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Annual Report

ON THE

Health

OF THE

Borough of Chesterfield,

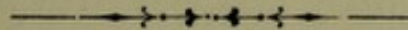
FOR 1904,

BY

HERBERT PECK,

M.D. EDIN., D.P.H. CAMBRIDGE,

MEDICAL OFFICER OF HEALTH.



CHESTERFIELD:

G. EDGE, PRINTER & STATIONER, PACKER'S ROW.

1905.

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311

LECTURE 1

MECHANICS

1.1. Kinematics

1.2. Dynamics

1.3. Energy

1.4. Momentum

1.5. Angular momentum

1.6. Relativity

1.7. Quantum mechanics

1.8. Statistical mechanics

1.9. Thermodynamics

1.10. Electrodynamics

1.11. Optics

1.12. Atomic physics

Borough of Chesterfield.

HEALTH COMMITTEE.

Chairman :

ALDERMAN CLAYTON, J.P.

Vice-Chairman :

ALDERMAN BOOTH, M.D., J.P.

Members :

THE MAYOR (COUNCILLOR HOPKINS).

ALDERMAN WOODHEAD, J.P.

COUNCILLOR HADFIELD, C.C.

„ LACK.

„ LANCASTER.

„ SPOONER, C.C.

„ WRIGLEY.

Medical Officer of Health :

HERBERT PECK, M.D., C.M. (Edin.),

D.P.H. (Camb.)

Assistant Medical Officer of Health :

SIDNEY C. LAWRENCE, M.B., Ch.B., D.P.H.

Sanitary Inspector :

CHARLES E. WOOD, CERTIFIED SANITARY INSPECTOR.

To the Chairman and Members of the
Health Committee.

Health Office,
Saltergate,
Chesterfield,

March 25th, 1905.

Gentlemen,

I have pleasure in laying before you my fifth Annual Report. Most of the rates given therein are satisfactory, but the zymotic death rate is unduly high from the presence in the town at one time of several infectious complaints, chiefly affecting children.

I take this opportunity of acknowledging with thanks the assistance afforded me by Members of the Committee and Mr. Wood.

I am, Gentlemen,

Your obedient servant,

HERBERT PECK,

M.D., C.M. Edinburgh, D.P.H. Cambridge, etc.

Summary of Annual Health Report for 1904.

Borough of Chesterfield.

AREA.—1198 acres uncovered with water; 18 covered with water.

ALTITUDE (average).—About 300 feet above ordnance datum.

POPULATION, Census of 1901.—27,185.

ESTIMATED POPULATION, June, 1904.—28,590.

INHABITED HOUSES, Census of 1891.—5,282.

INHABITED HOUSES, June, 1904.—About 5520.

RATEABLE VALUE.—£100,686 4s. od.

ASSESSABLE VALUE.—£94,767.

GENERAL DISTRICT RATE.—4s. 6d. in the £ for Old Borough;
4s. od. for Brampton and Walton; 3s. 6d. for Newbold;
3s. od. for Hasland.

POOR RATE, including School Board, 4s. 5d.

VITAL STATISTICS, 1904.

BIRTH RATE, per 1,000 living.—31.6.

GROSS DEATH RATE, per 1,000 living.—19.9.

CORRECTED DEATH RATE, per 1,000 living.—16.3.

ZYMOTIC DEATH RATE.—3.6.

INFANTILE MORTALITY, per 1,000 births.—171.

ISOLATION HOSPITAL.—Newbold Smallpox Hospital, and Penmore Sanatorium, the property of the Chesterfield Joint Hospital Committee.

WATER SUPPLY.—From Linacre Reservoirs.

SCAVENGING AND REFUSE DISPOSAL.—By servants of the Corporation.

NUISANCES ABATED DURING 1904.—692.

TABLE I.

Vital Statistics during 1904 and previous Years in the
Borough of Chesterfield.

YEAR.	Popula- tion es- timated to middle of each year.	Births.		Total Deaths registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of non-residents registered in Public Ins- titutions in the District.	Deaths of residents reg- istered in Public Institu- tions beyond the District.	Nett Deaths at all Ages belong- ing to the District.			
		Num- ber.	Rate. •	Under 1 year of age.		At all Ages					Num- ber.	Rate •	Num- ber.	Rate. •
				Num- ber.	Rate per 1000 Births regis- tered.	Num- ber.	Rate •							
1	2	3	4	5	6	7	8	9	10	11	12	13		
1894	23,449	832	35.5	120	144	420	17.9	90	61	0	359	15.3		
1895	23,950	848	35.4	141	166	502	20.9	110	81	0	421	17.6		
1896	24,461	839	34.3	140	167	505	20.6	85	42	4	467	19.1		
1897	24,983	818	32.7	180	220	587	23.4	119	76	0	511	20.4		
1898	25,516	880	34.5	201	228	616	24.1	112	77	0	539	21.1		
1899	26,060	881	33.8	149	169	521	20.0	136	64	0	457	17.4		
1900	26,617	898	33.7	191	212	621	23.3	108	50	0	571	21.4		
1901	27,329	905	33.1	198	217	638	23.3	134	75	1	564	20.5		
1902	27,765	896	32.3	144	161	557	20.0	139	80	1	478	17.2		
1903	28,381	956	33.7	170	167	536	18.9	145	92	1	445	15.7		
Aver- ages for years 1894- 1903.	25,851	875	33.9	163	187	550	21.2	118	70	.7	481	18.6		
1904	28,590	911	31.6	155	171	568	19.6	162	102	0	466	16.3		

* Rates in Columns 4, 8, and 13 calculated per 1000 of estimated population.

NOTE.—By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the District on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public Institutions" taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made is given on the back of this Table.

Area of District in acres
(exclusive of area
covered by water)1193

Total population at all ages..... 27185

Number of inhabited houses.....5282

Average number of persons per house...5.146

} At Census
1901.

I. Institutions within the District receiving sick and infirm persons from outside the District.	II. Institutions outside the District receiving sick and infirm persons from the District.	III. Other Institutions, the deaths in which have been distributed among the several localities in the District.
<p>Chesterfield and North Derbyshire Hospital.</p> <p>Chesterfield Union Workhouse.</p>	<p>Penmore Hospital, Hasland, and Newbold Small- pox Hospital.</p>	<p>None in 1904.</p>
<p>Is the Union Workhouse within the District?—Yes.</p>		

TABLE II.

Vital Statistics of separate Localities in 1904 and previous years in the Borough of Chesterfield.

