



ANNUAL REPORT

ON THE

HEALTH

OF THE

COUNTY BOROUGH OF CARDIFF

FOR THE YEAR 1890,

BY

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CARDIFF:

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—
1891.

County Borough of Cardiff.

HEALTH AND PORT SANITARY COMMITTEE.

Mayor :

THE MOST HONOURABLE THE MARQUESS OF BUTE & EARL OF DUMFRIES, K.T.

Chairman :

MR. ALDERMAN JACOBS.

Deputy-Chairman :

MR. ALDERMAN D. E. JONES.

MR. ALDERMAN CORY.

MR. COUNCILLOR T. REES	MR. COUNCILLOR BRAIN
" " VAUGHAN	" " HURLEY
" " RAMSDALE	" " A. REES
" " JAMES	" " SHEPHERD
" " T. MOREL	" " ANDREWS

CARDIFF URBAN SANITARY AUTHORITY.

TOWN HALL,

CARDIFF, MAY, 1891.

TO THE CHAIRMAN AND MEMBERS OF THE CARDIFF URBAN SANITARY AUTHORITY.

Gentlemen,

I have the honour of submitting to you my report for the year 1890, and of laying before you the usual tables of vital statistics.

By an Order of the Local Government Board, dated March, 1880, Article 18, Section 14, it is prescribed, that every Medical Officer of Health shall—

“ Prepare an Annual Report, to be made to the end of December in each year, comprising a summary of the action taken during the year for preventing the spread of disease, and an account of the sanitary state of his district generally, at the end of the year.

“ The Report shall also contain an account of the inquiries which he has made as to conditions injurious to health existing in his district, and of the proceedings in which he has taken part or advised under the Public Health Act, 1875, so far as such proceedings relate to those conditions.

“ Also an account of the supervision exercised by him, or on his advice, for sanitary purposes, over places and houses that the Sanitary Authority have power to regulate, with the nature and results of any proceedings which may have been so required and taken in respect of the same during the year.

“ It shall also record the action taken by him, or on his advice during the year, in regard to offensive trades and to factories and workshops.

“ The report shall also contain tabular statements of the sickness and mortality within the district, classified according to diseases, ages, and localities.”

My report is made in accordance with the above regulations.

The Urban Sanitary district of Cardiff comprises an area of 8,409 acres, and an estimated population of 117,012 or 13·8 persons per acre.

The above estimate of population is that of the Registrar General calculated in the ordinary way and based on the assumption that the increase which prevailed between the last two census enumerations has been maintained since 1881, the estimate thus obtained becomes the basis upon which the birth-rate, death-rate, and other rates are calculated, consequently the nearer the estimate approaches the actual number of the population the more strictly reliable will be the statistical results.

The Registrar General in his weekly returns appends the following foot-note :—

“ The population of the twenty-eight towns is estimated on the hypothesis that the rate of increase in the last intercensal period has been maintained since 1881. There are, however, reasons to believe that by this method the populations of Leicester, Salford, and Bradford, are over-estimated, and that of Cardiff under-estimated. If the population be estimated by the increase of inhabited houses in the rate books, the death-rates of Leicester, Salford, and Bradford are understated by one-fifteenth, one-thirteenth, and one-tenth respectively, and those for Cardiff over-stated by one-eighth.”

In this report the death-rates are calculated on the two estimates of population, the lesser calculated on the usual basis and the greater in accordance with the special formula applicable to Cardiff. The former method gives 117,012, and the latter 131,638 as the population for the middle

of the year 1890. In rapidly increasing districts the method of the Registrar General will not apply, and in such cases a more correct estimate will be obtained by multiplying the average number of inmates in each house by the number of inhabited houses. Even this method, although in most instances it gives an approximately correct result, still involves the fallacy that new houses may be of a different class from those previously in existence, and may therefore have a different number of occupants. On the occasion of the census of 1871, the average number of inmates to each house in the Borough of Cardiff was found to be 6·25, but it is probable that this average is now too high, as since that date the proportion of small houses has considerably increased. Fortunately, the census which is now upon us, will have the effect of removing the uncertainty which exists as to the population of this and other rapidly growing towns. In the mean time it is necessary to bear in mind that the accuracy of vital statistics diminishes as the interval from the preceding census increases, in consequence of the increasing uncertainty as to the population upon which these calculations are based.

MARRIAGES.

