[Report 1902] / Medical Officer of Health, Glasgow.

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REPORT OF THE MEDICAL OFFICER OF HEALTH.

1902.

GENERAL ACCOUNT OF SANITARY CONDITION OF CITY.

At the close of 1902 the old sanitary districts of Glasgow, which had served since 1871 as the units of sanitary administration, were replaced for this purpose by the several municipal wards.

The reasons which made this desirable have been already discussed in the Census (1901) Report (pp. 31-35), and the change was formally agreed to by the Committee on Health on 3rd December, 1902.

In future Reports the vital statistics will be given in detail for each ward, but it may be well to anticipate the change by referring to them in a general survey of the sanitary condition of the City, and for this purpose their birth-rates and death-rates from all causes have been abstracted for the past year.*

The general effect of this alteration will be toward equalising the population within the several units of administration.

In 13 of the old sanitary districts the populations were under 10,000, now two wards only, Blythswood and Exchange, come under this category; formerly in four districts the populations exceeded 50,000, now Dalmarnock is the only ward in which this is the case.

Coincident with this change in the population factor, there will be a modification in the rates which reflect their sanitary condition.

In general, it may be said that the larger area of the ward will fail to reflect its worst portions. An illustration of this may be taken from the figures presently available, although the period of one year (which is all that is available for ward rates) is too limited for reliable comparisons.

It has been pointed out on former occasions that the districts of Brownfield (13), Cowcaddens (16), Port-Dundas (2), High Street and Closes East (6), High Street and Closes West (3), Gorbals (22), and Calton (11), presented the highest death-rates when calculated over a series of years. In the year under review 3 and 6 have been displaced by Monteith Row (9) and St. Enoch Square (12).

In one district alone (Brownfield) the death-rate in 1902 exceeds 30 per 1,000, and the six others named have rates varying between 25 and 30 per 1,000. But the highest ward death-rate is barely 29 per 1,000 (Broomielaw), and the two next in order (Calton and Blackfriars) are 24 and 25 respectively.

Brownfield presents the highest district death-rate of the year (32·5), Calton (11) and St. Enoch Square (12) come next, each with a rate of 28, and the influence of all three is indicated in the relative position of Wards XII. and II., of which they severally form parts. Cowcaddens District (16) again is fourth highest in the grading of districts, and it forms part of Ward XVI., which has the fourth highest death-rate of the year. Monteith Row (9), which is sixth in order of district rates, is included in Ward II., which is second in the ward grading, while Gorbals (22), which is seventh in the district series, is partly included in Ward IX., which is third.

* See Table, page 11.

So far, then, most of the districts which past experience has shown to be persistently insanitary, have their prominence fairly represented in the death-rates of the new ward units which contain them. Port-Dundas (2), however, fails to appreciably affect the death-rate of Ward VIII., which barely exceeds the City mean, and High Street and Closes East (6) is similarly obscured in the rates appertaining to Wards IV. and V. This last district, however, is now so much altered by reconstruction that its present condition has few features comparable with its past.

In most cases, therefore, the ward death-rates fairly maintain the order of the districts, although the grading is on a lower scale. But it will be desirable to maintain the records of several of the older districts as subdivisions until there is definite evidence of improvement within their own limits.

TABLE I.

GLASGOW, 1902.—BIRTHS AND BIRTH-RATES *PER MILLION*, AND DEATHS AND DEATH-RATES *PER MILLION* IN EACH MUNICIPAL WARD.

WARDS.	BIRTHS.		DEATHS.	
	Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	2,086	40,834	996	19,497
2. Calton, ...	1,409	36,014	978	24,997
3. Mile-end, ...	1,723	39,909	962	22,282
4. Whitevale, ...	1,117	33,198	666	19,794
5. Dennistoun, ...	962	31,042	409	13,198
6. Springburn, ...	1,666	41,764	734	18,400
7. Cowlairs, ...	968	34,425	439	15,612
8. Townhead, ...	1,373	33,601	814	19,921
9. Blackfriars, ...	795	32,625	588	24,130
10. Exchange, ...	44	18,803	33	14,103
11. Blythswood, ...	56	15,086	50	13,470
12. Broomielaw, ...	260	28,969	259	28,858
13. Anderston, ...	1,012	34,110	600	20,223
14. Sandyford, ...	605	22,750	445	16,734
15. Park, ...	325	12,886	303	12,013
16. Cowcaddens, ...	1,416	36,234	915	23,414
17. Woodside, ...	1,490	32,356	740	16,069
18. Hutchesontown, ...	1,675	39,598	863	20,402
19. Gorbals, ...	1,024	28,416	684	18,981
20. Kingston, ...	1,019	29,560	616	17,870
21. Govanhill, ...	1,169	36,327	508	15,786
22. Langside, ...	572	20,336	287	10,204
23. Pollokshields, ...	174	10,425	191	11,444
24. Kelvinside, ...	213	12,133	139	7,918
25. Maryhill, ...	1,464	39,364	547	14,708
Institutions and Harbour, ...	91	...	1,288	...
CITY, ...	24,708	31,802	15,054	19,375

Among the wards with high death-rates, Broomielaw stands pre-eminent, then follow Calton, Blackfriars, and Cowcaddens in the order named. They contain the following districts:—

Ward XII. (Broomielaw), with a death-rate of 28·9, contains the whole of Brownfield (13), the worst of the old districts, the portion of St. Enoch Square (12) to the west of Jamaica Street, and of Blythswood to the south of Bothwell Street.

Ward II. (Calton), with a death-rate of 25, comprises the sanitary districts of Monteith Row (death-rate, 26·9), St. Andrew Square (death-rate, 19·3), Calton (death-rate, 28·1), and the Greenhead portion of District 7 (death-rate, 20·0).

Ward IX. (Blackfriars), with a death-rate of 24, includes Bridgegate and Wynds (death-rate, 22·5), a small portion of Exchange (death-rate, 18·9), most of High Street and Closes West (death-rate, 23·8), and an area on the south side of the river between Thistle Street and Rose Street, which formerly formed part of Hutcheson Square (death-rate, 19·5), and Gorbals (death-rate, 25·9).

Ward XVI. (Cowcaddens), with a death-rate of 23·4, comprises the old district of Cowcaddens (death-rate, 27·9) and portions of Blythswood, Woodside, and Rockvilla.

It will further be noticed that the greater part of Gorbals and the whole of Laurieston, which, as districts, had death-rates much in excess of the mean of the City, are now associated with much healthier areas in Wards XIX. and XX., whose death-rates are now ·4 and 1·5 respectively below the City mean.

I have elsewhere dealt in detail with the influence exercised by the death-rate of the one-apartment population on the general death-rate of the City,* and indicated how in New York the owner of tenement buildings is required, in certain circumstances, to actively co-operate with the Local Authority in maintaining a reasonable standard of internal hygiene.

It requires only a limited acquaintance, however, with houses of this class to recognise that the attainment of domestic cleanliness is frequently impeded by structural conditions, which, although of minor importance, are beyond the tenant's control, and cannot be overlooked. Most notably is this the case with regard to the condition of the plaster work. When this has become friable, or so broken with nail-holes and blisters that the whiting brush cannot be used, it may quite reasonably be, and has indeed not infrequently been, certified as a factor producing uninhabitability; but there are many stages in decay before this last condition is reached, where the careful tenant, by the use of repeated paperings, produces a result which is effective both as an aid to cleanliness and as affording protection to decaying plaster, but which in the occupancy of others of different habits becomes only an almost reasonable excuse for intentional neglect.

The wording of Section 16 (1) of the Public Health Act would appear to render it inapplicable in such circumstances, and yet this condition of partially decayed plaster is a frequent source of uncleanliness in smaller houses, and the subject is now engaging the attention of a Sub-Committee dealing with uninhabitable houses.

It is difficult to escape the impression that, were owners of such houses more directly interested in preventing the uninhabitability which arises from neglect, a higher standard of domestic cleanliness might frequently be reached.

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* It may be of interest here to reproduce the one-apartment death-rate in the seven sanitary districts which present the highest general death-rate—

Brownfield,	53·8 per 1,000	High Street and Closes West,	33·6 per 1,000
Cowcaddens,	45·7 ,,	Port-Dundas,	33·4 ,,
St. Enoch Square,	41·0 ,,	Gorbals,	33·2 ,,
Calton,	39·0 ,,	High Street and Closes East,	28·7 ,,
Monteith Row,	35·1 ,,		

CONSERVANCY METHODS AS AFFECTING THE EXTERNAL CIRCUMSTANCES WHICH TEND TOWARDS THE PRODUCTION OF INSANITARY CONDITIONS.

The substitution of water-closets for dry methods of conservancy continues to engage the attention of the Committee on Health. Of the wards already named, Câlton presents by far the greater number of premises in which the change remains to be accomplished. The Inspector of Cleansing favours me with a list of tenements at 49 addresses still dependent on dry methods in this ward alone.

STREET AND COURT WASHING.—HOSE-WASHING OF STREETS.

In compliance with an instruction of the Corporation, the following report on the hose-washing of streets and courts was submitted:—

"It will be unnecessary for the present purpose to consider in any detail the complex character of the surface impurity of our streets, save to recall the fact that it is in connection with the organic constituents that questions concerning health chiefly arise. This is especially the case since of recent years it has been shown that a micro-organism (*B. Enteriditis Sporogenes*), which is usually present in the digestive tract and excreta of horses and other animals, is capable, should it gain access to foodstuffs, of producing changes therein which may prove fatal to the consumer. How this contamination may arise is obvious enough if we remember the part which dust plays as a vehicle for infection. In the distribution of dust, wind is the most active agency; the part played by insects, and especially by flies, is demanding increasing attention, while the soiling of boots and clothing in humid weather readily transfers the mud of the streets to the interior of the house. Street washing reduces the volume of dust which may thus be distributed.

"But, apart from this aspect of the practice, hose-washing of streets has been resorted to here and elsewhere in order to increase the comfort and to some extent the safety of locomotion when the rainfall is sufficient only to fix the mud, but lacks the volume necessary to wash it into the sewers.

"The streets that are washed regularly—*i.e.*, once or twice weekly—lie wholly north of the Clyde, and almost wholly between Renfield Street, Parliamentary Road, and High Street, while portions of Dumbarton Road, Sauchiehall Street, Great Western Road, Cowcaddens, Castle Street, and Eglinton Street are occasionally done.

"The practice is, therefore, restricted almost to the commercial parts of the City and to the main avenues of traffic, and although every yard of surface which is thus dealt with contributes to the sum of general cleanliness and has a definite hygienic value, it is impossible to dissociate this aspect from the collateral operation of court washing; and, as affecting the health of the community, both should be considered together.

"In addition to a map which shows the position of the streets just mentioned, Mr. M'Coll has been good enough to supply me with a list in which is shown—

"(*a*) Courts which are not in a good state of repair, but are hose-washed; and

"(*b*) Courts which require washing, but are so much out of repair, or present such unsuitable surfaces, that they cannot be washed.

"Of the class (*b*) there exist—

In the Central District,	15
,, Western ,,	59
,, Eastern ,,	16
,, Southern ,,	56
,, Northern ,,	102
,, North-Eastern District,	118
	366

in addition to an almost equally large number falling under class (*a*).

"These courts afford a wide area for extending the practice, and there can exist no reasonable doubt regarding its importance.

"In the summer and autumn months especially there are many districts—between the Clyde and Cumberland Street (South-Side) may be taken as an illustration, although examples exist elsewhere—where there are side streets on which the wheeled traffic is limited, and back courts to which surface washing could be extended with advantage. But in both cases the surfaces would require to be suitably prepared for the purpose.

"Clause 31 of the Building Regulations Act, 1900, was specially designed to meet this requirement in connection with courts, and if, as I understand is the case, it has failed to meet the difficulty, I believe an early opportunity should be taken of remedying the defect by legislation."

POPULATION.

The Registrar-General estimated the population of Glasgow in the middle of 1902 at 775,601. This estimate is based on the assumption that the rate of increase which obtained during the decade 1891-1901 still continues. If the inhabited houses* are taken as the basis of calculation, the population is found to be 776,968, or 1,367 more than the Registrar-General's estimate.

During the five quarters between the date of the Census in 1901 and the middle of 1902, the births registered in the City numbered 30,815, and the deaths (corrected) 19,757, or an excess of births over deaths of 11,058, so that there has been an increase in the population, due to the excess of immigration over emigration, of 4,198.

Population—Census, 1901, ... 761,712

	Registrar-General.	Medical Officer.	By Natural Increase.
Population, Middle of 1902, ...	775,601	776,968	772,770
Increase, ...	13,889	15,256	11,058
Percentage Increase, ...	1·8	2·0	1·5

In the following Table the estimated population of each sanitary district is given, with the increase or decrease since the Census. In 22 of the districts the population has increased, and in 11† it has decreased, as compared with the Census returns. The main direction of movement, which was ascertained by the Census to have occurred during the decade 1891-1901, is thus still maintained, three only of the former having shown a decrease, and two only of the latter an increase during the previous decade:—

---

* For number of houses added during year and found existing at Assessor's Survey in June, see Table II., p. 15.

† The decreasing districts are—Bl., 1, 6, 9, 10, 12, 13, 18, 19, 20, and 22.

TABLE II.—GLASGOW.—ACREAGE, INHABITED HOUSES, ESTIMATED POPULATION, AND PERSONS PER ACRE IN EACH SANITARY DISTRICT IN 1902; ALSO THE POPULATION AND PERSONS PER ACRE AT THE CENSUS OF 1901, SHOWING THE PERCENTAGE INCREASE OR DECREASE IN THE POPULATION DURING THE INTERVENING PERIOD.

SANITARY DISTRICT.	Acreage, 1902.	Inhabited Houses, 1902.	POPULATION.						Persons per Acre (including Institutions and Shipping).	
			Actual, Census 1901.	Estimated, Middle of 1902.	Decrease.	Increase.	Decrease per Cent.	Increase per Cent.	1901.	1902.
— Blythswood, ...	266	5,319	28,016	27,380	636	...	2·3	...	107	106
1. Exchange, ...	215	4,476	22,212	21,966	246	...	1·1	...	114	111
2. Port-Dundas, ...	73	1,232	5,326	5,669	...	343	...	6·4	73	78
3. High Street and Closes West, ...	42	1,980	8,827	9,113	...	286	...	3·2	230	234
4. St. Rollox, ...	45	3,411	15,903	16,023	...	120	...	0·8	353	356
5. Bellgrove and Dennistoun, ...	1,327	17,096	77,923	79,856	...	1,933	...	2·5	60	61
6. High Street and Closes East, ...	50	960	5,037	4,310	727	...	14·4	...	142	118
7. Greenhead and London Road, ...	897	14,764	65,090	67,801	...	2,711	...	4·2	74	77
8. Barrowfield, ...	123	6,400	27,696	27,827	...	131	...	0·5	225	226
9. Monteith Row, ...	115	804	4,267	4,013	254	...	6·0	...	37	35
10. St. Andrew Square, ...	22	757	4,010	3,981	29	...	0·7	...	218	211
11. Calton, ...	66	4,697	20,640	20,681	...	41	...	0·2	336	336
12. St. Enoch Square, ...	84	413	2,376	2,207	169	...	7·1	...	36	33
13. Brownfield, ...	11	670	3,564	3,443	121	...	3·4	...	357	343
14. Bridgegate and Wynds, ...	35	798	3,766	3,829	...	63	...	1·7	111	113
15. Woodside, ...	336	15,331	69,787	70,796	...	1,009	...	1·4	209	212
16. Cowcaddens, ...	61	3,969	17,550	17,855	...	305	...	1·7	296	309
17. Kelvinhaugh and Sandyford, ...	626	6,424	30,673	31,121	...	448	...	1·5	51	52
18. Anderston, ...	127	5,931	28,422	27,984	438	...	1·5	...	227	224
19. Kingston, ...	389	8,329	40,079	40,070	9	...	...	...	104	104
20. Laurieston, ...	49	1,755	8,662	8,502	160	...	1·8	...	183	180
21. Hutcheson Square, ...	453	15,590	70,127	70,980	...	853	...	1·2	155	157
22. Gorbals, ...	48	2,417	12,264	11,945	319	...	2·6	...	273	267
— Springburn and Rockvilla, ...	866	7,966	35,527	37,774	...	2,247	...	6·3	41	44
23. Govanhill, ...	360	5,140	23,191	23,538	...	347	...	1·5	64	65
24. Crosshill, ...	334	1,726	7,626	8,117	...	491	...	6·4	23	24
25. Langside and Mount Florida, ...	420	3,570	14,487	16,430	...	1,943	...	13·4	35	40
26. Pollokshields, E., and Strathbungo, ...	243	3,034	12,830	13,909	...	1,079	...	8·4	53	57
27. Pollokshields, W., and Bellahouston,	1,278	1,076	5,711	6,397	...	686	...	12·0	4	5
28. Hillhead, ...	130	1,879	8,537	9,069	...	532	...	6·2	66	70
29. Kelvinside, ...	765	1,529	7,074	8,570	...	1,496	...	21·1	10	12
30. Maryhill, ...	1,183	7,572	33,661	35,131	...	1,470	...	4·4	30	31
31. Possilpark and Barnhill, ...	1,642	4,232	20,263	21,164	...	901	...	4·4	13	14
— Institutions and Harbour, ...	...	...	20,588	19,517	1,071	...	...	...	...	...
CITY, ...	12,681	161,247	761,712	776,968	...	15,256	...	2·0	60·07	61·27

MARRIAGES.

In 1902, 7,304 marriages were registered in Glasgow, as compared with 7,077 in 1901. These represent rates per thousand persons living of 9·38 and 9·26 respectively.

The rate is, with the exception of last year, lower than any which has been registered since 1896.

GLASGOW.—MARRIAGE-RATE PER 100,000 LIVING FROM 1870.*

1870, ...	980	1891-95, ...	895
1871-75, ...	992	1896-1900	989
1876-80, ...	901	1901, ...	926
1881-85, ...	937	1902, ...	938
1886-90, ...	884		

BIRTHS.

The number of births registered in Glasgow during the year 1902 was 24,708, which represents a rate of 31·802, and may be compared with 24,215 births registered during 1901, representing a rate of 31·790.

The birth-rate in several periods since 1871 has been as follows:—

	Glasgow.	Scotland.
1871-80, ...	36·6	34·9
1881-90, ...	36·5	32·4
1891-95, ...	33·9	30·7
1896-1900, ...	33·1	30·0
1901, ...	31·8	29·5
1902, ...	31·8	29·2

During the decade 1892-1901, and in 1902, the rates for the following large towns have been as follows:—

	1892-1901.	1902.
Glasgow, ...	**33·2**	**31·8**
Edinburgh, ...	27·0	25·1
Dundee, ...	29·6	28·0
Aberdeen, ...	32·4	30·5
London, ...	29·9	28·5
Liverpool, ...	35·2	34·2
Manchester, ...	32·6	32·8
Birmingham, ...	32·9	31·8

In the following Table the district birth-rates for several periods are given:—

* The rates in this Table are derived from Registrar-General's Annual Reports.

TABLE III.

GLASGOW.—BIRTH-RATE PER MILLION IN EACH SANITARY DISTRICT (EXCLUSIVE OF INSTITUTIONS AND HARBOUR) FOR DECADES 1881-1890, 1891-1900, AND FOR 1901 AND 1902.

SANITARY DISTRICTS.	10 YEARS.		1901.	1902.
	1881-1890.	1891-1900.		
— Blythswood, ...	22,600	20,086	16,205	18,115
1. Exchange, ...	30,000	29,572	28,408	26,952
2. Port-Dundas, ...	39,600	38,100	49,756	46,216
3. High Street and Closes West, ...	31,900	33,666	38,745	33,360
4. St. Rollox, ...	39,400	36,184	31,252	35,948
5. Bellgrove and Dennistoun, ...	38,100	35,802	35,150	35,326
6. High Street and Closes East, ...	36,400	38,309	34,544	39,443
7. Greenhead and London Road, ...	40,900	40,433	38,931	39,822
8. Barrowfield, ...	38,600	38,952	38,309	38,883
9. Monteith Row, ...	25,700	24,438	24,139	24,919
10. St. Andrew Square, ...	30,800	31,773	27,681	31,650
11. Calton, ...	38,600	38,408	34,108	39,216
12. St. Enoch Square, ...	29,200	28,799	20,623	29,906
13. Brownfield, ...	37,100	40,643	34,792	37,467
14. Bridgegate and Wynds, ...	35,800	37,358	38,237	31,144
15. Woodside, ...	36,900	33,034	30,263	28,956
16. Cowcaddens, ...	42,800	43,894	43,932	42,733
17. Kelvinhaugh and Sandyford, ...	29,000	25,074	23,147	21,400
18. Anderston, ...	39,800	38,096	35,747	34,591
19. Kingston, ...	32,200	29,478	27,945	28,177
20. Laurieston, ...	37,300	37,463	33,133	33,051
21. Hutcheson Square, ...	43,500	39,288	36,149	36,716
22. Gorbals, ...	36,800	38,484	32,534	34,910
— Springburn and Rockvilla	43,000	39,083	37,436	37,989
23. Govanhill, ...	...	33,221	35,617	33,394
24. Crosshill, ...	...	15,623	19,407	16,756
25. Langside and Mount Florida, ...	...	22,370	24,643	21,911
26. Pollokshields, E., and Strathbungo, ...	...	17,111	15,666	12,727
27. Pollokshields, W., and Bellahouston, ...	...	12,019	14,008	11,255
28. Hillhead, ...	...	13,051	10,542	9,484
29. Kelvinside, ...	...	13,420	13,571	14,819
30. Maryhill, ...	...	38,843	42,185	41,331
31. Possilpark and Barnhill, ...	...	40,204	34,644	35,532
CITY (including Institutions and Harbour), ...	36,500	33,446	31,790	31,802

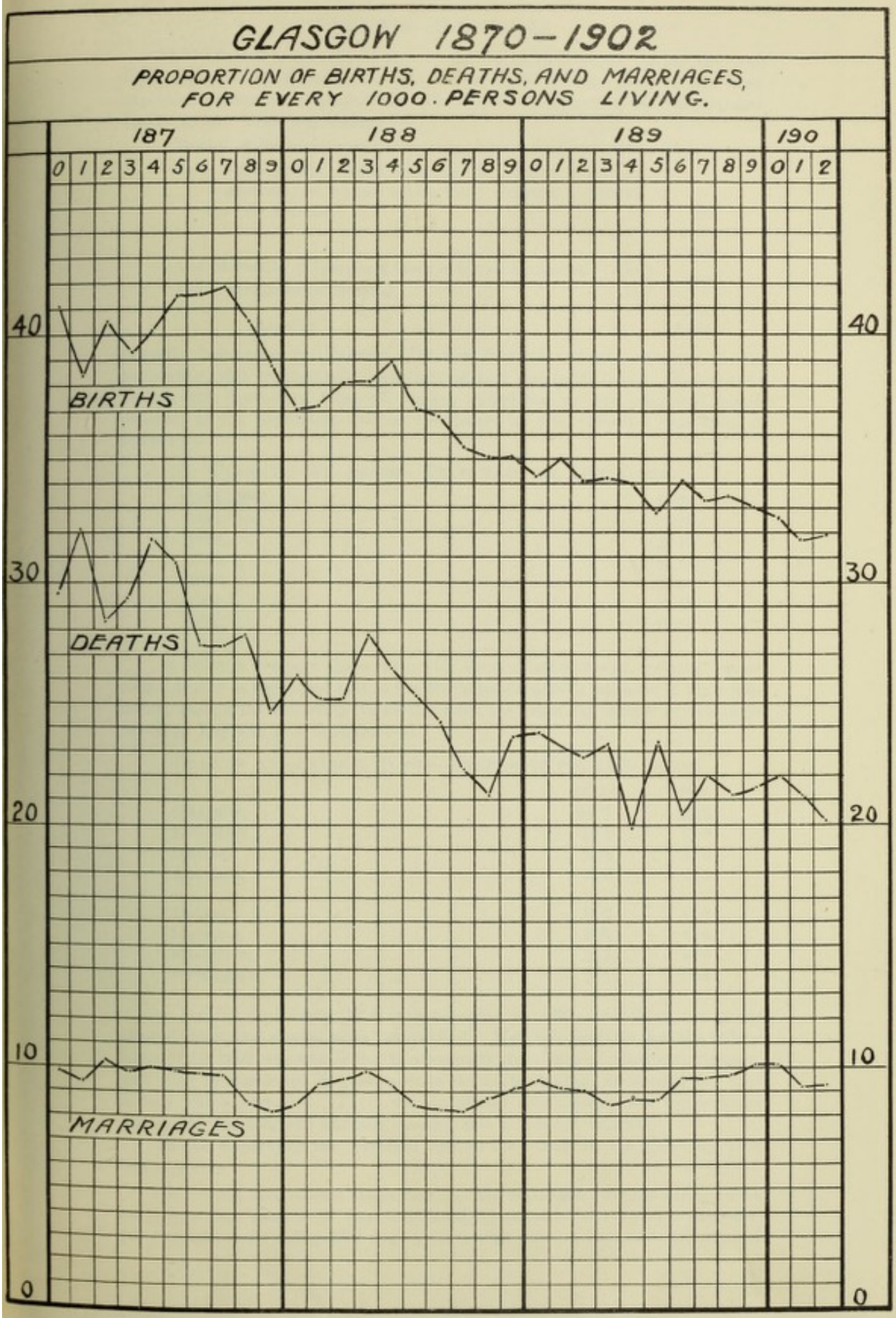
COMPARATIVE MOVEMENT IN MARRIAGE, BIRTH, AND DEATH-RATES, 1870-1902.

It can scarcely be said that the continuous decline in the birth-rate of the country is receiving the amount of attention which it deserves. For the moment its importance is obscured by the greater rate of reduction of the death-rate, and by the excess which the births still maintain over the deaths. The decline in the birth-rate has been fairly constant since 1875, and each Census since 1881 has shown an increasing proportion of persons living at adult ages. This in time will become associated with an age distribution of the population, which will tend to produce an increase in the death-rate.

The decreasing birth-rate is not due to a decreasing marriage-rate, and it is not limited to the principal or large towns, where the rates normally exceed those of the smaller towns and rural districts.

In Glasgow the rate is maintained in these districts where it usually reaches a high level, and during the last decade it increased in ten of the older districts, reaching its maximum in Brownfield, Cowcaddens, and Greenhead and London Road.

In the accompanying Chart the movement of the marriage, death, and birth rates per 1,000 of the population for 30 years is shown :—


GLASGOW 1870–1902
PROPORTION OF BIRTHS, DEATHS, AND MARRIAGES, FOR EVERY 1000. PERSONS LIVING.
187
188
189
190
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9
0 1 2
40
30
20
10
0
BIRTHS
DEATHS
MARRIAGES

DEATHS—ALL CAUSES.

15,532 deaths from all causes were registered in Glasgow during the year 1902, representing a death-rate of 20·0 per 1,000 living. But, as has been explained in former Reports, these are subject to correction for institutional deaths in the following manner:—

Number of deaths registered as occurring within the City, 1902,		15,532
From which deduct deaths occurring in Glasgow, chiefly in Institutions, of persons whose usual residence is beyond the City boundary, ...		750
		14,782
And add deaths of Glasgow citizens in Govan Poorhouse,	258	272
And in Knightswood Hospital, ...	14	
Leaving		15,054

properly belonging to Glasgow. On the Medical Officer's estimate of the population, this represents a death-rate of 19·4 per 1,000 living. For several periods the death-rate from all causes, calculated on the inhabited house estimate of the population and on the deaths as thus corrected, has been as follows:—

GLASGOW.—ALL CAUSES—DEATH-RATE PER 1,000 LIVING.

1881-1890, ...	24·22
1891-1900, ...	21·53
1898, ...	20·33
1899, ...	20·54
1900, ...	21·07
1901, ...	20·63
1902, ...	19·38

In order to compare these rates with those of other towns, we must revert to the deaths as registered and to the Registrar-General's estimate of the population, and in the following Table the rates are given for several of the large towns in England and Scotland:—

GLASGOW AND SEVERAL TOWNS—DEATH-RATE PER 1,000 LIVING.

	1892-1901.	1902.
Glasgow, ...	**21·7**	**20·0**
Edinburgh, ...	19·3	17·8
Dundee, ...	20·4	19·0
Aberdeen, ...	19·0	17·9
London, ...	19·2	17·7
Liverpool, ...	24·1	22·5
Manchester, ...	23·5	20·0
Birmingham, ...	20·7	18·6

A similar death-rate (19·4) was recorded in 1894, and those two years present the lowest annual rates yet reached. We shall see later that the reduction during 1902 was wholly due to a lessened prevalence of infectious diseases, and must be attributed in great part to the quite unusual meteorological conditions which prevailed. There was an almost continuously low temperature during the summer and autumn months, and a reduced rainfall.

In the Report for the fortnight ending 23rd August, the following note was made:—

"It will not have escaped observation that the death-rates recorded during recent weeks have been much lower than those usually recorded at this period of the year. For the eight weeks ending 23rd August the average rate has been 15·8, as compared

with 19·1 for the corresponding weeks of the past ten years. In the two weeks ending 19th July and 9th August rates of 13·7 and 13·5 were recorded, the highest being 17·8 for the week ending 5th July. In the corresponding period of the years 1892-1901 the lowest average weekly rate was 18·3, and the highest 20·2. The ages at which the deaths occurred are also instructive. 140 deaths under five years of age were registered during the past fortnight, in place of 266 in the corresponding fortnight of last year; the deaths of children under one year numbered 77 for the present fortnight, compared with 180 last year; and diarrhœal deaths, which are largely those of children, in the individual weeks of the past fortnight numbered only 17 and 19, compared with 147 and 104 last year.

"Coincidently with this also, the autumn rise both in scarlet fever and enteric fever, which is usually fairly established by this period of the year, may be said, especially with regard to enteric fever, scarcely to have begun.

"The lowered rate of mortality is part of the general experience of the country, and the following observations by Professor Becker, which are appended to his record of the meteorological conditions during July, have a bearing thereon:—

"'The unseasonably cold weather, which began on 25th April, and was once interrupted for five days at the end of June, continued during the past month. On twenty-five days the mean daily temperature was below the average temperature curve, and, in consequence, the mean temperature of the month of July (54·9°) was 2·7° too low. Since 1868 there was one July colder than the past month—viz., in 1888—when the temperature was 54·1°, and in two years—1879 and 1890—the mean temperature of July equalled that of this year's. If the three months—May, June, and July—be taken together, the past three months work out as the coldest since the records were started in 1868.'"

DISTRICT DEATH-RATES.

The following Table shows the death-rates for each district for several periods:—

TABLE IV.

GLASGOW.—DISTRICT DEATH-RATES PER MILLION FOR THE DECADES 1881-1890 AND 1891-1900, AND FOR THE YEARS 1901 AND 1902.

SANITARY DISTRICTS.	10 YEARS.		1901.	1902.
	1881-1890.	1891-1900.		
— Blythswood, ...	16,450	16,327	15,134	15,486
1. Exchange, ...	21,430	19,594	19,044	18,893
2. Port-Dundas, ...	26,880	28,035	32,294	26,107
3. High Street and Closes West, ...	29,330	29,565	28,435	23,812
4. St. Rollox, ...	22,650	21,381	23,203	19,971
5. Bellgrove and Dennistoun, ...	22,190	20,302	18,954	17,231
6. High Street and Closes East, ...	33,590	30,968	28,390	24,130
7. Greenhead and London Road, ...	24,910	22,910	22,123	19,955
8. Barrowfield, ...	28,980	26,409	25,022	23,287
9. Monteith Row, ...	20,850	22,132	17,811	26,913
10. St. Andrew Square, ...	24,490	25,034	22,943	19,342
11. Calton, ...	30,260	29,087	26,356	28,093
12. St. Enoch Square, ...	24,330	24,463	26,515	28,092
13. Brownfield, ...	30,370	31,849	40,404	32,530
14. Bridgegate and Wynds, ...	39,540	33,584	26,022	22,508
15. Woodside, ...	19,610	17,783	17,825	15,368
16. Cowcaddens, ...	32,550	32,780	33,390	27,947
17. Kelvinhaugh and Sandyford, ...	16,230	14,620	14,638	13,110
18. Anderston, ...	27,880	25,808	24,910	24,693
19. Kingston, ...	20,790	20,298	19,087	16,895
20. Laurieston, ...	27,600	27,309	24,243	24,700
21. Hutcheson Square, ...	23,650	21,319	20,434	19,456
22. Gorbals, ...	28,260	28,909	26,174	25,869
— Springburn and Rockvilla, ...	22,120	20,291	19,450	17,155
23. Govanhill, ...	...	15,481	14,186	14,317
24. Crosshill, ...	...	11,695	10,097	11,211
25. Langside and Mount Florida, ...	...	10,810	9,871	10,408
26. Pollokshields, E., and Strathbungo, ...	...	10,176	11,613	10,209
27. Pollokshields, W., and Bellahouston, ...	...	9,010	11,031	10,474
28. Hillhead, ...	...	11,018	10,191	9,703
29. Kelvinside, ...	...	8,271	8,340	5,951
30. Maryhill, ...	...	16,740	17,973	15,570
31. Possilpark and Barnhill, ...	...	17,965	15,595	15,593
CITY (including Institutions and Shipping), ...	24,220	21,528	20,632	19,375

As we have seen, Brownfield again presents the highest district death-rate, 32·5 for the year, and next in order come Calton, St. Enoch Square, and Cowcaddens, with rates of 28·09 and 27·9 respectively. Monteith Row alone presents a higher death-rate from diseases of the zymotic class, due to the occurrence of two deaths from smallpox and two from scarlet fever, and an increase in the diarrhœal rate. In 1901 no deaths from smallpox or scarlet fever had occurred in this district, and the diarrhœal rate was ·703 per 1,000, compared with ·997 in 1902, while the infantile death-rate was 190 in 1902 against 165 in the previous year.

An analysis of certain causes of death in the districts presenting a higher rate of mortality in 1902 brings into prominence the effect of a cold summer in increasing the death-rate from respiratory diseases.

DISTRICTS WITH DEATH-RATES IN 1902 EXCEEDING THOSE OF 1901.

		DEATH-RATE PER 1,000.			
DISTRICT.		All Causes.	Principal Zymotics.	Phthisis.	Respiratory Diseases.
— Blythswood,	1901	15·1	2·6	1·1	2·4
	1902	15·5	1·3	**1·2**	**2·5**
9. Monteith Row,	1901	17·8	1·4	1·2	3·7
	1902	26·9	**2·5**	**3·0**	**8·2**
11. Calton,	1901	26·4	4·6	2·2	6·8
	1902	28·1	3·3	**2·9**	**7·4**
12. St. Enoch Square,	1901	26·5	4·6	2·9	6·3
	1902	28·1	3·2	0·9	5·5
20. Laurieston,	1901	24·2	5·0	1·8	5·7
	1902	24·7	2·8	**3·4**	**7·3**
23. Govanhill,	1901	14·2	2·5	1·2	2·3
	1902	14·3	1·6	**1·4**	**2·4**
24. Crosshill,	1901	10·1	1·2	0·5	1·4
	1902	11·2	0·7	**1·1**	**2·0**
25. Langside,	1901	9·9	1·0	0·69	1·5
	1902	10·4	0·7	**0·73**	**2·0**

CLASSIFICATION OF CHIEF CAUSES OF DEATH.