NAMES OF LOCALITIES.	1.—BOROUGH.				2.—NORTH WARD.				3.—SOUTH WARD.				4.—WEST WARD.			
	Population esti- mated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
1894	23,449	832	359	120	..	..	36	..	..	..	36	..	..	..	43	..
1895	23,950	848	421	141	..	108	..	..	..	..	115	..	..	..	..	..
1896	24,461	839	467	140	..	106	..	..	..	..	146	..	..	..	..	..
1897	24,983	818	511	180	..	..	..	..	..	..	..	..	..	..	..	..
1898	25,516	880	539	201	..	..	..	..	..	..	..	..	..	..	..	..
1899	26,060	881	457	149	..	..	..	..	..	..	..	..	..	..	..	..
1900	26,617	898	571	191	9551	155	52	8764	8302	..	213	62	8302	..	77	202
1901	27,329	905	564	198	9875	180	58	8764	8690	..	196	70	8690	..	70	188
1902	27,765	896	478	144	10,073	155	38	8763	8929	289	162	47	8929	339	59	161
1903	28,381	956	445	170	10,248	130	34	8923	9210	295	158	56	9210	416	70	157
Averages of Years 1894 to 1903.	25,851	875	481	163	..	..	..	..	..	..	..	..	..	..	..	..
1904	28,590	909	466	155	10,323	147	40	8958	9309	314	152	48	9309	364	67	167

TABLE III.

Cases of Infectious Disease notified during the Year 1904
in the Borough of Chesterfield.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.						TOTAL CASES NOTIFIED IN EACH LOCALITY.					NO. OF CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.				
	At all Ages.						1	2	3	4	5	1	2	3	4	5
	Under 1	1 to 5.	5 to 15.	15 to 25.	25 to 65	65 and upwards.	North Ward.	South Ward.	West Ward.	Hospital.	Union Workhouse.	North Ward.	South Ward.	West West.	Hospital.	Union Workhouse.
Small-pox	6	..	..	3	..	..	3	..	3	..	..	3
Cholera
Diphtheria
Membranous Croup
Erysipelas
Scarlet Fever
Typhus Fever
Enteric Fever
Relapsing Fever
Continued Fever
Puerperal Fever
Plague
Totals ..	6	132	169	48	56	1	165	124	113	4	6	3	4	3	..	3

NOTES.—The localities adopted for this table are the same as those in tables II. and IV.

Isolation Hospitals—Penmore Isolation and Newbold Small-pox Hospitals.

TABLE IV.

Causes, and Ages at, Death during the Year 1904 in the
Borough of Chesterfield.

CAUSES OF DEATH. 1	DEATHS BELONGING TO WHOLE DISTRICT AT SUBJOINED AGES.							DEATHS BELONGING TO LOCALITIES (AT ALL AGES).					TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT.	
	All ages. 2	Under 1 3	1 and under 5. 4	5 and under 15. 5	15 and under 25. 6	25 and under 65. 7	65 and upwards. 8	North Ward. 9	South Ward. 10	West Ward. 11	Hospital. 12	Workhouse 13		
Small-pox .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	2	..	2	..	..	..	..	..	..	2	..	..	..	..
Scarlet Fever ..	11	1	6	3	1	..	..	3	4	4	..	..	..	..
Whooping-cough ..	7	3	4	..	..	..	..	1	2	4	..	..	..	..
Diphtheria and Mem- branous Croup ..	10	..	9	1	..	..	..	3	2	5	2	..	..	2
Croup .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fever { Typhus .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
{ Enteric	10	..	..	1	4	5	..	2	1	7	..	3	..	3
{ Other continued ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza ..	2	..	..	..	..	2	..	..	1	1	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhoea	63	52	9	1	..	..	1	13	20	30	1	..	..	1
Enteritis	9	6	1	..	..	1	1	3	1	5	..	..	..	..
Puerperal Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Septic Diseases	6	..	1	1	2	2	..	..	3	3	10	..	..	10
Phthisis	30	..	1	1	8	19	1	13	10	7	..	13	..	13
Other Tubercular Diseases	20	10	5	..	1	4	..	5	9	6	..	5	..	5
Cancer, Malignant Disease	19	..	..	..	1	14	4	7	6	6	3	6	..	9
Bronchitis	42	11	9	..	..	12	10	11	16	15	..	6	..	6
Pneumonia	24	1	7	1	1	11	3	14	6	4	3	4	..	7
Pleurisy .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Diseases of Respiratory Organs	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alcoholism	8	..	..	..	..	6	2	4	3	1	..	4	..	4
Cirrhosis of Liver } ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Venereal Diseases ..	2	2	..	..	..	..	..	2	..	..	1	..	..	1
Premature Birth ..	18	18	..	..	..	..	..	7	7	4	..	2	..	2
Diseases & Accidents of Parturition .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Heart Diseases ..	25	1	..	1	1	8	14	6	11	8	3	7	..	10
Accidents	11	1	1	1	1	5	2	2	5	4	17	5	..	22
Suicides	2	..	..	..	..	1	1	..	1	1	..	..	..	..
Acute Rheumatism ..	1	..	..	..	..	1	..	1	..	..	..	..	..	..
Old Age	33	..	..	..	..	2	31	12	11	10	..	31	..	31
Chickenpox	1	..	1	..	..	..	..	1	..	..	..	..	..	..
Uncertified	21	10	1	..	..	6	4	8	7	6	..	3	..	3
All other causes ..	89	39	7	2	1	24	16	29	26	34	9	24	..	33
All causes	466	155	64	13	21	123	90	147	152	167	49	113	..	162

REPORT.

Physical Features and General Characters of the District.—The greater part of the town is built upon an elevated table-land which projects in an eastward direction from the higher land of Newbold and Dunston into the valley of the Rother, the remainder being situate in the north-east, south and west in the valleys of the Hipper and the Rother, which streams unite on the south-east of the town. The joint stream falls into the Chesterfield and Stockwith Canal, the overflow from which, non-existent in dry weather, enters the river bed which skirts the sewage farm.

The geological formation is chiefly clay overlying the sandstone coal measures, though small deposits of alluvium are found near the rivers. The higher part of the town is built on "rachel," or loose shale, though sandstone also occurs in places. The altitudes range from 234 feet 3 inches at the river near the Midland Railway Station to 348 feet 6 inches at the entrance of the old Recreation Ground.

The Borough is divided for electoral purposes into three wards, the North which is chiefly residential and mercantile, and the South and West which contain the principal factories and works, though they are also largely residential.

The chief industries are the coal and iron trades, but there are several large mills, engine-works, potteries, breweries and a large tannery. At the last census. coal and shale miners formed 22 per cent. of the males engaged in occupations.

The Population.—The population at the time of the last census numbered 27185 persons who occupied 5282 houses. These numbers have since largely increased, but not at the same rate as

between 1891 and 1901. This is probably due to large numbers of houses having been built in the outskirts of the town.