The total number of marriages during the year 1890, as furnished by the District Registrar, was as follows—corresponding to a rate of 12·3 per 1,000:—

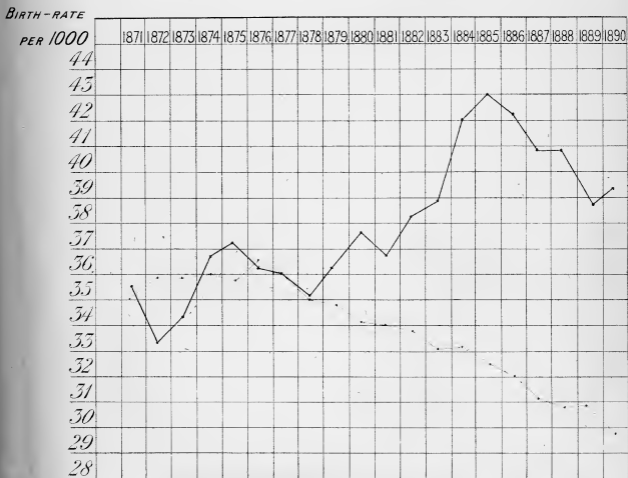
At the Established Churches	...	...	...	440
„ Nonconformist „	...	...	...	300
Roman Catholic	„	...	...	92
Synagogue	...	...	...	7
Society of Friends	...	...	...	1
Register Office	...	...	...	600
Total	...	...	...	1,440

BIRTHS.

During the year 1890 the Births registered in the Borough were 4,600, of these 2,367 were males, and 2,233 females, giving a birth-rate of 39·3 per 1,000 persons living, compared with 29·7, the rate in England and Wales, and with 30·0, that of the 28 large towns for the same year. Out of the whole number of these towns 27 had a lower birth-rate than Cardiff, Newcastle-on-Tyne being the only town in which it was higher.

The average birth-rate of Cardiff during the past ten years was 40·0, compared with 33·0, that of the large towns. From the following table and chart it will be seen that of late years the birth-rate of Cardiff has appeared abnormally high, and that whereas the rate in England has steadily declined since the year 1876, when it was 36·3 and at its maximum, that of Cardiff has increased, the increase being somewhat slow during the period antecedent to 1880, after which year a rapid rise was maintained until 1885. The continuous decline in the birth-rate of England may be in part ascribed to the fall in the marriage rate throughout the country, which set in about the year 1874, and which has since continued uninterruptedly. A similar fall is shewn in other European states, and is due in all probability to the recent prolonged depression in trade. The population upon which the birth-rate of Cardiff is calculated being under-estimated, the rate is doubtless too high, but making allowance for this source of error a substantial increase is shewn, due probably to the large immigration of young and marriageable persons consequent on the rapid development of trade in the town, since the construction of the Bute Docks and the establishment of the various industries dependent on them. It is supposed by some that a high birth-rate will cause a high death-rate, since the mortality of young infants is excessive, but against this view it may be urged that whilst a high birth-rate will lead to a proportionately large number of deaths of infants, the majority of those born will survive the first few years, and as a result there will be a large proportion of the population living at a period when the death rate is very low, *i.e.* between the ages of 5-45 years, and in such a population there will be an unduly small proportion of old persons subject to a high death rate as a set off against the excess of infants. Table I. gives the birth rate in Cardiff and the 28 large towns in England and Wales during the years 1882-90 inclusive.

Chart shewing the Birth-rate of England and Wales compared with that of Cardiff during the twenty years 1871 - 1890.



CARDIFF. —————

ENGLAND AND WALES.

TABLE I.