The death-rate for 1902 represents a reduction in the number of deaths equal to 1,257 per million living when compared with that for 1901.

This reduction is largely due to a lessened prevalence of zymotic disease. The rates for pulmonary phthisis and the other forms of tubercular disease are also lower, but in all the other forms of disease which are classified the rates are increased, and this is especially the case in acute forms of lung diseases other than phthisis. The diminution in the amount of zymotic disease is to be considered in connection with the meteorological conditions which prevailed during a great part of the year. It affords illustration of the restraining influence of low temperature on microbic life.

The effect of this is especially seen in the behaviour of scarlet fever, enteric fever, and diarrhœa. Contrary to the usual experience, quite half the total number of cases of scarlet fever occurred during the first six months of the year, and no less than 62 per cent. of the cases of enteric fever, while diarrhœal deaths, which usually form so marked a feature in the third quarter, were much below the average number.

In the following Table the balance of gains and losses from several classes of disease is shown:—

TABLE V.

GLASGOW, 1902.—DEATH-RATES (CORRECTED DEATHS) PER THOUSAND LIVING, SHOWING INCREASE OR DECREASE IN EACH CLASS AS COMPARED WITH 1901.

	1901.		1902.		−	+	−	+
I. PRINCIPAL ZYMOTIC DISEASES, ...	...	3·773	...	2·072	...	...	1·701	...
Smallpox, ...	·254	...	·054	...	·200	...	...	...
Diphtheria, ...	·151	...	·135	...	·016	...	...	...
Scarlet Fever, ...	·172	...	·145	...	·027	...	...	...
Typhus Fever, ...	·013	...	·012	...	·001	...	...	...
Enteric and Doubtful Fevers,	·282	...	·142	...	·140	...	...	...
Measles, ...	·655	...	·342	...	·313	...	...	...
Whooping-cough, ...	1·116	...	·600	...	·516	...	...	...
Diarrhœa, ...	1·130	...	·642	...	·488	...	...	...
II. SEPTIC DISEASES, ...	...	·185	...	·192	...	...	...	·007
III. TUBERCULAR DISEASES—	...	3·064	...	2·926	...	...	·138	...
Phthisis, ...	1·764	...	1·672	...	·092	...	...	...
Not Phthisis, ...	1·300	...	1·254	...	·046	...	...	...
IV. CANCER (Malignant Disease), ...	...	·654	...	·727	...	...	...	·073
V. DISEASES OF NERVOUS SYSTEM, ...	...	1·776	...	1·835	...	...	...	·059
VI. „ CIRCULATORY SYSTEM,	...	1·515	...	1·574	...	...	...	·059
VII. „ RESPIRATORY „	...	4·335	...	4·836	...	...	...	·501
VIII. OTHER CAUSES, ...	...	5·330	...	5·213	...	...	·117	...
All Causes, ...	...	20·632	...	19·375	...	...	1·257	...
Birth-rates, ...	...	31·790	...	31·802	...	...	...	...
Deaths under 1 year per 1,000 born,	...	149	...	128	...	...	...	...

The following diagram presents in a readily appreciable form the relative volume of deaths arising from several causes.

AGE DISTRIBUTION OF DEATHS.

In the following Table these are stated for seven age periods. 21 per cent. of the total deaths occurred in the first year of life, and 35·6 per cent. in the first quinquennium, compared with 22·9 and 40·7 in 1901.

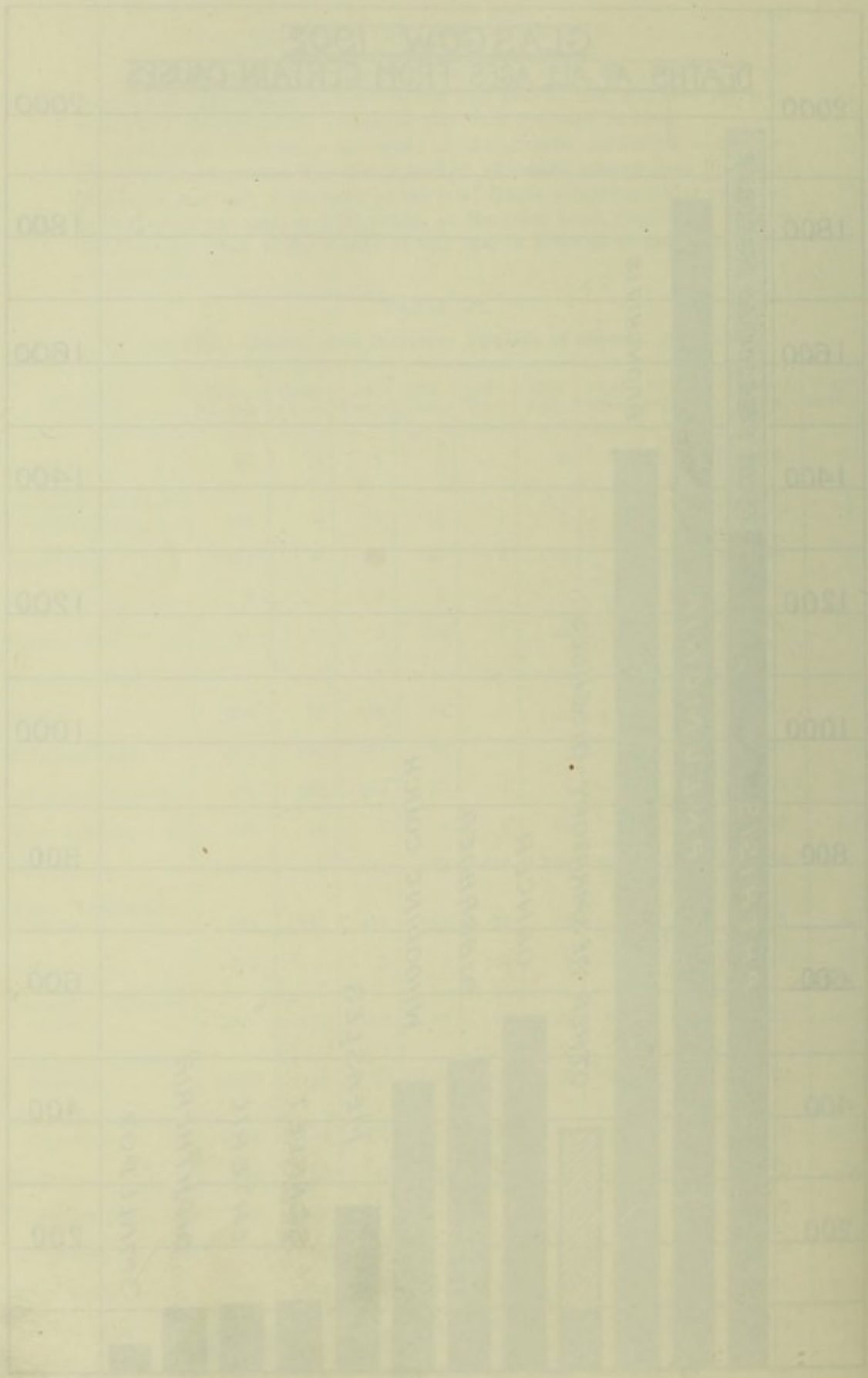
As further illustrating the effect of the climatic conditions which prevailed, it may be noted that the proportion of deaths arising from diarrhœal diseases formed only 9 per cent. of the total deaths occurring under one year, in place of 15 per cent. in 1901, while, on the other hand, respiratory diseases caused 23 per cent. of the deaths at this age, in place of 18 per cent. in the previous year.

TABLE VI.

Glasgow, 1902.—Deaths from Different Diseases at Several Age Periods.

DISEASES.	Total, All Ages.	Under 1 Year.	1-4 Years.	5-14 Years.	15-19 Years.	20-24 Years.	25-59 Years.	60 Years and Over.	Under 5 Years.	5 Years and Over.
Smallpox, ...	42	4	2	3	...	2	29	2	6	36
Diphtheria and Membranous Croup, ...	104	9	70	18	1	1	5	...	79	25
Scarlet Fever, ...	114	6	60	40	3	2	3	...	66	48
Typhus Fever, ...	9	...	2	1	...	...	6	...	2	7
Enteric Fever, ...	110	...	3	15	17	26	47	2	3	107
Undefined Fever, ...	...	...	...	...	...	...	...	...	...	...
Measles, ...	266	58	194	11	...	...	3	...	252	14
Whooping-cough, ...	466	166	271	29	...	...	...	...	437	29
Diarrhœal Diseases,	499	283	109	15	4	2	40	46	392	107
Septic Diseases, ...	149	19	7	4	4	15	78	22	26	123
Phthisis, ...	1,299	6	44	73	119	166	842	49	50	1,249
Other Tubercular Diseases, ...	974	251	431	157	37	22	70	6	682	292
Cancer, ...	565	...	5	4	2	5	315	234	5	560
Diseases of Nervous System, ...	1,426	219	113	89	19	29	430	527	332	1,094
Diseases of Circulatory System, ...	1,223	49	10	38	36	25	562	503	59	1,164
Diseases of Respiratory System, ...	3,758	740	670	84	50	51	1,226	937	1,410	2,348
Violence, ...	455	30	45	39	24	31	216	70	75	380
Premature Birth, ...	490	490	...	...	...	...	...	...	490	...
Uncertified, ...	82	25	3	...	...	1	38	15	28	54
Other Causes, ...	3,023	813	157	103	64	82	881	923	970	2,053
All Causes, ...	15,054	3,168	2,196	723	380	460	4,791	3,336	5,364	9,690
Percentage at Different Ages,	1,000	210	146	48	25	31	318	222	356	644

GLASGOW 1902
DEATHS AT ALL AGES FROM CERTAIN CAUSES
2000
1800
1600
1400
1200
1000
800
600
400
200
PHTHISIS
OTHER TUBERCULAR DISEASES
PNEUMONIA
BRONCHITIS
OTHER RESPIRATORY DISEASES
PLEURISY
CANCER
DIARRHOEA
WHOOPING COUGH
MEASLES
SCARLET
ENTERIC
DIPHTHERIA
SMALL POX



DEATH-RATE UNDER 5 YEARS IN SEVERAL PERIODS.

The death-rate of children under 5 years of age can only be stated with a reasonable degree of accuracy for periods in which preferably a Census year forms the centre. Since 1871 it can be stated as follows:—

1871-2, ...	106	per 1,000 living.
1880-2, ...	82	„
1890-2, ...	78	„
1900-1902, ...	67	„
1902, ...	58	„

On referring to the section on infantile deaths, it will be seen that children under one year have shared very little in the reduction here shown.

INFANTILE MORTALITY.

The number of infants dying under one year of age in 1902 was 3,168, which represents a death-rate per 1,000 born of 128, compared with 149 in 1901. Of these deaths, 2,800 were legitimate and 368 illegitimate children, presenting, in relation to the births of each class, a death-rate per 1,000 births of 126 among legitimate and 244 among illegitimate children.

For several years the infantile death-rate in each class has been as follows:—

	1898.	1899.	1900.	1901.	1902.
Deaths of legitimate infants per 1,000 legitimate births, ...	147	143	145	141	126
Deaths of illegitimate infants per 1,000 illegitimate births, ...	302	286	286	269	244

The infantile death-rate fluctuates considerably, but it can scarcely be said to present any satisfactory or continuous decrease. The above may be compared with the following figures:—

	1873.	1874.	1875.
Deaths of legitimate infants per 1,000 legitimate births, ...	154	149	153
Deaths of illegitimate infants per 1,000 illegitimate births, ...	293	277	286

In both classes the rates move synchronously, but that illegitimate children should die at almost twice the rate of legitimate children in their first year only too faithfully reflects the systematic neglect to which many of them are exposed. The conditions of their birth almost preclude the hope that any degree of neglect by their guardians, short of becoming criminal, can ever be effectively dealt with, and they are more frequently exposed than are legitimate children to the risks of unsuitable substitutes for their natural food. For neglected children of older years many agencies take up the burden of their protection. It is at least possible that some modification of the foundling hospital system would reclaim to useful work the lives of many illegitimate children which are presently lost through uncontrolled neglect.

For several periods the rate of both classes has been as follows:—

Average of 5 years, 1886-90,	= 143	per 1,000 births.
„ 1891-95,	= 146	„
„ 1895-1900,	= 151	„
„ 1901,	= 149	„
„ 1902,	= 128	„

The almost complete failure of modern sanitation to influence to any considerable extent the rate of infantile mortality has frequently attracted attention, and has been the subject of much discussion.

More than one-third of the total deaths of infants occur in the first month of life, when the principal causes of death are scarcely disease in the

ordinary sense, but defects in development. Premature birth, atrophy, congenital malformations, and convulsions are prolific causes of death in these early weeks, and many of the causes then operative are related to defective conditions which are ante-natal in their origin, and are probably closely related to the nourishment of the mother during the period of gestation.

After the first week the mortality rapidly declines, so that of the 3,168 deaths under one year which occurred in Glasgow in 1902, 1,100 took place in the first month, 327 in the second month, and 230 in the third month—more than one-half of the total infant deaths thus taking place within three months after birth.

How much of this excessive mortality during the first three months of life is due to preventible conditions, external to the child and operative only after birth, and how far it is the result of maternal conditions which are operative to probably a larger extent in the production of still-births and other forms of intra-uterine mortality, still awaits solution.

I have elsewhere pointed out that about 30 per cent. of our infantile death-rate occurs among the 14 per cent. of our population who occupy one-apartment houses.

The following Table gives the deaths from all causes occurring in each month of the first year of life in the year 1902:—

NUMBER OF DEATHS OF INFANTS FROM ALL CAUSES IN EACH MONTH.

Under 1 month, ...	1,100	Under 7 months, ...	137
„ 2 months, ...	327	„ 8 „	208
„ 3 „	230	„ 9 „	176
„ 4 „	205	„ 10 „	155
„ 5 „	177	„ 11 „	145
„ 6 „	171	„ 12 „	137
Total under 1 year.	3,168		

Compared with several large towns, the infantile mortality in the 10 years, 1892-1901, and in 1902, has been as follows:—

	1892-1901.	1902.
Glasgow, ...	**149**	**128**
Edinburgh,...	143	123
Dundee, ...	177	143
Aberdeen, ...	146	137
London, ...	159	141
Liverpool, ...	191	163
Manchester, ...	191	152
Birmingham, ...	189	157

Among Scotch towns the infantile death-rate in Glasgow was exceeded in both Aberdeen and Dundee, while in the English towns referred to it is uniformly higher than in Glasgow.

The infantile mortality in each of the sanitary districts for several periods has been as follows:—

TABLE VII.

GLASGOW.—DEATHS UNDER 1 YEAR PER 1,000 BIRTHS IN EACH SANITARY DISTRICT (EXCLUSIVE OF INSTITUTIONS AND SHIPPING) FOR THE DECADES 1881-1890 AND 1891-1900, AND FOR THE YEARS 1901 AND 1902.

SANITARY DISTRICTS.	1881-1890.	1891-1900.	1901.	1902.
— Blythswood, ...	121	137	178	115
1. Exchange, ...	170	151	116	142
2. Port-Dundas, ...	176	196	174	191
3. High Street and Closes West, ...	173	171	146	155
4. St. Rollox, ...	138	145	179	128
5. Bellgrove and Dennistoun, ...	126	139	130	107
6. High Street and Closes East, ...	191	194	213	88
7. Greenhead and London Road, ...	149	151	159	136
8. Barrowfield, ...	166	170	155	152
9. Monteith Row, ...	144	174	165	190
10. St. Andrew Square, ...	149	173	126	151
11. Calton, ...	169	177	200	174
12. St. Enoch Square, ...	154	190	204	136
13. Brownfield, ...	199	190	242	233
14. Bridgegate and Wynds, ...	230	217	118	151
15. Woodside, ...	131	129	145	109
16. Cowcaddens, ...	190	216	208	191
17. Kelvinhaugh and Sandyford, ...	108	106	134	116
18. Anderston, ...	161	173	193	185
19. Kingston, ...	138	148	152	105
20. Laurieston, ...	167	173	192	146
21. Hutcheson Square, ...	137	143	135	122
22. Gorbals, ...	173	190	180	168
— Springburn and Rockvilla, ...	129	138	159	97
23. Govanhill, ...	...	118	93	107
24. Crosshill, ...	...	86	88	110
25. Langside and Mount Florida, ...	...	78	64	81
26. Pollokshields, E., and Strathbungo, ...	...	74	55	57
27. Pollokshields, W., and Bellahouston, ...	...	72	50	83
28. Hillhead, ...	...	63	111	35
29. Kelvinside, ...	...	82	104	39
30. Maryhill, ...	...	124	125	103
31. Possilpark and Barnhill, ...	...	126	123	109
CITY (including Institutions and Shipping), ...	147	149	149	128

INFECTIOUS DISEASES.

During the year 13,432 cases of infectious disease were registered and dealt with by the Department. This represents a case-rate of 17·3 per 1,000 of the population, compared with 27·8 in 1901. Of the total, 4,947, or 37 per cent., were treated in hospital. The number of cases of each of the diseases which form this class, their distribution in the several sanitary districts, and the number of each removed to hospital, are given in Appendix, Table V.; their seasonal distribution in Table VI. One very striking illustration of the peculiar meteorological conditions of the year is afforded by the monthly distribution of the cases of enteric fever shown in this last Table. Under the usual conditions of rainfall and temperature, more than half the number of cases of this disease occur in the third and fourth quarters. In the special report on enteric fever, which is appended,* it is shown that in the years 1891-6 60 per cent. of the total cases for these years occurred after the beginning of July, and in the years 1897-1901 66 per cent occurred in association with a much-increased average rainfall in the second quarter. During 1902 the incidence was reversed; only 38·4 per cent. of the total cases of enteric fever occurred in the third and fourth quarters, and the rainfall for the second quarter was only 4·9 inches, as compared with 6·1 and 10·2 in the years already quoted, while the mean temperature of the second and third quarters of 1902 was lower than in the corresponding quarters of any years since 1890.

The case-rates for each of the sanitary districts are shown in the following Table†:—

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* See p. 91.

† For the City as a whole the attack-rate per million of the population may be thus stated:—

Scarlet Fever,	3,229	Puerperal Fever,	116
Enteric Fever,	899	Typhus Fever,	46
Diphtheria and Membranous Croup,	794	Undefined Fever,	22
Smallpox,	592		

TABLE VIII.

GLASGOW, 1902.—CASE-RATE PER MILLION FOR CERTAIN ZYMOTICS AND FOR ALL CASES REGISTERED IN EACH SANITARY DISTRICT.

SANITARY DISTRICTS.	FEVERS.				Smallpox.	Scarlet Fever.	Diphtheria and Membranous Croup.	*All other Causes.	TOTAL.
	Typhus.	Enteric.	Continued and Undefined.	Puerperal.					
— Blythswood, ...	...	711	...	107	142	2,844	675	5,936	10,415
1. Exchange, ...	...	713	...	126	378	2,813	672	11,756	16,458
2. Port-Dundas, ...	...	703	...	...	...	1,582	703	8,965	11,953
3. High Street and Closes West. ...	101	508	...	...	305	2,337	508	7,520	11,279
4. St. Rollox, ...	...	811	...	187	312	3,057	936	6,302	11,605
5. Bellgrove and Dennistoun, ...	25	764	...	99	505	4,031	764	9,023	15,211
6. High Street and Closes East, ...	...	1,183	...	...	845	1,521	676	8,450	12,675
7. Greenhead and London Road, ...	29	742	15	145	1,905	3,389	844	17,410	24,479
8. Barrowfield, ...	36	1,617	...	108	1,330	2,300	575	15,165	21,131
9. Monteith Row, ...	...	249	...	498	997	3,240	748	13,207	18,939
10. St. Andrew Square, ...	...	430	...	...	860	645	215	11,390	13,540
11. Calton, ...	...	1,352	...	270	495	2,703	631	12,570	18,021
12. St. Enoch Square, ...	...	553	...	...	1,106	3,043	277	9,404	14,383
13. Brownfield, ...	531	531	...	531	796	...	...	16,719	19,108
14. Bridgegate and Wynds, ...	...	1,521	...	253	253	1,268	253	13,942	17,490
15. Woodside, ...	...	731	28	84	338	3,614	900	10,728	16,423
16. Cowcaddens, ...	...	1,275	...	212	2,072	1,594	478	7,225	12,856
17. Kelvinhaugh and Sandyford, ...	31	641	31	...	122	3,391	886	11,302	16,404
18. Anderston, ...	317	1,407	35	70	880	2,252	528	15,695	21,184
19. Kingston, ...	...	767	50	74	322	3,317	1,064	6,659	12,253
20. Laurieston, ...	...	1,134	...	340	680	1,927	113	10,318	14,512
21. Hutcheson Square, ...	99	1,155	70	155	437	4,578	944	12,087	19,525
22. Gorbals, ...	859	1,484	234	78	1,171	2,420	703	9,448	16,397
— Springburn and Rockvilla, ...	...	768	26	159	265	1,774	476	16,943	20,411
23. Govanhill, ...	...	595	...	42	127	4,758	935	14,360	20,817
24. Crosshill, ...	...	493	...	123	123	7,392	1,355	9,117	18,603
25. Langside and Mount Florida, ...	...	1,370	...	...	238	5,182	1,251	10,184	18,225
26. Pollokshields, E., and Strathbungo, ...	...	144	...	72	72	4,026	1,725	2,085	8,124
27. Pollokshields, W., and Bellahouston,	...	1,407	...	...	...	3,908	1,094	2,189	8,598
28. Hillhead, ...	...	331	...	...	110	3,088	1,764	2,205	7,498
29. Kelvinside, ...	...	322	...	107	...	2,683	859	2,468	6,439
30. Maryhill, ...	...	1,593	27	162	378	2,430	702	17,659	22,951
31. Possilpark and Barnhill, ...	...	267	...	134	312	1,649	356	16,842	19,560
CITY, ...	46	899	22	116	592	3,229	794	11,590	17,288

The Populations on which the Rates are calculated include Institutions and Harbour.

* Measles, Whooping-cough, Chickenpox, Phthisis, and Anthrax.

INFECTIOUS DISEASE (NOTIFICATION) ACT.

It may be of interest to include here a statement of the cost of notifications per 1,000 of the population since 1891—

GLASGOW.—AMOUNT PER 1,000 OF POPULATION OF FEES FOR CERTIFICATES UNDER THE INFECTIOUS DISEASE (NOTIFICATION) ACT, 1899, FOR EACH YEAR FROM 1891.

Year.	Amount. £	s.	d.
1891,	1	1	10·4
1892,	1	6	1·2
1893,	1	6	9·2
1894,	1	4	8·7
1895,	1	1	5·0
1896,	0	18	0·1
1897,	0	18	0·1
1898,	1	0	9·0
1899,	1	3	10·0
1900,	1	2	1·0
1901,	1	4	5·9
1902,	0	16	7·4

PRINCIPAL ZYMOTIC DISEASES.

The number of deaths arising from the principal zymotic diseases—small-pox, diphtheria, scarlet fever, typhus, enteric and undefined fever, measles, whooping-cough, and diarrhœa—in 1902 was 1,610, representing an annual death-rate of 2·072 per 1,000 living, as compared with 3·773 in 1901. This is a lower rate than any recorded since 1890.

The corresponding rates for several periods were—

1881-90,	3·600 per 1,000 living.
1891-1900,	3·282 ,,
1900,	3·013 ,,
1901,	3·773 ,,
1902,	2·072 ,,

In the following Table the corresponding rates for several towns are given :—

PRINCIPAL ZYMOTIC DISEASES.*

	Death-rate per 100,000. 1892-1901.	1902.
Glasgow,	**310**	**171**
Edinburgh,	216	123
Dundee,	236	171
Aberdeen,	206	146
London,	270	223
Liverpool,	340	308
Manchester,	341	199
Birmingham,	301	253

In the several sanitary districts of the City the rates for several periods are shown in the following Table, which also contains the number of deaths occurring therein during 1902 :—

* The figures for the Scotch towns are from the Registrar-General's Annual Reports ; those for the English towns from the Registrar-General's Annual Summaries.

TABLE IX.

GLASGOW.—PRINCIPAL ZYMOTIC DISEASES.

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	35	1,278	1,860	1,753	2,642
1. Exchange, ...	28	1,275	2,710	2,382	3,601
2. Port-Dundas, ...	17	2,998	4,290	4,660	8,638
3. High Street and Closes West, ...	19	2,085	3,040	3,421	3,285
4. St. Rollox, ...	20	1,248	3,600	3,453	3,521
5. Bellgrove and Dennistoun, ...	173	2,167	3,580	3,342	3,452
6. High Street and Closes East, ...	5	1,160	4,010	3,958	3,970
7. Greenhead and London Road, ...	210	3,096	4,070	4,347	5,346
8. Barrowfield, ...	100	3,593	4,480	4,910	5,849
9. Monteith Row, ...	10	2,491	2,470	2,771	1,406
10. St. Andrew Square, ...	14	3,517	3,290	3,382	4,739
11. Calton, ...	69	3,336	4,390	4,679	4,651
12. St. Enoch Square, ...	7	3,171	2,750	3,071	4,629
13. Brownfield, ...	12	3,485	4,290	5,075	7,296
14. Bridgegate and Wynds, ...	7	1,833	4,490	4,026	5,045
15. Woodside, ...	96	1,356	3,130	2,649	2,936
16. Cowcaddens, ...	39	2,184	5,320	5,354	6,723
17. Kelvinhaugh and Sandyford, ...	48	1,542	2,090	1,836	2,086
18. Anderston, ...	88	3,144	4,350	4,464	5,665
19. Kingston, ...	68	1,698	2,920	2,999	2,645
20. Laurieston, ...	24	2,824	4,460	4,852	4,963
21. Hutcheson Square, ...	183	2,578	4,030	3,899	4,434
22. Gorbals, ...	35	2,930	4,430	4,589	5,626
— Springburn and Rockvilla, ...	65	1,721	3,620	3,580	3,659
23. Govanhill, ...	38	1,613	...	2,342	2,458
24. Crosshill, ...	6	738	...	1,245	1,179
25. Langside and Mount Florida, ...	12	731	...	945	1,035
26. Pollokshields, E., and Strathbungo, ...	7	504	..	844	780
27. Pollokshields, W., and Bellahouston, ...	5	782	...	1,020	1,225
28. Hillhead, ...	1	110	...	629	1,054
29. Kelvinside, ...	4	467	...	653	707
30. Maryhill, ...	79	2,249	...	2,716	4,069
31. Possilpark and Barnhill, ...	42	1,985	...	3,134	3,406
— Institutions and Harbour, ...	44	...	...	...	...
CITY, ...	1,610	2,072	3,600	3,282	3,773

PLAGUE.

There was happily no recurrence of the disease during 1902. The following incident, however, which was reported on at the time of its occurrence, affords an excellent illustration of the risks to which home ports are exposed:—

"On 12th June current a newspaper paragraph made the statement that two fatal cases of plague had occurred on board a vessel then at Dunkirk, and bound for Glasgow, and on enquiring at the offices of the owners here Dr. Dittmar obtained the following information:—

"'The vessel left Calcutta on 4th May, Suez on 26th May, and Malta on 1st June. She arrived at Dunkirk on 10th June. Until after leaving Malta no sickness seems to have occurred, but when five days out from this place—that is, on 6th June—the chief steward, and on the following day one of the native (Lascar) crew, fell ill. Both died after about four days' illness, and the cause of death was stated at Dunkirk to have been plague.'

"Our first information was to the effect that, although Dunkirk is one of the disinfecting ports on the French seaboard, it was proposed to take the ship to St. Nazaire, there to unload and disinfect, after which the cargo was to be re-shipped for Dunkirk. Thereafter a fresh cargo was to be taken on board for Glasgow.

"The circumstances attending the sicknesses occurring on board were such as to suggest that the source of infection existed there. The nature of the homeward cargo, as well as of that proposed to be taken to Glasgow, was likely to attract and harbour rats, and had the vessel arrived in the Clyde in the condition first contemplated it would have been necessary that an additional effort should then have been made to complete the destruction of rats on board. The best means presently available for this purpose is a machine in which sulphur dioxide is generated, and thereafter driven into the holds, and no port on the Clyde is presently provided with an apparatus of this or any equally effective character. To meet the emergency, the Convener of the Committee on Health approved provisionally of hiring a machine of the sort just indicated, at a cost of about £150; but the immediate necessity passed off, as it was subsequently arranged that the vessel and her cargo should be taken to the Thames for treatment."

During the year 6,492 rats were bacteriologically examined.

INSPECTION OF SHIPPING.

The inspection of shipping, which began in 1901, was continued throughout the year, and the crews of 267 ships were medically inspected, comprising 1,274 Europeans, 1,586 Chinese, and 10,691 natives of India. All the ports from which these ships had come were plague infected.

SMALLPOX.

The number of cases of smallpox notified during the year 1902 was 460, of which 458, or 99·6 per cent., were treated in hospital, the nature of the 2 remaining cases having only been recognised after death had occurred. 42 deaths were registered, all of which, save the 2 just referred to, occurred in hospital.

The case-rate was 592, and the death-rate 54 per million living.

A special Report, issued in May, 1902, brought the history of the outbreak, which began in April, 1900, down to the beginning of that month, and the subsequent cases—7 of which occurred in May, 3 in June, 2 in July, and 3 in August—do not call for special remark.

From August, 1902, to the present date (July, 1903) no cases have occurred which were not directly traceable to freshly imported infection.

It may be said that the absence of a second recrudescence during the winter of 1902-3 is in a way quite as suggestive as the reappearance of the disease in the preceding winter. Although in the interval 12,000 persons had been added

to the re-vaccinated section of the population, it should also be stated that from December onwards the rainfall was much in excess of the average.

Two prosecutions had to be undertaken during the year for failure to notify the disease by the householder within whose house it had occurred. As the circumstances were quite unusual, they may be placed on record as presented to the Sheriff:—

"P. M'C., who resides at 8 Preston Street, Bridgeton, was charged with a contravention of the Public Health Act by failing to notify the authorities of a case of smallpox in his house between the 10th and the 14th January, 1902. He pleaded guilty.

"The circumstances of the case, as stated by the prosecution, were as follows:—There were living in the house eight persons, and the first intimation the sanitary authorities had that there was a case of smallpox in the dwelling was a communication received from the Eastern Police Office through a neighbour, whose little girl went to the same school as the patient suffering from the disease. This little girl told her mother that M'C.'s daughter was suffering from measles, and the father called round to see how the patient was keeping. This man had previously seen cases of smallpox, and as soon as he saw the little girl he said she was suffering from the disease, and not measles. He told the child's father and mother this, and also reported the case to the police, who, in turn, communicated with the sanitary authorities. The following morning an epidemic inspector was despatched to the house, and he said to Mrs. M'C. that he had been informed that there was a case of smallpox there. Mrs. M'C. said there was no one in the house ill, and, on being questioned further, she produced a girl, another daughter, who, she said, had been unwell. On being told this the inspector went to the neighbour, and informed him how he had gone to the house of M'C., and was shown a girl who was far from being unwell. The official gave his informant a description of the girl he had seen, and it was then discovered that the wrong person had been produced. Accordingly the inspector went back to the house, and asked to see R., which was the name of the patient. Mrs. M'C. said she had only one daughter in the house, but the inspector would not accept this statement. The house is one of two apartments, and he insisted on searching it. In the course of his examination the inspector found the girl R., ten years of age, hidden in a bed completely covered with the bed-clothes, and suffering from smallpox, having had the disease for eighteen days. She was at once removed to the hospital, and the other inmates of the dwelling isolated. In order to show the deception practised, the prosecutor said that a School Board Officer, who had been told that R. had not been attending school, went to the house and asked for her. He was told—two days before the inspector called—that the girl had been sent to Ireland. Another feature of the case was that, of the eight inmates of the house, only one had been re-vaccinated. She was the eldest daughter, who nursed the patient, and who was employed at home as a dressmaker for a firm in the City. No attempt had been made to disinfect the work which the daughter sent to the warehouse.

"The Sheriff said that, in a previous case of a similar nature, he had remarked on the absurdity of the provision of the Public Health Act which only enabled him to fine the accused 40s. for an offence which consisted in his doing his best to spread smallpox amongst the members of his family and the members of the community. His Lordship could conceive of nothing more culpable and nothing more heartless, and he very much regretted that he could not impose on the accused a smart term of imprisonment, without the option of a fine. His Lordship imposed the full penalty of 40s., with the alternative of 30 days' imprisonment.

"In the second case, T. C. pleaded not guilty to a charge of having, between 15th and 20th February, failed to notify the Medical Officer of Health of a case of smallpox in his house at 10 Kirkpatrick Street.

"Dr. Robert Wilson said he was called to the house of the accused on Saturday, the 22nd February. On arrival he found a lodger named J. M'L. dead, death being due to smallpox. The body was badly encrusted, and there could be no doubt in the mind of a medical man of the nature of the disease. Even a layman could have seen that there was something seriously wrong. No medical man had been called in, and witness remonstrated with the family for not calling in a doctor. The house was one of two rooms and kitchen, and there were other lodgers in addition to the deceased M'L.

"Inspector Wilson said that when he called, on the 22nd February, at the house there was nobody in, and he had to wait till the family returned. The body of M'L. was removed to the mortuary at Belvidere, while the inmates were sent to the reception-house. Inquiry showed that the man had been sick from about the 13th February, the eruption appearing two days later. The wife of the accused told witness that she had repeatedly offered to call in a doctor, but M'L. had refused to allow her, because he might be sent to the hospital. In addition to the accused and his wife, there were an adopted daughter, a step-son, and two lodgers, not including the patient.

"The four men, previous to M'L.'s illness, had all slept in one room, the accused, with his wife and step-daughter, occupying the kitchen. The body of M'L. was lying in the bedroom, which contained only a bed and a sewing machine, the former consisting of a door balanced upon two boxes. Witness was told by Mrs. C. that her husband and son had been living with a relative in Elderslie Street, but that proved to be false.

"A young man, named D., a step-son of the accused, said that the deceased was always grumbling, and no one could tell when there was anything the matter with him. He saw the deceased on the Saturday and Sunday before he died, and there was then just a slight rash on his forehead, such as anyone would have suffering from measles, or who had been drinking heavily.

"His Lordship, in finding the charge proven, said the accused was the occupier of a house where there was an inmate suffering from infectious disease, and he failed to give notice to the proper authorities. In the Sheriff's opinion this was a most serious offence, and one which probably very graphically illustrated what was the greatest difficulty which the officials had in coping with smallpox, and that was the culpable carelessness of citizens like the accused. C. was the head of the house, and upon him rested the responsibility of the use to which the house was put. The accused allowed his house to be crowded with lodgers, and, one of them becoming sick, there was obviously suspicion that the illness was smallpox. The lodger himself evidently suspected so, for he asked his wife not to send for a doctor, in case he was sent to the hospital; and the accused connived at this man lying for a week sick with smallpox, ultimately dying of it, and never sent for a doctor nor sent notice to the proper quarter. His Lordship regarded conduct of this sort as nothing short of a gross crime against accused's own family and against his fellow-citizens, and yet, in their wisdom, all the Legislature empowered him to do was to impose a fine of 40s. Had C. been a dairyman and watered his milk, or a publican and watered his whisky, he might have fined him £20; but, as a careless citizen, who deliberately spread a scourge of this sort amongst his fellow-citizens, all he could do was to fine him 40s. His Lordship regretted exceedingly that he had not power to impose on the accused a term of imprisonment which might be a smart lesson. All he could do was to impose a fine of 40s., with the alternative of 30 days' imprisonment."

