11	6	10	33
Enteritis	—	1	1	3	5	60	82	50	42	239
Other Diseases of Stomach	—	1	—	—	1	2	7	—	—	10
Syphilis	—	—	—	1	1	1	1	1	—	4
Rickets	—	—	1	—	1	—	—	1	1	3
Suffocation	—	—	—	2	2	—	3	—	2	7
Injury at Birth	39	3	2	—	44	—	—	—	—	44
Atelectasis	50	4	2	1	57	3	—	—	—	60
Congenital Malformations	30	4	11	5	50	22	4	2	3	81
Premature Birth	249	29	15	17	310	21	3	1	—	335
Atrophy, Debility and Marasmus	8	1	5	4	18	51	32	9	2	112
Other Causes	18	10	4	3	35	20	32	30	36	153
	416	58	52	50	576	266	323	249	241	1655

Net Births in the year { Legitimate ... 16,195 / Illegitimate ... 734

Net Deaths in the year of { Legitimate Infants 1,500 / Illegitimate Infants 155

APPENDIX E.

CITY OF LIVERPOOL.

Notifiable Diseases (other than Tuberculosis) during the Year 1933.

Disease.	Number of Cases Notified.													Cases admitted to Hospital	Total Deaths
	At all Ages.	At Ages—Years													
		Under 1—	1—	2—	3—	4—	5—	10—	15—	20...	35—	45—	65 and over		
Small-pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever	5286	38	158	243	384	400	2398	1132	223	250	42	17	1	3780	27
Diphtheria	2917	14	106	185	226	253	1153	525	165	240	35	15	—	2799	177
Enteric Fever (including Para-typhoid)	70	—	3	1	2	2	20	14	10	11	2	4	1	67	2
Puerperal Fever	44	—	—	—	—	—	—	—	2	35	7	—	—	43	29
Puerperal Pyrexia	306	—	—	—	—	—	—	—	13	245	48	—	—	279	—
Pneumonia	3106	298	366	269	160	113	410	189	162	371	264	378	126	1515	547
Cerebro-spinal Fever	64	19	10	8	1	4	5	7	2	5	—	3	—	64	45
Poliomyelitis and Polioencephalitis	10	—	2	1	3	1	—	2	1	—	—	—	—	7	3
Encephalitis Lethargica	30	—	—	—	—	—	—	1	—	8	6	12	3	13	21
Dysentery	3	—	—	—	—	—	1	1	—	—	1	—	—	3	2
Ophthalmia Neonatorum	594	594	—	—	—	—	—	—	—	—	—	—	—	116	—
Erysipelas	920	52	20	13	8	11	38	41	49	127	131	326	104	580	73
Malaria	26	—	—	—	—	—	—	—	3	14	7	1	1	7	2
Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
*Measles	10004	638	1259	1129	1118	1148	4344	227	73	57	8	2	1	1070	299
*Chickenpox	2888	40	62	54	77	119	2344	153	26	6	5	2	—	132	1
Totals	26268	1693	1986	1903	1979	2051	10713	2292	729	1369	556	760	237	10475	1228

* Voluntarily notifiable.

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APPENDIX E.

CITY OF LIVERPOOL.

Notifiable Diseases (other than Tuberculos

APPENDIX F.

DEATHS REGISTERED IN THE CITY OF LIVERPOOL

DURING THE YEAR 1933