28 LARGE TOWNS.	Annual Birth-rate per 1,000 living.								
	1882	1883	1884	1885	1886	1887	1888	1889	1890
London	34.3	33.9	33.6	32.5	32.3	31.6	30.7	30.3	29.1
Brighton	30.6	39.1	28.3	26.0	25.4	25.7	23.3	24.4	23.2
Portsmouth	34.0	35.3	34.8	34.5	36.2	36.8	35.8	35.1	33.6
Norwich	33.9	34.1	34.2	33.5	34.7	33.9	34.6	33.8	33.0
Plymouth	32.1	31.5	32.0	30.5	31.6	31.5	31.7	31.9	31.2
Bristol	33.0	32.2	31.5	31.1	30.5	29.7	29.3	29.2	28.1
Wolverhampton ...	36.1	36.2	34.6	34.8	35.1	33.2	32.9	32.4	32.3
Birmingham	36.5	35.6	35.1	33.8	33.0	31.7	30.7	30.9	30.1
Leicester	38.5	37.0	36.5	34.3	34.9	32.8	32.7	31.7	30.5
Nottingham	38.1	39.5	39.9	37.6	35.7	33.2	29.9	28.0	24.9
Derby	35.5	35.9	34.5	34.2	33.2	30.0	29.4	28.5	26.9
Birkenhead	36.6	35.4	38.0	34.6	33.7	32.4	30.7	31.2	31.4
Liverpool	36.7	35.2	35.2	33.6	33.5	31.1	29.7	29.2	28.8
Bolton	36.4	34.6	33.3	34.5	34.1	32.5	32.7	32.8	31.4
Manchester	36.7	35.9	36.1	36.3	36.2	35.8	35.3	35.3	34.9
Salford	38.8	35.7	35.6	34.3	34.3	31.9	31.6	29.9	28.8
Oldham	34.9	35.2	35.4	35.6	32.5	31.3	30.1	28.4	27.0
Blackburn	38.4	39.1	37.2	36.6	34.7	35.7	34.1	34.3	32.5
Preston	39.7	38.2	38.7	39.1	39.4	38.4	37.5	38.1	36.1
Huddersfield	30.8	39.5	29.4	29.1	27.0	27.7	24.6	24.5	22.6
Halifax	30.0	29.0	29.4	28.8	28.8	28.4	28.5	28.0	27.9
Bradford	31.8	29.2	29.2	29.1	28.7	27.7	27.4	26.7	25.6
Leeds	36.1	34.7	34.7	34.6	33.8	33.3	32.6	32.8	33.4
Sheffield	37.4	36.7	36.9	35.0	34.1	32.9	30.7	33.2	32.4
Hull	36.6	36.7	37.8	33.8	33.5	32.8	31.1	32.6	31.3
Sunderland	41.2	41.8	42.6	37.7	36.3	34.6	34.7	36.0	35.5
Newcastle	37.2	36.7	39.5	38.3	39.4	39.1	37.9	38.2	39.8
Cardiff	38.3	38.6	42.0	43.0	42.3	40.8	40.6	38.6	39.3
28 Large Towns ...	35.3	34.6	34.6	33.5	33.1	32.2	31.2	31.0	30.0

Table II. shows the comparison of births and deaths in Cardiff in successive years.

TABLE II.

Years.	Births.	Birth-rate per 1,000 Inhabitants.	Deaths from all causes.	Death-rate per 1,000 Inhabitants.	Death-rate from the seven Chief Infectious Diseases per 1,000 Inhabitants	Deaths under one year per 1,000 births registered.
1881	3145	36.8	1556	18.2	1.9	130
1882	3399	38.3	1724	19.4	3.3	144
1883	3526	38.6	1807	19.8	2.7	139
1884	3920	42.0	2250	24.0	5.0	167
1885	4164	43.0	2481	25.5	5.3	189
1886	4270	42.3	2269	22.5	3.2	168
1887	4277	40.8	2280	21.8	2.6	172
1888	4409	40.6	2212	20.3	2.9	143
1889	4361	38.6	2190	19.4	2.1	156
1890	4600	39.3	2469	21.1	2.4	165
Mean of 10 years.	4007	40.0	2103	21.6	3.1	158

Table III. shows the population, the births, deaths, excess of deaths over births, and excess of births over deaths annually.

TABLE III.