The mortality from smallpox for several periods in Glasgow and other towns in England and Scotland is shown in the following Table:—

SMALLPOX.

	1892-1901. Death-rate per 100,000.	1902.
Glasgow, ...	**4·3**	**6·0**
Edinburgh, ...	2·7	...
Dundee, ...	0·2	...
Aberdeen, ...	0·3	...
London, ...	1·0	28·0
Liverpool, ...	2·0	3·0
Manchester, ...	1·0	...
Birmingham, ...	5·0	1·0

The distribution of the cases and deaths occurring from the disease in the several sanitary districts in 1902, and the district death-rates for several periods, are as follows*:—

* For history of whole outbreak, 1900-1902, see Special Report by Medical Officer, May, 1902.

TABLE X.

GLASGOW.—SMALLPOX.

SANITARY DISTRICTS.	1902.				DEATH-RATE PER MILLION.		
	CASES.		DEATHS.				
	Number.	Rate per Million.	Number.	Rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	4	142	...	...	...	7	107
1. Exchange, ...	9	378	...	...	...	9	135
2. Port-Dundas, ...	...	...	...	...	...	22	...
3. High Street and Closes West, ...	3	305	...	...	...	21	113
4. St. Rollox, ...	5	312	2	125	...	13	314
5. Bellgrove and Dennistoun, ...	41	505	6	75	10	14	398
6. High Street and Closes East, ...	5	845	...	...	...	19	198
7. Greenhead and London Road, ...	131	1,905	14	206	10	42	922
8. Barrowfield, ...	37	1,330	6	215	...	26	867
9. Monteith Row, ...	4	997	2	498	...	48	...
10. St. Andrew Square, ...	4	860	...	...	...	...	249
11. Calton, ...	11	495	...	...	...	24	291
12. St. Enoch Square, ...	4	1,106	...	...	30	75	...
13. Brownfield, ...	3	796	...	...	...	...	...
14. Bridgegate and Wynds, ...	1	253	1	262	30	19	265
15. Woodside, ...	24	338	1	14	...	5	57
16. Cowcaddens, ...	39	2,072	1	56	20	...	228
17. Kelvinhaugh and Sandyford, ...	4	122	...	...	...	13	65
18. Anderston, ...	25	880	1	36	10	32	141
19. Kingston, ...	13	322	2	50	...	15	150
20. Laurieston, ...	6	680	...	...	...	...	...
21. Hutcheson Square, ...	31	437	1	14	...	9	228
22. Gorbals, ...	15	1,171	...	...	...	8	163
— Springburn and Rockvilla, ...	10	265	1	27	...	7	84
23. Govanhill, ...	3	127	...	...	...	5	172
24. Crosshill, ...	1	123	...	...	...	...	262
25. Langside and Mount Florida, ...	4	238	...	...	...	12	69
26. Pollokshields, E., and Strathbungo,	1	72	1	72	...	...	156
27. Pollokshields, W., and Bellahouston,	...	...	...	...	...	...	...
28. Hillhead, ...	1	110	...	...	...	...	...
29. Kelvinside, ...	...	...	...	...	...	...	...
30. Maryhill, ...	14	378	1	29	...	3	...
31. Possilpark and Barnhill, ...	7	312	...	...	...	8	49
— Institutions and Harbour, ...	...	...	2	...	...	...	...
CITY, ...	460	592	42	54	10	15	254

VACCINATION.

The following statement shows the number of vaccinations and re-vaccinations performed by the officers of the Department, and otherwise at the cost of the Corporation, during the year 1902:—

	Primary.	Re-vaccinations.
Office and Hospitals, ...	341	138
At Residence, by Staff of Department, ...	104	3,933
In Prisons, ...	21	3,696
Lodging-houses, &c., ...	...	2,490
By Practitioners, ...	...	1,906
	466	12,163

Primary Vaccination.

The following Table is taken from the Supplement to the Registrar-General's Monthly and Quarterly Returns for 1902, and gives particulars as to the vaccination of children born in Glasgow in 1901:—

		Percentage.
Successfully vaccinated, ...	20,020	83·0
Vaccination postponed, ...	195	0·8
Insusceptible of vaccination, ...	412	1·7
Died before vaccination, ...	2,636	10·9
Removed from the district or otherwise unaccounted for, ...	857	3·6
	24,120	100·0

The proportion of defaulters has risen ·7 per cent. as compared with the preceding year.

Re-vaccination.

The Convener of the Hospitals Committee, Councillor Steele, presented the following motion to the Corporation, which was unanimously agreed to at their meeting on 12th February, 1903:—

> "That, in view of the experience obtained during the late prevalence of smallpox in Glasgow of the complete protection against the disease which recent successful re-vaccination affords to adults, and of the insignificant number of cases occurring in persons who had been re-vaccinated in former years, the Corporation desires to record its conviction that a national system of re-vaccination, on the lines on which infantile vaccination at present proceeds, would render recurring widespread epidemic prevalence of the disease impossible, and resolves that a copy of this resolution be forwarded to the President of the Local Government Board."

A resolution of this character, expressing the conviction of a community which had just emerged from a struggle with smallpox extending over the greater part of two years, cannot fail to have its due weight in future legislation.

For the present the epidemic period is passed, and years of considerably diminished prevalence are likely to follow. How long this may continue may be inferred from the experience of the past. Glasgow shared in the pandemic which prevailed in the early seventies; from 1874 to 1893 there was relatively little smallpox. In the latter year, and again in 1895, the disease was moderatively active, but the interval between the major prevalences was about thirty years—an interval similar to that which the Hospitals Commission, in 1882, found to separate the years in which the maximum number of deaths from the disease occurred in London. It may be asked how this

interval is related to the decreasing protection which is afforded to after years by vaccination in infancy. Here, again, the experience of the past is of value. The tables of age incidence already published showed that from the age of five years onwards an increasing attack rate occurs until the age period 25-35 years is reached, after which it tends to decline, while the tendency to fatal attack continues to increase till the age period 35-45 years.

It can scarcely be regarded as wholly a coincidence that the central year of the period of maximum adult susceptibility to the disease should correspond so closely with the actually observed interval which separates the years of its maximum prevalences. The more reasonable interpretation would appear to be that communities dependent solely on infantile vaccination gradually re-acquire susceptibility, which gains explosive intensity once in a generation, and produces anew when the outbreak occurs a population largely protected by recent vaccination, which must be replaced by others less protected before the cycle can be again completed.

DIPHTHERIA.

617 cases of diphtheria were registered during 1902, of which 371, or 60·1 per cent., were treated in hospital. 105 deaths occurred, representing a death-rate of 135 per million living. The case-rate for the year was 794 per million living.

For several periods the death-rate has been as follows:—

1881-90, ...	·280	per 1,000
1891-1900, ...	·231	,,
1900, ...	·165	,,
1901, ...	·151	,,
1902, ...	·135	,,

TABLE XI.

DIPHTHERIA AND MEMBRANOUS CROUP.

Year.	Cases.			Deaths.			Case-mortality per cent.
	Number.	Rate per Million.	Per Cent. treated in Hospital.	Number.	Rate per Million.	Per Cent. treated in Hospital.	
1886-90	...	...	...	...	466	...	...
1891	465	822	16·1	131	232	23·7	28·2
1892	575	861	14·1	195	292	15·9	33·9
1893	828	1,228	19·0	246	365	25·6	29·7
1894	967	1,414	26·1	290	424	30·0	30·0
1895	654	944	28·4	137	198	19·0	21·0
1896	601	854	31·6	116	165	30·2	19·3
1897	462	647	32·9	127	178	30·7	27·5
1898	433	592	59·6	113	154	47·8	26·0
1899	465	622	52·3	109	146	31·2	23·5
1900	540	715	59·4	125	165	44·0	23·1
1901	563	739	57·2	115	151	44·4	20·4
1902	617	794	60·1	105	135	61·9	17·0

TABLE XII.

GLASGOW.—DEATHS AND DEATH-RATES PER MILLION FROM DIPHTHERIA AND CROUP FROM 1895 TO 1902.*

Year.	Deaths.			Death-rate per Million.		
	Diphtheria.	Croup.	Diphtheria and Croup.	Diphtheria.	Croup.	Diphtheria and Croup.
1895	112	73	185	161	105	266
1896	83	54	137	118	76	194
1897	97	48	145	136	67	203
1898	103	29	132	142	40	182
1899	106	17	123	145	23	168
1900	130	19	149	175	25	200
1901	110	13	123	144	17	161
1902	106	21	127	137	27	164

* Registrar General's Annual Reports.

The death-rate from diphtheria per 100,000 in Glasgow and in several other large towns for the ten years, 1892-1901, and for 1902, is as follows:—

	1892-1901.	1902.
Glasgow, ...	**20**	**14**
Edinburgh, ...	21	12
Dundee, ...	17	12
Aberdeen, ...	19	14
Paisley, ...	19	5
Greenock, ...	18	35
London, ...	50	25
Liverpool, ...	21	30
Manchester, ...	19	21
Birmingham, ...	25	24

The seasonal prevalence of the disease is shown in the following Table by stating the numbers registered monthly and their rate per 100,000 of the population calculated as an annual average:—

TABLE XIII.

GLASGOW.—DIPHTHERIA AND MEMBRANOUS CROUP.—CASES REGISTERED AND ANNUAL CASE-RATE PER 100,000 LIVING, FOR EACH MONTH FOR THE ELEVEN YEARS 1890-1900, AND FOR 1901 AND 1902.

Month.	Cases Registered.			Annual Case-rate per 100,000.		
	1890-1900.	1901.	1902.	1890-1900.	1901.	1902.
January, ...	652	69	40	103	107	61
February, ...	611	35	45	108	60	75
March, ...	586	45	53	93	70	80
April, ...	461	41	44	75	65	69
May, ...	444	43	42	70	66	64
June, ...	377	38	34	62	61	53
July, ...	300	33	50	47	51	76
August, ...	478	36	38	76	56	58
September, ...	608	49	50	100	78	78
October, ...	711	45	76	113	70	115
November, ...	698	81	68	114	129	106
December, ...	649	48	77	103	74	117
Year, ...	6,575	563	617	89	74	79

The age distribution of the cases of diphtheria registered is as follows:—

Age.	Number of Cases.
Under 1 year, ...	26
„ 2 „	71
„ 3 „	76
„ 4 „	53
„ 5 „	69
	— 295
„ 10 „	145
„ 15 „	56
„ 20 „	37
„ 25 „	35
„ 30 „	23
„ 35 „	10
„ 40 „	7
„ 45 „	7
„ 50 „	1
„ 55 „	1
	617

DISTRICT MORTALITY.

In the following Table the number of cases occurring in each district and the rate per million living is stated, also the number of deaths in 1902, with the death-rate for several periods. The distribution of the disease in the several districts will best be followed in the column showing the case-rate per million of population.

TABLE XIV.

Glasgow.—Diphtheria and Membranous Croup.

Sanitary Districts.	1902.				Death-rate per Million.		
	Cases.		Deaths.				
	Number.	Rate per Million.	Number.	Rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	19	675	1	36	230	194	178
1. Exchange, ...	16	672	2	91	230	210	135
2. Port-Dundas, ...	4	703	1	176	220	414	188
3. High Street and Closes West, ...	5	508	1	110	190	178	113
4. St. Rollox, ...	15	936	4	250	350	149	126
5. Bellgrove and Dennistoun, ...	62	764	15	188	300	230	167
6. High Street and Closes East, ...	4	676	...	...	130	140	397
7. Greenhead and London Road, ...	58	844	12	177	240	225	246
8. Barrowfield, ...	16	575	4	144	190	237	108
9. Monteith Row, ...	3	748	...	...	290	186	...
10. St. Andrew Square, ...	1	215	...	...	360	278	499
11. Calton, ...	14	631	5	242	180	250	97
12. St. Enoch Square, ...	1	277	...	...	370	236	421
13. Brownfield, ...	...	...	...	...	180	382	281
14. Bridgegate and Wynds, ...	1	253	...	...	120	224	265
15. Woodside, ...	64	900	11	155	340	233	57
16. Cowcaddens, ...	9	478	2	112	320	327	114
17. Kelvinhaugh and Sandyford, ...	29	886	5	161	300	229	130
18. Anderston, ...	15	528	7	250	350	298	35
19. Kingston, ...	43	1,064	8	200	260	201	175
20. Laurieston, ...	1	113	...	...	320	366	115
21. Hutcheson Square, ...	67	944	8	113	370	227	171
22. Gorbals, ...	9	703	3	251	250	202	163
— Springburn and Rockvilla, ...	18	476	5	132	290	300	197
23. Govanhill, ...	22	935	2	85	...	249	172
24. Crosshill, ...	11	1,355	...	...	...	200	...
25. Langside and Mount Florida, ...	21	1,251	1	61	...	135	...
26. Pollokshields, E., and Strathbungo,	24	1,725	...	...	...	197	...
27. Pollokshields, W., and Bellahouston,	7	1,094	...	...	...	261	...
28. Hillhead, ...	16	1,764	...	...	...	145	...
29. Kelvinside, ...	8	859	...	...	...	75	141
30. Maryhill, ...	26	702	5	142	...	306	297
31. Possilpark and Barnhill, ...	8	356	3	142	...	339	346
— Institutions and Harbour, ...	...	...	...	...	...	...	...
CITY, ...	617	794	105	135	280	231	151

When the association of the registered cases of diphtheria is enquired into, there is considerable ground for believing that its power to infect—or, more correctly, its range of infection—is comparatively limited, if the nature of the disease is recognised and effective measures of isolation and control are adopted. The 617 cases registered during the year occurred in 544 separate houses. In 43 of these two or more cases occurred, but in 32 at least of these the sicknesses were either simultaneous or separated only by a few days, and by far the greater number of secondary cases were subsequent to earlier cases treated at home.

On the other hand, the interval between the first and second sickenings was sometimes prolonged, and in one case there was evidence of re-implanted infection.

Return Case.

The first patient in this case sickened on 20th and was removed to hospital on 24th October. He was dismissed on 29th November. On December 4th, after five days, another case occurred in the household.

Prolonged Interval between First and Subsequent Cases.

The following are the details of cases in which the interval between the primary and secondary sickenings was unusually prolonged:—

Houston Street—3 cases.	1st.	2nd.	3rd.
Sickened, ...	5th June. ...	30th June. ...	11th August.
Hospital, ...	8th „ ...	3rd July. ...	17th „

In the first case an interval of 22 days separates the first and second sickenings, while the third case occurs only 39 days after the removal of the second to hospital.

Watt Street.—An interval of 12 days separates the second and third sickenings.

Kidston Street.—3 cases, with an interval of about 6 weeks between removal of first case to hospital and sickening of second.

St. John Street.—Second case sickened 10th week after removal of first case to hospital.

Colebrooke Terrace.—4 cases. First three treated at home; fourth case sickened 50 days after disinfection had been carried out.

I have elsewhere referred to the desirability of more frequent recourse being made to bacterial enquiry into the causes of sore throat, and it may further be added, as a direct suggestion from the condition of many cases on admission to hospital, that, where the clinical symptoms of diphtheria are present, the administration of antitoxin should not be delayed until the diagnosis has been verified bacteriologically.

SCARLET FEVER.

The number of cases of scarlet fever notified during 1902 was 2,509, of which 2,140, or 85 per cent., were treated in hospital. The deaths in 1902 numbered 113, representing a death-rate of 145 per million living. The case-rate for the City was 3,229 per million living. In both cases the rate is lower than any hitherto recorded.

For several periods the rate has been as follows:—

Average of 10 years,	1881-90, ...	·490	per 1,000 living.
„ 10 „	1891-1900, ...	·295	„
„	1900, ...	·278	„
„	1901, ...	·172	„
„	1902, ...	·145	„

The death-rate per 100,000 from the disease in several large towns for several periods is as follows:—

	Death-rate per 100,000. 1892-1901.	1902.
Glasgow, ...	**28**	**14**
Edinburgh, ...	22	10
Dundee, ...	10	6
Aberdeen, ...	19	6
Paisley, ...	20	33
Greenock, ...	22	85
London, ...	19	12
Liverpool, ...	30	45
Manchester, ...	23	26
Birmingham, ...	18	54

The number of cases registered, with the proportion treated in hospital, the proportion of deaths occurring there, and the case-mortality for each year since 1891, are stated in the following Table:—

TABLE XV.

Scarlet Fever.

Year.	Cases.			Deaths.			Case-mortality. Per Cent.
	Number.	Rate per Million.	Per Cent. Treated in Hospital.	Number.	Rate per Million.	Per Cent. Occurring in Hospital.	
1891	3,045	5,383	62·8	201	355	69·2	6·6
1892	4,844	7,257	62·7	301	451	63·5	6·2
1893	4,027	5,973	70·9	267	396	68·9	6·6
1894	3,930	5,701	73·7	210	307	70·0	5·3
1895	3,502	5,051	75·5	184	265	76·6	5·3
1896	2,728	3,879	78·9	143	203	82·5	5·2
1897	2,955	4,130	75·5	130	182	77·7	4·4
1898	3,620	4,947	82·3	190	260	76·3	5·2
1899	4,728	6,327	83·8	205	274	71·7	4·3
1900	4,162	5,508	85·7	210	278	77·6	5·0
1901	3,317	4,355	84·3	131	172	80·1	3·9
1902	2,509	3,229	85·3	113	145	77·9	4·5

During the year several groupings of cases among the consumers of particular milk supplies were noted, of which the following were reported at the time of occurrence:—

(Extract from Report of 22nd February.)

On the 19th February attention was drawn to the simultaneous occurrence of scarlet fever in the South-Suburban District, associated with the milk supply of a wholesale dairy. The patients being mostly adults, school influence could be excluded.

Four different branches of the dairy were involved, and each had a double supply from a Lanarkshire farm and from the wholesale depot.

Suspicion pointed strongly to the farm, and word was sent to the County Medical Officer of Health. Three cases of scarlet fever had occurred there, one of which had been removed the same day as notified (12th), and other two were found under supervision by the medical attendant as doubtful cases. These were at once removed to hospital. Ten cases in all have been notified.

(Extract from Report of 22nd March.)

On the 10th instant a number of associated cases of scarlet fever occurred in the South-Suburban District of Glasgow, the Burgh of Pollokshaws, and the neighbouring part of Renfrewshire. The Glasgow cases numbered 23 in all, 20 of which were primary cases, occurring in 15 households. In these the sickenings occurred between the 2nd and 9th of March, and in 17 of the cases the dates of sickening can be definitely fixed in the following way, viz.:—3 on the 2nd, 1 each on 4th and 5th, and 3 each on 6th, 7th, 8th, and 9th; while the sickenings of the cases beyond the boundary occurred in the following manner:—1 on the 4th, 1 on the 7th, 6 on the 8th, and 2 on the 9th.

The cases had a common milk supply from a dairy in the neighbourhood, but nothing which explained the outbreak was found therein. Investigation of the milk supply made it probable that the infected quantity came from a farm in Lanarkshire, but at this farm, at the time of inspection on 10th instant, no source of infection was discovered. Later on, however, Dr. Wilson informed me that a child had returned to the farm on 11th March from a visit to some relatives, and, on being examined on the 21st, was found to be suffering from a scarlatinal desquamation. From this discovery was elicited the story that this child had sickened about three weeks before, and had left the farm without any suspicion being created as to the true character of the apparantly trifling symptoms of which she then complained. The infection of the milk, as has been seen, was of a comparatively restricted character, and it is interesting to note that the cases were associated with the period when this child's attack began, and that none, so far as known, occurred between the 11th and 21st current.

(Extract from Report of 5th April.)

Dr. Knight adds some further details regarding the outbreak of scarlet fever referred to in the report for last fortnight.

The case of suspected scarlet fever at the farm was reported to be isolated and under medical observation there. Further information threw doubt upon the care with which the so-called "isolation" was being carried out. The farm was inspected on the 30th ultimo, when the patient was found occupying a room with his mother and grandmother. Neither of these adults took any part in the dairy work, but the farmer himself came daily into the room, and then returned to his work in the dairy. He did not realise what isolation meant, nor did he appreciate the danger of milk infection.

As a result of representations, he agreed that the child should leave the farm next day. Four days later the arrangement had not been carried out, and instructions were given for the stoppage of the milk until the child had been removed to hospital and the farm premises disinfected.

The above incident furnishes an example of the necessity for close personal supervision of affected farms, and is the first illustration for a considerable time of definite effort being made to set aside the requirements of a reasonable protection of a milk supply.

Attention was drawn, on the 24th ultimo, to the occurrence of four cases of scarlet fever in connection with an East-end dairy.

Examination showed that the disease did not exist in any of the dairy staff, and enquiry into the milk supply of the infected families caused suspicion to be directed to a Lanarkshire farm.

This was strengthened by the fact that the farm servant who drove the milk into town had been off work for a week about a fortnight previously, and on resuming work he showed signs of recent acute illness. The County Authorities were at once informed, and the lad, who was found to be desquamating, was sent to hospital. The true nature of his illness had been overlooked by his medical attendant.

It is an interesting fact that the milk infection did not begin until nearly a fortnight after he resumed work. This coincided with desquamation of the arms and hands, a condition which considerably favoured the access of infective particles to the milk.

Sixteen households, comprising 22 cases, were in all affected by the disease.

District Deaths and Death-rates.

In the following Table the number of cases and the case-rates for 1902 with the deaths and death-rates for 1902 and several other periods, are stated for each of the sanitary districts:—

TABLE XVI.

GLASGOW.—SCARLET FEVER.

SANITARY DISTRICTS.	1902.				DEATH-RATE PER MILLION.		
	CASES.		DEATHS.				
	Number.	Rate per Million.	Number	Rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	80	2,844	1	36	350	206	143
1. Exchange, ...	67	2,813	1	46	360	208	450
2. Port-Dundas, ...	9	1,582	...	...	360	257	...
3. High Street and Closes West, ...	23	2,337	2	219	310	346	...
4. St. Rollox, ...	49	3,057	...	...	560	367	126
5. Bellgrove and Dennistoun, ...	327	4,031	16	200	560	376	128
6. High Street and Closes East, ...	9	1,521	2	464	560	443	596
7. Greenhead and London Road, ...	233	3,389	12	177	590	288	138
8. Barrowfield, ...	64	2,300	4	144	560	306	72
9. Monteith Row, ...	13	3,240	2	498	410	282	...
10. St. Andrew Square, ...	3	645	...	...	570	276	748
11. Calton, ...	60	2,703	4	193	540	244	48
12. St. Enoch Square, ...	11	3,043	...	...	580	224	421
13. Brownfield, ...	...	...	...	...	360	382	281
14. Bridgegate and Wynds, ...	5	1,268	...	...	530	229	...
15. Woodside, ...	257	3,614	8	113	450	326	158
16. Cowcaddens, ...	30	1,594	2	112	700	310	228
17. Kelvinhaugh and Sandyford, ...	111	3,391	2	64	220	246	228
18. Anderston, ...	64	2,252	3	107	410	308	387
19. Kingston, ...	134	3,317	9	225	400	293	75
20. Laurieston, ...	17	1,927	...	...	560	367	...
21. Hutcheson Square, ...	325	4,578	21	296	640	343	314
22. Gorbals, ...	31	2,420	3	251	700	293	82
— Springburn and Rockvilla, ...	67	1,774	4	106	380	354	56
23. Govanhill, ...	112	4,758	3	127	...	345	216
24. Crosshill, ...	60	7,392	1	123	...	395	262
25. Langside and Mount Florida, ...	87	5,182	3	183	...	113	276
26. Pollokshields, E., and Strathbungo,	56	4,026	2	144	...	184	...
27. Pollokshields, W., and Bellahouston,	25	3,908	1	156	...	202	175
28. Hillhead, ...	28	3,088	...	...	...	65	117
29. Kelvinside, ...	25	2,683	...	...	...	166	...
30. Maryhill, ...	90	2,430	4	114	...	200	89
31. Possilpark and Barnhill, ...	37	1,649	...	...	...	277	247
— Institutions and Harbour, ...	...	...	3	...	...	...	...
CITY, ...	2,509	3,229	113	145	490	295	172

RETURN CASES.

During the year 60 cases of scarlet fever occurred in families subsequent to the return of an earlier case from hospital. This represents a rate of 2·8 on the admissions during the year. The average duration of the hospital residence of the earlier cases was 56 days; the maximum, 91 days; and the minimum, 40 days.

Of the subsequent cases, one sickened on the day on which the earlier case was dismissed, and should therefore probably be excluded. The remaining cases sickened after the following intervals:—

DAYS ELAPSING BETWEEN RETURN OF EARLIER AND SICKENING OF SUBSEQUENT CASES.

Days.	Number of Sickenings.	Days.	Number of Sickenings.	Days.	Number of Sickenings.
1	1	8	1	15	—
2	—	9	2	16	—
3	6	10	1	17	2
4	4	11	4	18	—
5	3	12	1	19	3
6	7	13	5	20	3
7	7	14	4	21	1
	First Week, 28		Second Week, 18		Third Week, 9

while four sickened subsequently. In one or two cases it was observed that the secondary case had been absent from the family until within a day or two of sickening, and in the others it is probable that some special act of contact, such as the accidental use of some dish or drinking vessel immediately after it had been used by the returned patient, had occurred, and determined the attack, at a comparatively late period after the return of the earlier case from hospital.

The following history of a series of return cases is of interest from the interval which elapsed before the infection appeared to exhaust itself:—

"A child, K., sickened on 20th September, is removed to hospital, and returns home on 2nd November. Sixteen days afterwards two younger children sicken, and are also removed to hospital. On 31st December they are dismissed, and thirty days after this a fourth child develops the disease. This series is a suggestive one. Examined in detail, and more especially with reference to the question whether the subsequent cases arose from association with the earlier dismissals after their return, it is to be observed that an interval of sixteen days elapsed in the first instance, and thirty days in the second, between the dismissals and the occurrence of the cases assumed to have resulted from them. Fully eight weeks, therefore, separated the onset of the first attack from the second and third cases, and there is an interval of fully ten weeks between the beginning of these and the sickening of the fourth child.

"The interval between dismissal and the occurrence of subsequent cases would by some observers be regarded as excluding at least Case 4 of this series from the list of return cases at all, but I doubt whether it is advisable to do so as a general rule, and without enquiry into the particular circumstances of each case.

"When the first case was returned from hospital the children were permitted free intercourse with each other, and only after the lapse of over a fortnight did the second and third cases occur; while on the return of these latter from hospital fully four weeks intervened before the fourth sickness developed, and during the first two weeks of this interval the recently dismissed children were kept absolutely apart from the others.

"The incubation period of scarlet fever is short—usually less than a week—and it is therefore reasonable to assume that none of the children dismissed were actively infectious at that time.

"Question of Recurrence of Infectivity.

"In considering the return cases which occurred during 1893-94, the possibility of this attracted my notice, and the following sentence is from the report of that enquiry*:—'We have of late been made familiar with the phrase, "recurring infectivity," as a clinical fact of occasional occurrence at least in cases of diphtheria, and the term would seem to be equally applicable to certain cases of scarlet fever.' This observation had reference to recurrence of desquamation—excoriations of the skin and mucous membranes or discharges from orifices generally—and was made regarding a series of cases occurring after a minimum detention in hospital of eight weeks, and an average of fifty-three days over all admissions, the proportion in which this occurred being about 19 per cent.

"In the boy (third case of the above series) there was a recurrence of desquamation from his feet after dismissal from hospital, but the apparent significance of this must be weighed with parallel and contradictory observations over a series of cases; and in the girl, who was the first to sicken after dismissal, nothing of a similar nature was observed. The present tendency is to exclude, as probably harmless, late desquamation from the feet of this character, and Dr. Brownlee, who personally examined the second and third cases prior to dismissal, is of opinion that they were then, so far as present knowledge goes, free from infection.

"The absence of tangible evidence in a large majority of return cases that this is a necessary or even frequent factor in their prevention precludes its unhesitating acceptance as the medium through which infection has been conveyed in any individual case; and, indeed, recent tendency has been to regard discharges from the mucous orifices, and not lesions of the skin, as the principal agents therein.

"In none of the cases under consideration were complications of this sort present during any part of the progress of the disease.

"The disinfection seems to have been carried out as instructed, and the continued freedom from the disease of Cases 2, 3 and 4, while Case 1 was still in hospital, suggests that the house disinfection was satisfactory.

"There is nothing to be said regarding extraneous sources of infection for each case, beyond the possibility of its occurrence.

"The question, therefore, presents itself solely as affecting the duration of residence in hospital. The children were free from any of the known signs of infectivity on dismissal, and there was no after development of any obvious symptoms by which its recurrence could be recognised. The question must be considered rigidly on these lines. It is a reasonable surmise that infectivity may continue or recur under conditions which are not presently recognisable—indeed, the existence of return cases is evidence of this. But detention of cases belonging to this category for a longer period in hospital has not yet, in our experience, been shown to be accompanied by a cessation, or even diminution, of the frequency of their recurrence, and it is only by continued observation that we can hope to unravel the difficulty which surrounds the explanation. I find myself in agreement with the opinion expressed by Professor Simpson in his report to the Metropolitan Asylums Board on this subject, that the duration of the period of detention in hospital is not *cæteris paribus* the most important of the causes in operation, and that return cases are not, within certain limits, due to premature discharge."

Age.	Date of Sickening.	Ward. Belvidere.	Date of Removal.	Date of Dismissal.	Remarks.
17	20/9/01	XXVI.	22/8/02	2/11/01	—
14	18/11/01	XXV.	19/11/02	31/12/01	Kept apart from the rest of the family for 14 days after returning from Hospital.
6	18/11/01	XXV.	20/11/02	31/12/01	—
9	30/1/02	—	—	—	Nursed at home.

* See *Lancet*, June 20th, 1895.

SECONDARY CASES.

In 93 cases the sickness began after disinfection was carried out, at intervals which can be stated as follows:—

Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.
0	9	8	5	15	3
1	17	9	4	16	—
2	9	10	4	17	1
3	5	11	1	18	—
4	5	12	3	19	2
5	2	13	1	20	1
6	9	14	1	21	1
7	5				
	—		—		—

First Week, 61 Second Week, 19 Third Week, 8

Later Cases, 4.

This series has an interest in relation to the duration of the incubation period of scarlet fever. All those sickening in the first week may, without much hesitation, be attributed to infection contracted prior to disinfection, but the precise relationship to the previously existing infection of those sickening in the second and third week requires more extended enquiry. No secondary sickenings occurred after disinfection when the cases were treated at home.

TYPHUS FEVER.

36 cases of typhus fever were registered in 1902, and 9 deaths occurred. All the cases were treated in hospital. The case-rate was 46 and the death-rate 12 per million living.

The death-rate for several periods is as follows:—

1881-90,	·040	per 1,000 living.
1891-1900,	·016	„
1900,	·023	„
1901,	·013	„
1902.	·012	„

Compared with other large towns, the death-rate in the ten years, 1892 to 1901, and in 1902, per 100,000 living, was as follows:—

	1892-1901.	1902.
Glasgow,	**1**	**1**
Edinburgh,	1	—
Dundee,	3	—
Aberdeen,	1	—
Paisley,	1	1
Greenock,	2	—

The following extracts from the Fortnightly Reports presented to the Committee on Health afford illustrations of the conditions under which the cases of typhus occurred; special attention is directed to the intimate association of typhus with overcrowding:—

(Extract from Report for Fortnight ending 25th January.)

A patient admitted to hospital as suffering from enteric fever was found to be ill of typhus fever, and enquiry disclosed an earlier illness of his wife. They lived in a farmed-out house at 52 Rose Street, South-Side, ticketed for five, but occupied by two families, numbering together five adults and four children.

(*Extract from Report for Fortnight ending 31st May, 1902.*)

Four cases of this disease were registered during the fortnight, and the following interesting description of their association has been prepared by Dr. Knight:—

On the 19th May a patient living in the Western district was seen in consultation, and found to be suffering from typhus fever. Neither the house nor the neighbourhood were of a character generally associated with this disease, and the patient's occupation (pawnbroker's assistant) seemed to furnish the probable source of infection. No definite evidence, however, was obtained until the occurrence of the subsequent cases.

On the 27th May a young married woman living in Overnewton was seen in consultation with Dr. James Weir, and found to be suffering from typhus fever of about eight days' duration. In this case also the home of the patient was of a superior description to that generally met with in typhus. Enquiry showed that a sister had been living in the same house some time before, and, having taken ill during the visit, had returned to her own home. The approximate date of this visit seemed to correspond with the period of incubation of the disease, and it was considered advisable to follow up the first case of illness. At the address given in Brown Street, Anderston, the following history of illness was obtained:—

The sister already referred to was found in bed, presenting all the appearance of typhus at the beginning of the third week. In the room a younger sister was discovered with a well-marked typhus rash, having evidently been ill about ten days. Further enquiry showed that the disease appeared to have been present in this particular house from about the beginning of December, and had in all attacked seven of the inmates consecutively.

It has been found practically impossible to ascertain accurately the dates of sickening of these cases, but in all the symptoms were similar, and the illness in each case lasted three weeks. No medical man was called in, the illness being ascribed to influenza.

So far as is at present known, no other inmates of the tenements, front or back, have contracted the disease, although it cannot be doubted that the existence of such a focus of infection for so long a time is of the greatest danger to the locality.

Thorough disinfection has been carried out, and all known contacts removed to the reception-house.

From this Brown Street family pawn tickets were obtained which helped to clear up the difficulty regarding the source of infection in the case of the pawnbroker's assistant. There can be no doubt that it was from the Brown Street house the infected articles were pawned, and through the handling of these the disease was contracted.

(*Extract from Report for Fortnight ending 28th June.*)

During the fortnight two cases of typhus fever occurred in a household in Cranston Street, known to have been in association with the cases formerly occurring in Brown Street, and under observation at the time of sickening.

(*Extract from Report for Fortnight ending 26th July.*)

During the fortnight two cases certified enteric fever were admitted to Ruchill Hospital, and, on examination, proved to be typhus fever. Enquiry showed that a case had occurred at home without medical attendance, and the original source of infection appeared to be the previous occupants of the house, who came from Ireland.

(*Extract from Report for Fortnight ending 1st November.*)

The cases of typhus fever registered during the fortnight have occurred in persons who were contacts with the cases in Anderston during the preceding one, and were all under observation in the reception-house at the time of sickening. The dates of sickening of these secondary cases show that infection was received before removal to the reception-house. The original case was removed to hospital on the 14th October, and the subsequent sickenings occurred on 20th, 24th, 27th, and 29th October.

(Extract from Report for Fortnight ending 15th November.)

The occurrence of ten cases of typhus fever during the fortnight affords striking illustration of the infectious power of the disease when its nature is unrecognised and other circumstances combine to lend virulence to its action.

On 3rd November, Dr. Knight was asked to see a woman residing in Hospital Street, South-Side, and on visiting he found that she had been ill for about twelve days of what he readily recognised to be typhus fever. A child of thirteen was also in bed with the eruption just appearing, and there was a history of illness in another child, who proved to be just recovering from the disease.