An estimate according to the method of the Registrar-General, which is based on the assumption that the population has increased at the same rate as between the two previous census, gives the population at the middle of the year as 28963, but I prefer to follow the method adopted last year of adding the number of houses passed for occupation in the twelve months ending June 30th, deducting the number demolished, and basing my calculation in the number of inhabited houses.

This method gives the **Population** of the Borough as **28590**, and the populations of the Wards as 10323 in the case of the North Ward, including the Union Workhouse and the Chesterfield and North Derbyshire Hospital; 8958 for the South; and 9309 for the West.

Fifteen houses in the North Ward were passed, seven in the South, and twenty in the West. None were demolished.

The inclusion of the populations of the Hospital and Union Workhouse materially reduces the various rates for the North Ward.

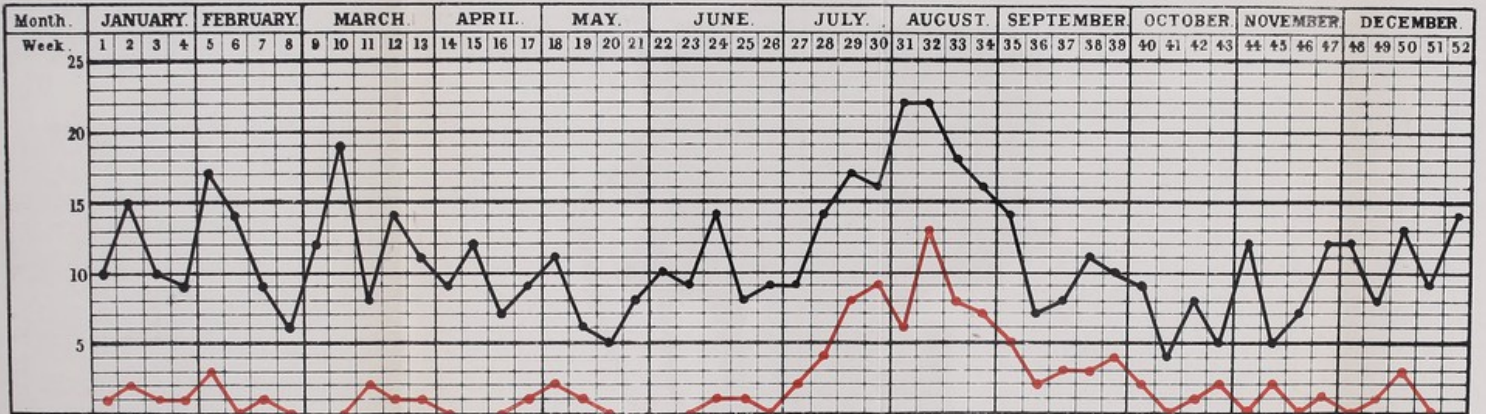
Birth Rate.—The 926 Births registered included 17 in the Union Workhouse belonging to other districts. The deduction of these gives 909 as the correct number, equal to a **Birth Rate** of **31·8**. The rate was 22·2 in the North Ward, 35 in the South Ward, and 39·1 in the West.

The illegitimate rate per cent. of the births was 5·7 in the Borough as a whole after the deduction of twelve belonging to outside districts; 5·2 in the North Ward; 4·8 in the South; and 6·9 in the West.

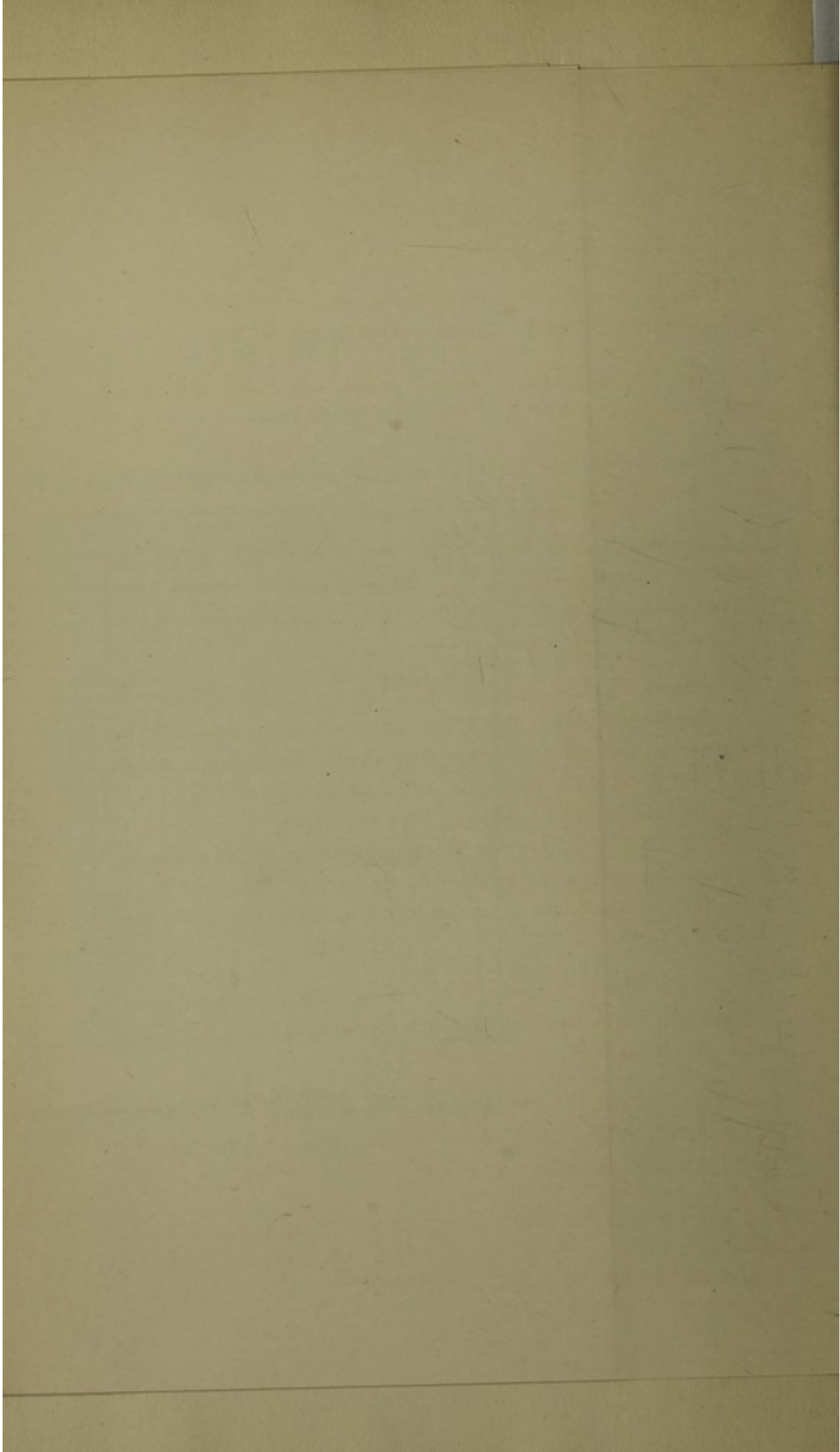
Death Rate.—The deaths were 568 of which 49 occurred in the Chesterfield and North Derbyshire Hospital and 113 in the

BOROUGH OF CHESTERFIELD.