Year.	Population.	Births.	Deaths.	Excess of Deaths over Births.	Excess of Births over Deaths.
1845	13,385	320	324	4	...
1846	14,212	381	321	...	60
1847	15,039	331	484	153	...
1848	15,866	428	579	151	...
1849	16,693	466	864	395	...
1850	17,520	504	485	...	19
1851	18,354	575	585	...	50
1852	19,724	696	620	...	76
1853	21,094	865	644	...	221
1854	22,464	950	925	...	25
1855	23,834	1,079	641	...	438
1856	25,204	1,227	772	..	455
1857	26,574	1,367	883	...	484
1858	27,944	1,356	753	...	603
1859	29,314	1,336	826	...	510
1860	30,684	1,346	662	...	584
1861	32,054	1,223	837	...	386
1862	32,804	1,267	695	...	373
1863	33,552	1,302	862	...	440
1864	34,300	1,369	932	...	467
1865	35,048	1,382	867	...	515
1866	35,796	1,331	882	...	449
1867	36,544	1,397	873	...	524
1868	37,292	1,387	843	...	544
1869	38,640	1,414	1,005	...	409
1870	38,788	1,406	903	...	593
1871	59,494	1,391	891	...	500
1872	62,086	1,358	916	...	442
1873	64,674	1,430	995	...	435
1874	67,262	1,550	885	...	665
1875	69,850	2,716	1,547	...	1,169
1876	72,438	2,707	1,455	...	1,252
1877	75,025	2,772	1,475	...	1,297
1878	77,614	2,795	1,468	...	1,327
1879	80,202	2,969	1,428	...	1,541
1880	82,790	2,893	1,634	...	1,295
1881	85,378	3,145	1,556	...	1,598
1882	{ 88,603 95,168 91,204	3,399	1,724	...	1,675
1883	{ 97,767 93,468	3,526	1,807	...	1,719
1884	{ 100,033 97,034	3,920	2,250	...	1,670
1885	{ 103,599 100,736	4,164	2,487	...	1,683
1886	{ 107,301 104,580	4,270	2,269	...	2,001
1887	{ 111,145 108,570	4,277	2,280	...	1,997
1888	{ 115,135 112,712	4,409	2,212	...	2,197
1889	{ 126,801 117,012	4,361	2,190	...	2,172
1890	{ 131,638	4,600	2,469	...	2,131

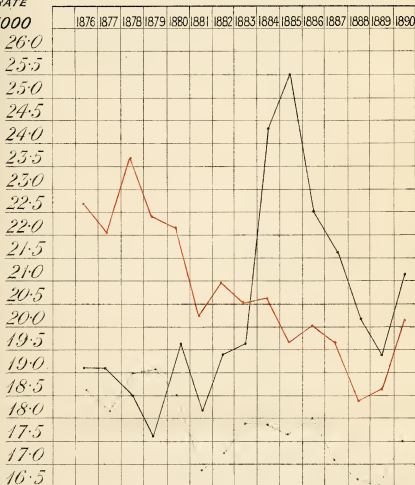
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125

12

Chart shewing the Death-rate of Cardiff compared with the Urban & Rural Districts of England & Wales, during the years 1876-1890.

DEATH-RATE
PER 1000

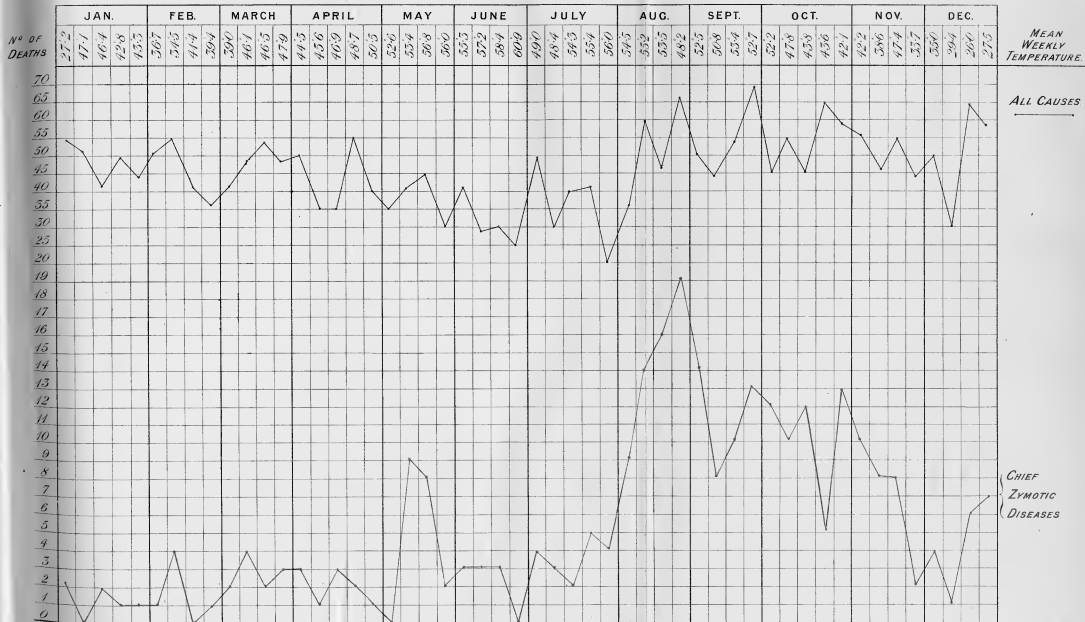


CARDIFF _____

TOWN DISTRICTS _____

COUNTRY DISTRICTS _____

Chart shewing the number of Deaths from all causes, and from the chief Zymotic Diseases during each week in the year 1890.