The family consists of the father, mother, and six children, only one of whom is over ten years of age. The house, a two-apartment one, contains 2,324 cubic feet of air space, and is thus just capable of legally accommodating the family; but a lodger was kept, who was a fellow-worker with the husband, and occupied the room with three of the children.

In the reception-house, to which the healthy members of the household were removed, all, including the lodger, have since sickened of the disease, as has also an acquaintance residing in Surrey Street, who had been in attendance on the patients before their removal to hospital.

The house was rented at 12s. 11d. per month, and was dirtily kept, although the householder, when he did not drink, was able to earn about 36s. weekly.

(Extract from Report for Fortnight ending 29th November, 1902.)

Mary M. was employed in Weaver Street Reception-house in February last, during the smallpox outbreak, for a period of about six weeks. She was re-engaged, and entered upon her duties on the 4th of November. At this time she was not looking well, and had evidently been neglecting her food. Some new contacts had been received the day before, but all their infected clothing had been removed before the maid's arrival. The same day, but also before her arrival, a child had been removed to hospital with typhus. The bed-clothing in connection with this case was removed after her arrival, but she is not known to have been either in the infected room or in definite contact with the bed-clothing. She occupied a bedroom with two other maids, but each had her own bed. She sickened of typhus sixteen days after her arrival at the reception-house.

The following Table shows the district distribution of the disease; cases occurred in nine districts, and in three of them several fatal attacks occurred:—

TABLE XVII.

GLASGOW.—TYPHUS.

SANITARY DISTRICTS.	1902.				DEATH-RATE PER MILLION.		
	CASES.		DEATHS.				
	Number.	Rate per Million.	Number.	Rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	...	...	...	...	20	4	...
1. Exchange.	...	...	...	...	40	9	...
2. Port-Dundas, ...	...	...	...	...	90	...	188
3. High Street and Closes West, ...	1	101	...	...	50	41	...
4. St. Rollox, ...	...	...	...	...	60	6	...
5. Bellgrove and Dennistoun, ...	2	25	...	...	40	10	...
6. High Street and Closes East, ...	...	...	...	...	50	16	...
7. Greenhead and London Road, ...	2	29	...	...	60	22	15
8. Barrowfield, ...	1	36	...	...	50	29	36
9. Monteith Row, ...	...	...	...	...	60	46	...
10. St. Andrew Square, ...	...	...	...	...	80	75	...
11. Calton, ...	...	...	...	...	50	24	145
12. St. Enoch Square, ...	...	...	...	...	30	32	...
13. Brownfield, ...	2	531	...	...	120	29	...
14. Bridgegate and Wynds, ...	...	...	...	...	70	113	...
15. Woodside, ...	...	...	...	...	20	8	...
16. Cowcaddens, ...	...	...	...	...	80	44	...
17. Kelvinhaugh and Sandyford,... ...	1	31	...	...	30	3	...
18. Anderston, ...	9	317	3	107	40	11	35
19. Kingston, ...	...	...	...	...	40	39	...
20. Laurieston, ...	...	...	...	...	50	35	...
21. Hutcheson Square, ...	7	99	2	28	50	13	14
22. Gorbals, ...	11	859	3	251	30	16	...
— Springburn and Rockvilla, ...	...	...	...	...	20	4	...
23. Govanhill, ...	...	...	...	...	...	12	...
24. Crosshill, ...	...	...	...	...	...	...	..
25. Langside and Mount Florida,... ...	...	...	...	...	...	...	...
26. Pollokshields, E., and Strathbungo, ...	...	...	...	...	...	...	...
27. Pollokshields, W., and Bellahouston,...	...	...	...	...	...	...	...
28. Hillhead, ...	...	...	...	...	...	...	...
29. Kelvinside, ...	...	...	...	...	...	...	...
30. Maryhill, ...	...	...	...	...	...	5	...
31. Possilpark and Barnhill, ...	...	...	...	...	...	...	...
— Institutions and Harbour, ...	...	...	1	...	...	...	...
CITY, ...	36	46	9	12	40	16	13

ENTERIC FEVER.

698 cases of enteric fever were registered during 1902 (of which 633, or 91 per cent., were treated in hospital), as compared with 1,257 in 1901, and 1,013 in 1900. The number of deaths from this disease in 1902 was 110, representing a death-rate of ·142 per 1,000 living. The case-rate for the year was 899 per million living, compared with 1,650 in 1901. The average annual death-rate for several periods has been as follows:—

1881-90,	·230	per 1,000.
1891-1900,	·215	,,
1900,	·209	,,
1901,	·275	,,
1902,	·142	,,

The following Table gives certain particulars regarding enteric fever for each year since 1891:—

TABLE XVIII.

GLASGOW.—ENTERIC FEVER, 1891-1902.

Year.	Cases.			Deaths.			Case-mortality per cent.
	Number.	Rate per Million.	Per cent. treated in Hospital.	Number.	Rate per Million.	Per cent. occurring in Hospital.	
1891	784	1,386	59·8	123	218	69·9	15·7
1892	590	884	58·3	101	151	67·3	17·1
1893	703	1,043	60·9	120	178	68·3	17·1
1894	810	1,184	72·2	151	221	76·2	18·6
1895	797	1,150	74·5	122	176	73·0	15·3
1896	691	982	71·1	145	206	72·4	21·0
1897	905	1,265	74·6	174	243	78·8	19·2
1898	1,212	1,657	86·6	228	312	86·0	18·8
1899	1,080	1,445	89·4	178	238	84·3	18·4
1900	1,013	1,340	85·1	158	209	85·4	15·6
1901	1,257	1,650	85·1	210	275	80·1	16·7
1902	698	899	90·7	110	142	88·2	15·8

For comparison with other towns the following particulars are given:—

DEATH-RATE PER 100,000 FROM ENTERIC FEVER IN CERTAIN LARGE TOWNS OF SCOTLAND AND ENGLAND FOR SEVERAL PERIODS.

	1892-1901.	1902.
Glasgow,	**22**	**14**
Edinburgh,	13	11
Dundee,	13	7
Aberdeen,	9	2
Leith,	10	3
Paisley,	36	16
Greenock,	16	28
London,	14	13
Liverpool,	32	31
Manchester,	20	12
Birmingham,	21	19

The district distribution of the disease is shown in the following Table, in which are stated the number of cases registered, and of deaths in each district, in 1902, with the death-rate for several periods:—

TABLE XIX.

Glasgow.—Enteric Fever.

Sanitary Districts.	1902.				Death-rate per Million.		
	Cases.		Deaths.				
	Number.	Rate per Million.	Number	Rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	20	711	4	146	160	143	250
1. Exchange, ...	17	713	1	46	210	192	360
2. Port-Dundas,...	4	703	1	176	330	345	375
3. High Street and Closes West, ...	5	508	1	110	120	322	227
4. St. Rollox, ...	13	811	1	62	160	273	63
5. Bellgrove and Dennistoun, ...	62	764	10	125	260	255	180
6. High Street and Closes East, ...	7	1,183	...	...	130	321	198
7. Greenhead and London Road, ...	51	742	14	206	260	295	307
8. Barrowfield, ...	45	1,617	7	251	300	322	361
9. Monteith Row, ...	1	249	...	...	230	188	...
10. St. Andrew Square, ...	2	430	...	...	160	203	998
11. Calton, ...	30	1,352	7	338	240	367	97
12. St. Enoch Square, ...	2	553	1	453	150	369	...
13. Brownfield, ...	2	531	...	...	210	440	...
14. Bridgegate and Wynds, ...	6	1,521	...	...	320	279	1,062
15. Woodside, ...	52	731	9	127	190	157	229
16. Cowcaddens, ...	24	1,275	4	224	160	278	285
17. Kelvinhaugh and Sandyford, ...	21	641	3	96	230	131	98
18. Anderston, ...	40	1,407	2	72	270	151	317
19. Kingston, ...	31	767	5	125	200	199	224
20. Laurieston, ...	10	1,134	1	118	220	274	346
21. Hutcheson Square, ...	82	1,155	13	183	220	190	371
22. Gorbals, ...	19	1,484	1	84	340	296	489
— Springburn and Rockvilla, ...	29	768	3	79	210	228	141
23. Govanhill, ...	14	595	2	85	...	142	259
24. Crosshill, ...	4	493	2	246	...	140	131
25. Langside and Mount Florida, ...	23	1,370	1	61	...	107	138
26. Pollokshields, E., and Strathbungo,	2	144	...	...	...	58	78
27. Pollokshields, W., and Bellahouston,	9	1,407	...	...	...	45	350
28. Hillhead, ...	3	331	...	...	...	39	469
29. Kelvinside, ...	3	322	...	...	...	32	...
30. Maryhill, ...	59	1,593	11	313	...	156	891
31. Possilpark and Barnhill, ...	6	267	2	94	...	225	99
— Institutions and Harbour, ...	...	...	4	...	...	...	...
CITY, ...	698	899	110	142	230	215	275

The distribution of the disease displayed considerable irregularity. Attack rates much in excess of the mean for the City are presented by districts so widely different in their sanitary circumstances as are High Street and Closes East, Barrowfield, Calton, Cowcaddens, Langside, Pollokshields West, and Maryhill. The relation of the disease, however, to general sanitation is not to be gauged by the extremes of fluctuation over limited periods, but by its persistence at a high level, and when the rates are compared over periods of reasonable duration the apparent inconsistencies disappear. Many illustrations of this will be found in comparing the rates for individual years with the column of decennial rates in the above Table.

A limited outbreak early in the year gave rise to the suggestion that commercial pasteurising of milk may sometimes fail in its object. The circumstances were as follows:—

"The association of certain cases of enteric fever among the customers of two dairies supplying milk in the Western District of the City led to an enquiry which is of some interest.

"The milk supply of the larger of the dairies in question is obtained from many sources, among others from a dairy farm in the vicinity of Glasgow, and it is of special significance that a quantity which may be represented as about one-third (forty-four gallons) of the total yield of this farm is delivered to the smaller dairy by the cart which conveys the remainder of the milk to the larger one. This smaller portion of the milk was sold as received; the larger portion was pasteurised before distribution. This, for the present, is all that can be said regarding the milk supply. There is not even the certainty that the milk of the farm in question formed part of that delivered to the families who subsequently suffered from enteric fever, but the association of cases with each dairy, and the relationship in time of these attacks to others at the source of the milk supply, are significant.

"The dates of sickening of the cases among the customers of the larger dairy are as follows:—1st, 17th, 20th, 21st, 24th, and 27th December; and of the smaller dairy, 1st and 8th December.

"The sicknesses at the farm were as follows:—Two of the farmer's children sickened about 28th November, and at the same time two children of a ploughman, who lived in a tenement of houses about a quarter of a mile away, also sickened. The ploughman himself sickened on 7th December, but up till this date had driven the milk in question into the Glasgow dairies. In the farmer's children and the ploughman the illness was definitely enteric fever, although in the case of the latter he was not removed to hospital until 19th December, the symptoms being indefinite in character, by which date two other children had sickened, and were removed to hospital with their father.

"On the occasion of a visit which Dr. Campbell Munro (Medical Officer of Renfrewshire) paid with Dr. Knight, on 4th January, attention was attracted to another inmate of the farmer's household, and also to the child of an occasional milker. These looked anæmic, and blood was obtained for examination, which proved positive to a Widal test for enteric fever. In one of the cases an illness early in November had necessitated confinement to bed for a fortnight in the farmer's house, and a subsequent visit to the milker's house by Dr. Campbell Munro, on 9th January, resulted in the removal of a child to hospital suffering from enteric fever."

In the Appendix* will be found a Report by the Medical Officer of Health, submitting Report by Dr. Dittmar on the prevalence of enteric fever in certain districts of the City during the years 1897-1901, which was presented to the Committee on Health.

MEASLES.

5,565 cases were registered in 1902, as compared with 10,888 in 1901, and 266 deaths occurred, representing a death-rate of ·342 per 1,000 of the estimated population living. This is the lowest death-rate which has been recorded since 1879. 12·4 per cent. of the total deaths occurred in hospital.

* See page 91.

For several periods the death-rate has been as follows:—

1881-90,	... ...	·680 per 1,000 living.
1891-1900,	.. ...	·784 „
1900, ...	... ...	·610 „
1901, ...	... ...	·655 „
1902, ...	... ...	·342 „

The following Table shows the death-rate per 100,000 for several large towns for the ten years, 1892-1901, and for 1902:—

	1892-1901.	1902.
Glasgow, ...	**81**	**34**
Edinburgh, ...	62	38
Dundee, ...	50	50
Aberdeen, ...	55	12
Paisley, ...	41	68
Greenock, ...	65	51
London, ...	58	51
Liverpool.	54	48
Manchester, ...	78	44
Birmingham, ...	48	34

The total deaths, the number occurring in hospital, and their proportion to the total deaths, for several years, are as follows:—

TABLE XX.

MEASLES.

Year.	Deaths.		Death-rate per Million.	Percentage of Total Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	329	46	475	14·0
1896	819	126	1,164	15·4
1897	586	73	819	12·5
1898	539	89	737	16·5
1899	544	95	828	17·5
1900	461	81	610	17·6
1901	499	89	655	17·8
1902	266	33	342	12·4

In the several sanitary districts the death-rate for several periods is compared, and the number of deaths occurring in each for 1902 is stated in the following Table:—

TABLE XXI.

GLASGOW.—MEASLES.

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	7	256	300	308	393
1. Exchange, ...	4	182	530	564	495
2. Port-Dundas, ...	3	529	820	1,340	2,441
3. High Street and Closes West, ...	3	329	600	742	793
4. St. Rollox, ...	3	187	610	1,004	566
5. Bellgrove and Dennistoun, ...	26	326	710	795	603
6. High Street and Closes East, ...	...	...	610	838	596
7. Greenhead and London Road, ...	38	560	760	964	400
8. Barrowfield, ...	19	683	840	1,210	650
9. Monteith Row, ...	1	249	290	558	...
10. St. Andrew Square, ...	7	1,758	650	628	249
11. Calton, ...	4	193	800	1,162	1,066
12. St. Enoch Square, ...	1	453	520	293	1,683
13. Brownfield, ...	2	581	1,200	1,408	1,964
14. Bridgegate and Wynds, ...	...	...	740	1,016	797
15. Woodside, ...	21	297	560	547	630
16. Cowcaddens, ...	6	336	990	1,426	1,880
17. Kelvinhaugh and Sandyford, ...	10	321	320	279	424
18. Anderston, ...	18	643	890	1,280	1,091
19. Kingston, ...	7	175	570	768	399
20. Laurieston, ...	8	941	990	1,482	808
21. Hutcheson Square, ...	18	254	760	970	955
22. Gorbals, ...	4	335	920	1,029	1,712
— Springburn and Rockvilla, ...	19	503	780	945	591
23. Govanhill, ...	5	212	...	416	216
24. Crosshill, ...	1	123	...	142	131
25. Langside and Mount Florida, ...	...	...	...	108	...
26. Pollokshields, E., and Strathbungo, ...	...	...	...	44	78
27. Pollokshields, W., and Bellahouston,	...	...	...	105	...
28. Hillhead, ...	...	...	...	66	...
29. Kelvinside, ...	...	...	...	182	...
30. Maryhill, ...	15	427	...	577	535
31. Possilpark and Barnhill, ...	10	473	...	720	296
— Institutions and Harbour, ...	6	...	...	...	...
CITY, ...	266	342	680	784	655

WHOOPING-COUGH.

The deaths from whooping-cough during 1902 numbered 466, which is equal to a death-rate of ·600 per 1,000 living.

The annual death-rate during several periods is shown in the following Table:—

1881-90,	...	1·150	per 1,000 living.
1891-1900,	...	·879	„
1901,	...	1·116	„
1902,	...	·600	„

In comparison with other large towns, the rate per 100,000 for the ten years, 1892-1901, and for 1902, was as follows:—

	1892-1901.	1902.
Glasgow,	**94**	**61**
Edinburgh,	51	33
Dundee,	56	35
Aberdeen,	52	82
Paisley,	63	52
Greenock,	60	12
London,	47	40
Liverpool,	52	57
Manchester,	53	43
Birmingham,	50	50

The total deaths, deaths occurring in hospital, and the proportion these form of the total deaths for each year since 1895, are shown in the following Table:—

TABLE XXII.

WHOOPING-COUGH.

Year.	Deaths.		Death-rate per Million.	Percentage of Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	614	48	886	7·8
1896	643	68	914	10·6
1897	842	80	1,177	9·5
1898	703	86	961	12·2
1899	323	23	432	7·1
1900	694	67	918	9·7
1901	850	72	1,116	8·5
1902	466	59	600	12·7

The number of deaths occurring at several age-periods is already stated in Table at page 24.

In the several sanitary districts the deaths in 1902 and the death-rates for several periods are given in the following Table:—

TABLE XXIII.

GLASGOW.—WHOOPING-COUGH.

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	9	329	520	472	964
1. Exchange, ...	14	637	880	642	1,036
2. Port-Dundas, ...	5	882	1,600	1,138	2,629
3. High Street and Closes West, ...	8	878	1,160	931	793
4. St. Rollox, ...	5	312	1,310	1,117	1,509
5. Bellgrove and Dennistoun, ...	59	739	1,120	903	937
6. High Street and Closes East,... ...	1	232	1,650	1,072	397
7. Greenhead and London Road, ...	52	767	1,230	1,110	1,705
8. Barrowfield, ...	23	826	1,390	1,096	1,805
9. Monteith Row, ...	1	249	710	834	703
10. St. Andrew Square, ...	2	503	850	857	998
11. Calton, ...	16	774	1,560	1,248	1,017
12. St. Enoch Square, ...	3	1,359	550	1,073	1,683
13. Brownfield, ...	5	1,452	1,170	1,291	1,122
14. Bridgegate and Wynds, ...	5	1,309	1,410	1,119	1,328
15. Woodside, ...	21	297	1,020	765	1,060
16. Cowcaddens, ...	2	112	1,930	1,499	2,621
17. Kelvinhaugh and Sandyford, ...	17	546	650	554	359
18. Anderston, ...	33	1,179	1,550	1,274	1,513
19. Kingston, ...	19	474	900	767	424
20. Laurieston, ...	6	706	1,530	1,144	1,963
21. Hutcheson Square, ...	70	986	1,210	1,105	1,383
22. Gorbals, ...	11	921	1,230	1,204	1,142
— Springburn and Rockvilla, ...	15	397	1,340	1,018	1,492
23. Govanhill, ...	17	722	...	662	819
24. Crosshill, ...	...	...	...	199	262
25. Langside and Mount Florida, ...	3	183	...	199	276
26. Pollokshields, E., and Strathbungo, ...	1	72	...	118	234
27. Pollokshields, W., and Bellahouston,	2	313	...	196	350
28. Hillhead, ...	...	...	...	209	117
29. Kelvinside, ...	1	117	...	71	283
30. Maryhill, ...	18	512	...	834	1,099
31. Possilpark and Barnhill, ...	12	567	...	806	1,333
— Institutions and Harbour, ...	10	...	...	...	...
CITY, ...	466	600	1,150	879	1,116

DIARRHŒAL DISEASES.

The deaths registered as due to diarrhœal diseases in 1902 numbered 499, representing a death-rate of 642 per million living.

For several periods the diarrhœal rate has been—

1881-90, ...	·700	per 1,000 living.
1891-1900, ...	·843	„
1901, ...	1·130	„
1902, ...	·642	„

In the report for 1900 attention was drawn to the inclusion of several forms of gastro-intestinal catarrh among the diarrhœal diseases—an addition which, to a large extent, will affect the value of decennial comparisons.

But, on the basis of the Registrar-General's returns, the death-rate of Glasgow may be compared with several other towns:—

	Death-rate per 100,000.*	
	1892-1901.	1902.
Glasgow, ...	**61**	**27**
Edinburgh, ...	43	19
Dundee, ...	86	61
Aberdeen, ...	49	30
Leith, ...	54	22
Paisley, ...	62	28
Greenock, ...	79	26
London, ...	81	54
Liverpool, ...	149	94
Manchester, ...	147	53
Birmingham, ...	134	71

TABLE XXIV.

AGE-INCIDENCE OF DIARRHŒAL DEATHS.

For the year 1902 these may be stated as follows:—

1902.	Under 1 year.	1-5.	5-15.	15-20.	20-25.	25-60.	60 years and upwards.
1st Quarter, ...	61	23	2	2	1	16	11
2nd „ ...	42	30	3	2	1	14	13
3rd „ ...	91	27	10	...	...	4	12
4th „ ...	89	29	...	...	...	6	10
Totals, ...	283	109	15	4	2	40	46

It will be observed that the autumnal increase of diarrhœal deaths is limited solely to those of children under one year, and the number of these occurring in this quarter formed only 32 per cent. of the total annual deaths at this age as compared with the usual proportion, which varies between 50 and 70 per cent.

* Compiled from Registrar-General's Annual Summary.

It is reasonable to assume that the prevailing low temperature was largely contributory to this result, but the rainfall in each quarter of the year was much below the average, and in the second quarter it only amounted to 4·87 inches.

The relation of mean temperature to the autumnal prevalence of the disease is shown in the following Table:—

	1900.		1901.		1902.	
	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.
	°		°		°	
June, - -	56·3	22	54·3	23	53·5	12
July, - -	58·7	46	61·5	89	54·9	26
August, - -	56·0	96	57·1	182	54·3	23
September, -	53·1	42	55·4	57	53·5	42

In the annexed Table the death-rate from the disease in each of the sanitary districts is given, and it is worthy of note that the districts in which the disease was most fatal in 1902 are, almost without exception, those in which a high diarrhœal death-rate is persistently present. The causes of diarrhœa are essentially local in their operation.

TABLE XXV.

GLASGOW.—DIARRHŒAL DISEASES.

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	13	475	270	415	607
1. Exchange, ...	6	273	450	547	990
2. Port-Dundas, ...	7	1,235	870	1,145	2,629
3. High Street and Closes West, ...	4	439	580	841	1,246
4. St. Rollox, ...	5	312	550	525	817
5. Bellgrove and Dennistoun, ...	41	514	560	756	1,039
6. High Street and Closes East, ...	2	464	860	1,093	1,588
7. Greenhead and London Road, ...	68	1,003	890	1,395	1,613
8. Barrowfield, ...	37	1,330	1,120	1,682	1,950
9. Monteith Row, ...	4	997	460	629	703
10. St. Andrew Square, ...	5	1,256	620	1,066	998
11. Calton, ...	33	1,596	990	1,347	1,890
12. St. Enoch Square, ...	2	906	490	771	421
13. Brownfield, ...	5	1,452	990	1,143	3,648
14. Bridgegate and Wynds, ...	1	262	1,210	1,027	1,328
15. Woodside, ...	25	353	540	607	745
16. Cowcaddens, ...	22	1,232	1,110	1,470	1,367
17. Kelvinhaugh and Sandyford, ...	11	354	320	380	782
18. Anderston, ...	21	750	810	1,101	2,146
19. Kingston, ...	18	449	540	707	1,198
20. Laurieston, ...	9	1,059	780	1,172	1,616
21. Hutcheson Square, ...	50	704	770	1,037	984
22. Gorbals, ...	10	837	960	1,534	1,875
— Springburn and Rockvilla, ...	18	477	590	725	1,098
23. Govanhill, ...	9	382	...	511	561
24. Crosshill, ...	2	246	...	170	131
25. Langside and Mount Florida, ...	4	243	...	274	276
26. Pollokshields, E., and Strathbungo, ...	3	216	...	243	234
27. Pollokshields, W., and Bellahouston,	2	313	...	212	350
28. Hillhead, ...	1	110	...	104	351
29. Kelvinside, ...	3	350	...	127	283
30. Maryhill, ...	25	712	...	619	1,158
31. Possilpark and Barnhill, ...	15	709	...	761	1,036
— Institutions and Harbour, ...	18	...	...	...	...
CITY, ...	499	642	700	843	1,130

POISONING BY FOOD.

Two cases of poisoning by food were reported during the year, and made the subject of enquiry. In both baked meat in the form of pie was the article of diet implicated, and the circumstances generally were similar in their main features.

One occurred early in June, the other late in September. In the first case nineteen persons, representing three families resident in Dundee, Edinburgh, Leith, and Glasgow, attended the funeral of a deceased relative in Glasgow, and partook of pie in the house of the Glasgow family before returning home. All were attacked with diarrhœa and vomiting later in the day, or early the following morning, and no member of any of the families not present so suffered.

In the September case five persons partook of a similarly baked pie at 5.30 p.m., and all were attacked with like symptoms within twelve hours. In this last case bacteriological examinations undertaken by Dr. Buchanan resulted in the recovery of the *Bacillus Enteritidis Sporogenes* from the contents of the pie.

In each case the bulk of the carcases from which the meat was obtained could be traced, and the circumstances attending the baking of each were enquired into without any information being obtained which at all suggested that the food had been infected before delivery. But here, as so frequently occurs when diarrhœal attacks prompt an enquiry into the conditions under which food is kept in households, the absence of any suitable provision for this purpose in the majority of houses forces itself on notice. In one of the cases just noted the pie stood on the kitchen dresser near the sink, and in most cases the choice must be made between a shelf, where it is exposed to dust and flies, or a press, which is usually unventilated and dark, and frequently is not far removed from a fireplace or chimney; and none of these can be regarded as suitable places for the preservation of food.

There should be little architectural difficulty in providing a chamber in one of the external walls of houses which could be both lit and ventilated, and its contents, with care, protected from both dust and flies.

TUBERCULOUS DISEASES.

Phthisis.

In 1902 1,299 deaths were registered as due to phthisis, representing a death-rate of 1·672 per 1,000 living.

For several periods the death-rate has been as follows:—

1881-90,	... ...	2·680 per 1,000 living.
1891-1900,	... ...	2·015 „
1901,	... ...	1·764 „
1902,	... ...	1·672 „

In several towns in Scotland the average rate for the years 1892-1901 has been—

Phthisis Death-rate per 100,000 in certain Scotch Towns for the Ten Years, 1892-1901, and for 1902.

	1892-1901.	1902.		1892-1901.	1902.
Glasgow,	**208**	**174**	Paisley, ...	189	135
Edinburgh,	185	164	Greenock,	183	175
Dundee, ...	209	175	Leith, ...	188	152
Aberdeen,...	177	147			

TABLE XXVI.

GLASGOW.—PHTHISIS.

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	33	1,206	1,800	1,561	1,106
1. Exchange, ...	44	2,003	2,520	1,884	2,206
2. Port-Dundas, ...	13	2 293	1,940	2,613	3,004
3. High Street and Closes West, ...	24	2,634	3,340	2,726	3,285
4. St. Rollox, ...	25	1,560	2,660	2,051	1,886
5. Bellgrove and Dennistoun, ...	113	1,415	2,370	1,809	1,604
6. High Street and Closes East, ...	9	2,088	4,290	3,490	3,971
7. Greenhead and London Road, ...	103	1,519	3,000	2,041	1,690
8. Barrowfield, ...	36	1,294	3,290	2,420	1,805
9. Monteith Row, ...	12	2,991	2,390	2,510	1,172
10. St. Andrew Square, ...	7	1,758	2,790	2,738	3,990
11. Calton, ...	46	2,224	2,910	2,657	2,229
12. St. Enoch Square, ...	2	906	3,020	2,342	2,946
13. Brownfield, ...	12	3,485	3,340	2,406	3,648
14. Bridgegate and Wynds, ...	9	2,355	4,480	3,831	2,124
15. Woodside, ...	82	1,158	1,930	1,460	1,261
16. Cowcaddens, ...	44	2,464	3,350	2,589	2,621
17. Kelvinhaugh and Sandyford,... ...	21	675	1,900	1,326	1,109
18. Anderston, ...	42	1,501	3,330	2,412	1,794
19. Kingston, ...	56	1,397	2,380	2,041	1,447
20. Laurieston, ...	29	3,411	2,640	2,807	1,847
21. Hutcheson Square, ...	110	1,550	2,600	1,897	1,469
22. Gorbals, ...	26	2,177	2,830	2,776	2,691
— Springburn and Rockvilla, ...	47	1,244	2,610	1,708	1,942
23. Govanhill, ...	34	1,444	...	1,470	1,250
24. Crosshill, ...	9	1,109	...	1,128	525
25. Langside and Mount Florida, ...	12	730	...	1,065	690
26. Pollokshields, E., and Strathbungo, ...	11	791	...	761	1,325
27. Pollokshields, W., and Bellahouston,...	8	1,251	...	597	1,051
28. Hillhead, ...	8	882	...	707	234
29. Kelvinside, ...	...	...	...	353	141
30. Maryhill, ...	39	1,110	...	1,301	1,248
31. Possilpark and Barnhill, ...	24	1,134	...	1,427	1,382
— Institutions and Harbour, ...	209	...	...	...	...
CITY, ...	1,299	1,672	2,680	2,015	1,764

During the year 255 notifications of cases of phthisis were received from hospitals and dispensaries. In 423 cases washing or disinfection was done—the majority after a death from the disease.

OTHER FORMS OF TUBERCULOUS DISEASE.

The following Table contains the deaths and death-rates of the several forms of tuberculous diseases, other than phthisis, taken from the Registrar-General's classification:—

TABLE XXVII.

GLASGOW.—TUBERCULOUS DISEASES.—DEATHS AND DEATH-RATES PER MILLION FOR THE NINE YEARS, 1894-1902.

Year.	Deaths.					Death-rate per Million.				
	Tubercular Meningitis.	Other Forms of Tuberculosis.	Tuberculous Diseases (Not Phthisis).	Phthisis.	All Tuberculous Diseases.	Tubercular Meningitis.	Other Forms of Tuberculosis.	Other Tuberculous Diseases (Not Phthisis).	Phthisis.	All Tuberculous Diseases.
1894	229	354	583	1,560	2,143	332	515	847	2,271	3,118
1895	229	398	627	1,584	2,211	329	572	901	2,276	3,177
1896	246	327	573	1,342	1,915	349	464	813	1,903	2,716
1897	260	334	594	1,419	2,013	364	467	831	1,985	2,816
1898	254	335	589	1,404	1,993	351	462	813	1,938	2,751
1899	235	401	636	1,444	2,080	320	546	866	1,968	2,834
1900	247	381	628	1,472	2,100	332	512	844	1,979	2,823
1901	237	446	683	1,418	2,101	310	583	893	1,855	2,748
1902	244	403	647	1,329	1,976	315	519	834	1,714	2,548

District Distribution.

The deaths and death-rates in 1902, and the death-rates for each year from 1899 for the several sanitary districts, are given in the following Table:—

TABLE XXVIII.

Glasgow.—Tubercular Diseases other than Phthisis.*

Sanitary Districts.	1902.		Death-rate per Million.		
	Deaths.	Death-rate per Million.	1899.	1900.	1901.
— Blythswood, ...	20	730	747	688	714
1. Exchange, ...	16	728	1,387	1,067	1,171
2. Port-Dundas, ...	10	1,764	2,994	1,301	1,502
3. High Street and Closes West, ...	24	2,634	1,720	1,395	2,492
4. St. Rollox, ...	37	2,309	1,166	1,788	1,824
5. Bellgrove and Dennistoun, ...	105	1,315	1,113	1,170	1,437
6. High Street and Closes East, ...	8	1,856	2,046	1,128	1,390
7. Greenhead and London Road, ...	106	1,563	1,356	1,627	1,629
8. Barrowfield, ...	31	1,114	1,316	1,773	1,192
9. Monteith Row, ...	5	1,246	1,233	759	703
10. St. Andrew Square, ...	5	1,256	1,317	1,573	998
11. Calton, ...	35	1,692	1,811	1,352	1,841
12. St. Enoch Square, ...	2	906	2,356	1,292	1,263
13. Brownfield, ...	2	581	2,031	1,787	1,683
14. Bridgegate and Wynds, ...	5	1,309	661	1,952	531
15. Woodside, ...	67	946	1,096	877	1,103
16. Cowcaddens, ...	38	2,129	1,518	2,009	2,051
17. Kelvinhaugh and Sandyford, ...	25	803	1,234	709	978
18. Anderston, ...	49	1,751	1,494	1,480	2,041
19. Kingston, ...	47	1,173	1,448	999	1,447
20. Laurieston, ...	15	1,764	1,039	2,381	1,270
21. Hutcheson Square, ...	104	1,465	1,281	1,347	1,298
22. Gorbals, ...	15	1,256	1,867	1,648	1,631
— Springburn and Rockvilla, ...	37	980	1,264	1,226	1,239
23. Govanhill, ...	25	1,062	893	1,220	1,078
24. Crosshill, ...	4	493	531	370	525
25. Langside and Mount Florida, ...	9	547	626	582	207
26 Pollokshields, E., and Strathbungo, ...	7	503	367	431	701
27. Pollokshields, W., and Bellahouston, ...	1	156	868	...	350
28. Hillhead, ...	1	110	464	586	...
29. Kelvinside, ...	2	233	608	409	848
30. Maryhill, ...	39	1,110	1,047	805	1,129
31. Possilpark and Barnhill, ...	34	1,607	1,826	1,439	1,135
— Institutions and Harbour, ...	44	...	...	...	...
CITY, ...	974	1,254	1,241	1,207	1,300

* All deaths from Meningitis under 5 years are included.

DISEASES OF ORGANS OF RESPIRATION.

3,758 deaths from respiratory diseases were registered in 1902, representing a death-rate of 4,836 per million living.

The death-rate per 1,000 living for several periods has been—

1881-90, ...	... 5·870
1891-1900, ...	... 4·993
1901, ...	... 4·335
1902, ...	... 4·836

The deaths for 1902 and the death-rates for several periods in each of the sanitary districts are given in the Table which follows, in which it will be

observed that four districts fail to show a higher rate of mortality when compared with 1901:—

TABLE XXIX.

GLASGOW.—RESPIRATORY DISEASES (INCLUDING CROUP).

SANITARY DISTRICTS.	1902.		DEATH-RATE PER MILLION.		
	Deaths.	Death-rate per Million.	1881-1890.	1891-1900.	1901.
— Blythswood, ...	95	3,470	3,410	3,364	2,356
1. Exchange, ...	100	4,552	4,240	4,051	4,142
2. Port-Dundas, ...	48	8,467	7,420	7,046	7,886
3. High Street and Closes West, ...	52	5,706	7,200	6,993	6,457
4. St. Rollox, ...	81	5,055	5,230	4,547	4,339
5. Bellgrove and Dennistoun, ...	281	3,519	4,940	4,357	3,606
6. High Street and Closes East, ...	22	5,105	9,210	8,033	5,955
7. Greenhead and London Road, ...	357	5,265	5,530	5,143	4,286
8. Barrowfield, ...	172	6,181	7,050	6,639	5,488
9. Monteith Row, ...	33	8,224	4,430	5,106	3,750
10. St. Andrew Square, ...	19	4,773	6,770	6,460	4,738
11. Calton, ...	153	7,398	8,500	7,574	6,831
12. St. Enoch Square, ...	10	4,531	5,010	6,548	6,313
13. Brownfield, ...	34	9,875	8,120	8,301	10,101
14. Bridgegate and Wynds, ...	31	8,113	12,630	9,608	6,107
15. Woodside, ...	270	3,814	4,370	4,164	3,812
16. Cowcaddens, ...	159	8,905	8,710	9,052	6,895
17. Kelvinhaugh and Sandyford, ...	81	2,603	2,940	2,938	2,446
18. Anderston, ...	177	6,326	7,710	6,761	5,840
19. Kingston, ...	169	4,218	4,730	4,598	3,693
20. Laurieston, ...	62	7,292	7,450	6,939	5,657
21. Hutcheson Square, ...	345	4,860	6,050	5,322	4,963
22. Gorbals, ...	89	7,451	8,570	8,282	6,115
— Springburn and Rockvilla, ...	170	4,500	5,530	4,630	4,250
23. Govanhill, ...	57	2,422	...	3,000	2,285
24. Crosshill, ...	16	1,972	...	2,588	1,442
25. Langside and Mount Florida, ...	33	2,009	...	1,707	1,519
26. Pollokshields, E., and Strathbungo, ...	18	1,294	...	1,452	1,247
27. Pollokshields, W., and Bellahouston,	10	1,563	...	1,332	1,576
28. Hillhead, ...	15	1,654	...	1,308	1,874
29. Kelvinside, ...	5	583	...	1,186	1,696
30. Maryhill, ...	134	3,814	...	3,575	3,922
31. Possilpark and Barnhill, ...	85	4,016	...	3,953	3,849
— Institutions and Harbour, ...	375	...	...	...	...
CITY, ...	3,758	4,836	5,870	4,993	4,335

TABLE XXX.