.....
 CHART SHOWING THE GROSS MORTALITY DURING EACH WEEK OF 1904.



Note: The Black Line indicates the deaths from all causes ; the Red the deaths from the seven principal Zymotic diseases only.



Union Workhouse. The deduction of 102 belonging to other districts, 35 in the Hospital and 67 in the Workhouse, gives 466 as the correct number of deaths, which are equal to a **Death Rate** of 16·3 per 1000. This is practically the same as that for England and Wales, and well below the decennial average of 18·6.

This and other rates are contrasted with those of England and Wales and neighbouring districts in Table V.

The rates for the Wards were :—North, 14·2 ; South, 16·9 ; and West, 17·9.

Zymotic Death Rate.—The deaths included under this heading are those occasioned by smallpox, measles, scarlet fever, whooping cough, diphtheria and membranous croup, typhus, enteric and continued fevers, and diarrhœa.

Two deaths caused by measles, 11 by scarlet fever, 7 by whooping cough, 10 by diphtheria and membranous croup, 10 by enteric fever, and 63 by diarrhœa are equal to a **Zymotic Death Rate** of 3·6. This is above the decennial average of 2·7, and the highest rate since 1898, when it was the same. The increase is principally due to the increase in the number of deaths caused by diarrhœa, which is more apparent than real, as explained under the heading “Diarrhœa.” The distribution of the deaths is shown in Table IV.

Infant Mortality.—This rate taken over a number of years is a valuable indication of the sanitary condition of a district. The rates of past years are given in Table VI.

The 155 deaths under one year of age are equal to a rate of 171 per 1000 births. The rate in the Wards were :—North, 173 ; South, 153 ; West, 181.

The rate was 164 among legitimate, and 267 among illegitimate children. The average for the previous four years was 189 for legitimate, and 366 for illegitimate children.

TABLE V.

Synoptic Table of the foregoing Rates and the Rates of Neighbouring Districts, and of England and Wales.

1904.	Estimated Population	Annual Rates per 1,000 living.						Infant Mortality per 1,000 Births.
		Births.	Deaths.	Zymotic Deaths.	Respiratory Diseases Deaths.	Phthisis Deaths.	Other Tubercular Diseases Deaths.	
England and Wales ...	—	27.9	16.2	1.94	—	—	—	146
76 Great Towns ...	—	29.1	17.2	2.49	—	—	—	160
142 Smaller Towns ...	—	27.5	15.6	2.02	—	—	—	154
Brampton and Walton U.D. ...	2,700	18.5	14.8	1.1	2.9	1.4	0.3	225
Clay Cross Urban District ...	8,550	32.0	15.9	2.2	2.1	0.6	0.6	171
Dronfield Urban District ...	3,910	36.5	19.4	0.5	3.1	0.5	0.5	118
Newbold and Dunston U.D. ...	6,000	38.8	16.0	2.2	2.5	1.3	1.0	81.5
Whittington Urban District ...	9,751	37.0	18.8	3.1	4.6	0.5	0.8	208
City of Sheffield ...	432,940	32.0	16.8	2.3	3.2	1.24	0.6	159
Chesterfield Rural District ...	74,628	34.1	14.7	2.0	2.3	0.55	0.8	142
Chesterfield ...	28,590	31.8	16.3	3.6	2.3	1.06	0.7	171
Chesterfield, average of ten years, 1894 to 1903 ...	25,851	33.9	18.6	2.7	3.5	1.14	0.7	184

TABLE VI.
INFANT MORTALITY DURING RECENT YEARS.

	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	Total	1904
Scarlet Fever ...	—	—	—	—	—	—	1	—	—	—	1	1
Diphtheria ...	1	—	—	1	—	—	—	1	—	1	4	1
Measles ...	—	4	6	—	3	—	9	1	5	5	33	—
Whooping Cough...	9	—	1	6	9	4	1	9	1	4	44	3
Diarrhœa ...	5	30	16	55	40	28	22	42	14	33	285	54
Erysipelas ...	1	—	—	—	—	—	—	—	1	—	2	—
Chickenpox ...	1	—	—	—	—	—	—	—	—	—	1	—
Digestive diseases	10	10	17	18	16	15	18	13	5	7	129	5
Tubercle ...	8	2	3	6	6	5	10	6	8	5	59	11
Other constitutional diseases ...	7	2	1	3	2	—	1	2	4	6	28	2
Convulsions ...	12	11	14	(—	—	—)	21	24	11	9	191	14
Nervous diseases	4	3	4	(12	30	29)	7	—	—			
Respiratory diseases	23	29	19	26	36	17	29	48	25	29	281	12
Prematurity ...	16	13	16	18	12	21	28	19	17	16	176	18
Congenital defects	3	3	4	3	4	8	5	7	—	3	40	7
Violence ...	1	1	4	4	3	4	—	4	1	1	23	1
Other causes ...	19	33	31	28	40	18	39	22	52	41	323	16
Uncertified ...	—	—	—	—	—	—	—	—	—	—	—	9
Total ...	120	141	136	180	201	149	191	198	144	160	1620	155

TABLE VII.

Vital Statistics of the Borough of Chesterfield for 1904 compared with those for the preceding ten years, and with those of England and Wales for the ten years ending 1903.