DEATHS.

During the year 1899 2,469 deaths were registered in the Borough of Cardiff. Of these 1,324 were males and 1,145 females, the excess of births over deaths being 2,131. The death rate was equal to 21.1 per 1,000 of the population as estimated by the Registrar General at the middle of the year, and 18.7 per 1,000 as calculated on the basis of the number of inhabited houses.

According to the Registrar General's Quarterly Returns, the death rate in the whole of England and Wales in 1890 was 19.2 and in the 28 large towns 21.3 per 1,000 persons living. In estimating the value of death rates as a test of healthiness, it is, I believe, too much the custom to attach exaggerated importance to the proportion of deaths from zymotic diseases. I would point out that such diseases as phthisis, the various forms of tuberculosis, rheumatism, anæmia, &c., are also influenced by sanitary and other conditions under which the population exists, such as climate, soil, drainage, house accommodation, occupation, social position, age distribution, and density of population. It is therefore necessary, in order to estimate rightly the value of the death rate of any community, to take all these matters into consideration, and to bear in mind, in comparing the death rate of one locality with another, that the varying rates do not of themselves necessarily represent accurately the relative healthiness of the different localities to which they refer. During the first quarter of the year 613 deaths were registered in Cardiff, corresponding to an annual rate of 20.9 per 1,000 of the estimated population (117,012). This death rate was 4.7 below the mean rate in the first quarters of the five preceding years, and 3.8 below the annual death rate for the first quarter of the 28 large towns. The deaths from the chief zymotic diseases during the first quarter were 24, corresponding to an annual death rate of 0.8 per 1,000. This rate was 2.5 below the mean rate in the first quarter of the five preceding, and 1.2 below the rate for the first quarter of the large towns. The annual death rate from these diseases in the 28 great towns was 2.04, ranging from under 1.00 in Birkenhead, Huddersfield, Halifax, and Cardiff, to 3.01 in Liverpool, 3.30 in Bristol, 3.42 in Salford, and 3.64 in Bolton. In 50 other large districts the rate was 1.84, while in the rest of England and Wales it was 1.38. During the second quarter of the year 497 deaths were registered corresponding to an annual rate of 16.8 per 1,000, being 3.6 below the mean rate in the second quarter of the five preceding years and 2.2 below the annual death rate for the second quarter in the 28 large towns. The deaths from the seven chief zymotic diseases during the second quarter were 38 corresponding to an annual rate of 1.2 per 1,000, being 1.2 below the mean rate in the second quarters of the five preceding years and 1.0 below the rate for the second quarter in the 28 large towns. The annual death rate from these diseases in the large towns was 2.22, ranging from 0.64 in Huddersfield to 3.18 in Salford, 3.33 in Liverpool, and 5.85 in Derby. In 50 other urban districts the rate was 1.50, while in the remainder of England and Wales it was 1.25.

During the third quarter of the year 611 deaths were registered, corresponding to an annual rate of 20.8 per 1,000 of the population, as compared with 20.7, the average rate in the third quarters of the five preceding years and with 19.2 the annual rate for the third quarter of 1890 in the 28 large towns. The lowest rates were 14.1 in Nottingham, 14.2 in Bristol, 15.4 in Derby, the rates in the other towns ranging upwards to 25.7 in Newcastle-upon-Tyne, 27.0 in Preston, and 27.2 in Manchester. The deaths from the seven chief zymotic diseases during the third quarter were 121, being at the rate of 4.1 per 1,000, as compared with 4.0, the average rate in the third quarters of the five preceding years, and with 3.9 the annual rate for the third quarter of the year in the large towns. The zymotic death rate for this quarter ranged from 2.6 per 1,000 in Halifax, Bristol, and Huddersfield, to 5.0 in Leicester, 5.2 in Manchester, 5.4 in Norwich and Sheffield, and 7.9 in Preston. In 50 other considerable towns the rate was 2.5, while in the remainder of England and Wales it was 1.8. The diseases of this class most fatally present in Cardiff during the third quarter were measles and diarrhoea. The annual death rate from the former was 0.55 per 1,000, being 0.07 below the rate in the 28 large towns. The rate from diarrhoea was 2.7, being 0.7 above the rate in the summer quarter of 1889, 0.1 above the average rate in the corresponding quarters of the five preceding years, and 0.6 above the rate in the 28 large towns.