PUERPERAL FEVER.—ERYSIPELAS.

In the following Table the cases of puerperal fever notified in each year since the Notification Act came into operation, together with the case-rate per 1,000 births, and the death-rate from this cause and from erysipelas, are given:—

Year.	Puerperal Fever.			Erysipelas.
	Cases Notified.	Case-rate per 1,000 Births.	Death-rate per Million Living.	Death-rate per Million Living.
1891	80	4·0	105	115
1892	63	2·8	64	84
1893	73	3·1	68	75
1894	64	2·8	51	83
1895	74	3·2	63	69
1896	105	4·4	79	55
1897	62	2·6	48	49
1898	71	2·9	52	40
1899	83	3·4	82	45
1900	78	3·2	78	32
1901	71	2·9	71	60
1902	90	3·6	51	51

The death-rates above are based on data obtained from the Registrar-General's Reports.

Uncertified Deaths and Deaths without Medical Attendance.

In the following Tables the total deaths occurring in Glasgow during the ten years, 1891-1900, and in 1901 and 1902, the proportion uncertified and dying without medical attendance at *all ages* and *under* and *over five* years, with a comparison of the proportion of deaths of legitimate and illegitimate children under one year and from one to five years, are given. The details for the several sanitary districts of the City for 1902 are contained in Table VII. of the Appendix.

TABLE XXXI.

GLASGOW.—CERTIFICATION OF DEATHS.

	10 Years. 1891-1900.	1901.	1902.
Total Deaths, ...	149,184	15,716	15,054
Of these Uncertified, ...	4,916	451	412
Died without Medical Attendance, ...	2,638	240	217
Deaths under 5 years, ...	62,350	6,390	5,364
Of these Uncertified, ...	3,027	274	244
Died without Medical Attendance, ...	1,738	163	138
Deaths above 5 years, ...	86,834	9,326	9,690
Of these Uncertified, ...	1,889	177	168
Died without Medical Attendance, ...	900	77	79
Percentage of Total Deaths Uncertified, ...	3·3	2·9	2·7
Percentage of Total Deaths which occurred without Medical Attendance, ...	1·8	1·5	1·4
Percentage of Deaths under 5 years Uncertified, ...	4·9	4·3	4·5
Percentage of Deaths under 5 years which occurred without Medical Attendance, ...	2·8	2·6	2·6
Percentage of Deaths above 5 years Uncertified, ...	2·2	1·9	1·7
Percentage of Deaths above 5 years which occurred without Medical Attendance, ...	1·0	0·8	0·8

TABLE XXXII.

GLASGOW.—COMPARATIVE CERTIFICATION OF LEGITIMATE AND ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800
Of these Uncertified, ...	1,853	193	174
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063
Of these Uncertified, ...	476	41	28
Illegitimate Deaths under 1 year, ...	4,202	399	368
Of these Uncertified, ...	551	34	39
Illegitimate Deaths, 1—5 years, ...	1,778	174	133
Of these Uncertified, ...	147	6	3
Percentage Legitimate Deaths under 1 year Uncertified,	6·1	6·0	6·2
Percentage Legitimate Deaths, 1—5 years, Uncertified,	1·8	1·6	1·4
Percentage Illegitimate Deaths under 1 year Uncertified,	13·1	8·5	10·6
Percentage Illegitimate Deaths, 1—5 years, Uncertified,	8·3	3·4	2·3

TABLE XXXIII.

GLASGOW.—INSURANCE OF LIVES IN FRIENDLY SOCIETIES, WITH COMPARISON OF INSURANCE OF LEGITIMATE AND ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.
Total Deaths, ...	149,184	15,716	15,054
Of these Insured, ...	87,824	9,386	9,001
Deaths under 5 years, ...	62,350	6,390	5,364
Of these Insured, ...	33,333	3,405	2,747
Deaths above 5 years, ...	86,834	9,326	9,690
Of these Insured, ...	54,491	5,981	6,254
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800
Of these Insured, ...	13,052	1,374	1,117
Illegitimate Deaths under 1 year.	4,202	399	368
Of these Insured, ...	434	50	40
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063
Of these Insured, ...	19,232	1,931	1,540
Illegitimate Deaths, 1—5 years, ...	1,778	174	133
Of these Insured, ...	615	50	50
Percentage of Total Deaths Insured, ...	58·9	59·7	59·8
Do. Deaths under 5 years Insured, ...	53·5	53·3	51·2
Do. Deaths above 5 years do., ...	62·8	64·1	64·5
Do. Legitimate Deaths under 1 year Insured,	43·1	42·9	39·9
Do. Illegitimate Deaths under 1 year do.,	10·3	12·5	10·9
Do Legitimate Deaths, 1—5 years, Insured,	73·8	73·9	74·6
Do. Illegitimate Deaths, 1—5 years, do.,	34·6	28·8	37·6

METEOROLOGY.

The total rainfall for the year was much below the average; 29·05 inches only fell in the twelve months, compared with an average annual fall of 36·1 during 1891-6, and 41·8 inches during 1897 to 1901. In the second quarter of the year the rainfall was only 4·8 inches, compared with an average of 10·2 for the years 1897-1901.

From the following figures it will be seen that the smaller volume of rain falling in the first six months was distributed over a larger number of days, while during the second half of the year the diminished rainfall was accompanied by a reduction in the number of days on which it fell:—

RELATION OF NUMBER OF DAYS ON WHICH RAIN FELL IN EACH MONTH OF 1902 TO MEAN OF 34 YEARS.

	+	−		+	−
January, -	...	1	July, - -	...	...
February, -	...	7	August, - -	...	4
March, - -	7	...	September, -	...	2
April, - -	...	2	October, - -	...	4
May, - -	5	...	November, -	...	1
June, - -	...	1	December, -	...	4
			+	−	
			Year, ...		14

For six months—that is, during February and from April to August—the mean temperature was below the average.

TABLE XXXIV.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS TAKEN AT GLASGOW OBSERVATORY DURING 1902.

Months.	Temperature				Rain.		
	Highest Temperature in Shade.	Lowest Temperature in Shade.	Mean Temperature for Month.	Departure from Average of 34 Years.	No. of Days it fell	Amount Collected.	Departure, 34 Years.
January, ...	50·9°	14·4°	38·8°	+0·4°	19	2·99	−0·68
February, ...	49·5°	18·3°	35·4°	−3·5°	10	1·48	−1·53
March, ...	52·2°	29·2°	42·4°	+2·3°	24	2·26	−0·16
April, ...	59·9°	31·6°	44·6°	−0·1°	13	0·79	−1·21
May, ...	59·2°	32·7°	45·8°	−3·7°	21	2·13	−0·32
June, ...	81·9°	40·2°	53·5°	−1·7°	15	1·95	−0·86
July, ...	71·8°	41·9°	54·9°	−2·7°	18	2·85	−0·26
August, ...	69·3°	38·4°	54·3°	−2·5°	14	2·56	−1·29
September, ...	66·8°	34·9°	53·5°	+0·5°	16	2·99	−0·66
October, ...	56·2°	34·7°	47·8°	+1·1°	15	1·84	−1·87
November, ...	56·1°	32·6°	44·9°	+2·9°	19	2·64	−1·15
December, ...	52·4°	21·7°	40·2°	+1·5°	17	4·57	+0·51
Total, ...	...	...	...	...	201	29·05	...

The mean temperature was above the average in the six months—January, March, September, October, November, and December.

The sunshine record was the second lowest in the period of 22 years, and there was a deficiency of sunshine during 10 months of the year; July and August having slightly more sunshine than the average.

The rainfall, which only in December was above the average, is the lowest recorded in the period 1868-1902.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER.

Tuberculosis.

Visits to Byres, ...	1,172
Examination of Cows, ...	15,323
Cows in which milk was temporarily withdrawn, ...	25
Animals removed from herds, ...	19

15 of these were affected with tuberculosis, 6 being affected in the udder.

RABIES.

184 dogs were reported by the police during 1901 as having bitten persons.

Inquiry was made in each case with the view of ascertaining whether any evidence existed that the animals suffered from rabies, but in all the result was negative.

ANTHRAX.

One case of anthrax was recorded during the year. The patient was a man aged 46, who was admitted to the Royal Infirmary on 18th June, and was there found to be suffering from anthrax.

He was employed making "flock" and "hair" mattresses with a firm in the City. The room in which he worked was large, well aired, and well ventilated. The firm used both old and new hair, but an examination of their books indicated that the patient had not worked with any of the former. The supply of new hair was obtained from two firms, but in both cases it was stated that the hair, before leaving their premises, had been boiled, and a bacteriological examination of a sample obtained from the man's employers gave negative results.

Ten carcases affected with anthrax were seized in the City abattoirs during the year. One of these came from a City byre, one had died in the byres at Yorkhill, and the others, so far as could be ascertained, were brought to the City from various districts in Scotland.

BACTERIOLOGICAL LABORATORY.

Dr. Buchanan supplies me with the following tabulation of the number and variety of specimens submitted by practitioners for examination during the year:—

	1900.			1901.			1902.		
	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.
Widal's Test, -	263	235	498	526	550	1,076	321	446	767
Swabs (Throat and Nose),	96	222	318	134	310	444	250	455	705
Sputa, - -	145	207	352	218	384	602	299	605	904
Total, -	504	664	**1,168**	878	1,244	**2,122**	870	1,506	**2,376**

The progressive increase here shown in the number of specimens submitted for examination may be taken as illustrating the growing appreciation on the part of practitioners of the value of the facilities thus afforded.

If the figures in the following Table are read together with those applicable to corresponding years in the previous Table, they indicate that in the year 1900 108 practitioners sent 498 specimens of blood to be examined by the Widal test, compared with 213 who sent 767 in 1902. Similarly, 93 practitioners in 1900 sent 318 throat or nose swabs for examination in connection with actual or suspected diphtheria, compared with 170 who sent 705 specimens in 1902. The examination of sputum presents a curious contrast to this. There is no increase in the number of practitioners sending specimens for examination, the figures for 1900, 1901, and 1902 being respectively 169, 134, and 163. But the number of specimens sent has increased from 352 to 904, which probably means that repeated samples are sent from individual cases.

In 1900 the number of practitioners sending specimens was 246; in 1901, 283; and in 1902, 304, while the total number of specimens sent for examination in corresponding years was 1,168, 2,122, and 2,376.

In other words, while the 246 practitioners in 1900 sent, on an average, rather less than five specimens each throughout the year, the proportion of specimens per head over the 304 availing themselves of laboratory facilities in 1902 had risen to almost eight. This increase is satisfactory in the sense that it attests the value attached to the laboratory by its patrons, but it is to be wished that a still larger use were made of bacterial methods. More especially, I believe, is this the case with regard to all acute throat affections. The part played by the apparently healthy throat in conveying the infection of diphtheria to one which is susceptible has scarcely yet obtained the recognition which it deserves, and I believe good results would follow an increasing resort to bacterial methods in connection with the throat of every person associated with recognised cases, and of those in whom the clinical symptoms are so slight as scarcely to suggest diphtheria at all. Much of the apparently sporadic character in the distribution of the disease would assume a different association were a close scrutiny on the lines indicated persistently followed up in each case.

Number of Physicians sending Specimens for Bacteriological Examination.

	1900.	1901.	1902.
Widal's Test, ...	108	218	213
Swabs, ...	93	140	170
Sputa, ...	169	134	163
Total,*	370	492	546

* A number of these sent specimens of more than one kind, so that the actual number of physicians who took advantage of the Laboratory was as follows:—
1900—246. 1901—283. 1902—304.

Examination of Milk for Tuberculosis.

During the year fifteen samples of milk obtained from cows in City byres were submitted for examination. In six samples from separate animals the result was positive, and in nine samples obtained from five animals the results were negative.

HOSPITALS AND RECEPTION-HOUSES.

The opening of Ruchill Hospital in the autumn of 1901 made it possible to close that in Parliamentary Road in the following October.

Tables V. and VI. of the Appendix are referred to for a detailed analysis of the district and monthly distribution of the cases removed to hospital during the year, while Table XII. thereof shows the average residence and cost of treatment for each class of disease.

During the prevalence of smallpox in the spring months it was necessary to restrict the admissions to Belvidere Fever Wards to patients under five and those (with few exceptions) in whom there was evidence of satisfactory recent vaccination.

Reception-houses.—Return of Persons admitted to City Reception-houses.

The total number accommodated in these houses in connection with typhus fever and smallpox during 1902 was as follows:—

Typhus, ...	89
Smallpox, ...	1,013
Others, ...	40
	1,142

The numbers admitted to each of the reception-houses in 1902 were as follows:—

	Weaver Street.	South York Street.	Kennedy Street.	Total.
1902, ...	203 ...	478 ...	461 ...	1,142

The highest number of contacts at any time under supervision in the reception-houses was 255.

The necessity for increased accommodation early in the year rendered necessary the utilisation of a portion of Parliamentary Road Hospital, and the experience gained showed how admirably adapted buildings of this type are for the purpose of segregating contacts.

INTERMENTS IN CLOSED BURYING-GROUNDS AND REMOVAL OF BODIES BY RAIL, Etc.

Nine permits were granted for the removal by rail or steamer of the bodies of persons who had died from infectious disease, and fifteen permits for interments in the closed burying-grounds of the City.

The lists of children to be sent to the Fresh-air Fortnight Homes have been regularly submitted by the Convener of that organisation, and those from infected lands have been rejected. The homes of all children admitted to East Park Home for Infirm Children have also been visited and reported on.

PROCEEDINGS UNDER THE ACTS DEALING WITH UNINHABITABLE HOUSES.

By the operation of the 32nd Clause of the Glasgow Police (Amendment) Act, 1890, 38 houses were closed during the year 1902. These were situated in the following districts, viz.: — Port-Dundas, Bellgrove and Dennistoun, Calton, Cowcaddens, Anderston, Springburn, and Barnhill. Four of the two-apartment houses and four of the one-apartment houses were empty at the time of closure. The number of persons displaced was 85, of whom 11 were lodgers. Three of the houses were farmed out, at an average rental of five shillings per week.

The total number closed under this clause is as follows:—

	One Apartment.	Two Apartments.	Three Apartments.	Four Apartments.	House and Shop.	Total.
Houses closed to end of 1901, ...	512	219	10	2	6	749
Houses closed in 1902, ...	22	14	...	...	2	38
Houses closed to end of 1902, ...	534	233	10	2	8	787

HOUSING OF THE WORKING CLASSES ACT, PART II.

In the Report for 1901 illustrations were given of selected groups of mutually obstructive tenements. Some of these were in themselves insanitary, and in February, 1902, a Sub-Committee charged with the administration of the Act had under consideration a representation, under Section 30, regarding a back tenement of four storeys at 20 Carrick Street. The particulars submitted were as follows:—

"The area on which both back and front tenements stand, including one-half of the width of Carrick Street in front, extends only to 545 square yards, and on this 150 persons are living, which gives a density of 1,333 persons per acre, and an average of 3·6 square yards per person. The average death-rate of both tenements for the last three years has been 37·8 per thousand, as against 35·3 for the district in which it is situated, and 21·6 for the City generally.

"The back tenement is four storeys in height; it contains fourteen houses of two apartments each, six of which are 'farmed out,' and two stores. It is distant 15 feet or thereby from the back wall of a front tenement, which is also four storeys in height, and has within 5 feet 6 inches of its own back wall a store of three storeys, measuring 34 feet or thereby to the wall-head.

"The southern extremity of the space between the front and the back land is closed in by the wall of an adjacent bonded warehouse, and the staircase giving access to both front and back lands serves to form, with the bonded warehouse in question, an enclosed well, at the bottom of which the ashpit for both tenements is situated.

"*Representation.*—That the said back tenement is defective in light, air, and ventilation; that the provision of reasonable facilities for refuse disposal is impossible; and that, in consequence, it is so dangerous or injurious to health as to be unfit for human habitation.

"Note of Rental as entered on Valuation Roll.

"*Two Apartments.*

11 houses at	£7	8	0	£81 8 0
1 house „	6	17	0	6 17 0
2 houses „	6	5	0	12 10 0
2 stores „	4	4	0	8 8 0
				£109 3 0

"VITAL STATISTICS.

		Front.	Back.	Total.
Population	Under 10 years, ...	19	20	39
	10 years and over, ...	61	50	111
				150

Deaths—Under 1 year, ...	4
3 years—1 to 4 years, ...	5
1899-1900—5 years and up, ...	8
	17

Death-rate average, 3 years, ... 37·8
Deaths under 5 years, ... 9, or 53 per cent. of total deaths.
Deaths—lung diseases, not phthisis, 4, or 24 per cent. of total deaths.

"HOUSES.

	Occupied.		Empty.	
	Front.	Back.	Front.	Back.
1 apartment, ...	6	...	1	...
2 apartments, ...	10	14	...	...
3 apartments, ...	1	...	...	...
	—	—	—	—
All sizes, ...	17	14	1	...
Stores, ...		2	...	...

Persons per acre, ... 1,333
Square yards per person, ... 3·6
Area, including half-width of Carrick Street, ... 545 square yards."

On 18th August, Sheriff Scott Moncrieff issued the following judgment:—

"GLASGOW, *18th August, 1902.*—Having heard parties upon the petition and answers, repels the pleas stated for the respondent, John Wright, and appoints parties to be heard as to further procedure in the case upon Monday, the 25th day of August current, at 11 o'clock forenoon.

"W. G. SCOTT MONCRIEFF.

"*Note.*—The respondent's agent was heard at very great length in support of his answers to this petition and his pleas in law. With regard to the first of these, as to the inconsistency of the statutory notice with the resolutions of the Local Authority, I am clearly of opinion that the step taken by the petitioner was quite in conformity with the Statute. It is true that Section 32 of 53 and 54 Vict., cap. 70, does not in itself provide for a warning notice upon the respondent to put his house in order; but when one looks to the fourth schedule attached to that Statute, to which reference is made in this section, it is clear that such a notice should be given, and a resolution to close is therefore not inconsistent with an order to make premises habitable.

"The third plea is to this effect, that the statutory notice does not sufficiently inform the respondent of what is required of him. I am of opinion that the petitioner was not bound to add to the terms of this notice; indeed, that it would probably have been incompetent to do so. At the same time, it is most reasonable that a party called upon to do anything by authorities under a Statute of this nature should be assisted by information as to what is expected of him, and what will satisfy the authority making the demand. The case of Campbell, 19 R. 159, clearly establishes this. I must say that in the present case the respondent was not supplied with much in the shape of directions to guide him, although it is tolerably clear from Mr. Lindsay's letter of 30th May that it is the situation of this house that is really at fault. That situation the respondent cannot alter, and it is therefore perhaps reasonable that he should do nothing to the interior in the meantime. But if it appears, after a remit or evidence led, that the situation of this house renders it unfit for human habitation, then, upon the authority of Lang *v.* Fleming's Trustees, 10 Sh. Ct. Rep. 47, which I think ought to hold in this Court, I must pronounce a Closing Order. I confess that, were it not for that decision, I should have a difficulty in finding that Section 32, under which these proceedings are taken, applied to houses which are defective merely because of situation. There are means of getting rid of such houses under Section 38, and I

have considerable sympathy with respondent's contention, set forth in the seventh plea, that that is the section which should have been taken advantage of. But it certainly looks as if the present cases were in all important features the same as that of Lang, although it is at present impossible to say whether or not in themselves, apart from situation, the buildings do not deserve condemnation. If the parties are really at one in holding that no mere alteration can cure the defects of these buildings as they stand, then I think it would be most unfortunate to incur further expense on this question.

"The other pleas stated for the respondent do not call for special notice.

"W. G. S. M."

A joint-minute was afterwards lodged in process, by which defender consented to a closing order being issued, and agreed to take down the buildings in question. This has since been done.

In November, representations, under the same section, regarding tenements, 9 Carrick Street and 14 M'Alpine Street, were presented to the Committee. The following are the particulars:—

"*9 Carrick Street—Representation.*—That the 'dwelling-house' forming a back tenement of four storeys in height, situated at 9 Carrick Street, Anderston, appears to me to be in a state so dangerous or injurious to health as to be unfit for human habitation, in respect that said dwelling-house is without free space adequate for light and ventilation.

"NOTE OF RENTAL AS ENTERED ON VALUATION ROLL.

Two-Apartment Houses.		Annual Rental.		Total.
12 houses,	...	£6 5 0	...	£75 0 0
4 „	...	5 0 0	...	20 0 0
				£95 0 0

"*14 M'Alpine Street — Representation.* — That the 'dwelling-house' forming a back land of four storeys in height, situated at 14 M'Alpine Street, appears to me to be in a state so dangerous or injurious to health as to be unfit for human habitation, in respect that the said dwelling-house is without free space adequate for light and ventilation.

"NOTE OF RENTAL AS ENTERED ON VALUATION ROLL.

Two-apartment Houses.		Annual Rental.		Total.
1 house,	... ...	£6 17 0	... ...	£6 17 0
6 houses,	...	6 6 0	... ...	37 16 0
5 „	... ...	6 0 0	... ...	30 0 0
4 „	... ...	5 14 0	... ...	22 16 0
				£97 9 0"

At the close of the year the proceedings in both cases were still pending.

TWO-APARTMENT HOUSES IN WHICH INFECTIOUS DISEASE OCCURRED, AND WHERE MORE THAN ONE FAMILY RESIDED.

During a considerable part of the year the epidemic inspectors noted, in connection with each case of infectious disease occurring in a two-apartment house, whether the house was occupied by one or more families, and the results of six months' observation are as follows:—

Houses Invaded.	Invaded Houses with two Families.	Population of Invaded Houses.			
		Principal Tenant.		Sub-Tenant.	
		Adults.	Children.	Adults.	Children.
1,872	24	64	48	45	38

While this proportion of 1·3 per cent. of two-apartment houses accommodating a second family might be considerably altered over a longer series of observations, for the present it does not indicate that double occupancies are by any means prevalent.

If the condition indicated obtained throughout the City, 920 of the two-apartment houses would have two families in them. A reference to the details (not included here) shows, however, that where it does exist the degree of overcrowding may be excessive.

In the 24 houses there were, of both families, 109 adults and 86 children. This represents an average occupancy of eight persons per house, instead of less than five, which is the average over all houses of this size as ascertained by the Census, and, on the computation of two children to an adult, the numbers found represent 153 adults, which is over seven per house, requiring 3,000 cubic feet of house-room, instead of the average 2,600 contained in the modern house.

The Master of Works favours me with the following return of linings for the erection of new houses granted by the Dean of Guild Court between 1st September, 1901, and 31st August, 1902:—

HOUSES AND SHOPS.

Districts.	Apartments.						Shops.	
	1	2	3	4	5	6	Single.	Double.
Central, - A	...	42	38	...	...	...	18	11
Western, - B	...	...	5	23	...	...	8	1
Eastern, - C	223	665	291	24	12	3	45	18
Southern, - D	62	159	4	...	...	...	6	2
Northern, - E	40	90	13	...	...	...	5	3
St. Rollox, - F	213	703	137	5	...	4	21	9
Queen's Park, G	2	589	863	156	76	191	56	26
Maryhill, - H	71	172	176	84	55	158	33	9
	611	2,420	1,527	292	143	356	192	79

OFFENSIVE TRADES.

PUBLIC HEALTH (SCOTLAND) ACT, 1897, SECTION 32.

During the year application was made for sanction to establish the following businesses, and sanction was finally granted therefor:—

3 Tallow Melters.

Bye-laws for regulating the business of slaughterer of horses for the purposes of human food were prepared, and received the approval of the Local Government Board.

FACTORY AND WORKSHOP ACT, 1901.

This section of the Report is prepared in compliance with the instruction of Section 132 of the above Act, which requires the Medical Officer of Health to report specifically on its administration in workshops and workplaces, and to send a copy of his Report to the Secretary of State.

The expression "workshop" is defined in section 149 of the Act, and Section 131 requires that each Local Authority shall keep a register of those situate within its district.

A "workplace" is not defined in the Act, but the Court held in the case of Bennet *v.* Harding that "Workplaces" are "premises, rooms, offices, or places which are not factories or workshops subject to the provisions of the Act, and where persons carry on work within a limited area by way of trade or business, or for the purposes of gain." In that case a stable and stableyard was held to be a "workplace," and restaurant kitchens, &c., which are not "workshops" by definition, come within this interpretation of "workplace," and are subject to the general provisions of the Act regarding cleanliness, ventilation, sanitary conveniences, overcrowding, &c.

For administrative purposes, a distinction is drawn in the Act between—

(1) Men's workshops, which are exempt from the operation of certain sections of the Act, including those dealing with means of ventilation, sanitary conveniences, &c., &c.;

(2) Workshops employing women, young persons, and children, who are under special regulations as to hours of employment; and

(3) Domestic Workshops, which again are exempt from the operation of certain sections of the Act, including those dealing with the provision of means for ventilation.

It has hitherto been found, however, that workshops in Glasgow do not lend themselves to this classification, because of the presence on the one hand of males under 18 years in what otherwise would be "men's workshops," while the employment during times of pressure of persons other than those belonging to the family of the occupier removes from the description of "domestic workshops" those places which might otherwise have come under this category. Accordingly the workshop register is a general one indicating the nature of the industry carried on in each, with certain information as to structure generally, including details of lighting, ventilation, and the provision of sanitary conveniences, with the number of persons employed at the time of registration, and the cubic space available for each worker. At 31st December, 1902, 4,054 such places were on the register, including 101 restaurant kitchens, which are the only "workplaces" as yet inspected for the purposes of the Act.

The following Table contains a record of the workshops measured and registered during 1902:—

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1902.

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Artificial Limb Maker, ...	1	2	3	...	...	...	1,527	1,011·6
Artificial Teeth Maker, ...	1	1	2	...	1	...	3,296	1,098·6
Blouse Makers, ...	2	4	2	12	4	...	2,558·7	568·6
Boot, Shoe, and Slipper Makers, ...	245	271	558	41	14	1	1,612·4	711·6
Brush Makers, ...	3	3	7	2	1	...	5,946	1,783·8
Basket Makers, ...	4	5	7	...	1	...	2,874·7	1,437·3
Blacksmiths, ...	41	48	136	...	9	...	6,530·6	2,161·8
Bottling and Labelling, ..	6	8	32	11	9	...	20,528·5	3,158·2
Bedstead Manufacturer, ...	1	2	3	2	...	...	1,746·5	698·6
Bedding Manufacturers, ...	6	8	9	7	1	...	3,453·1	1,625
Brassfounders & Finishers,	5	7	10	...	3	...	2,495·2	1,343·4
Bottle Manufacturer, ...	1	1	15	...	6	...	10,900	519
Bag Merchants, ...	2	6	2	6	...	...	2,235·8	1,676·8
Bellows Maker, ...	1	1	4	...	...	...	7,312	1,828
Bird's Cage Maker, ...	1	2	6	1	..	..	1,776	507·4
Billiard-table Makers, ...		4	16	19	...	...	6,078	694·6
Bookbinder & Gold Blocker,		2	2	1	7	...	5,156·5	1,031·3
Bellhanger, ...		1	2	...	2	...	4,229	1,057·2
Baker's Utensil Maker, ...		2	3	...	1	...	2,834	1,417
Curtain-band Maker, ...		2	...	...	5	...	2,741·5	1,096·6
Calenderers, ...	4	4	19	32	...	...	19,039·2	1,359·9
Curriers, ...	7	8	11	2	...	...	8,487·4	4,570·1
Cabinetmakers and French Polishers, ...	92	120	284	90	38	...	4,527·3	1,318·6
Clock & Watch Makers, Jewellers & Importers,	53	63	125	4	25	...	2,337	956
Cycle Makers, ...	23	28	39	...	9	..	3,655	2,132·1
Chair Makers, ...	4	4	7	...	...	...	3,863·2	2,207·5
Carvers and Gilders, ...	16	18	42	...	11	...	3,349·7	1,137·6
Coopers, ...	10	11	33	...	1	...	4,337·1	1,403·2
Confectioners, ...	4	8	6	24	99	...	10,639·5	659·8
Card Cutter, ...	1	1	4	...	...	...	4,777	1,194·2
Cartwrights, ...	5	7	17	...	2	...	5,854·1	2,156·7
Cork Manufacturers, ...	3	3	6	...	...	...	2,485·3	1,242·6
Collar Maker, ...	1	1	5	...	...	...	6,575	1,315
Clog Maker, ...	1	1	2	...	...	...	787	393·5
Cigarette-case Maker, ...	1	1	1	1	...	...	2,108	1,054
Cigarette Makers, ...	2	2	2	34	32	...	10,948	322
Cap Makers, ...	1	2	...	2	4	...	2,649	883
Chemical Manufacturers,	1	1	2	...	...	...	4,788	2,394
Cutler, ...	1	1	1	...	...	...	7,373	7,373
Dressmakers, ...	216	236	13	722	159	1	2,113·5	557·3
Drapers, ...	21	23	...	44	7	...	1,600·3	721·5
Embroidering, ...	4	4	6	15	3	...	10,475·2	1,745·8
Engravers, ...	7	7	27	...	5	...	4,036	893·8

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1902.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Egg Packers, ...	1	2	1	2	5	...	5,950·5	1,487·6
Enameller, ...	1	1	2	..	1	...	6,027	2,009
Electrical Engineers, ...	9	9	19	...	8	...	3,140·2	1,046·7
Furriers, ...	5	6	4	19	5	...	4,220	904·2
Fancy-box Makers, ...	3	4	6	23	6	...	12,847·5	1,468·2
Fishcurers, ...	7	10	26	18	5	...	6,030·9	1,230·7
Feather Dresser, ...	2	2	...	4	1	...	3,051·5	1,220·6
Firelight Manufacturers,...	5	9	19	10	3	...	5,059·8	1,423
Funeral Undertakers, ...	6	6	17	...	...	...	3,832·6	1,352·7
Felt Maker,...	1	2	2	...	...	...	1,455·5	1,455·5
Flask Maker, ...	1	1	1	...	...	...	1,620	1,620
File Cutters, ...	2	2	11	...	2	...	6,485·5	997·7
Farriers, ...	4	5	17	...	1	...	8,206·8	2,279·6
Fishing-tackle Maker, ...	1	1	1	...	...	...	4,536	4,536
Glaziers, Glass Stainers, and Embossers, ...	8	15	57	...	5	...	6,038·8	1,461
Golf Ball Makers, ...	1	1	3	...	...	...	3,811	1,270·3
Granite and Marble Cutters,	5	6	17	...	4	...	3,659	1,155
Gun and Rifle Maker, ...	1	1	1	...	1	...	3,840	1,920
Hair Workers, ...	3	4	8	...	1	...	3,750·7	1,667
Hosiery Knitting, ...	14	14	2	34	30	...	3,937	835·1
Hatters, ...	3	5	5	...	3	...	3,360·4	2,100·2
Horse-clothing Maker, ...	1	1	1	1	...	...	3,600	1,800
Hairdressers, ...	3	3	8	2	7	...	2,788·3	492
Hamcurers,...	4	5	9	...	2	...	8,085·4	3,675·1
Horse-shoe Pad Maker, ...	1	1	6	...	1	...	7,013	1,001·8
Hat-box Maker, ...	1	1	...	3	...	...	2,558	852·6
Ink Manufacturers, ...	1	1	3	...	1	...	5,508	1,377
Ironmongers, ...	1	1	7	...	2	...	6,120	680
Jewel-case Maker,... ...	1	1	2	...	...	...	2,496	1,248
Joiners and Wrights, ...	110	135	378	5	49	...	6,062·3	1,894·4
Jew's Harp Maker, ...	1	1	1	...	..	...	1,377	1,377
Laundries, ...	117	214	6	465	105	...	2,363·3	878
Lath Splitters, ...	4	4	27	1	5	...	5,594·2	678
Leather Merchants, ...	2	3	4	...	...	...	6,342·3	4,756·7
Last Maker, ...	1	1	1	...	...	...	2,462	2,462
Lamp Makers, ...	1	1	4	...	...	...	3,740	935
Lithographers, ...	3	4	6	9	2	...	3,746	881·4
Locksmith, ...	1	1	2	...	2	...	3,780	945
Milliners, ...	61	69	6	216	76	...	2,615·8	605·
Mantles and Costumes, ...	8	11	29	169	40	...	10,569·1	488·4
Mirror and Overmantel Maker, ...	1	1	1	...	...	...	1,458	1,458
Mail-cart Maker, ...	1	1	2	1	...	...	2,310	770
Machine Repairers, ...	5	6	7	...	2	...	2,337	1,558
Machinists, ...	2	2	...	4	...	...	1,721·5	860·7
Motoring Mechanics, ...	1	1	5	...	1	...	11,385	1,897·5
Nail Makers, ...	1	1	4	...	...	...	7,367	1,841·7
Napery Manufacturers, ...	1	1	...	10	2	...	8,389	699

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1902.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space in each Person.
Opticians, ...	2	2	3	1	...	...	2,335	1,167·5
Portmanteau Makers, ...	3	5	37	10	12	...	9,169·4	777
Pattern-book Maker, ...	1	1	2	...	...	...	2,786	1,393
Paper Bag and Envelope Makers, ...	6	7	5	75	26	...	6,954·1	459·2
Plaster Modeller, ...	1	1	3	...	...	...	2,887	962·3
Plumbers and Gasfitters, ...	82	92	256	1	86	...	3,478	932·8
Picture Framers, ...	12	13	19	3	4	...	2,408·6	1,204·3
Painters, ...	27	31	101	7	25	...	3,113·8	725·7
Photographers, ...	12	19	12	26	8	...	3,213·9	1,327·5
Piano Makers and Tuners,	5	5	8	...	4	...	4,427·6	1,844·8
Paper Mounters, ...	1	2	1	...	1	...	5,615	5,615
Pickle and Sauce Makers,	4	6	7	9	9	...	13,347·5	3,203·9
Pudding Makers, ...	2	2	5	...	1	...	1,550	516·6
Paint & Size Manufacturers,	2	2	3	2	...	...	4,302·5	1,721
Paper Stainer, ...	1	1	1	...	...	...	11,664	11,664
Paper Rulers, ...	2	6	8	18	9	...	5,057	866·9
Paper Sorters, ...	1	3	...	10	...	...	5,142	1,542·6
Printers and Stationers, ...	4	4	2	8	4	...	3,991·2	1,140·3
Pavement Lights Maker, ...	1	2	10	...	2	...	2,412	402
Plasterers, ...	2	3	19	...	3	...	13,350·6	1,820·5
Rubber Manufacturers, ...	2	4	2	...	1	...	5,476·5	7,302
Rag Sorting and Cleansing,	19	23	23	158	23	...	17,312	1,951·8
Rivet Forge Maker, ...	1	1	3	...	...	...	5,016	1,672
Shirt Makers, ...	11	16	5	105	22	...	5,320·7	644·9
Stay Makers, ...	5	5	...	7	1	...	1,380·2	862·6
Saddlers, ...	24	33	60	2	11	...	1,942·3	878
Surgical Instrument Makers,	1	1	1	...	1	...	2,551	1,275·5
Saw and Edge-tool Makers,	4	4	5	...	3	...	4,116·7	2,058·3
Sausage Maker, ...	1	1	2	2	...	...	2,208	552
Straw Hat Makers, ...	1	3	1	2	3	...	1,253·6	626·8
Safe Maker, ...	1	1	2	...	...	...	5,291	2,645·5
Slater, ...	1	1	2	...	...	...	1,309	654·5
Strawboard Lining, ...	1	1	5	6	...	...	44,590	2,346·8
Stucco Ornament Manufacturers, ...	4	5	9	3	1	...	5,235·4	2,013·6
Sculptors, ...	2	2	11	...	...	...	4,992	907·6
Sheet-metal Works, ...	3	6	16	...	4	...	7,380·1	2,214
Sail Makers, ...	1	2	17	...	...	...	12,458	1,311·3
Silver Cleaning, ...	1	2	4	...	...	...	1,160·5	580·2
Stair Railer, ...	1	1	2	...	...	...	7,200	3,600
Spice and Sausage-skin Makers, ...	1	1	1	1	...	...	1,969	984·5
Smallware Manufacturers,	3	3	...	9	11	...	4,752·6	712·9
Shop Fitters, ...	2	6	16	3	...	...	5,662	1,788
Tailors, ...	254	319	909	516	181	...	2,595·1	515·4
Trimming and Curtain Frilling, ...	2	2	1	13	4	...	8,461	940·1
Tent and Flag Maker, ...	1	1	...	2	...	...	1,386	693
Tinsmiths, ...	20	20	62	2	30	...	6,700·6	1,425·7

ABSTRACT OF WORKSHOPS MEASURED AND REGISTERED DURING 1902.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Toy Maker, ...	1	2	1	1	...	...	1,754·5	1,754·5
Trunk Maker, ...	1	1	7	...	3	...	15,015	1,501·5
Ticket Writers, ...	3	8	13	1	5	...	2,681·7	1,129·1
Tobacco-pipe Maker, ...	1	1	5	2	...	...	5,812	830·2
Tea Packing, ...	2	2	1	3	4	...	5,949·5	1,486·1
Typefounder, ...	1	1	1	...	1	...	2,788	1,394
Tea Mixing and Blending,	2	3	7	2	1	...	4,953·6	1,486·1
Underclothing Manufacturers, ...	22	27	...	139	45	...	3,647·7	535·2
Upholsterers, ...	13	21	28	18	8	...	5,497·2	2,137·8
Umbrella & Stick Mounters,	2	4	8	26	6	...	4,185·5	418·5
Umbrella Makers, ...	7	8	5	3	3	...	1,307·5	950·9
Venetian Blind Maker, ...	1	1	3	1	...	...	19,536	4,884
Violin Maker, ...	1	1	2	...	...	...	2,886	1,443
Ventilating Engineer, ...	1	1	3	...	...	...	4,290	1,430
Warper, ...	1	2	12	30	...	...	29,855	1,421·6
Weavers, ...	9	9	16	2	...	...	2,691·5	1,345·7
Waterproof Manufacturers,	2	4	12	29	6	...	17,996·2	1,531·5
Wire Workers, ...	6	6	27	1	2	...	5,727·1	1,145·4
Whisky Blenders, ...	1	1	6	...	...	...	10,007	1,337·8
Weighing-machine and Scale Makers, ...	2	2	4	...	...	...	1,844·5	922·2
Wood Turner, ...	1	1	2	...	...	...	3,187	1,593·5

Number of Apartments found overcrowded, with less than 400 cubic feet to each worker, ... 228

" " " 250 " " 15

ABSTRACT OF RESTAURANTS MEASURED AND REGISTERED DURING 1902.