Rates per 1,000 living.	Chesterfield, 1904.	Chesterfield Average of Ten years, 1894 to 1903.	England and Wales. Average of Ten years, 1893 to 1903.
Estimated Population	28,590	25,851	40,585,947
Birth Rate	31·6	33·86	29·16
Death Rate	16·8	18·61	17·22
Zymotic Death Rate	3·6	2·66	2·01
Infant Mortality (per 1,000 Births) ...	171	184	149·5
Small-pox	nil.	·004	·004
Measles	·07	·50	·38
Scarlet Fever	·38	·14	·14
Whooping Cough	·24	·30	·34
Diphtheria and Membranous Croup ...	·35	·17	·26
Croup	nil.	·02†	·03
Enteric Fever	·35	·23	·16
Epidemic Influenza	·07	·21	·28
Diarrhœa... ..	2·20	1·31	·72
Enteritis	·30	·45	·37
Puerperal Fever	nil.	·05	·06
Erysipelas	nil.	·02	·04
Other Septic Diseases	·21	·02*	·04
Phthisis Pulmonalis	1·05	1·14	1·31
Other Tubercular Diseases	·70	·67	·58
Cancer, Malignant Disease	·66	·58	·80
Bronchitis	1·47	2·44*	1·52
Pneumonia	·84	1·03*	1·19
Pleurisy	nil.	†	·05
Alcoholism, Cirrhosis of the Liver ...	·28	·26*	·21
Venereal Diseases	·07	·09	·07
Premature Birth	·63	·67	·57
Diseases and Accidents of Parturition ...	nil.	·11	·07
Heart Diseases	·77	1·17	1·49
Accidents... ..	·38	·61	·52
Suicides	·07	·09	·08
Acute Rheumatism	·03	·06	·08
Old Age	1·15	1·68	·92
Uncertified, per cent of Deaths	·73	·30	·06

† Average of 6 years. * Average of 8 years. † Not available.

INFECTIOUS DISEASES.

Smallpox.—Houses Infected, 4 ; Cases, 6 ; Deaths, 0. Three cases were those of tramps at the Union Workhouse ; two other patients were admitted from common lodging houses, and the sixth from Lordsmill Street ; the origin of the last case was not ascertained, but the patient believed he acquired the disease from a tramp he met in a public house. All the patients were removed to the hospital, and " contacts " vaccinated or re-vaccinated as far as possible ; and all infected articles disinfected. No spreading took place. The sanitary authorities of the districts from which the patients came were informed at once, generally by telegraph or telephone in the first instance.

Diphtheria and Membranous Croup.—Houses Infected, 30 ; Cases, 37 ; Deaths, 10. In addition to the above, 5 patients were brought from outside districts for treatment.

Nineteen occurred in the first quarter of the year, 8 in the second, 2 in the third, and 8 in the last. The distribution of the cases of this and other diseases is shown in Table III.

Diphtheria Antitoxin was gratuitously provided, by resolution of the Health Committee, for both curative and prophylactic purposes.

Four bacteriological examinations were made at Birmingham University under the arrangement made by the County Council, and positive results were obtained in each case.

Erysipelas.—Houses Infected, 32 ; Cases, 32 ; Deaths, 0. The number of cases was above the average, but no connection appeared between any of the cases.

Scarlet Fever.—Houses infected, 217 ; Cases, 291 ; Deaths, 11. Two other cases were brought from outside districts for surgical treatment in the Chesterfield and North Derbyshire Hospital where the disease developed.

Fifty-one cases occurred in the first quarter of the year, 47 in the second, 48 in the third, and 145 in the last.

Two cases which occurred in the Hospital were removed to the Penmore Sanatorium.

A large number of the cases occurred in connection with the Central Schools, but an examination of the school children made by Dr. Edmunds, Medical Officer to the Education Committee, resulted in all the children being found apparently healthy.

Enteric or Typhoid Fever.—Houses Infected, 33 ; Cases, 46 ; Deaths, 10.

The numbers of cases and deaths were above the averages of 37 and 7 during the last 9 years.

Nine cases occurred in the first quarter, 5 in the second, 16 in the third, and 16 in the last.

One was believed to be due to eating ice cream and oysters at Blackpool ; at least one other was imported ; 11 appeared to be due to sickroom or direct infection ; 2 to " paddling " in sewage-polluted brooks ; and the remainder to doubtful or unknown causes.

The excreta of patients was either removed in airtight vessels to the destructor, or destroyed on the fire of the sickroom in my patent cremator.

No specimen of blood was sent for bacteriological examination at Birmingham.

Measles.—Cases, many ; Deaths, 2. **Whooping Cough.**—Cases, many ; Deaths, 7.

A large number of cases of these diseases came to my knowledge, handbills concerning the treatment, and advising isolation, were sent to all houses known to be infected.

School Notification.—The Officers of the Education Committee reported cases of disease as follows :—Scarlet fever, 10 ; measles, 122 ; whooping cough, 61 ; mumps, 78 ; chickenpox, 30 ; ringworm, 73 ; other skin affections, 78. Total, 452.

The cases of chickenpox were visited and verified, so as to exclude the possibility of mild cases of smallpox in vaccinated subjects being overlooked.

Diarrhœa and Enteritis.—Sixty-three deaths were ascribed to diarrhœa, and 9 to enteritis.

Of 60 children whose deaths from diarrhœa were investigated 4 were breast fed, 34 were fed from long-tube bottles, 10 by sanitary bottles, or bottles with teats easily cleaned, 4 were hand fed with solid or patent foods, 4 were hand fed with milk, and 1 partly on the breast and partly with solid food.

The increase in the number of cases of diarrhœa is the principal factor in increasing the zymotic death-rate. It is the largest since 1897, when 67 deaths were ascribed to this cause. Probably many of the cases would, if they had occurred in former years, been attributed to enteritis, and thus not have helped to swell the number of so-called zymotic deaths. The circular of three years ago respecting diarrhœa and digestive diseases has resulted in an increase of the number of deaths ascribed to the former at the expense of those ascribed to other diseases. The dryness of the summer had doubtless much to do with the heavy mortality.

Hospital Accommodation.—Hospital accommodation was provided at Newbold Hospital, the property of the Chesterfield Joint Hospital Committee, for 4 smallpox patients, and at Spital Hospital, the property of the North Derbyshire Committee, for 2 more.

Four Diphtheria cases that required surgical treatment were admitted to the Chesterfield and North Derbyshire Hospital, and 1 case of enteric fever. Two enteric fever cases were treated in the Union Workhouse.

Penmore Hospital was opened on December 7th. Accommodation is provided for 16 scarlet fever patients in four wards, of which two are one-bed wards; for 9 enteric fever patients in two wards; while the three isolation wards have accommodation for 4 patients,

one being a two-bed ward; a "sun-room" forms part of the scarlet fever block.

There are also an administrative block, a laundry, disinfecting chambers and discharging room, ambulance shed, bedding-van shed, stable, and mortuary.

Under an agreement between the two Hospital Committees, patients may be sent when necessary to the North Derbyshire Hospital Committee's Hospitals when accommodation is available, at an inclusive charge of 3/- per day per patient.

The first patient was admitted on December 19th from the Chesterfield and North Derbyshire Hospital, suffering from scarlet fever, and another on Christmas Day. These were all that were admitted during the year.

Tuberculosis.—Thirty deaths attributed to phthisis pulmonalis, and 20 to other forms of tuberculosis are equal to a rate of 1.75 per 1,000, which is slightly below the decennial average of 1.81. Most of the deaths other than those from consumption of the lungs were those of infants or young children from bowel disease, probably derived in the majority of cases from the milk of tuberculous cows.