During the fourth quarter of the year 748 deaths were registered corresponding to an annual rate of 23·8 per 1,000 of the population, as compared with 21·3, the average rate in the fourth quarters of the five preceding years, and with 22·1, the annual rate for the fourth quarter of 1890 in the 28 large towns. The rates in the large provincial towns ranged from 16·5 in Derby, 17·8 in Nottingham, 17·9 in Hull, and 18·4 in Leicester, to 25·3 in Blackburn, 25·9 in Bolton, 31·4 in Manchester, and 31·7 in Preston. The deaths from the seven chief zymotic diseases during the fourth quarter were 101, being at the rate of 3·2 per 1,000, as compared with 2·5, the average rate in the fourth quarters of the five preceding years, and with 2·8, the annual rate for the fourth quarter of the year in the large towns. The lowest zymotic death rates in these towns were 0·9 in Derby, 1·4 in Huddersfield, and 1·7 in Plymouth, in Wolverhampton, and in Hull, while they ranged upward: in the other towns to 4·3 in Salford, 5·0 in Birkenhead, 5·2 in Manchester, 5·4 in Bolton, and 6·7 in Preston. In this quarter measles and diarrhoea were again the most fatal of the zymotic class. The annual death rate from measles was 1·36 per 1,000, as compared with 0·88 per 1,000, the rate in the large towns. The measles rate in Cardiff was 0·4 above the average in the corresponding quarters of the five preceding years. The death rate from diarrhoea was 0·9 per 1,000, as compared with 0·5, the average rate in the five preceding fourth quarters, and with 0·6, the average rate in the large towns.

The first quarter of the year was characterised by a widespread epidemic of influenza. The epidemic seems to have commenced in Russia some time in October of 1889. About the end of that month it appeared in St. Petersburg, and assumed an epidemic form about the middle of November. From thence it spread rapidly westward, and in the first week in December cases were reported from Vienna. About the 8th or 9th of December it appeared in Berlin, Copenhagen, Stockholm, and Paris, and before the end of the month it had spread over Spain, Italy, Switzerland, Holland, and Belgium. During December and January it was also reported from Persia, Egypt, and Tunis, from every part of Canada, from the United States, Mexico, Monte Video, and Buenos Ayres. It reached England about the 20th December. The first case which came to my knowledge in Cardiff occurred on board the s.s. "Tonsburg," from Rotterdam. This vessel arrived in the Bute Docks on January 4th with most of the crew laid up with influenza. Three days after this several of those who visited the ship were attacked. Shortly after this date the disease became generally epidemic. From the replies which were kindly sent to my inquiries by medical practitioners, I gathered that although some cases occurred in December, 1889, the disease did not prevail very extensively until about the middle of the following January, that it was generally prevalent in February, towards the end of which month it began to decline, disappearing almost entirely in the early part of March. The replies contain the records of about 2,000 cases, and the experience obtained from these cases indicates generally that the disease attacked indiscriminately all classes and localities, that the main incidence was upon adults. The incubation period seems to have been usually short—about three days, but varying from a few hours to seven or eight days. The disease was for the most part mild, a certain number presenting severe symptoms. It generally spread through families with intervals between each attack varying from one to nine days, the usual interval being three days.

The following are the chief symptoms which were observed:—Intense frontal headache, sometimes preceded by rigors or chilliness, and followed or accompanied by a sudden rise of temperature ranging from 100° to 104°F., injected conjunctiva, severe back ache, pains in all the limbs, simulating acute or sub-acute rheumatism, rapid pulse, with low tension, extreme prostration and nervous depression, more or less serious affections of the mucous membrane of the air passages or alimentary canal; foul and furred tongue; sometimes diarrhoea, more frequently constipation; an eruption occasionally present resembling early stage of measles rash. This rash was present in about 15 per cent. of the cases. Catarrh of the respiratory mucous membrane was present in many cases, but not in all. Sore throat was frequent, with some enlargement of the tonsils. When catarrh was absent the most prominent symptoms were pains in the back and limbs, and in these

cases the nervous symptoms were sometimes severe, the physical and mental prostration being marked. In other cases gastro-intestinal irritation was a prominent symptom, and jaundice was noticed in a few instances. Convalescence was generally ushered in by profuse perspiration. The chief complications were bronchitis, pneumonia, and pleurisy; in some cases neuralgia and rheumatism supervened. Relapses appear to have been frequently observed, but I have no accurate information on this head. Opinions differed as to the method of spread—whether it was infectious or contagious, or whether it spread through atmospheric influence. In some cases which I had the opportunity of seeing the circumstances seemed to exclude any other origin but that of contagion. But again the chief characteristic of the epidemic was the extreme rapidity with which the disease extended; vast numbers of people spread over large areas were affected almost simultaneously. This fact obviously indicates that the primary mode of spread of the disease was through the atmosphere, as were direct contagion from person to person the sole means of propagation, an appreciable interval would be required between each case.