Districts.	Number of Restaurants.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Central, ...	51	54	44	185	7	...	4,065·4	930·2
East, ...	37	39	41	54	8	...	1,916·2	725·5
North, ...	2	2	1	3	...	...	3,637·5	1,818·7
South, ...	11	12	1	24	3	...	2,195·8	941

Number of Apartments found overcrowded, with less than 400 cubic feet to each worker, ... 10

" " " 250 " " 0

INSPECTION OF WORKSHOPS.

For the special purposes of the Act, six inspectors* were appointed in 1901, and during the year 1902 20,119 visits were made.

GENERAL SANITARY CONDITION OF WORKSHOPS.

Concerning the several details regarding cleanliness, ventilation, overcrowding, the provision of sanitary conveniences, &c., the following is a record of work accomplished :—

Cleanliness—Limewashing.

Number of Notices to cleanse and limewash, ...	489
Legal Proceedings, ...	—

(Attention was given promptly in all cases.)

Overcrowding.

Number of Notices issued, ...	8
(Cubic space per adult in most extreme case of overcrowding found was 179 cubic feet.)	
Number of Notices issued in terms of Section 3 (4), ...	—
Legal Proceedings, ...	—

Ventilation—General Condition.

Number found defective in light or ventilation, ...	30
(Chiefly fixed windows.)	
Legal Proceedings, ...	—

Means of Ventilation.

New power under Section 7, ...	No Proceedings.

Drainage of Wet Floors.

Section 8, ...	No action taken.

SANITARY CONVENIENCES.

In Section 30 of the Glasgow Police (Amendment) Act, 1890, it is provided

"that every owner of 'houses' (the term house includes factories and any buildings in which persons are employed) shall provide, to the satisfaction of the Police Commissioners, adequate and suitable water-closet or other latrine accommodation,"

and under Section 29 of the Public Health (Scotland) Act, 1897,

"the Local Authority may . . . require the owner or occupier of any . . . factory or building in which persons are employed . . . to construct a sufficient number of water-closets or privies, for the separate use of each sex."

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* In the Western District of the City the work is undertaken by the ordinary Nuisance Inspectors.

Equivalent to these is Section 22 of the Public Health Acts Amendment Act, 1890, which is an adoptive Act, and does not apply to Scotland. Where it has been adopted, Section 9 of the Factory and Workshop Act is not operative. In Section 9 (2) of the Factory and Workshop Act, it is provided that "The Secretary of State shall, by special Order, determine what is sufficient and suitable accommodation," and a Draft Order issued in August 1902, and finally confirmed, requires that

> "every sanitary convenience *shall have a proper door and fastenings, and be so enclosed as to secure privacy,*"

and that

> "where persons of both sexes are employed, the conveniences provided for each sex shall be completely separate, with separate screened approaches."

Factories and Workshops in which closets were insufficient or unsuitable, 273

(These were in every case remedied.)

RELATION OF CO^2 TO CUBIC SPACE, HEIGHT OF CEILING, &c., IN UNDERGROUND WORKSHOPS.

A series of observations was conducted with the view of ascertaining the proportion of carbonic acid present in the air of underground workshops. These were 39 in number, and admit of the following classification:—

	Proportion CO^2 present, Parts per 10,000.	Number of Observations.	Average Temperature. Fahrenheit.	Average Height of Ceiling.		Average Cubic Space per Worker.
				Ft.	In.	
A	30 and upwards.	8	61·8	8	6	650
B	25—30	2	77·0	9	0	672
C	20—25	6	61·5	9	6	608
D	15—20	11	63·8	8	9	495
E	10—15	8	68·7	9	4	422
F	5—10	4	73·0	8	11	571

All these observations were taken between 2 and 4 p.m., in the month of March, when artificial lighting should have been unnecessary, and the majority of them therefore present proportions of carbonic acid much in excess of that recommended by the Departmental Committee on Ventilation. It will be observed also that the gradations in carbonic acid are not related primarily to height of ceiling or initial cubic space per worker, that it is indeed the smaller allowances of cubic space which are associated with the lower ratios of carbonic acid which are present. From this it may be inferred that the prescription of a given cubic space per worker is not of itself sufficient to ensure reasonable purity of atmosphere, unless accompanied by definite, and in most cases artificial, aids to ventilation.

Further, with regard to temperature, it will be observed that in two sections, B and F, where the average height of ceiling is practically the same

(about 9 feet), the higher temperature is present where the maximum average cubic space exists, and the carbonic acid present exceeds 25 parts per 10,000. It is frequently urged that the present standard of 250 cubic feet per worker is hopelessly inadequate, but here is an indication that a space which is one-half larger than the maximum alternative which has been suggested (400 cubic feet) would of itself fail in underground premises to yield the desired standard of purity.

If underground premises are to continue to be used for the purpose of work, the provision of some mechanical aid to ventilation should be insisted on.

In the following Table the details are given from which the foregoing averages have been taken, and it is to be noted that, while tailors' workshops form the bulk of the class presenting high ratios of CO^2 impurity, restaurant kitchens have usually high temperatures, but in most cases quite a low percentage of carbonic acid.

SECTION A.—CO^2 ABOVE 30 PER 10,000.

Temperature.	Description of Work.	Height of Ceiling.	Total Cubic Contents.	Cubic Space per Worker.	CO^2 per 10,000 Parts.
Degrees C.		Ft. In.			
23·6	Tailor, ...	11 0	5,914	455	38·9 46·2
17·0	Do., ...	6 8	2,439	487	31·9
18·0	Do., ...	7 0 8 4	2,500 674	507 337	30·6
13·0	Do., ...	7 0	2,213	443	31·46
17·0	Do., ...	9 6 9 0	2,628 3,701	328 1,233	34·7
14·5	Furriers, ...	9 4	22,960	1,208	33·7
13·5	Clogmaker, ...	8 6	6,732	854	36·4

SECTION B.—CO^2, 25-30 PER 10,000.

30·5	Tea Rooms, ...	9 0	3,906	781	27·0
19·5	Bootmaker, ...	...	2,820	564	29·13

SECTION C.—CO^2, 20-25 PER 10,000.

17·0	Underclothing, ...	9 0	7,902	494	20·8
15·0	Bootmaker, ...	9 0	6,576	1,096	24·1
15·5	Tackle-maker, ...	13 0	2,593	324	23·1
24·0	Restaurant Kitchen,	7 9	2,797	559	20·3
13·5	Dressmaking, ...	9 0	2,835	567	21·2
13·5	Calenderers, ...	...	...	...	21·6

SECTION D.—CO^2, 15-20 PER 10,000.

Temperature.	Description of Work.	Height of Ceiling.	Total Cubic Contents.	Cubic Space per Worker.	CO^2 per 10,000 Parts.
Degrees C.		Ft. In.			
18·3	Tailor, ...	7 9	5,789	526	16·5
22·0	Japanner, ...	7 0	2,061	1,030	19·8
15·5	Dressmaker, ...	8 6	5,401 4,699	270	16·6
20·5	Costumiers, ...	7 9	5,732	440	19·6
18·3	Milliner, ...	13 0	1,732	288	17·6
17·0	Costumiers, ...	8 0 to 10 4	3,000 2,667 3,840	230 533 768	17·85
15·5	Stationer, ...	7 9	2,266	755	19·65
18·3	Costumier, ...	7 9	3,469	346	17·57
13·5	Dressmaking, ...	9 0	2,457	491	18·3
20·5	Tailor, ...	7 6 to 10 0	5,000 1,030 4,000 2,921	216 515 355 365	17·1
15·5	Shirtmaker, ...	10 3	3,939 1,000 1,567	456 250 183	15·5

SECTION E.—CO^2, 10-15 PER 10,000.

17·7	Jeweller, ...	...	...	...	12·7
17·0	Calenderers, ...	9 6	38,645	3,864	10·7
26·5	Restaurant Kitchen,	8 6	7,109	710	12·5
15·0	Shirtmaker, ...	10 0	6,343 4,893 3,990	352 489 399	14·6
21·0	Costumier, ...	10 3 10 9 10 3	8,046 4,367 1,680	201 397 280	10·1
17·7	Tailor, ...	10 2 9 7 7 0	5,194 4,558 4,016	472 1,222 400	11·54
26·5	Restaurant Kitchen,	8 0	1,585	528	12·37
13·5	Printer, ...	...	...	...	14·75

SECTION F.—CO^2, 5-10 PER 10,000.

17·2	Jeweller, ...	6 3	1,221 2,550 3,825	610 850 540	9·36
22·0	Restaurant Kitchen,	12 0	19,569	539	6·46
28·5	Do.,	9 0	11,353	516	6·78
23·5	Do.,	8 6	6,023	354	7·76

HOME WORKERS.

Section 107 of the Act requires that, in the case of persons employed in such classes of work as may from time to time be specified by Special Order of the Secretary of State, the occupier of any such factory or workshop, and every contractor employed by him, shall keep lists of all outworkers, and shall, on or before the first day of February and August in each year, send copies thereof to the Local Authority.

In compliance with this section, information was received from 190 occupiers regarding outworkers and of contractors. Of these, 34 contractors and 196 outworkers lived outwith the district of the Local Authority.

Following upon the information thus received, a systematic visitation of outworkers was made. 2,049 premises were visited, and, of these, 25 were found dirty, and, after due intimation given, were cleansed.

BAKEHOUSES.

The following is the number of bakehouses on the Register at the close of the year:—

Ward.	Not Underground.	Underground.	Total.
I.	10	1	11
II.	18	4	22
III.	11	1	12
IV.	12	2	14
V.	3	4	7
VI.	3	1	4
VII.	4	2	6
VIII.	8	8	16
IX.	9	8	17
X.	...	8	8
XI.	1	5	6
XII.	1	7	8
XIII.	4	2	6
XIV.	7	9	16
XV.	4	4	8
XVI.	17	14	31
XVII.	8	4	12
XVIII.	7	3	10
XIX.	8	14	22
XX.	10	2	12
XXI.	5	6	11
XXII.	6	1	7
XXIII.	1	5	6
XXIV.	...	2	2
XXV.	5	...	5
	162	117	279

Number of inspections during the year, 626.

Number of warnings for neglect of cleanliness and to whitewash, 117.

UNDERGROUND BAKEHOUSES AND WORKSHOPS.

Early in the year the Local Authority devoted themselves to a consideration of the conditions under which the continued occupancy of underground bakehouses should be sanctioned, and the following Report, which also refers incidentally to underground workshops, was prepared and finally adopted:—

It will be convenient to consider the requirements of underground bakehouses and of workshops in one Memorandum, although the Act places restrictions on the continued occupancy of underground bakehouses, and deals with workshops, wherever situated, only on general lines.

But the conditions which may thus be required of underground bakehouses will afford the Local Authority an opportunity of establishing a standard which will ensure that such premises may become underground workshops of the best type, and the minimum requirements which may be fixed for them will afford data for determining a standard which may be made applicable to workshops generally.

Underground Bakehouses.

The requirements here are set forth in Section 101 of the Act.

Definition.—For the purposes of this Section, an underground bakehouse means a bakehouse, any "baking-room" of which "is so situated that the surface of its floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room," and "baking-room" means any room used for baking, or for any process incidental thereto. (Section 101 (3).)

Unless the Local Authority is satisfied that any place coming within the above description is suitable as regards construction, light, ventilation, and in all other respects, it shall cease to be occupied after 1st January, 1904. (Section 101 (4).)

This briefly indicates the sum of requirements which constitute a definite advance in the direction of abolishing underground bakehouses altogether, and the standard which is now to be fixed will affect the facility with which this result may ultimately be accomplished.

But before considering the details on which suitability may be certified, some consideration is required regarding the definitions just stated. What is an underground bakehouse? I have already quoted the expression in the Act. But there is already on record a decision in the Sheriff Court in Glasgow that a bakehouse wholly under the level of the adjoining street in respect of its front wall, but with its floor not lower than the level of the court adjacent to its back wall, was not underground for the purposes of the Act of 1895. In this respect, therefore, it is a subject for legal consideration whether a bakehouse so situated will still be excluded from the operation of the clauses presently under consideration. Another illustration is afforded by bakehouses similarly situated with regard to the street level, but with the floor on the level of a sunk area in a back court. It might here be contended that the "surface of the ground adjoining" is represented by the surface of the area in question, and that consequently a bakehouse thus situated is also to be excluded from the operation of this clause; but, from a consideration of the requirements in the somewhat parallel case of underground dwellings (Public Health (Scotland) Act, 1897, Section 74), I am disposed to hold the contrary opinion. When no such area exists, and the ground at the back rises more than three feet above the floor level, no dubiety exists, although the existence of an adjacent building may obstruct both light and ventilation, and occasion some difficulty in interpreting the definition in such circumstances.

The three principal conditions above described are illustrated in the accompanying diagrams,* of which Fig. 1 represents a building wholly underground in respect of its front wall only; Fig. 2, one similarly situated, but becoming underground in respect of the depth of its floor below the ground adjacent to its back wall; and Fig. 3, one in which the ground adjacent to the back wall rises to within one-third of the height of the ceiling of the bakehouse, but is separated by an area which is as low as the level of the floor of the bakehouse, and is equal in width to half the height of the adjacent ground.

Before an underground bakehouse can be certified, the Local Authority must be satisfied that it is suitable as regards construction, light, ventilation, and in other respects; and, with the view of enabling the Local Authority to certify in terms of Section 101 (2), I have to suggest that the following conditions be complied with, in addition to the statutory requirements contained in Sections 97, 99, and 100:—

Construction.

No underground premises shall be used as a bakehouse unless—

(1) It contains at least 1,500 cubic feet of air space.

(2) Its height in every part from floor to ceiling is 8 feet in premises containing not more than 2,000 cubic feet, and 8½ feet in premises of a larger size.

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* The diagrams have not been reproduced.

(3) One-third at least of its height on two opposite sides is above the level of the adjoining ground, or there is provided an area, on one side at least, extending from the level of the floor of the bakehouse upward to the surface of the adjoining ground (which area shall be equal in width to one-half the height of such ground), or unless it shall comply with the requirements as to light to be hereinafter mentioned.

(4) Its walls are of hard and smooth material, impervious to damp, an inner wall being built where necessary for this latter purpose, so that an air chamber may be formed between the two walls, which shall be ventilated to the external air.

(5) Its ceiling be formed of solid, smooth, and impervious material, and so constructed as to exclude vermin.

(6) Its floor be formed of durable material, impervious to damp.

Light.

No place shall be used as an underground bakehouse to which daylight has not access so that an ordinary newspaper may usually be read, between the hours of 11 a.m. and 3 p.m., *at any part of the floor thereof.**

Ventilation.

The means taken must be such as will provide an equable temperature of about 75° Fahr., and ensure that the carbonic acid present in the air shall at no time exceed 10 volumes per 10,000 of air during work by daylight, or where electric light is used, and 17 parts per 10,000 when gas is being used, or any subsequent standard to be fixed by the Local Authority. In all cases the air must be fresh, clean air, protected, as far as possible, from contamination by street dust. The source of supply, where necessary, for this purpose must be raised at least 6 feet above the surface of the street or of the nearest adjacent ground, and mechanical ventilation introduced to the satisfaction of the Medical Officer of Health.

Other Respects.

Access.—Access to every underground bakehouse must be by a well-lit and ventilated stairway, and be independent of any trap door from the floor of the shop above.

Cubic Space.—This shall be computed at the rate of 500 cubic feet for each person employed, exclusive of the space occupied by ovens, &c.

Water Supply.—A plentiful supply of pure water must be provided to the satisfaction of the Local Authority.

Drainage.—Any drains running under the bakehouse shall be constructed to the satisfaction of the Local Authority.

Cleansing.—(*a*) Immediate removal of all sweepings, ashes, and other refuse matter must be provided for.

(*b*) Dough troughs, &c., shall be constructed so as to give ready access for cleansing the surfaces beneath and about them.

(*c*) A separate store for flour must be provided.

(*d*) Convenient lavatory and water-closet accommodation shall be provided.

(*e*) There shall be no openings on the street level through which dust may gain access, and no disused cellar shall communicate directly with the bakehouse.

(*f*) Plans and specifications of any alteration to meet these requirements shall be submitted to the Local Authority for their approval.

It will be made a condition of continued occupancy that the premises be kept scrupulously clean in respect of ceilings, walls, windows, floorings, utensils, troughs, &c.

It will be observed that the three cardinal points in the above conditions are—

1. Lighting—no place can be used to which daylight has not access.
2. That the premises are protected from ground air and damp.
3. That the ventilation is made the subject of special arrangement, and that the source of the air supply is placed under control.

Keeping this in view, it may now be considered how far they are applicable to underground workshops.

Workshops.

The foregoing suggestions are applicable only to underground bakehouses, but in respect that these are more completely under control than workshops similarly situated, they will readily afford a standard to which other workshops may be approximated.

* On consideration by the Sub-Committee it was agreed that the last clause should be altered to read "over a portion of the floor space equal to at least three-fourths of the total area."

It does not appear that the Act contemplates any differentiation in the standard which may be applicable to workshops above ground from those which are under ground.

Section 6 provides that in every workshop adequate measures must be taken for securing a reasonable temperature, but the measures so taken must not interfere with the purity of the air; and Section 7 provides that sufficient ventilation must be maintained. In certain cases the Secretary of State may, by special order, prescribe a standard, and a Departmental Committee has quite recently recommended one.

A cursory perusal of the results obtained by Mr. Harris is sufficient to indicate that several factors contribute to the gaseous impurity found in the air of workshops.

In 9 tailors' workshops, while the average impurity could be stated at 28·8 parts CO_2 per 10,000 volumes of air, the minimum was 12 and the maximum 46.

In 7 restaurant kitchens the average was less than half (13·2), while the minimum was 6 and the maximum 27.

Probably the most striking contrast is between the results obtained in the clogmaker's shop, Saltmarket, and a jeweller's workshop in Argyle Street. Both are underground, but in the latter case the carbonic acid is only 9 parts per 10,000 volumes of air, while in the former it is 36. The clogmaker's premises are in a recently-constructed building, with well-finished walls, ceiling, and floor, while the jeweller's premises are in an old building, and obstructed by internal walls.

Both are well conducted, and the latter an excellent illustration of the degree of purity of atmosphere possible, even in a cellar, where cleanliness is scrupulously insisted upon.

After respiration, the most abundant source of gaseous impurity is from the combustion of gas, and this enters so largely into the question that the Departmental Committee already referred to have recommended a limit of 20 parts per 10,000 in air of workshops when gas is used, but that it should not exceed 12 parts during work by daylight. It may seem to the Health Committee undesirable that a higher standard of purity than this indicates is presently to be recommended. But with regard to underground places, the source of the incoming air is important. At present it may be said that all obtain it from the street level. In some cases it may pass through dirtily-kept areas in front of windows, or down dark and ill-kept stairs. In all it is liable to carry with it street dust. It is impossible to think that this forms a desirable source of air supply, whatever the proportion of CO_2 present, and it may seem to the Committee desirable to urge the provision of some method of controlling the source of incoming air in underground workshops similar to that already suggested for underground bakehouses.

A. K. CHALMERS.

Sanitary Chambers,
22nd October, 1902.

A circular, of which the following is a copy, was subsequently issued to the owners and occupiers of all premises likely to be affected:—

Sanitary Department,
Glasgow, *February*, 1903.

To the Occupier of Bakehouse,

.....

Sir,

FACTORY AND WORKSHOP ACT, 1901 (SECTION 101).
UNDERGROUND BAKEHOUSES.

The above section of the Factory and Workshop Act of 1901 provides that any "bakehouse, any baking-room of which is so situated that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room," shall not be used after 1st January, 1904, unless certified by the Local Authority to be "suitable as regards construction,

light, ventilation, and in all other respects." For your guidance I append extracts from a Memorandum approved by the Corporation on 2nd February, 1903, and would particularly direct attention to the necessity for submitting plans and specifications for alterations to meet the requirements specified therein to the Local Authority for their approval.

I am,

Your obedient Servant,

(Signed) A. K. CHALMERS, M.D.,
Medical Officer of Health.

It would appear as if one of the major defects in underground premises, viz., insufficient lighting, were to lead to the extensive introduction of pavement lights and sub-canopies, which are said to be capable of throwing light into recesses for a considerable distance.

A. K. CHALMERS, M.D.

Sanitary Chambers,
Glasgow, *September*, 1903.

REPORT OF THE MEDICAL OFFICER OF HEALTH, SUBMITTING A REPORT BY DR. DITTMAR ON THE DISTRIBUTION OF ENTERIC FEVER IN THE EASTERN DISTRICT OF GLASGOW IN 1897-1901.

(Presented to the Committee on Health, 28th January, 1903, and ordered to be printed.)

In submitting Dr. Dittmar's Report on the Distribution of Enteric Fever in Certain Districts of the City during the years 1897-1901, a few words may serve to indicate the general contrast presented by the movement of the death-rate from the disease in these years when compared with those which preceded it.

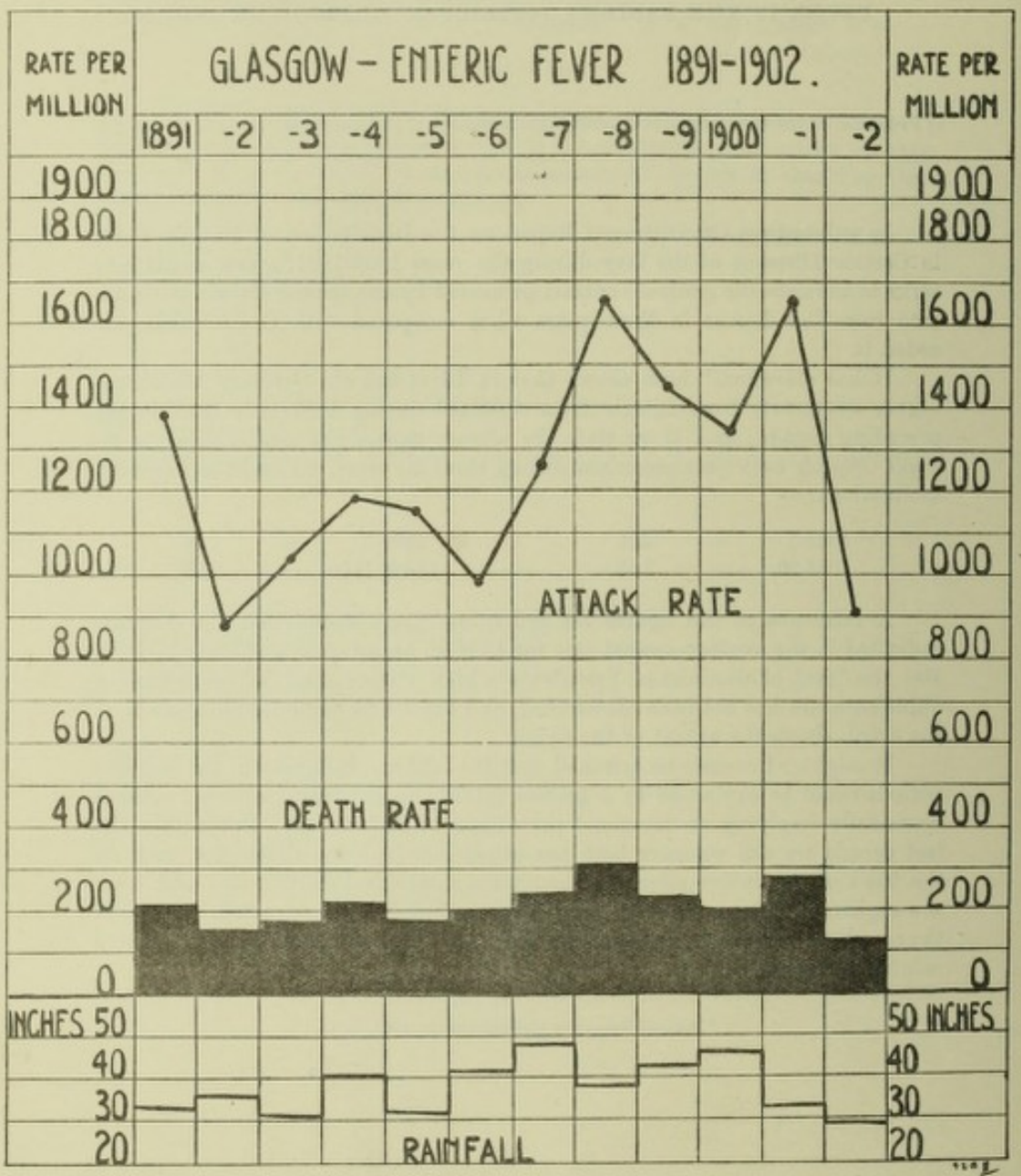
It has elsewhere* been shown that in 13 of the old Sanitary Districts a higher death-rate from enteric fever obtained during 1891-1900 than in the preceding decade; and, if we state the *average annual rate per million for the whole City* for each quinquennium during those 20 years, we find the following fluctuations:—

1881-5	=	325	1891-5	=	198
1886-90	=	185	1896-1900	=	242

A reference to the figures for individual years shows that the decrease indicated in the average annual rate for 1886-90 began quite suddenly in 1885. But the level of diminished prevalence which was reached in the following quinquennium has not been maintained, and the fourth period, even more than the third, shows the extent of the recoil.

It might, of course, be assumed that the higher death-rate in the last two periods could be explained by a greater fatality in individual attacks, without necessarily implying an increased prevalence of the disease. But within the last decade we can compare both the attack-rate and the death-rate, and, on the basis of the information obtained through the Notification Act and from the registered deaths, the following diagram has been constructed. It shows the attack-rate and the death-rate for each year 1891-1902, and also the annual rainfall in inches.

* Annual Report of Medical Officer, 1901, p. 44.


GLASGOW – ENTERIC FEVER 1891-1902.
RATE PER MILLION
1891
-2
-3
-4
-5
-6
-7
-8
-9
1900
-1
-2
1900
1800
1600
1400
1200
1000
800
600
400
200
0
ATTACK RATE
DEATH RATE
INCHES 50
40
30
20
RAINFALL

The curve here represents the cases and the columns the deaths occurring *per thousand* of the population of the City, as estimated from the number of inhabited houses.

The curve, even more graphically than the columns, indicates the greater prevalence of the disease in the later years of this period, and we know that the proportion of this which could be assigned to distinctly epidemic influences was comparatively small. But, apart from epidemic influences, we may consider what are the general and what the local conditions on which a high-level prevalance of enteric fever depends. General causes will exert themselves over a wide area, and we consequently look to the experience of other towns to support or disprove the suggestion of their operation. Has the increased prevalence of late years in Glasgow been peculiar to it? The Registrar-General classifies towns with a population exceeding 25,000 as Principal Towns, and a comparison of the death-rates from enteric fever in them during the years contained in the preceding chart is instructive. On tabulating these rates, we find that the towns fall into two groups, which are geographically distinct. The towns in the West of Scotland show, not only a greater relative, but an increasing, prevalence in the latter half of the decade compared with the towns in the East. Perth is the only exception, and here the high average in 1897-1901 is due wholly to an exceptional prevalence in 1897. The following Table is constructed from the rates given by the Registrar-General:—

AVERAGE ANNUAL DEATH-RATE PER 100,000 FROM ENTERIC FEVER IN THE PRINCIPAL TOWNS OF SCOTLAND IN 1891-6 AND 1897-1901.

	1891-6.	1897-1901.		1891-6.	1897-1901.
Glasgow, ...	20	25	† Perth, ...	17	34
* † Govan and Partick,	6	25	Dundee, ...	17	9
Paisley, ...	22	37	Leith, ...	14	8
Greenock, ...	12	20	Aberdeen, ...	9·3	9·8
† Kilmarnock, ...	64	119	Edinburgh, ...	15·5	11·4
* † Coatbridge, ...	39	42			

* Rates for 1891 not included.
† Rates for 1901 not included.

It would entail a much wider survey than is here intended to consider why this increase should be limited to the West of Scotland towns.* There is a suggestion in the chart that an increasing prevalence of the disease is associated with years of increased rainfall. But the relationship is not simple, and would appear to be influenced by the prevailing temperature, especially in the second and third quarters of the year. It is many years since Buhl applied to enteric fever Pettenkoffer's observations on the relationship between the level of the ground water and the incidence of cholera, but, as the late Sir George Buchanan suggested, this association might be explained more simply by direct pollution of drinking water when this was obtained from surface wells.

Confining the present observations to the information contained in the chart, it will be observed that, while in the years 1891-6 the average annual fall was 36·1 inches, during 1897-1901 it was 41·8 inches; and that the wettest years, 1897 and 1900, were each followed by one of exceptional prevalence of enteric fever. But if the prevalence follows rather than coincides with the rainfall in any given year, it should be related, not to the amount of rain which falls throughout that year, but to the quantity which falls in the early months, and this to some extent is what has occurred.

* From rates kindly supplied me by the County Medical Officers of Lanark, Renfrew, Stirling, Dumbarton, and Ayrshire, the increase has not been shared by the County Districts, save to a limited extent in the Upper Ward of Lanarkshire.

The increased rainfall during the years 1897-1901 arose almost wholly from an excess falling in the first half, but especially in the second quarter of each year.

AVERAGE QUARTERLY RAINFALL IN INCHES.

	First.	Second.	Third.	Fourth.	Average Annual.	Proportion of Total Cases per year occurring in 3rd and 4th Quarters.
1891-6, ...	7·9	6·1	10·5	11·4	36·1	60 per cent.
1897-1901, ...	8·7	10·2	10·3	11·4	41·8	66 per cent.

In the last column here, the years with much rain in the spring months are associated with an increased autumn prevalence of the disease, so that the cases occurring in the third and fourth quarters come to form 66 per cent. of the total yearly number, compared with 60 per cent. only when the early months have been drier. And if we apply the suggestion that wet springs tend to produce a high-level prevalence of the disease in autumn, a fair degree of correspondence can be shown to exist between the enteric death-rate of a particular year and the amount of rain falling in the first six months, *when this does not fall much below the average of adjacent years.*

PERIOD 1891-6.—AVERAGE RAINFALL, JANUARY-JUNE, 14 INCHES.

	Rainfall, January-June. Inches.	Annual Death-rate, Enteric Fever. Per Million.
1894, ...	24	221
1896, ...	16	206
1892, ...	13	151
1893, ...	11	178
1895, ...	7	176

	Rainfall.	Death-rate.
1891, ...	10	218

PERIOD 1897-1901.—AVERAGE RAINFALL, JANUARY-JUNE, 19 INCHES.

	Rainfall, January-June.	Annual Death-rate, Enteric Fever.
1897, ...	26	243
1899, ...	22	238
1900, ...	16	209

	Rainfall.	Death-rate.
1898, ...	15	312
1901, ...	13	275

In both periods the correspondence between a high-level prevalence of the disease and a considerable rainfall during the first six months is fairly complete, the exceptions occur in the years of relatively dry springs. In two of these, 1898 and 1901, the highest rates of the series are reached.* But each followed a year of exceptionally heavy rainfall, and they have, in common with 1893 and 1895, this circumstance, that during the second and third quarters of each the mean temperature of the air was higher than in any other year of the series.