No case was notified during life, nor was any application made for disinfection after the death of a patient.

Water Supply.—The small rainfall at the end of the year caused fears of a water famine to be entertained, but though it was thought advisable by the Chesterfield Gas and Water Board to issue warning notices respecting the waste or misuse of water, no curtailment of the supply was found necessary. The extent of the shortage may be realised when it is remembered that each inch of rain falling on the gathering ground is equal to upwards of 31½ million gallons, not allowing for evaporation. As during the last three months of the year, the rainfall at Linares was only 3.90 inches, as compared with 10.75 in the previous year, the difference in the amount of rainfall in the last three months of the two years was upwards of 214 million gallons, or about 1½ times the capacity of the reservoirs.

The supply is upland surface water collected on a gathering ground 1,386 acres in extent, and stored in two reservoirs at Linaere, the upper of which is of 126,300,000, and the lower of 32,357,000 gallons capacity. A third reservoir to hold 64,000,000 gallons is in course of construction ; as are also filters.

If a further supply has ever to be looked for (and when water-carriage is substituted for the conveyance system it will be needed), it appears to me that the best way of providing it would be to come to an arrangement with the Chesterfield Rural District Council for a supply from the new Barbrook reservoir. The rural supply has always been sufficient in recent years except in one before the repairing of Crow Hole reservoir, and this new reservoir, which was intended to hold seventy million gallons, and is more likely to hold a hundred millions, will not be needed to anything like its full capacity. It is only $8\frac{1}{2}$ miles from the upper Linaere reservoir, and no great engineering difficulties stand in the way of their connection.

Sewage Disposal.—Purification of the sewage is effected by passing it through detritus tanks, where a large proportion of the mineral solids, such as road silt, is deposited, and through screens to remove coarse floating and suspended matter, after which it enters the sewage tanks. These are in triplicate, each tank having a capacity of 223,000 gallons, the three being equal to taking more than a day's dry weather flow at ordinary times. Usually one of the tanks is being cleaned, and therefore out of action. In these the organic solids are to a great extent liquified, but some sludge is deposited, which is removed periodically and squeezed in the sewage presses, the resulting "cake" being given to farmers who come for it. There is no difficulty in disposing of it.

From the tanks the sewage goes forward to a well near the pumping-house, whence it is pumped to the filters, on which it is distributed by means of revolving arms.

The filters consist of destructor breeze, graded from large clinkers at the bottom to small pieces at the top. They are 6 feet in

depth except in the case of one 90 ft. filter, which is 8 ft. 6 ins. There were 7 filters complete and at work at the end of the year, 6 being 100 ft. in diameter, and the other 90, equal to an area of 5,850 square yards. There were also ready for use three other filters of 90 ft. diameter, equal to a superficial area of 2,120 yards, bringing the total area in or ready for use to 7,970 yards, sufficient at the moderate estimate of 100 gallons a square yard, for the purification of 800,000 gallons daily.

The pumping of the sewage has been by power derived from the destruction of refuse, but an electric motor has been installed, which will take the place of the steam engine on Sundays and when the destructor is shut down for cleaning or other purposes. The cost of the electricity is nearly 15/- a day.

The spraying of the sewage on to the filters by Shone's ejector and otherwise has been abandoned, being thought to give rise to smell. The cutting off of various small streams found to enter the sewers, and the repair of various leaky sewers has greatly diminished the volume of sewage, and I do not believe the dry weather flow now exceeds half a million gallons a day, if it attains to that figure. In time of rain-storm it is enormously increased, and I strongly advise the construction of a storm filter of large area to cope with it.

Many samples of filter effluent were examined during the year by the county and other authorities, and myself, and invariably found satisfactory, but the effluent from the land, when it was used, was much as in former years.

Complaints were made and an action for an injunction commenced by a neighbouring resident on account of smells said to arise from the works. Steps being taken to minimise any possible nuisance, the action was withdrawn.

Refuse Disposal.—The removal of the house refuse has been carried out by the Corporation's own staff.

The cost for the year was £1,640 19s. 7d., or at the rate of 5s. 11d. per house, or £56 11s. 8d. per 1,000 inhabitants, as

compared with £58 10s. Od. per 1,000 when the removal of house refuse was done by contractors.

The amount of refuse removed was 13,024 loads, which was disposed of as follows :—12,658 loads went to the destructor, 236 was taken to tips, and 130 loads went to farmers. All the refuse that was tipped was dry and of a harmless character. The refuse taken to farmers was from middens in the extreme East and West ends of the Borough, and was put on the land without creating a nuisance.

The numbers of emptyings of ashpits, the amount of refuse removed from the different Wards, and the cost of labour for removing the refuse in the night is as follows :—

	North.	South.	West.	Total.
No. of emptyings	3,338	3,091	3,712	10,136
No. of loads ...	4,226	4,055	3,675	11,956
	s. d.	s. d.	s. d.	s. d.
Cost per load ...	1 3½	1 4½	1 9½	1 6

There are 576 tenements have their refuse stored in portable refuse bins which are emptied weekly, in the day time. From this, 1,068 wagon loads were removed, the cost being £165 6s. 1d., or 5s. 8d. per house.

Housing of the Working Classes.—Many houses have been built during the last few years, so that it does now appear desirable for any action to be taken in the matter beyond seeing that houses are kept in proper repair, and obtaining the abatement of nuisances.

Systematic Inspection.—Houses were visited and inspected as follows :—NORTH WARD. Holywell Street, 11 ; Devonshire Street, 24 ; Newbold Road, 16 ; Compton Street, 16 ; Foljambe Road, 11 ; Sheffield Road, 45 ; Prospect Street, 46 ; New Square, 31 ; Albert Street, 61 ; Soresby Street, 13 ; Saltergate, 30 ; Rutland Road, 10 ; New Queen Street, 10 ; TOTAL, 324. SOUTH WARD. Park Road, 13 ; Hipper Street, 6 ; Hasland Road, 10 ; Derby Road, 24 ;

Beetwell Street, 37 ; Boythorpe Lane, 5 ; Vicar Lane, 11 ; Station Back Lane, 30 ; St. Mary's Gate, 26 ; High Street, 10 ; Low Pavement, 30 ; Spital, 5 ; Station Road, 13 ; Lordsmill Street, 14 ; West Bars, 24 ; TOTAL, 258. WEST WARD. Old Hall Road, 4 ; Shipley Street, 7 ; Barker Lane, 70 ; Catherine Street, 26 ; John Street, 12 ; Sterland Street, 14 ; Hipper Street, 19 ; Victoria Street, 6 ; Old Road, 8 ; Chatsworth Road, 91 ; Wheatbridge Road, 37 ; Furnace Lane, 33 ; TOTAL, 327. GRAND TOTAL, 909.