In all probability both modes of spreading occurred, the primary method being due to atmospheric influences. That it is contagious I have little doubt. The number of instances in which the disease attacked successively at intervals of a few days the various members of one household point strongly to this view. Further evidence is found in the fact that in many large institutions, as lunatic asylums, where the inmates had no direct contact with the outside world, these remained quite free, while the attendants suffered as much as other people. The meteorological relations of influenza have usually been considered of some importance, but the history of former epidemics shows that the state of the weather has varied so widely during different occasions that it obviously cannot be assigned as a cause of the disease. Although the epidemics have almost invariably occurred during the winter, they have not been associated with exceptionally cold weather, but rather with exceptionally warm weather, both before and during the prevalence of the disease. In St. Petersburg the winter of 1889-90 was unusually mild and fine, and in Europe generally this was the case. In Cardiff the month of November was remarkably warm, fine, and dry, the rainfall was slightly above lin., and the mean temperature 46°1—3° above the average. In December the weather was changeable; the early part was fine and dry, the middle wet, and the end dry; the rainfall was light—2in.; the mean temperature was 39·3, about the average. January was a wet month, the rainfall being 5·2in., the mean temperature 45·8—six degrees above the average. February was fine and dry, the rainfall was only ½in., the mean temperature 44·6, being 4·9 above the average.

It has been remarked that during previous epidemics the lower animals suffered from a corresponding complaint. This was the case during the recent visitation. Horses and dogs were, I believe, chiefly affected, but to what extent I was unable to ascertain. The mortality of the disease, as judged by the number of deaths of persons registered as directly due to influenza was low, the number being 11; but it is probable that a proportion of the deaths attributed to respiratory disease was due to pulmonary complications following attacks of influenza. In some of the large towns the epidemic produced a most marked effect on the mortality, the death rates in some cases showing an increase in February of 50 per cent. upon those recorded in the first month of the year, the increase being due to the mortality from lung disease. The mean death rate in the 28 large provincial towns rose in that month to 27·7, and considerably exceeded the average in the corresponding period of past years. With the exception of Brighton, which had a death rate of 19·6, the rate of Cardiff was the lowest amongst those towns, and was 20·6. The rates in the other towns in February varied from 20·9 in Derby to 36·2 in Manchester.

The effect, therefore, on the general death rate in Cardiff was imperceptible; indeed, the death rate for the first quarter of 1890 was below the average, and the mortality from diseases of the respiratory organs was by no means high. The death rate from pneumonia for that quarter was 2·73 per 1,000, a mere fraction above the average. The deaths registered as due to influenza all occurred during the first quarter. The ages at death were as follows:—

No. of Deaths ...	1	2	3	2	1	1	1
Ages ...	5-15	15-25	25-35	35-45	45-55	55-65	65-75

Table IV. shews the distribution of deaths in sub-districts.

TABLE IV.

Diseases.	Cardiff.	Roath.	Canton.	Total.
Measles	30	26	10	66
Scarlet Fever	10	5	4	19
Diphtheria	3	7	5	15
Whooping Cough	17	10	12	39
Typhoid Fever	12	3	8	23
Diarrhoea	50	30	42	122
Other Zymotics	12	10	2	24
Parasitic	1	0	0	1
Dietic	7	2	0	9
Constitutional	251	121	90	462
Developmental	106	55	37	198
Local	598	354	234	1186
Violent	64	40	7	111
Ill-defined, &c.	88	51	55	194
	1249	714	506	2469

The following table gives the annual death-rate per 1,000 of the 28 large towns in England for the years 1885—1890 inclusive.

TABLE V.

Death-rate of the large English Towns during the past six years.