Temperature and rainfall, however, are not direct causes. They aid or restrain growth when the local conditions otherwise are suitable for organic life. Enteric fever is a soil infection, and this, for practical purposes, is equivalent to surface impurity. It is with this phase of the subject that Dr. Dittmar's Report chiefly deals.

* 1891 also is a notable exception, but both area and population are slightly different here.

Almost at the beginning of this enquiry, Dr. Dittmar found that he had to distinguish between cases occurring among the members of already infected households, and to be explained by personal contact with the sick, and a further number of subsequent sickenings among persons who were not within this circle of infection.

There being no evidence forthcoming by which these later sickenings could be explained by re-invasion from outside sources, it became necessary that he should consider the physical circumstances generally on which perpetuation of infection might depend, and from which, by hypothesis, a recurrence of the disease might arise. So that, beginning his enquiry within the circle of direct exposure which the sick person established for his own household, he pursued it on the lines along which infection might radiate, until it reached these cases which had no direct contact with the first patient at all, but only with the conditions which the person sick of enteric fever can create beyond the circle of his immediate surroundings. Having applied this method to a consideration of the associated cases of a particular year, he finds it still serviceable in explaining recurrences in those following, and incidentally finds also his suggestion supported by the relatively greater incidence of the disease in females, this being contrary to the usual experience that males are more liable to attack.

The comparative ease with which the infection of enteric fever can be controlled, when scrupulous care is bestowed on the person and surroundings of the sick, is, to a large extent, responsible for the prevailing tendency to underrate its infectivity. In two directions Dr. Dittmar's enquiry may help to correct this impression. In his analysis the term "secondary infection" is restricted to cases occurring in the infected household within the accepted limit of the period of incubation, and he finds that the proportion of these is least in one-apartment houses. This, as he points out, is most obviously related to the almost uniform practice of removing cases in these circumstances to hospital. But, leaving those which may be regarded as direct infections, he found that, in 71 tenements in which the disease recurred, after the period of incubation had passed, this recurrence took place in 12 families living on the same floor as the formerly infected house, and in 47 families living on different floors of these tenements. And, in considering the incidence of these with reference to the methods of excrement disposal, his enquiry repeats the experience which has directed the policy of the Committee on Health in this respect for years. Recrudescence of the disease occurred in 23 per cent. of the invaded tenements which were dependent on dry or conservancy methods of dealing with excreta; in 6 per cent. only of those supplied with water-closets. Regarding the former class, the policy is already formulated, and only requires to be persistently followed. Every midden is a potential centre for the spread of enteric fever, and the more recent knowledge that infection may be voided in the urine serves to emphasise the unsuitability of these structures for town populations. In the process of emptying it is impossible to avoid surface pollution, and disinfection of the surrounding area is rarely practicable.

On the other hand, the association of a small proportion (6 per cent.) of recurrent cases with properly constructed water-closets suggests the lack of a right appreciation of the uses to which these fittings may be put, and illustrations are still too frequent in many districts of their abuse.

Apart from the repression of this habit, the enquiry further points to an extended application of the processes of disinfection.

A. K. CHALMERS, M.D.,
Medical Officer of Health.

Sanitary Chambers,
Glasgow, *January*, 1903.

Glasgow Rainfall in Inches in each Quarter from 1890-1902.

Year.	Quarter.				Year.
	First.	Second.	Third.	Fourth.	
1890	8·97	7·81	11·39	9·56	37·73
1891	6·52	3·58	10·04	13·18	33·32
1892	5·75	7·80	13·32	9·25	36·12
1893	5·67	6·10	8·95	10·56	31·28
1894	17·21	7·31	7·85	9·34	41·71
1895	3·75	4·06	10·57	13·68	32·06
1896	8·67	7·96	12·83	12·86	42·32
1897	9·70	17·08	11·00	10·29	47·07
1898	8·28	7·71	10·74	11·32	38·05
1899	12·00	10·48	9·01	11·71	43·20
1900	7·85	8·54	11·83	18·64	46·86
1901	6·05	7·45	9·08	10·44	33·02
1902	6·73	4·87	8·40	9·05	29·05

Glasgow Mean Temperature of each Quarter of the Year and of each Year from 1890-1902.

Year.	Quarter.				Year.
	First.	Second.	Third.	Fourth.	
1890	41·4°	51·1°	57·2°	42·3°	48·0°
1891	39·2°	49·7°	57·8°	43·0°	47·4°
1892	37·7°	50·2°	55·5°	40·7°	46·0°
1893	41·0°	54·6°	58·0°	43·7°	49·3°
1894	41·4°	50·7°	56·5°	44·9°	48·4°
1895	34·5°	53·3°	58·3°	42·2°	47·1°
1896	42·5°	50·9°	56·8°	41·5°	47·9°
1897	39·6°	49·7°	57·6°	44·7°	47·9°
1898	39·7°	51·7°	57·2°	42·8°	47·8°
1899	39·0°	49·7°	57·1°	43·9°	47·4°
1900	37·1°	50·6°	56·1°	44·6°	47·1°
1901	38·4°	50·6°	58·0°	42·3°	47·4°
1902	38·9°	48·0°	54·2°	46·0°	46·8°

REPORT BY DR. DITTMAR OF AN ENQUIRY INTO THE INCIDENCE OF ENTERIC FEVER IN THE EASTERN DISTRICT DURING THE YEARS 1897-1901.

This investigation was undertaken by me at Dr. Chalmers' suggestion, in order to ascertain what connection might demonstrably exist between cases of enteric fever which in point of residence had a local association. The Eastern District was chosen partly from its considerable size in point of population, and also because it afforded an opportunity of contrasting the behaviour of the disease in houses supplied with water-closets with those where middens still existed.

Included in the district are the sanitary sub-divisions, numbered 5, 7, and 8, viz.:—Bellgrove and Dennistoun, Greenhead and London Road, and Barrowfield. Dennistoun is a residential suburb; the others are working-class districts, and contain many large engineering establishments and factories. The population in 1901 was 173,104, which is somewhat less than one-fourth of the total population of the City, while the density per acre was 60 in Bellgrove and Dennistoun, 74 in Greenhead and London Road, and 225 in Barrowfield.

The number of cases occurring in each year is given in the following short Table, which also records the number of * "houses" and of "tenements" affected:—

Year.	No. of Cases of Enteric.	No. of Houses affected.	No. of Tenements affected.	Cases per House.
1897, ...	177	151	140	1·17
1898, ...	288	249	221	1·16
1899, ...	400	346	294	1·16
1900, ...	191	170	160	1·12
1901, ...	260	219	209	1·18

This gives, for the five years, 1,316 cases of enteric fever, distributed among 1,135 houses in 1,024 tenements.

"Recrudescence" of Enteric Fever in the same Tenement in Successive Years.

On investigating the question of the "recrudescence" of the disease in the same tenement in successive years, we find that—

18 of the Tenements affected in 1897 were again affected in 1898, or 12·8 per cent.
19 „ „ 1898 „ „ 1899 „ 8·6 „
22 „ „ 1899 „ „ 1900 „ 7·5 „
12 „ „ 1900 „ „ 1901 „ 7·5 „

This gives an average tenement recrudescence of 8·7 per cent.

Two tenements in widely separated portions of the district had cases of enteric fever in them for three successive years, both having in common that they were provided with open pan privies and "wet" middens.

The reappearance of enteric fever in the same tenement in successive years I call a "recrudescence," irrespective of the number of cases of the disease.

On analysing these "recrudescences" we find that some occurred in the same house, others in different houses on the same floor as the original case, others again on different floors of the same tenement.

Of the 18 in 1898, 3 were in same house, 3 on same floor, and 12 on different floors.
.. 19 „ 1899, 5 „ „ 1 „ „ 13 „ „
„ 22 „ 1900, 3 „ „ 5 „ „ 14 „ „
„ 12 „ 1901, 1 „ „ 3 „ „ 8 „ „

71	12	12	47

* By "house" is here meant the apartment or apartments occupied by one household; and by "tenement" a group of houses, distinguished by one number in the street, and corresponding to the Scotch use of the word "land." Occasionally a side or back tenement is also included, because where water-closets have not been introduced the privy is usually common to all the houses. The majority are four storeys high.

When the disease reappears in the same house in the following year, "recrudescence" is sometimes not the proper word to use, as it is only the accidental occurrence of the case at the beginning of the year which leads to the tenement being marked as one in which "recrudescence" occurred.

But cases of this kind were only two in number, and took place 3 and 4 weeks after the last case in the respective families. The others could be truly called "recrudescences," and occurred from 4½ to 12, and in one instance *15*, months after the last case in the house.

Of the "recrudescences" in different houses on the same floor, one took place 14 weeks after a case in a neighbour's house; the others occurred at intervals of 9 to *22* months after a case on the same floor.

The "recrudescences" distributed among houses on different floors of a tenement occurred mainly 6 to 12 months after a case, sometimes as long as 15, 18, and even *22* months later.

In the absence of any evidence against milk or other methods of reinfection, the "recrudescence" of enteric fever, even after so long an interval as 18 to 22 months, is assumed to show evidence of infection lying latent in the place affected.

"Recrudescence" in Houses of Various Sizes.

During the five years under consideration, the cases of enteric fever had the following distribution in houses of several sizes:—

Size of House.	No. Invaded.	No. of Cases.	Case-rate per House.
1 apartment, ...	277	319	1·15
2 apartments, ...	665	771	1·15
3 ,, ...	153	180	1·17
4 ,, and upwards, ...	40	46	1·15
	1,135	1,316	

The case rate per house of each size is practically the same, though the numbers in the "four-apartment and upward" houses are rather small to draw reliable conclusions from.

But, if we calculate the average number of cases of enteric during the five years in each class of house per 1,000 living in that class in 1901, we get the following result:—

Average Number of Attacks of Enteric Fever per 1,000 Occupants in Houses of—

1 Apartment.	2 Apartments.	3 Apartments.	4 Apartments and upwards.
1·84 ...	1·6 ...	1·2 ...	0·76

In other words, we find that what holds good for death-rates in other diseases holds good for the incidence of enteric fever. There is a larger proportion of the disease in the smaller houses, and the proportion gradually diminishes as the size of the house increases.

Infectivity of Enteric Fever in Relation to Occurrence of Secondary Cases.

A point of considerable importance to the epidemiologist is the infectivity of enteric fever, and there is among the cases under consideration a fair amount of evidence of this. It is a quality of enteric fever which is to a great extent disregarded.

"Secondary" Cases in the same House.

This leads us to enquire how many "secondary" cases arose in the infected houses. By "secondary" cases in the same household are here meant cases sickening 10 or more days after the first one. It is not possible to obtain the

exact number of these, as the dates of sickening could not always be ascertained; but, as the greater proportion could, the results may be looked upon as in the main accurate.

There is recorded in the following tabular form—(1) the percentage of each class of house in which secondary cases arose; (2) the average number of days between primary and secondary sickenings in each class of house; and (3) the percentage of secondary cases in each class of house.

(1) Percentage Number of Houses of each Class having Secondary Cases.

1 Apartment.	2 Apartments.	3 Apartments.	4 Apartments and upwards.
4·7 per cent.	6·7 per cent.	5·8 per cent.	5 per cent.

Here we have the first indication that secondary cases occur more frequently in the larger houses, and, as we shall see later, this is still more marked when we consider the percentage number of secondary cases in each class of house.

(2) Average Number of Days elapsing between Primary and Secondary Sickenings in the Various Sizes of Houses.

1 Apartment.	2 Apartments.	3 Apartments.	4 Apartments and upwards.
21 days.	27 days.	33·3 days.	6½ months.

It is interesting to observe that, as the house increases in size, the interval between primary and secondary sickenings increases. The possibility of isolation becomes greater as the house increases in size, but in a certain proportion of cases it ultimately breaks down.

It must be added that, in three houses of two apartments, secondary sickenings occurred 4¾, 6½, and 9 months after the first; and that in three houses of three apartments, in which eight secondary cases arose, the original patient had been kept at home during the whole illness in two of them, and for 30 days in the third one.

In two houses of four apartments and upwards, where secondary cases occurred, the patients were removed to hospital in one, while they remained at home in the other case.

(3) Percentage Number of Secondary Cases in each Class of House.

1 Apartment.	2 Apartments.	3 Apartments.	4 Apartments and upwards.
6·2 per cent.	7·9 per cent.	8·3 per cent.	6·5 per cent.

This gave us 125 "secondary" cases, according to the dates of sickening available. In my opinion, however, founded on personal knowledge of the class of people affected, as well as of the dates at which successive cases were removed to hospital, the probable number of secondary cases is larger than this—more likely numbering from 180 to 200.

This analysis shows that the percentage of secondary cases increases till we get to houses of four apartments and upwards. It has to be borne in mind, however, that the number of patients in the last class of house was small (46 in five years); but isolation can certainly be more nearly perfect in the larger house, and the intelligence of the people is probably, while their power of obtaining skilled guidance in the way of medical attention, is certainly, greater.

All cases of enteric are removed to hospital from single-apartment houses, and nearly all from two-apartment houses, while patients are frequently left at home in houses of three apartments and upwards. This circumstance probably accounts in a large measure for the larger percentage of secondary cases in two and three-apartment houses.

Enteric in Water-Closet and in Privy Tenements.

In comparing the behaviour of enteric fever in tenements provided with water-closets and in those provided with open pan privies and middens, some "wet" to begin with, and all ultimately "wet" from misuse, a difference in "recrudescence" is to be observed.

The great majority of the tenements under discussion are provided with water-closet facilities, the water-closets being built in "stacks" at the back of each tenement, one on each floor usually serving the requirements of three or four households.

It is interesting to compare the degree of "recrudescence" in each class of tenement.

The following Table in parallel columns gives the results of this comparison:—

Number of Cases of Enteric Fever in "Privy" Tenements in each of the 5 Years under consideration.	Number of Cases of Enteric Fever in Water-closet Tenements in each of the 5 Years under consideration.
In 1897 there were 17 cases in 7 t'ments.	In 1897 there were 160 cases in 133 t'ments.
In 1898 „ 44 „ 14 „	In 1898 „ 244 „ 207 „
In 1899 „ 50 „ 23 „	In 1899 „ 350 „ 271 „
In 1900 „ 3 „ 1 „	In 1900 „ 188 „ 159 „
In 1901 „ 11 „ 3 „	In 1901 „ 249 „ 206 „
Case-rate per tenement, ... 2·6	Case-rate per tenement, ... 1·2
Percentage.	Percentage.
Secondary cases in same house, 35	Secondary cases in same house, 61·6
„ „ different house, 64·7	„ „ different house, 38·4
Recrudescence, ... 23	Recrudescence, ... 6·1

One privy and midden usually serve a number of houses, and, in the absence of demonstrable infection from other sources, it is assumed that the infective material in the midden spreads infection by means of natural agencies, *e.g.*, the wind, flies, surface pollution, &c.

The numbers dealt with are small, especially those in connection with "privy" tenements, but they would seem to point to the following conclusions:—

(1) That enteric infection tends to cling to a place, "recrudescence" occurring more often in "privy" tenements, where the soil pollution is relatively greater, than in water-closet tenements.

(2) That in the case of "privy" tenements the disease shows a greater tendency to invade neighbouring houses than in the case of water-closet tenements.

In the year 1898 the attack-rate of the disease for the City reached a high level, but in 1899 the number of cases occurring in the Eastern District exceeded that of any of the years under review. In that year there were 50 cases in Camlachie, in two groups, one on either side of Great Eastern Road,—where one is forced to the conclusion that open privies and "wet" middens were important factors in the spread of the infection.

The affected groups of tenements are almost opposite one another, those on the north being a little further east (in Coalhill Street and Society Street, which are close to and parallel to one another, and in East Union Street, a small street which runs from Society Street parallel to Great Eastern Road), those to the south lying behind Camlachie Police Station.

Besides proximity to one another, the houses have in common the generality that they are old, although many are in good repair.

Some are one-storied cottages, though the majority are of two storeys, and all are inhabited by the unskilled labouring class.

Another quality they have in common is the possession of pan privies and middens, one in Great Eastern Road "wet" to begin with, and all "wet" ultimately from the manner in which they are used.

There is ample air space both in front of and behind the houses; the "back courts" are mainly of earth, though in some there are cobble stones, and their usual state in wet weather is very muddy.

Before describing the outbreak in more detail, it is necessary to state that water and milk infection were both excluded as probable sources of infection. The water supply is from the main; the milk supply as follows:—There are two dairies, "A" and "B," in the district from which the people derived their milk.

The owner of Dairy "A" supplied milk from his own cows only, which were kept in his town byre.

The owner of Dairy "B" supplied milk which he obtained from farms in the country.

Both had about an equal number of customers among the affected houses, the owner of Dairy "A" having supplied 26 of the patients with milk in whole or in part, the owner of Dairy "B" having supplied 21 in whole or in part.

5 of the cases supplied from Dairy "A" sickened between 29/6/99 and 12/7/99
8 „ „ „ "A" „ „ 13/7/99 and 19/7/99

or 13 out of 26 cases supplied from Dairy "A" sickened within three weeks.

5 of the cases supplied from Dairy "B" sickened between 28/6/99 and 12/7/99
8 „ „ „ "B" „ „ 13/7/99 and 19/7/99

or 13 out of 21 cases supplied from Dairy "B" sickened in the same three weeks.

Eleven sickened between 17th July, 1899 and 19th July, 1899 (inclusive), of whom there were 2 who had milk from Dairy "A" alone, 5 from "B" alone, 1 from "A" and "B," 1 who only had "condensed" milk, and 2 who had milk from Dairy "B" along with condensed milk. This was some time after the disease had presumably obtained a hold on the locality.

The owners of Dairies "A" and "B" had no enteric in their own households, nor did the disease exist among any of their employees. They also supplied a large number of people in the East-end, outside of the small area under discussion, and *there was no similar prevalence of enteric fever among their other customers.* Inquiries made at the time with regard to the presence of enteric fever at any of the farms in the country which supplied Dairy "B" were answered in the negative.

Lastly, it has to be borne in mind that the people belong to the poorest class, and that they are not great milk drinkers. It has to be noted, too, that most of the cases occurred in females above 10 years of age (16 being above 15), who are tea drinkers, and who would only add a drop or two of milk to the hot tea.

It is quite a mistake to suppose that people of this class eat porridge, which would mean a fair quantity of milk. Unfortunately, in towns at least, porridge does not enter largely into the diet of the poorest working class.

One is therefore forced to the conclusion that the surroundings of the people, together with the surface pollution which is unavoidable where "wet" middens exist, were the main factors in the spread of the disease once it had been implanted. Probably one or more unrecognised and unrecorded cases of enteric fever were the source from which all the rest sprang.

In one of the "privy" tenements affected in Great Eastern Road, there had been three cases of the disease during the autumn of 1898; in East Union Street there had been a case in 1898 in connection with a "privy" tenement; and in the autumn of 1897 there had been a case in connection with a "privy" tenement in Coalhill Street. Opportunity of "soil" infection therefore existed.

Analysis in detail of the above cases gives the following results:—10 cases occurred in 9 houses in 13 to 41 Coalhill Street, the dates of sickening having

been between 29th June, 1899, and about 20th September, 1899. The youngest person attacked in this group of cases was 11 years old. The people living in the 9 houses affected consisted of 6 below and 34 above 10 years, and 9 of the cases were in females over 10 years. 13 to 37 Coalhill Street form three sides of a large space, or earth courtyard, in which there are supplied one large ashpit and two pan privies.

Nineteen cases occurred in close proximity to these—4 on the opposite side of Coalhill Street, in water-closet tenements; 12 in Society Street (a short street running parallel to Coalhill Street), of which 10 were in water-closet tenements (in 6 houses); and two in "privy" tenements (in 2 houses); while 3 occurred in East Union Street, in 2 houses in 1 "privy" tenement.

The population in the affected houses consisted of 29 below and 35 above 11 years, and 7 of the cases were below and 12 above 10 years, of whom 8 were females.

Cases to South of Great Eastern Road.

The group of tenements in Great Eastern Road, Yate Street, and Porter Street form an irregular space bounded on the south-west by the railway line, and, though there is no proper "court" to any of them, there is a large, uneven, and irregular space behind and around them, not covered with asphalte anywhere, but formed solely of earth.

There are about 60 individual houses here of one and two apartments (mainly one apartment), and for the people inhabiting these there are provided one "wet" midden, in addition to two pan privies, separated by a partition from the ashpit.

Sixteen cases sickened here between 28th June, 1899, and 22nd September, 1899. Five cases occurred in "privy" tenements in East Hope Street, which is immediately opposite Coalhill Street, the infection having been imported there by the baby of a woman who had contracted the disease in Coalhill Street, and had sent her child to friends there when she was removed to hospital. They sickened between an indefinite date about the end of July and 22nd September, 1899. In all there were 50 cases of enteric fever, 18 below and 32 above 10 years of age, and of the latter 25 were females. As already stated, 16 of the 25 were over 15. The incidence of the disease does not suggest milk as the source. It would appear to suggest that those who were most at home, and presumably most exposed to infection, took the disease, while the men who were at work all day, and the young children who were at school for part of the day, being relatively less exposed, escaped.

Under such circumstances, I believe, therefore, that the assumption is warranted that the methods of conservancy within this area were important factors in the spread of enteric fever during the autumn of 1899.

APPENDIX.

TABLE I.—Glasgow.—Population; Births and Deaths; Birth-rates and Death-rates per 1,000, also Deaths under 1 Year and Death-rates under 1 Year per 1,000 Born, from 1855 to 1902.

Year.	Population.	Births.	Deaths.	Birth-rate per 1,000.	Death-rate per 1,000.	Deaths under 1 Year.	
						Number.	Rate per 1,000 born.
1855	356,355	13,242	10,655	37·2	29·9	2,600	196
1856	362,606	15,170	10,298	41·8	28·4	2,713	179
1857	369,318	15,706	11,375	42·5	30·8	2,851	182
1858	376,131	15,889	11,472	42·2	30·5	2,846	179
1859	382,756	15,947	10,832	41·6	28·3	2,448	154
1860	389,843	15,943	12,436	40·8	31·9	2,905	182
1861	397,673	16,537	10,936	41·6	27·5	2,544	154
1862	405,789	16,400	11,565	40·4	28·5	2,562	156
1863	413,944	16,986	13,329	41·0	32·2	2,774	163
1864	420,738	17,411	13,674	41·4	32·5	3,051	175
1865	428,123	17,956	13,914	41·9	32·5	3,097	173
1866	437,850	18,288	12,829	41·8	29·3	2,905	159
1867	446,028	18,347	12,578	41·1	28·2	2,895	158
1868	455,000	18,607	13,832	40·9	30·4	3,127	168
1869	464,332	18,495	15,648	39·8	33·7	3,411	184
1870	471,453	19,355	13,955	41·1	29·6	2,991	155
1871	491,900	18,867	15,790	38·4	32·1	3,608	191
1872	494,824	20,158	14,053	40·7	28·4	3,198	159
1873	494,847	19,487	14,499	39·4	29·3	3,255	167
1874	498,270	20,039	15,845	40·2	31·8	3,240	162
1875	499,480	20,825	15,384	41·7	30·8	3,388	163
1876	502,299	20,981	13,763	41·7	27·4	3,166	151
1877	504,487	21,124	13,823	41·9	27·4	3,106	147
1878	507,420	20,622	14,157	40·6	27·9	3,285	159
1879	508,048	19,751	12,498	38·8	24·6	2,504	127
1880	509,732	18,912	13,304	37·1	26·1	2,842	150
1881	512,034	19,106	12,916	37·3	25·2	2,745	144
1882	517,904	19,735	13,046	38·1	25·2	2,959	150
1883	523,154	19,911	14,577	38·1	27·9	3,091	155
1884	528,459	20,557	13,942	38·9	26·4	3,094	151
1885	533,817	19,861	13,492	37·2	25·3	3,100	156
1886	539,231	19,862	13,104	36·8	24·3	2,786	140
1887	544,700	19,328	12,135	35·5	22·3	2,676	138
1888	550,226	19,309	11,681	35·1	21·2	2,560	133
1889	555,808	19,503	13,139	35·1	23·6	3,008	154
1890	561,447	19,279	13,374	34·3	23·8	2,880	149
1891	567,143	19,857	14,324	35·0	25·3	2,946	148
1892	669,059*	22,815	15,218	34·1	22·7	3,168	139
1893	677,883	23,173	15,798	34·2	23·3	3,649	157
1894	686,820	22,644	13,673	34·0	19·9	2,937	130
1895	695,876	22,803	16,344	32·8	23·5	3,538	155
1896	705,052	24,029	14,385	34·1	20·4	3,278	136
1897	714,919	23,880	15,727	33·4	22·0	3,826	160
1898	724,349	24,262	15,333	33·5	21·2	3,792	156
1899	733,903	24,249	15,828	33·0	21·6	3,696	152
1900	743,969	24,362	16,393	32·7	22·0	3,778	153
1901	764,467	24,206	16,197	31·7	21·2	3,607	149
1902	775,601	24,722	15,532	31·9	20·0	3,206	129

* Extended City.

The figures in this Table are taken from the Registrar-General's Reports.

TABLE II.—Glasgow.—Estimated Population; Births; Deaths at all Ages and at certain Periods of Life, and their Proportion to the Population; also the Illegitimate Births in each Sanitary District for the Year 1902.

Sanitary Districts.	Estimated Population.			Births.		Illegitimate Births.		Deaths, all Ages.		Deaths at certain Periods of Life.						
	Without Institutions and Shipping.	Institutions and Shipping.	Total.	Number.	Rate per 1,000 Living.	Number.	Percentage of Total Births.	Number.	Rate per 1,000 Living.	Under 1 Year.	1—5 Years.	5—15 Years.	15—20 Years.	20—25 Years.	25—60 Years.	60 Years and above.
— Blythswood, ...	27,380	752	28,132	496	18·1	62	12·5	424	15·5	57	36	3	11	18	161	138
1. Exchange, ...	21,966	1,852	23,818	592	27·0	47	7·9	415	18·9	84	41	21	6	13	147	103
2. Port-Dundas, ...	5,669	20	5,689	262	46·2	16	6·1	148	26·1	50	34	7	2	11	32	12
3. High Street and Closes West, ...	9,113	728	9,841	304	33·4	33	10·9	217	23·8	47	33	13	6	2	76	40
4. St. Rollox, ...	16,023	4	16,027	576	35·9	30	5·2	320	20·0	74	45	16	8	15	103	59
5. Bellgrove and Dennistoun, ...	79,856	1,267	81,123	2,821	35·3	146	5·2	1,376	17·2	303	236	75	45	33	417	267
6. High Street and Closes East, ...	4,310	1,607	5,917	170	39·4	21	12·4	104	24·1	15	15	5	3	...	44	22
7. Greenhead and London Road, ...	67,801	952	68,753	2,700	39·8	119	4·4	1,353	20·0	366	269	83	37	42	328	228
8. Barrowfield, ...	27,827	...	27,827	1,082	38·9	77	7·1	648	23·3	165	129	31	17	14	172	120
9. Monteith Row, ...	4,013	...	4,013	100	24·9	15	15·0	108	26·9	19	11	2	...	7	37	32
10. St. Andrew Square, ...	3,981	672	4,653	126	31·7	9	7·1	77	19·3	19	14	4	1	2	20	17
11. Calton, ...	20,681	1,515	22,196	811	39·2	67	8·3	581	28·1	141	88	26	16	7	196	107
12. St. Enoch Square, ...	2,207	559	2,766	66	29·9	9	13·6	62	28·1	9	8	5	...	3	26	11
13. Brownfield, ...	3,443	325	3,768	129	37·5	29	22·5	112	32·5	30	23	6	2	...	32	19
14. Bridgegate and Wynds, ...	3,829	116	3,945	119	31·1	7	5·9	86	22·5	18	21	3	1	2	29	12
15. Woodside, ...	70,796	324	71,120	2,050	29·0	125	6·1	1,088	15·4	223	146	51	36	38	350	244
16. Cowcaddens, ...	17,855	969	18,824	763	42·7	67	8·8	499	27·9	146	70	33	13	15	163	59
17. Kelvinhaugh and Sandyford, ...	31,121	1,615	32,736	666	21·4	41	6·2	408	13·1	77	49	13	8	16	131	114
18. Anderston, ...	27,984	433	28,417	968	34·6	57	5·9	691	24·7	179	126	33	19	21	198	115
19. Kingston, ...	40,070	328	40,398	1,129	28·2	81	7·2	677	16·9	119	89	32	16	20	231	170
20. Laurieston, ...	8,502	318	8,820	281	33·1	32	11·4	210	24·7	41	40	12	5	6	69	37
21. Hutcheson Square, ...	70,980	7	70,987	2,606	36·7	117	4·5	1,381	19·5	317	236	76	33	45	416	258
22. Gorbals, ...	11,945	862	12,807	417	34·9	36	8·6	309	25·9	70	48	19	7	9	100	56
— Springburn and Rockvilla, ...	37,774	...	37,774	1,435	38·0	56	3·9	648	17·2	139	118	45	14	25	209	98
23. Govanhill, ...	23,538	...	23,538	786	33·4	25	3·2	337	14·3	84	44	16	9	9	95	80
24. Crosshill, ...	8,117	...	8,117	136	16·8	3	2·2	91	11·2	15	6	2	3	2	27	36
25. Langside and Mount Florida, ...	16,430	360	16,790	360	21·9	7	1·9	171	10·4	29	7	11	5	3	53	63
26. Pollokshields, E., and Strathbungo,	13,909	...	13,909	177	12·7	3	1·7	142	10·2	10	10	2	...	6	41	73
27. Pollokshields, W., and Bellahouston,	6,397	...	6,397	72	11·3	2	2·8	67	10·5	6	2	3	3	3	22	28
28. Hillhead, ...	9,069	...	9,069	86	9·5	5	5·8	88	9·7	3	1	1	4	2	28	49
29. Kelvinside, ...	8,570	748	9,318	127	14·8	8	6·3	51	6·0	5	5	2	...	2	14	23
30. Maryhill, ...	35,131	1,904	37,035	1,452	41·3	67	4·6	547	15·6	150	94	31	21	27	149	75
31. Possilpark and Barnhill, ...	21,164	1,280	22,444	752	35·5	28	3·7	330	15·6	82	59	19	8	13	93	56
— Institutions and Shipping, ...	...	...	...	91	...	64	...	1,288	...	76	43	22	21	29	582	515
CITY, ...	757,451	19,517	776,968	24,708	31·8	1,511	6·1	15,054	19·4	3,168	2,196	723	380	460	4,791	3,336

TABLE III.—Glasgow.—Deaths at all Ages from Different Diseases in each Sanitary District during 1902.

SANITARY DISTRICTS.	All Causes.	Smallpox.	Diphtheria and M. Croup.	Scarlet Fever.	Fevers.			Measles.	Whooping-cough.	Diarrhœa.	Septic Diseases.	Tubercular Diseases.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undefined.					Phthisis.	Other than Phthisis.									
— Blythswood, ...	424	...	1	1	...	4	...	7	9	13	5	33	20	25	54	33	...	95	8	7	2	107
1. Exchange, ...	415	...	2	1	...	1	...	4	14	6	3	44	16	15	58	33	2	98	9	16	6	87
2. Port-Dundas, ...	148	...	1	...	...	1	...	3	5	7	...	13	10	1	11	7	1	47	4	10	2	25
3. High Street and Closes West, ...	217	...	1	2	...	1	...	3	8	4	...	24	24	7	26	8	...	52	8	3	3	43
4. St. Rollox, ...	320	2	4	...	...	1	...	3	5	5	3	25	37	5	38	21	...	81	9	12	...	69
5. Bellgrove and Dennistoun, ...	1,376	6	15	16	...	10	...	26	59	41	14	113	105	62	121	116	5	276	48	57	4	282
6. High Street and Closes East, ...	104	...	...	2	...	...	..	...	1	2	2	9	8	6	11	8	...	22	1	1	6	25
7. Greenhead and London Road, ...	1,353	14	12	12	...	14	...	38	52	68	13	103	106	42	108	101	6	351	29	57	1	226
8. Barrowfield, ...	648	6	4	4	...	7	...	19	23	37	3	36	31	20	68	45	1	171	21	25	5	122
9. Monteith Row, ...	108	2	...	2	...	...	...	1	1	4	2	12	5	4	6	9	...	33	4	2	...	21
10. St. Andrew Square, ...	77	...	...	...	...	...	...	7	2	5	...	7	5	2	6	6	...	19	1	...	1	16
11. Calton, ...	581	...	5	4	...	7	...	4	16	33	8	46	35	18	58	36	3	150	15	16	10	117
12. St. Enoch Square, ...	62	...	...	...	...	1	...	1	3	2	2	2	2	2	9	9	1	9	6	4	...	9
13. Brownfield, ...	112	...	...	...	...	...	...	2	5	5	...	12	2	3	12	4	...	34	4	4	1	24
14. Bridgegate and Wynds, ...	86	1	...	...	...	...	...	...	5	1	...	9	5	3	5	2	...	31	4	5	3	12
15. Woodside, ...	1,088	1	11	8	...	9	...	21	21	25	13	82	67	56	93	79	5	265	30	51	5	246
16. Cowcaddens, ...	499	1	2	2	...	4	...	6	2	22	5	44	38	14	38	26	1	158	17	24	...	95
17. Kelvinhaugh and Sandyford, ...	408	...	5	2	...	3	...	10	17	11	7	21	25	22	40	47	2	79	12	10	1	94
18. Anderston, ...	691	1	7	3	3	2	...	18	33	21	3	42	49	21	50	75	2	175	24	27	4	131
19. Kingston, ...	677	2	8	9	...	5	...	7	19	18	6	56	47	38	52	63	3	166	22	13	...	143
20. Laurieston, ...	210	...	...	...	...	1	...	8	6	9	1	29	15	8	15	17	...	62	5	4	1	29
21. Hutcheson Square, ...	1,381	1	8	21	2	13	...	18	70	50	17	110	104	48	142	104	1	344	40	43	4	241
22. Gorbals, ...	309	...	3	3	3	1	...	4	11	10	3	26	15	6	32	29	2	87	13	12	1	48
— Springburn and Rockvilla, ...	648	1	5	4	...	3	...	19	15	18	5	47	37	21	62	35	5	165	30	18	4	154
23. Govanhill, ...	337	..	2	3	...	2	...	5	17	9	4	34	25	20	31	34	2	55	6	18	...	70
24. Crosshill, ...	91	...	...	1	...	2	...	1	...	2	2	9	4	3	12	15	...	16	1	2	...	21
25. Langside and Mount Florida, ...	171	...	1	3	...	1	...	...	3	4	3	12	9	7	23	19	2	31	1	4	2	46
26. Pollokshields, E., and Strathbungo,	142	1	...	2	...	...	...	..	1	3	4	11	7	10	25	17	...	18	6	4	...	33
27. Pollokshields, W., and Bellahouston,	67	...	...	1	...	...	...	...	2	2	...	8	1	4	3	8	...	10	4	1	2	21
28. Hillhead, ...	88	...	...	...	...	...	...	...	...	1	2	8	1	11	17	11	...	15	2	1	...	19
29. Kelvinside, ...	51	...	...	...	...	...	...	...	1	3	1	...	2	3	8	6	...	5	3	1	...	18
30. Maryhill, ...	547	1	5	4	...	11	...	15	18	25	6	39	39	13	38	48	4	130	19	20	2	110
31. Possilpark and Barnhill, ...	330	...	3	...	...	2	...	10	12	15	5	24	34	10	25	21	2	83	16	13	1	54
— Institutions and Shipping, ...	1,288	2	...	3	1	4	...	6	10	18	7	209	44	35	129	131	...	375	33	5	11	265
CITY, ...	15,054	42	105	113	9	110	...	266	466	499	149	1,299	974	565	1,426	1,223	50	3,708	455	490	82	3,023

TABLE IV.—Glasgow.—Death-rates per Million from Different Diseases in each Sanitary District in 1902.