The nuisances found were dealt with.

The Market and Food.—The Market was inspected weekly, and the food exposed for sale inspected.

There were taken during the year 50 samples of new milk and 10 of butter, all of which were found to be genuine except one of milk. This was .51, or one-sixth, deficient in fat ; the vendor was fined £1 and costs.

Common Lodging-Houses.—These were frequently inspected and found satisfactory, though some are unsuitable for the purpose for which they are used.

Cowsheds, Milkshops and Dairies Order.—These were all visited and found generally satisfactory with two exceptions, in which cases notices were served for repair of buildings.

Slaughter-Houses.—These were frequently visited and found satisfactory.

Ice-Cream Manufactories.—These were inspected. They are much better kept than formerly was the case.

Factories and Workshops.—These were visited and inspected. A list drawn up in the form prescribed by the Home Office is appended. See Table X.

Four workshops were found in a dirty condition. There were altogether 8 infringements of the regulations. Informal notices were served these cases and complied with.

TABLE VIII.

Summary of Work done by the Inspector of
Nuisances during the Year 1904.

Nature of Cases dealt with.	Ward.			Total.
	North.	South.	West.	
Inspection of Dwelling-houses	324	258	327	909
" and visits to premises where Zymotic diseases have occurred	238	187	202	627
" of premises where offensive trades are conducted	9	15	—	24
" of workshops	57	83	25	165
" slaughterhouses	21	112	31	164
" cowsheds and dairies	8	17	37	62
" bakehouses	19	26	11	56
" common lodging houses	29	87	10	126
Re-inspection of work in progress for abatement of nuisances	173	197	164	534
House drains tested with smoke	8	18	2	28
Total number of Inspections of premises	886	1000	809	2695
Number of houses disinfected after cases of infectious diseases.. ..	94	83	62	239
Number of complaints from public in- vestigated	42	34	28	104
Number of notices issued for legal abatement of nuisances ; informal	37 128	55 112	59 91	151 331
Dirty houses cleansed and limewashed ..	10	13	15	38
Houses overcrowded	3	7	6	16
Waste pipe connected to drains	10	3	5	18
Drains obstructed	61	46	42	149
Defective traps and drain inlets	37	36	30	103
Insanitary privies and middens	35	30	32	97
Insufficient closet accommodation	2	2	—	4
Insanitary privies converted into water- closets	3	4	—	7
Water-closets defective	23	32	6	61
Yard surfaces in bad repair	28	17	21	66
Eaves and downspouts defective	30	24	28	82
Urinals repaired and altered	6	3	5	14
Animals improperly kept	—	1	3	4
Offensive accumulations	10	16	17	43
Total number of nuisances	258	234	210	702
" " " abated	256	229	207	692

TABLE IX.
Giving a Summary of the Sanitary Work of
recent years.

	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	Total
Houses closed by Magistrates' Order ..	3	..	..	..	..	..	5	..	..	..	8
Houses closed after formal notice ..	6	11	7	18	6	..	24	9	..	..	81
Houses closed after informal notice ..	..	..	8	..	..	..	1	3	..	..	12
Houses demolished or disused ..	1	..	..	..	..	..	..	1	..	..	2
Houses demolished or disused in con- sequence of making new railways..	22	21	..	..	..	..	..	..	..	..	43
Houses made fit for habitation..	40	19	13	..	3	..	..	..	4	12	191
Houses repaired ..	163	89	99	67	12	23	45	29	65	45	637
Yards repaired ..	19	97	38	119	70	76	108	38	106	66	737
Overcrowding notices served ..	9	10	7	41	48	30	31	49	29	16	270
Houses inspected ..	357	353	884	903	1044	926	1220	1491	1100	909	8187
Formal } Notices served for	721	225	137	112	111	103	133	184	193	151	1349
Informal } the abatement of		179	339	509	465	429	376	376	318	331	4043
Total number of nuisances abated ..	711	978	724	1001	895	827	888	796	794	692	8306

TABLE X.

**Inspection of Factories, Workshops, Laundries, Workplaces
and Homework.**

1.—INSPECTION.

Including Inspections made by Sanitary Inspector or Inspector of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions
Factories (including Factory Laundries) ..	47	2	0
Workshops (including Workshop Laundries)	165	6	0
Workplaces	0	0	0
Homeworkers' Premises	0	0	0
Total	212	8	0

2.—DEFECTS FOUND.

Premises.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts—</i>				
Want of cleanliness.. .. .	4	4	0	0
Want of ventilation.. .. .	0	0	0	0
Overcrowding	0	0	0	0
Want of drainage of floors.. .. .	0	0	0	0
Other nuisances	2	2	0	0
Sanitary accommodation { insufficient	1	1	0	0
{ unsuitable or defective	1	1	0	0
{ not separate for sexes	0	0	0	0
<i>Offences under the Factory and Workshop Act—</i>				
Illegal occupation of underground bakehouse	0	0	0	0
Breach of special sanitary requirements for bakehouses	0	0	0	0
Failure as regard lists of outworkers ..	0	0	0	0
Giving out work to be done { infected ..	0	0	0	0
{ in premises which are { unwholesome	0	0	0	0
Allowing wearing apparel to be made in premises infected by scarlet fever or smallpox	0	0	0	0
Other offences	0	0	0	0
Total	8	8	0	0

3.—OTHER MATTERS.

Class.	Number.	
Matters notified to H.M. Inspections of Factories :—		
Failure to affix Abstract of the Factory and Workshop Act	0	
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts, but not under the Factory Act	(	Notified to H.M. Inspector ..
		Reports (of action taken) sent to H.M. Inspectors ..
Other	3	
Underground Bakehouses :—		
In use during 1903	0	
Certificates granted	{	in 1903
		in 1904
In use at the end of 1904	0	
Number of		
	Lists.	Out-workers.
Homework :—		
<i>List of Outworkers :—</i>		
Lists received	2	
Addresses of outworkers	0	
(forwarded to other Authorities)	0	
(received from other Authorities)		
Wearing Apparel. Other.		
<i>Homework in unwholesome or infected premises :—</i>		
Notices prohibiting homework in unwholesome premises	0	0
Cases of infectious disease notified in homeworkers' premises	0	0
Orders prohibiting homework in infected premises ..	0	0
Workshops on the Register at the end of 1904	119	
Bakehouses	19	
Total number of workshops on Register ..	138	

TABLE XI.

	1895		1896		1897		1898		1899		1900		1901		1902		1903		Average of 9 years.		1904		
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Notifiable Disease.																							
Smallpox
Scarlet Fever..	46	2	103	3	267	7	121	6	105	4	159	5	88	5	59	2	51	0	111	3	291	11	
Diphtheria and Mem- branous Croup ..	8	4	14	5	10	4	5	2	7	1	44	2	39	10	23	4	41	7	21	4	37	10	
Erysipelas ..	12	0	18	0	27	1	23	0	27	0	21	..	26	2	32	1	18	0	23	4	32	0	
Puerperal Fever ..	2	1	1	1	3	3	5	3	5	0	0	0	4	3	3	1	1	1	3	1.5	0	0	
Enteric Fever ..	28	4	9	0	59	10	47	5	21	7	20	8	109	19	20	3	22	3	37	7	46	10	
Diarrhoea ..	..	44	..	18	..	67	..	46	..	33	..	31	..	44	..	17	..	35	..	37	..	63
Gastro-enteritis ..	..	..	..	16	..	15	..	20	..	14	..	24	..	12	..	5	..	3	..	12	..	9
Measles ..	..	10	..	35	..	0	..	18	..	4	..	32	..	4	..	13	..	10	..	14	..	2
Whooping Cough ..	..	0	..	6	..	10	..	14	..	5	..	4	..	14	..	4	..	8	..	7	..	7

TABLE XII.

Number of Bathers and Income at Baths from
January to December, 1904.

Month.	2d.	3d.	4d.	6d.	Bathers, 1904.		Income, 1904.		Bathers, 1903.		Income, 1903.	
							£	s. d.			£	s. d.
January	41	190	348	65	644	643	10 2 10	643	10 9 5			
February	47	198	308	62	615	864	9 11 0	864	18 18 4			
March ...	34	247	396	76	753	880	11 17 5	880	13 18 3			
April ...	67	339	700	135	1241	912	19 16 9	912	14 12 2			
May ...	74	356	662	178	1270	1601	20 11 0	1601	25 11 11			
June ...	96	411	674	166	1347	1283	21 6 5	1283	20 4 2			
July ...	158	694	1139	322	2313	2000	37 0 6	2000	31 18 4			
August	89	339	582	129	1199	1169	17 18 1	1169	18 8 0			
September	76	397	754	164	1391	1059	22 5 3	1059	16 15 9			
October	51	288	419	110	868	1115	13 15 2	1115	17 16 5			
November	33	227	363	70	693	718	10 18 3	718	11 4 6			
December	40	250	397	62	749	796	11 12 6	796	12 10 3			
Totals	806	3936	6742	1539	13023	13044	£206 15 2	13044	£207 7 6			

347 were women bathers.

TABLE XIII.

Statement of Income for the year ending the 31st day of December, 1904, at the Lavatories, New Square.

Month.	Male W. Cs.		Female W. Cs.		Male Lavatory		1904 Total.		1903 Total.		1902 Total.		1901 Total.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
January	6	10 4	3	6 8	0	5 9	10	2 9	10	19 1	9	10 6	7	18 9
February	5	8 6	3	0 8	0	6 2	8	15 4	10	6 3	8	10 9	8	18 3
March ...	5	11 0	3	6 7	0	5 5	9	3 0	11	2 7	13	1 2	9	11 0
April ...	6	4 4	3	13 9	0	8 2	10	6 3	10	8 3	9	11 5	10	19 11
May ...	6	2 4	4	6 7	0	13 9	11	2 8	10	17 9	10	14 2	10	8 10
June ...	4	15 1	2	12 4	0	10 5	7	17 10	11	19 1	11	19 7	9	18 2
July ...	6	12 1	3	1 11	1	5 6	10	19 6	9	9 9	11	6 9	13	17 5
August ...	6	12 4	3	10 6	0	14 0	10	16 10	11	17 11	10	17 5	10	15 4
September	6	6 6	3	6 2	0	6 11	9	19 7	10	3 1	12	8 1	12	7 2
October	7	8 8	4	14 1	0	8 1	12	10 10	10	0 1	10	2 5	10	1 11
November	5	10 7	3	7 5	0	5 1	9	3 1	10	15 10	10	18 1	9	15 9
December	6	13 5	3	6 5	0	5 1	10	4 11	9	10 7	12	19 9	11	4 9
Totals.	73	15 2	41	13 1	5	14 4	121	2 7	127	10 3	132	0 1	125	17 3

TABLE XIV.

Articles Disinfected by the Steam Disinfector.

Mattresses	...	...	...	...	154
Beds	...	...	...	...	170
Bolsters and Pillows	...	...	...	...	428
Bolster and Pillow Cases	...	...	...	...	87
Sheets	...	...	...	...	99
Blankets	...	...	...	...	247
Counterpanes	...	...	...	...	147
Curtains and Bed-hangings	...	...	...	...	19
Carpets and Mats	...	...	...	...	49
Articles of Male Clothing	...	...	...	...	373
Articles of Female Clothing	...	...	...	...	201
Miscellaneous	...	...	...	...	45
					<hr/> 2019 <hr/>

The number disinfected in 1903 was 2871. Many of the above were brought from outside districts in connection with the small-pox outbreaks, and paid for.

TABLE XV.
METEOROLOGICAL RECORD, 1904.

Rain Gauges, 5 inches in Diameter, 1 foot above ground, 279 feet above sea level at the Gas Works and 500 feet at the Lower Reservoir, Linacre. Temperature taken in the shade and 4 feet from the ground.

MONTHS.	Temperature of Air during the Month.			Mean Temperature of air.	Rainfall.				
	Highest.	Lowest.	Mean of		Number of days on which rain fell.		Amount collected in inches.		
			All highest.		All lowest.	Gasworks.	Linacre.	Gasworks.	Linacre.
January ...	54	24	44.5	32.2	17	21	3.15	3.68	
February ...	57	23	42.3	32.6	20	21	3.94	4.91	
March ...	59	24	44.9	32.5	16	21	2.08	2.17	
April ...	65	31	55.3	39.9	15	14	1.50	1.63	
May ...	72	32	59.2	43.0	16	17	1.79	2.39	
June ...	77	34	66.0	46.3	6	11	.76	1.08	
July ...	84	41	74.3	52.1	7	10	2.42	2.78	
August ...	85	38	69.2	49.3	9	15	3.69	4.01	
September ...	73	31	64.7	43.7	8	12	1.12	1.18	
October ...	64	27	57.0	39.6	4	8	.86	.51	
November ...	60	13	47.8	31.5	12	12	1.39	1.87	
December ...	59	18	43.5	31.9	11	14	1.30	1.52	
Entire Year	*85	+13	55.6	39.5	141	176	23.50	27.73	

* August 4th. † November 24th. Supplied by the courtesy of the Gas and Water Board.