Sanitary Districts.	All Causes.	Smallpox.	Diphtheria and Membranous Croup.	Scarlet Fever.	Fevers.			Measles.	Whooping-cough.	Diarrhœa.	Septic Diseases.	Tubercular Diseases.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undefined					Phthisis.	Otherthan Phthisis.									
— Blythswood, ...	15,486	...	36	36	...	146	...	256	329	475	183	1,206	730	913	1,972	1,205	...	3,470	292	256	73	3,908
1. Exchange, ...	18,893	...	91	46	...	46	...	182	637	273	137	2,003	728	683	2,641	1,502	91	4,461	410	728	273	3,961
2. Port-Dundas, ...	26,107	...	176	...	...	176	...	529	882	1,235	...	2,293	1,764	176	1,941	1,235	176	8,291	706	1,764	353	4,410
3. High Street and Closes West, ...	23,812	...	110	219	...	110	...	329	878	439	...	2,634	2,634	768	2,853	878	...	5,706	878	329	329	4,718
4. St. Rollox, ...	19,971	125	250	...	...	62	...	187	312	312	187	1,560	2,309	312	2,372	1,311	...	5,055	562	749	...	4,306
5. Bellgrove and Dennistoun, ...	17,231	75	188	200	...	125	...	326	739	514	175	1,415	1,315	776	1,515	1,453	63	3,456	601	714	50	3,531
6. High Street and Closes East, ...	24,130	...	...	464	...	...	...	...	232	464	464	2,088	1,856	1,392	2,552	1,856	...	5,105	232	232	1,392	5,801
7. Greenhead and London Road, ...	19,955	206	177	177	...	206	...	560	767	1,003	192	1,519	1,563	620	1,593	1,490	88	5,177	428	841	15	3,333
8. Barrowfield, ...	23,287	215	144	144	...	251	...	683	826	1,330	108	1,294	1,114	719	2,444	1,617	36	6,145	755	898	180	4,384
9. Monteith Row, ...	26,913	498	...	498	...	...	...	249	249	997	498	2,991	1,246	997	1,495	2,243	...	8,224	997	498	...	5,233
10. St. Andrew Square, ...	19,342	...	...	...	...	...	...	1,758	503	1,256	...	1,758	1,256	503	1,507	1,507	...	4,773	251	...	251	4,019
11. Calton, ...	28,093	...	242	193	...	338	...	193	774	1,596	387	2,224	1,692	870	2,805	1,741	145	7,253	725	774	484	5,657
12. St. Enoch Square, ...	28,092	...	...	...	...	453	...	453	1,359	906	906	906	906	906	4,078	4,078	453	4,078	2,719	1,813	...	4,078
13. Brownfield, ...	32,530	...	...	...	...	...	...	581	1,452	1,452	...	3,485	581	871	3,485	1,162	...	9,875	1,162	1,162	291	6,971
14. Bridgegate and Wynds, ...	22,508	262	...	...	...	...	...	...	1,309	262	...	2,355	1,309	785	1,309	523	...	8,113	1,047	1,309	785	3,140
15. Woodside, ...	15,368	14	155	113	...	127	...	297	297	353	184	1,158	946	791	1,314	1,116	71	3,743	423	720	71	3,475
16. Cowcaddens, ...	27,947	56	112	112	...	224	...	336	112	1,232	280	2,464	2,129	784	2,129	1,456	56	8,849	952	1,344	...	5,320
17. Kelvinhaugh and Sandyford, ...	13,110	...	161	64	...	96	...	321	546	354	225	675	803	707	1,285	1,510	64	2,539	386	321	32	3,021
18. Anderston, ...	24,693	36	250	107	107	72	...	643	1,179	750	107	1,501	1,751	750	1,787	2,680	72	6,254	858	965	143	4,681
19. Kingston, ...	16,895	50	200	225	...	125	...	175	474	449	150	1,397	1,173	948	1,298	1,572	75	4,143	549	324	...	3,568
20. Laurieston, ...	24,700	...	...	...	...	118	...	941	706	1,059	118	3,411	1,764	941	1,764	1,999	...	7,292	588	470	118	3,411
21. Hutcheson Square, ...	19,456	14	113	296	28	183	...	254	986	704	240	1,550	1,465	676	2,001	1,465	14	4,846	564	606	56	3,395
22. Gorbals, ...	25,869	...	251	251	251	84	...	335	921	837	251	2,177	1,256	502	2,679	2,428	168	7,283	1,088	1,005	84	4,018
— Springburn and Rockvilla, ...	17,155	27	132	106	...	79	...	503	397	477	132	1,244	980	556	1,641	927	132	4,368	794	477	106	4,077
23. Govanhill, ...	14,317	...	85	127	...	85	...	212	722	382	170	1,444	1,062	850	1,317	1,445	85	2,337	255	765	...	2,974
24. Crosshill, ...	11,211	...	...	123	...	246	...	123	...	246	246	1,109	493	370	1,479	1,848	...	1,972	123	246	...	2,587
25. Langside and Mount Florida, ...	10,408	...	61	183	...	61	...	...	183	243	183	730	547	426	1,400	1,156	122	1,887	61	243	122	2,800
26. Pollokshields, E., and Strathbungo,	10,209	72	...	144	...	...	...	...	72	216	288	791	503	719	1,797	1,222	...	1,294	431	288	...	2,372
27. Pollokshields, W., and Bellahouston,	10,474	...	...	156	...	...	...	...	313	313	...	1,251	156	625	469	1,251	...	1,563	625	156	313	3,283
28. Hillhead, ...	9,703	...	...	...	...	...	...	...	...	110	221	882	110	1,213	1,874	1,213	...	1,654	221	110	...	2,095
29. Kelvinside, ...	5,951	...	...	...	...	...	...	...	117	350	117	...	233	350	934	700	...	583	350	117	...	2,100
30. Maryhill, ...	15,570	29	142	114	...	313	...	427	512	712	171	1,110	1,110	370	1,082	1,366	114	3,700	541	569	57	3,131
31. Possilpark and Barnhill, ...	15,593	...	142	...	...	94	...	473	567	709	236	1,134	1,607	473	1,181	992	94	3,922	756	614	47	2,552
— Institutions, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CITY, ...	19,375	54	135	145	12	142	...	342	600	642	192	1,672	1,254	727	1,835	1,574	64	4,772	586	631	105	3,891

TABLE V.—Glasgow.—Cases of Infectious Disease Registered in each Sanitary District, showing those Treated in Hospital, for the Year 1902.

Sanitary Districts.	Infectious Disease (Notification) Act, 1889.																Other Infectious Diseases.								Total.	
	Fevers.								Smallpox.		Scarlet Fever.		and Membranous Croup.		Erysipelas.		Measles.		Whooping-cough.		Chickenpox.		Phthisis.			
	Typhus.		Enteric.		Continued and Undefined.		Puerperal.																			
	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.
— Blythswood,	...	...	14	6	...	...	3	...	4	...	67	13	11	8	12	35	9	71	7	12	1	2	2	16	130	163
1. Exchange,	...	...	16	1	...	...	3	...	9	...	60	7	9	7	23	30	29	92	35	27	31	5	...	8	215	177
2. Port-Dundas,	...	...	3	1	...	...	...	...	...	...	8	1	3	1	1	6	1	33	3	...	...	...	1	6	20	48
3. High Street and Closes West,	1	...	5	...	...	...	...	...	3	...	22	1	4	1	11	9	6	22	5	11	5	...	...	5	62	49
4. St. Rollox,	...	...	13	...	...	...	...	3	5	...	46	3	12	3	3	16	13	46	2	4	2	6	...	9	96	90
5. Bellgrove and Dennistoun,	2	...	58	4	1	...	5	3	41	...	260	67	39	23	26	95	21	434	52	54	8	3	3	35	516	718
6. High Street and Closes East,	...	...	7	...	...	...	...	...	5	...	8	1	2	2	12	9	7	10	2	3	3	1	...	3	46	29
7. Greenhead and London Road,	2	...	51	...	1	...	8	2	131	...	222	11	48	10	21	78	64	871	33	96	4	6	6	18	591	1,092
8. Barrowfield,	1	...	41	4	...	...	3	...	36	1	57	7	13	3	10	50	20	275	15	43	...	1	...	8	196	392
9. Monteith Row,	...	...	1	...	...	...	2	...	4	...	13	...	2	1	2	6	4	21	6	10	...	1	...	3	34	42
10. St. Andrew Square,	...	...	2	...	...	...	...	...	4	...	3	...	...	1	2	10	9	9	6	15	1	...	...	...	27	35
11. Calton,	...	...	28	2	...	...	3	3	11	...	58	2	12	2	18	46	12	134	23	31	4	1	1	9	170	230
12. St. Enoch Square,	...	...	2	...	...	...	...	...	4	...	11	...	...	1	4	6	4	2	2	10	5	...	...	1	32	20
13. Brownfield,	2	...	2	...	...	...	2	...	3	...	...	...	...	...	6	6	2	23	6	14	1	...	...	5	24	48
14. Bridgegate and Wynds,	...	...	5	1	...	...	...	1	1	...	5	...	1	...	2	7	13	6	12	11	...	...	...	4	39	30
15. Woodside,	...	...	46	6	1	1	2	4	24	...	232	25	42	22	21	80	21	493	12	67	...	11	3	55	404	764
16. Cowcaddens,	...	...	24	...	...	...	3	1	39	...	29	1	6	3	11	22	6	71	10	7	1	2	1	5	130	112
17. Kelvinhaugh and Sandyford,	1	...	15	6	1	...	...	...	4	...	86	25	8	21	9	27	21	254	3	27	10	3	2	14	160	377
18. Anderston,	9	...	37	3	1	...	...	2	25	...	62	2	9	6	17	28	14	285	8	52	1	1	7	33	190	412
19. Kingston,	...	...	29	2	1	1	3	...	13	...	117	17	31	12	12	62	10	104	13	46	5	2	1	14	235	260
20. Laurieston,	...	...	9	1	...	...	3	...	6	...	16	1	1	...	8	18	11	37	5	8	...	...	...	4	59	69
21. Hutcheson Square,	7	...	78	4	4	1	10	1	31	...	310	15	48	19	21	121	23	413	49	157	6	21	1	46	588	798
22. Gorbals,	11	...	19	...	3	...	1	...	15	...	31	...	8	1	8	29	4	26	12	27	...	12	...	3	112	98
— Springburn and Rockvilla,	...	...	26	3	...	1	3	3	10	...	64	3	11	7	18	44	15	486	13	35	...	11	3	15	163	608
23. Govanhill,	...	...	12	2	...	...	1	...	3	...	96	16	10	12	4	27	17	154	14	76	...	28	1	17	158	332
24. Crosshill,	...	...	2	2	...	...	...	1	1	...	37	23	2	9	2	9	1	42	1	7	5	1	1	5	52	99
25. Langside and Mount Florida,	...	...	19	4	...	...	...	...	4	...	54	33	3	18	1	16	13	120	...	11	...	...	1	9	95	211
26. Pollokshields, E., and Strathbungo,	...	...	...	2	...	...	...	1	...	1	29	27	6	18	2	7	7	5	...	...	1	3	...	4	45	68
27. Pollokshields, W., and Bellahouston,	...	...	9	...	...	...	...	...	...	...	5	20	1	6	...	5	5	3	...	...	..	...	...	1	20	35
28. Hillhead,	...	...	1	2	...	...	...	...	1	...	12	16	4	12	2	5	5	3	...	...	1	...	...	4	26	42
29. Kelvinside,	...	...	2	1	...	...	...	1	...	...	15	10	2	6	1	3	5	10	1	1	...	...	...	2	26	34
30. Maryhill,	...	...	51	8	1	...	2	4	14	...	73	17	18	8	8	38	10	329	7	195	...	46	2	19	186	664
31. Possilpark and Barnhill,	...	...	6	...	...	...	1	2	7	...	32	5	5	3	22	34	13	266	13	18	1	4	...	7	100	339
CITY,	36	...	633	65	*14	4	58	32	458	2	2,140	369	371	246	320	984	415	5,150	370	1,075	96	171	36	387	4,947	8,485

* Includes 1 Case of Anthrax.

TABLE VI.—Glasgow.—Cases of Infectious Disease Registered, showing the Number Treated in Hospital, for each Month of the Year 1902.

Months.	Infectious Disease (Notification) Act, 1889.																				Other Infectious Diseases.										Total.	
	Fevers.										Smallpox.		Scarlet Fever.		Diphtheria.		Membranous Croup.		Erysipelas.		Measles.		Whooping-cough.		Chickenpox.		Phthisis.		Anthrax.			
	Typhus.		Enteric.		Continued.		Puerperal.		Undefined.																							
	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hospital.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hospital.	Home.
January,	2	...	72	8	1	..	4	2	...	...	50	...	192	45	21	13	4	2	28	126	95	1,786	21	57	11	11	4	36	...	...	505	2,086
February,	1	...	54	14	...	...	5	1	1	...	170	1	172	32	20	20	2	3	22	92	42	678	18	64	18	17	...	35	...	...	525	957
March,	1	...	65	5	2	...	2	3	...	...	180	1	195	44	29	20	2	2	21	70	23	640	17	67	15	27	1	22	...	...	553	901
April,	2	...	90	6	2	2	4	4	...	...	43	...	163	42	25	15	3	1	24	81	35	395	48	102	5	11	9	47	...	...	453	706
May,	4	...	58	3	1	1	6	...	...	...	7	...	187	28	22	12	7	1	29	90	61	389	17	104	7	13	1	34	...	...	407	675
June,	2	...	48	7	...	...	11	1	...	...	3	...	161	22	18	11	3	2	28	68	57	434	17	108	11	12	3	40	1	...	363	705
July,	2	...	22	3	...	...	3	3	...	...	2	...	136	19	21	23	5	1	22	72	39	133	41	44	7	14	3	29	...	...	303	341
August,	1	...	36	3	...	...	5	2	...	...	3	...	147	16	20	16	1	1	29	63	19	118	34	89	2	10	4	23	...	...	301	341
September,	...	...	51	5	1	...	4	6	...	...	...	...	202	20	29	17	4	...	30	68	3	73	18	49	9	7	4	26	...	...	355	271
October,	6	...	44	5	...	1	3	4	2	...	...	...	235	34	40	31	2	3	36	88	9	135	29	85	3	21	2	32	...	...	411	439
November,	12	...	40	2	2	...	2	4	...	...	...	...	182	36	35	27	5	1	23	81	22	141	38	78	5	18	4	25	...	...	370	413
December,	3	...	53	4	...	...	9	2	1	...	...	...	168	31	46	22	7	2	28	85	10	228	72	228	3	10	1	38	...	...	401	650
Total,	36	...	633	65	9	4	58	32	4	...	458	2	2,140	369	326	227	45	19	320	984	415	5,150	370	1,075	96	171	36	387	1	...	4,947	8,485

TABLE VII.—Glasgow.—Deaths Certified and otherwise in each Sanitary District during 1902.

SANITARY DISTRICTS.	DEATHS CERTIFIED AND OTHERWISE.								DEATHS UNDER 5 YEARS.				LEGITIMATE.				ILLEGITIMATE.			
	Certified.		Not Certified.		No Medical Attendance.		Dispensary.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.	
	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.
— Blythswood, ...	87	327	...	2	4	2	2	...	57	53	36	34	49	45	33	32	8	8	3	2
1. Exchange, ...	116	281	3	3	4	5	2	1	84	75	41	41	67	61	36	36	17	14	5	5
2. Port-Dundas, ...	82	61	1	2	1	...	...	1	50	48	34	34	43	41	31	31	7	7	3	3
3. High Street and Closes West,	73	133	5	1	2	3	...	...	47	41	33	32	38	35	29	28	9	6	4	4
4. St. Rollox, ...	117	200	...	1	2	...	...	...	74	72	45	45	65	63	43	43	9	9	2	2
5. Bellgrove and Dennistoun,	522	829	9	3	7	5	1	...	303	287	236	235	270	257	228	227	33	30	8	8
6. High Street and Closes East,	27	66	2	2	1	6	...	...	15	12	15	15	14	11	15	15	1	1	...	...
7. Greenhead and London Road,	615	713	1	4	17	1	2	...	366	348	269	267	328	311	261	259	38	37	8	8
8. Barrowfield, ...	276	350	3	2	13	2	2	...	165	151	129	125	147	140	122	119	18	11	7	6
9. Monteith Row, ...	29	76	...	2	1	...	...	...	19	18	11	11	14	13	9	9	5	5	2	2
10. St. Andrew Square, ...	29	42	3	...	...	2	1	...	19	17	14	12	15	15	12	10	4	2	2	2
11. Calton, ...	205	344	12	4	10	4	2	...	141	121	88	84	120	105	81	77	21	16	7	7
12. St. Enoch Square, ...	14	43	...	...	2	2	1	...	9	7	8	7	7	5	8	7	2	2	...	...
13. Brownfield, ...	50	57	...	1	2	1	1	...	30	27	23	23	26	23	21	21	4	4	2	2
14. Bridgegate and Wynds, ...	36	41	...	3	2	2	1	1	18	15	21	21	15	13	17	17	3	2	4	4
15. Woodside, ...	351	704	4	8	10	7	4	...	223	206	146	145	196	183	142	141	27	23	4	4
16. Cowcaddens, ...	190	266	...	3	17	11	9	3	146	122	70	68	129	110	64	62	17	12	6	6
17. Kelvinhaugh and Sandyford,	125	282	...	...	...	...	1	...	77	76	49	49	72	71	47	47	5	5	2	2
18. Anderston, ...	293	381	...	1	12	3	...	1	179	168	126	125	164	153	119	118	15	15	7	7
19. Kingston, ...	200	463	2	4	4	2	2	...	119	112	89	88	105	99	82	81	14	13	7	7
20. Laurieston, ...	78	128	1	...	1	1	1	...	41	38	40	40	36	33	37	37	5	5	3	3
21. Hutcheson Square, ...	540	823	6	5	4	...	3	...	317	307	236	233	291	282	227	224	26	25	9	9
22. Gorbals, ...	108	190	2	...	7	1	1	...	70	60	48	48	58	50	44	44	12	10	4	4
— Springburn and Rockvilla,	248	383	4	7	3	1	2	...	139	132	118	116	128	121	109	108	11	11	9	8
23. Govanhill,...	128	207	...	...	...	2	...	...	84	84	44	44	78	78	42	42	6	6	2	2
24. Crosshill, ...	21	70	...	...	...	...	...	...	15	15	6	6	15	15	6	6	...	...	...	...
25. Langside and Mount Florida,	36	134	...	...	...	1	...	...	29	29	7	7	28	28	6	6	1	1	1	1
26. P'kshields, E., and Str'bungo,	20	121	...	1	...	...	...	...	10	10	10	10	10	10	10	10	...	...	...	...
27. P'kshields, W., and Bellah'ston	7	54	1	4	...	1	...	...	6	5	2	2	5	5	2	2	1	...	...	...
28. Hillhead, ...	4	83	...	...	...	1	...	...	3	3	1	1	3	3	1	1	...	...	...	...
29. Kelvinside, ...	10	39	...	2	...	...	...	...	5	5	5	5	5	5	5	5	...	...	...	...
30. Maryhill, ...	234	298	3	4	7	1	...	...	150	141	94	93	141	132	89	88	9	9	5	5
31. Possilpark and Barnhill, ..	136	185	2	2	2	2	1	...	82	78	59	58	75	71	53	52	7	7	6	6
— Institutions and Harbour,	113	1,148	3	11	3	10	...	...	76	72	43	41	43	39	32	30	33	33	11	11
CITY, ...	5,120	9,522	67	82	138	79	39	7	3,168	2,955	2,196	2,165	2,800	2,626	2,063	2,035	368	329	133	130

TABLE VIII.—Glasgow.—Deaths in Friendly Societies in each Sanitary District during 1902.

Sanitary Districts.	Under 1 Year.		1 and under 5 Years.		5 Years and over.	All Ages.
	Legitimate.	Illegitimate.	Legitimate.	Illegitimate.		
— Blythswood, ...	11	...	24	...	191	226
1. Exchange, ...	27	1	30	2	195	255
2. Port-Dundas, ...	26	2	20	2	47	97
3. High Street and Closes West, ...	16	2	19	2	94	133
4. St. Rollox, ...	33	2	36	1	159	231
5. Bellgrove and Dennistoun, ...	95	6	179	3	640	923
6. High Street and Closes East, ...	8	...	15	...	51	74
7. Greenhead and London Road, ...	161	6	219	3	602	991
8. Barrowfield, ...	74	1	103	4	288	470
9. Monteith Row, ...	3	2	8	1	49	63
10. St. Andrew Square, ...	8	...	6	...	29	43
11. Calton, ...	48	1	60	2	277	388
12. St. Enoch Square, ...	2	...	6	...	27	35
13. Brownfield, ...	11	1	10	...	42	64
14. Bridgegate and Wynds, ...	6	...	11	2	27	46
15. Woodside, ...	62	2	112	2	434	612
16. Cowcaddens, ...	50	2	50	3	147	252
17. Kelvinhaugh and Sandyford, ...	26	...	37	2	186	251
18. Anderston, ...	65	2	78	1	296	442
19. Kingston, ...	40	2	58	4	312	416
20. Laurieston, ...	13	...	25	2	86	126
21. Hutcheson Square, ...	124	3	164	3	634	928
22. Gorbals, ...	19	2	27	2	119	169
— Springburn and Rockvilla, ...	64	2	91	3	337	497
23. Govanhill, ...	28	...	33	2	140	203
24. Crosshill, ...	7	...	1	...	22	30
25. Langside and Mount Florida, ...	2	...	3	...	24	29
26. Pollokshields, E., and Strathbungo,	...	...	3	...	26	29
27. Pollokshields, W., and Bellahouston,	1	...	1	...	23	25
28. Hillhead, ...	...	...	1	...	11	12
29. Kelvinside, ...	1	...	2	...	7	10
30. Maryhill, ...	49	1	53	1	203	307
31. Possilpark and Barnhill, ...	32	...	45	2	151	230
— Institutions and Harbour, ...	5	...	10	1	378	394
CITY, ...	1,117	40	1,540	50	6,254	9,001

TABLE IX.—Showing Hospital Bed Accommodation for Infectious Diseases in Glasgow since 1865.

Year.	Parish.			Glasgow Royal Infirmary.	Local Authority.				Total Beds.	Population in Thousands.	Beds per Thousand.
	City.	Barony.	Govan.		Parliamentary Road.	Belvidere Fever.	Belvidere Smallpox.	Ruchill.			
1865	100	120	54	200	136	...	...	...	610	428	1·4
1866	100	120	54	175	136	...	...	...	585	438	1·3
1867	...	120	54	100	136	...	...	...	410	446	0·9
1869	...	120	54	135	136	...	...	...	445	464	1·0
1870	...	120	54	100	250	250	...	...	774	471	1·7
1872	...	120	...	100	250	250	...	...	720	495	1·4
1875	...	...	...	100	250	250	...	...	600	500	1·2
1876	...	...	...	...	250	250	...	...	500	502	1·0
1878	...	...	...	...	120	250	150	...	520	507	1·0
1880	...	...	...	...	120	250	150	...	520	510	1·0
1881	...	...	...	...	120	370	150	...	640	512	1·2
1882	...	...	...	...	120	220	150	...	490	518	1·0
1887	...	...	...	...	120	390	150	...	660	545	1·2
1893	...	...	...	...	200	390	150	...	740	644	1·1
1900	...	...	...	...	200	390	150	440	1,180	755	1·6

Parliamentary Road Hospital was closed for the present in November, 1901.

In addition to the above, 5 temporary pavilions, with accommodation for 75 beds, erected at Belvidere during the smallpox epidemic of 1900-01, are available, and Glasgow, since it annexed Hillhead and Maryhill, has shared with Partick the use of the Joint-Hospital at Knightswood which has 80 beds.

TABLE X.—City of Glasgow Fever and Smallpox Hospitals.—Number, Average Residence, and Cost of Treatment of Patients from 1883-84.

Year.	Patients.			Total Ordinary Expenditure.			Average Daily Cost per Patient.			Average Cost of Treatment per Patient.			Average Cost of Bed per Year.		
	Total under Treatment.	Average Daily Number in Hospitals.	Average Residence in Days.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1883-84	3,200	338	41·7	15,772	0	0	0	2	6·6	5	6	4·0	46	10	9·0
1884-85	3,828	355	38·1	19,754	6	7	0	2	11·0	5	11	1·5	53	4	7·0
1885-86	2,154	215	40·3	15,550	6	6	0	3	11·5	7	19	6·2	72	4	9·5
1886-87	2,993	332	43·3	16,504	3	5	0	2	8·7	5	17	11·9	49	14	7·5
1887-88	3,056	327	42·5	17,768	17	10	0	2	11·6	6	6	1·0	54	5	9·6
1888-89	3,459	357	41·7	18,171	15	6	0	2	9·5	5	16	4·9	50	18	11·5
1889-90	3,582	361	36·8	17,899	7	3	0	2	8·6	4	19	11·7	49	11	7·0
1890-91	4,286	460	39·2	21,092	15	11	0	2	6·1	4	18	5·9	45	17	0·7
1891-92	4,850	491	37·1	26,808	9	7	0	2	11·8	5	10	8·2	54	11	10·8
1892-93	6,749	699	37·8	36,263	18	8	0	2	10·1	5	7	5·4	51	17	6·1
1893-94	5,528	624	41·2	34,551	14	3	0	3	0·5	6	5	2·6	55	9	3·5
1894-95	5,482	644	42·9	34,039	19	0	0	2	10·8	6	4	2·2	52	17	3·4
1895-96	5,127	651	46·5	34,892	12	8	0	2	11·1	6	16	1·5	53	11	5·6
1896-97	5,468	627	41·9	34,224	14	9	0	2	11·9	6	5	2·5	54	11	0·5
1897-98	5,687	709	45·5	36,972	18	10	0	2	10·3	6	10	0·3	52	3	5·7
1898-99	5,956	833	45·3	39,261	9	2	0	2	7·0	5	16	11·8	47	2	7·3
1899-1900	6,663	923	44·8	42,020	9	11	0	2	5·9	5	11	10·0	45	10	8·2
1900-01	8,888	1,031	42·3	69,015	8	6	0	3	8·0	7	15	1·9	66	18	9·8
1901-02	6,990	772	40·3	64,265	12	10	0	4	6·7	9	3	10·6	83	5	0·1

N. B.—The above calculations of cost do not include interest on capital expended in erecting Hospitals.

TABLE XI.—City of Glasgow Fever and Smallpox Hospitals.—Statement showing Patients classified as to Disease, Average Residence, and Average Cost per Patient for each Year from 1883-84.

Year.	Scarlet Fever.		Enteric Fever.		Whooping-Cough.		Typhus.		Measles.		Other Infectious Diseases.*		Smallpox.		All Other Diseases.†	
	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.	Average Residence (Days).	Average Cost per Patient.
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.
1883-84	51·7	6 11 10·0	44·4	5 13 2·6	58·9	7 10 2·3	35·8	4 11 3·5	34·8	4 8 8·9	...	...	27·5	3 10 1·5	26·4	3 7 3·8
1884-85	50·2	7 6 5·0	45·1	6 11 6·5	44·4	6 9 6·0	35·2	5 2 8·0	30·6	4 9 3·0	...	...	19·2	2 16 0·0	22·0	3 4 2·0
1885-86	54·7	10 16 6·2	46·6	9 4 5·5	36·2	7 3 3·5	31·5	6 4 8·2	26·2	5 3 8·5	24·7	4 17 9·2	24·1	4 15 4·7	21·8	4 6 3·5
1886-87	56·1	7 12 10·5	48·7	6 12 8·5	44·3	6 0 8·6	31·3	4 5 3·5	29·5	4 0 4·6	26·5	3 12 2·5	...	...	26·2	3 11 4·7
1887-88	55·2	8 3 9·1	50·3	7 9 2·7	42·1	6 4 10·7	33·2	4 18 5·9	22·2	3 5 10·3	29·0	4 6 0·4	16·5	2 8 11·4	21·3	3 3 2·3
1888-89	56·7	7 18 3·4	52·5	7 6 6·7	50·1	6 19 10·3	34·2	4 15 5·7	26·6	3 14 3·1	28·3	3 19 0·0	18·5	2 11 7·7	23·9	3 6 8·6
1889-90	54·4	7 7 9·4	50·2	6 16 4·5	53·0	7 3 11·8	34·9	4 14 9·7	30·6	4 3 1·6	21·4	2 18 1·6	24·0	3 5 2·4	22·5	3 1 1·5
1890-91	54·3	6 16 5·1	49·0	6 3 1·3	40·3	5 1 3·0	32·4	4 1 4·9	25·4	3 3 9·8	25·2	3 3 3·8	24·0	3 0 3·6	25·4	3 3 9·8
1891-92	53·7	8 0 2·5	49·3	7 7 0·9	43·8	6 10 10·0	31·3	4 13 4·5	26·2	3 18 2·0	22·9	3 8 3·8	38·0	5 13 4·4	20·8	3 2 0·6
1892-93	50·6	7 3 10·0	49·1	6 19 6·8	42·6	6 1 1·1	32·8	4 13 2·8	26·1	3 14 2·3	20·0	2 16 10·2	30·0	4 5 3·3	20·2	2 17 5·0
1893-94	52·7	8 0 2·0	52·5	7 19 6·7	51·0	7 15 0·0	34·8	5 5 9·2	27·7	4 4 2·2	22·4	3 8 0·9	42·2	6 8 3·0	23·1	3 10 2·5
1894-95	57·4	8 6 3·2	51·8	7 10 0·6	61·0	8 16 8·4	34·8	5 0 9·6	27·7	4 0 2·8	26·2	3 15 10·7	30·4	4 8 0·7	27·1	3 18 6·0
1895-96	57·7	8 8 11·0	57·2	8 7 5·4	54·1	7 18 4·5	33·1	4 16 10·8	29·2	4 5 5·8	31·2	4 11 4·1	30·1	4 8 1·4	29·4	4 6 0·8
1896-97	58·1	8 13 8·0	55·3	8 5 3·6	53·5	7 19 11·0	28·8	4 6 1·1	29·3	4 7 7·0	32·6	4 17 5·4	31·5	4 14 1·9	28·1	4 3 11·9
1897-98	59·9	8 11 2·9	54·7	7 16 4·5	58·1	8 6 1·2	43·1	6 3 2·6	29·2	4 3 5·7	36·3	5 3 9·3	31·0	4 8 7·5	31·3	4 9 5·8
1898-99	58·7	7 11 7·1	55·4	7 3 0·8	54·9	7 1 9·3	35·7	4 12 2·3	29·6	3 16 5·3	33·8	4 7 3·5	...	...	29·6	3 16 5·3
1899-1900	59·3	7 7 11·4	55·7	6 18 11·7	54·4	6 15 8·7	33·4	4 3 4·0	27·8	3 9 5·3	34·9	4 7 0·9	22·6	2 16 4·6	28·6	3 11 4·3
1900-01	58·7	10 15 3·7	56·7	10 7 11·7	51·1	9 7 5·2	33·2	6 1 9·3	26·0	4 15 4·4	38·7	7 1 11·4	28·1	5 3 0·9	30·0	5 10 0·5
1901-02	53·5	12 4 0·6	53·8	12 5 5·0	58·9	13 8 8·2	30·4	6 18 8·1	30·5	6 19 1·6	35·2	8 0 6·9	30·4	6 18 8·1	32·8	7 9 7·5

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever; prior to 1885-86, these are included in "Other Diseases."
† Includes Nursing Mothers, besides persons sent in by mistaken Diagnosis.
N.B.—The above Calculations do not include Interest on Capital expended in erecting Hospitals.

TABLE XII.

City of Glasgow Fever and Smallpox Hospitals.

RETURN BY THE MEDICAL OFFICER OF HEALTH

Showing Number, Average Residence, and Cost of Treatment of Patients, 1902-1903.

ORDINARY EXPENDITURE, as per Treasurer's Statement * :—

Fever Hospital, Belvidere, ...	£26,056 5 9	
Smallpox Hospital, Belvidere, ...	1,950 12 3	
Fever Hospital, Ruchill, ...	25,178 14 10	£53,185 12 10

* The Ordinary Expenditure on all the Hospitals has been thrown together. There is a certain amount of community in the Expenditure which could not be unravelled without trouble quite out of proportion to any result.

Average daily number of Patients in Fever Hospital, Belvidere, ...	285
Average daily number of Patients in Smallpox Hospital, Belvidere, ...	16
Average daily number of Patients in Fever Hospital, Ruchill, ...	291
Average daily number of Patients in Hospitals, ...	592

	Belvidere Fever Hospital.	Belvidere Smallpox Hospital.	Ruchill Hospital.	Total.
Patients remaining at 31st May, 1902, ...	284	26	363	673
Patients admitted during 1902-1903, ...	2,053	109	2,047	4,209
Total under Treatment, 1902-1903,†				4,882
Average Residence, ...	44·3 days.			

Average Daily Expenditure, ...	£145 14 3·38
Average Daily Cost per Patient, ...	0 4 11·09
Average Cost of Treatment per Patient, ...	10 17 10·62
Average Cost of Bed per Year, ...	89 17 2·76

† In addition to this number, 165 Patients (19 remaining at 31st May, 1902, and 146 admitted during year) were treated in the Joint-Hospital, Knightswood, the Glasgow share in the Ordinary Expenditure of which was £2,007 7s. 10d.

STATEMENT SHOWING PATIENTS CLASSIFIED AS TO DISEASE, AVERAGE RESIDENCE IN EACH CASE SO FAR AS DISMISSED UP TO 1st JULY, 1903, AND AVERAGE COST AT THE DAILY RATE GIVEN ABOVE—

Disease.	No. Admitted.	Average Residence.	Average Cost.
Scarlet Fever, ...	1,779	57·9 days.	£14 5 1·31
Enteric Fever, ...	496	51·6 ,,	12 14 1·04
Hooping-cough, ...	445	60·8 ,,	14 19 4·67
Typhus Fever, ...	36	44·0 ,,	10 16 7·96
Measles, ...	348	31·6 ,,	7 15 7·24
Other Infectious Diseases,*	758	35·5 ,,	8 14 9·70
Smallpox, ...	11	26·1 ,,	6 8 6·25
All other Diseases,†	336	31·4 ,,	7 14 7·43
All Cases, ...	4,209		

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever.
† Includes Nursing Mothers, besides Persons sent in by mistaken diagnosis.

The above calculations of cost do not include Interest on Capital expended in erecting Hospitals.

A. K. CHALMERS.

SANITARY DEPARTMENT,
GLASGOW, *7th July, 1903.*