28 LARGE TOWNS.	Annual Death-rate per 1,000 living.					
	1885	1886	1887	1888	1889	1890
London	19.7	19.9	19.6	18.5	17.4	20.3
Brighton	17.1	17.1	16.9	16.1	15.1	17.8
Portsmouth	19.7	23.8	19.5	18.7	18.1	19.6
Norwich	20.3	23.3	20.4	20.2	18.3	21.1
Plymouth	22.3	23.5	22.7	22.3	25.2	22.4
Bristol	19.7	19.3	20.4	16.9	17.6	19.2
Wolverhampton	20.2	22.2	21.7	20.7	20.6	21.8
Birmingham	19.3	19.9	19.7	17.8	18.7	20.7
Leicester	19.4	19.6	19.0	18.3	16.9	17.9
Nottingham	19.9	20.4	18.7	17.3	17.0	16.5
Derby	18.1	18.2	17.1	16.3	16.3	18.5
Birkenhead	19.5	19.1	21.0	17.8	17.8	19.7
Liverpool	23.8	23.8	23.7	20.3	21.5	23.6
Bolton	20.8	23.1	21.3	21.6	22.0	25.8
Manchester	26.5	26.3	28.7	26.1	26.7	30.6
Salford	21.1	22.1	22.2	21.1	20.4	22.4
Oldham	22.0	22.8	23.8	20.3	20.4	21.2
Blackburn	21.8	25.5	25.5	23.9	25.4	23.5
Preston	27.1	28.9	27.9	23.9	30.0	27.4
Huddersfield	20.1	19.6	23.0	18.5	18.8	19.0
Halifax	19.7	22.7	21.0	19.1	21.5	22.5
Bradford	17.7	19.2	19.9	17.1	19.1	20.4
Leeds	19.9	21.9	21.1	20.6	22.0	22.6
Sheffield	20.7	19.8	21.6	20.5	20.8	24.9
Hull... ..	17.2	18.8	19.3	16.4	20.2	19.2
Sunderland	23.8	19.5	19.7	18.1	22.8	22.7
Newcastle-on-Tyne	26.1	22.2	25.3	20.5	25.1	25.9
Cardiff	25.7	22.6	21.9	20.3	19.4	21.1
28 Large Towns	20.5	20.9	20.8	19.2	19.3	21.3

Table VI. shows the death-rate for Cardiff based on two estimates of population, namely, 117,012 and 131,638 during each quarter, and that of the entire year as compared with the death-rates of the large towns:—

TABLE VI.

	QUARTERS ENDING				
	March 29	June 28	Sept. 27	Jan. 3	Year 1890
Cardiff Registrar General's Estimate	20.9	16.8	20.8	23.8	21.1
Estimate according to inhabited houses	18.6	15.1	18.5	21.1	18.7
Twenty-eight large Towns	24.5	19.0	19.2	22.1	21.3

The deaths at ages were:—

Under one year of age	761
One and under five years	314
Five and under fifteen years	116
Fifteen and under twenty-five years	180
Twenty-five and under sixty years	735
Sixty years and upwards	413
Total	2,469

TABLE VII.

Birth Rate, Death Rate, and Analysis of the Zymotic Death Rate in 28 of the largest English Towns for the Year 1890.

NAME OF TOWN.	Population.	Birth Rate.	Death Rate.	ZYMOTIC DEATH RATE.							Deaths under One Year to 1000 Brits.	
				Small Pox.	Measles.	Scarlet Fever.	Diph. theria.	Whooping Cough.	Fever.	Diphtheria.		Total.
London	4,421,661	29.1	20.1	0.73	0.19	0.10	0.32	0.73	0.14	0.62	2.73	163
Brighton	123,659	23.2	17.7	0.47	0.10	0.11	0.31	0.82	0.09	0.79	2.88	165
Portsmouth	142,952	33.6	19.6	0.03	0.13	0.31	0.26	0.35	0.74	1.82	135	135
Norwich	95,352	33.0	21.0	0.34	0.05	0.28	0.86	0.31	1.20	3.04	183	183
Plymouth	78,780	31.2	22.4	0.73	0.36	0.19	0.38	0.31	0.77	2.75	161	161
Bristol ...	232,248	28.1	19.2	0.38	0.17	0.06	0.32	0.86	0.15	0.42	2.04	151
Wolverhampton	83,406	32.3	21.8	0.70	0.15	0.06	0.32	0.13	0.81	1.85	175	175
Birmingham	461,865	30.1	20.7	0.18	0.45	0.12	0.42	0.12	0.98	2.79	184	184
Leicester	154,344	30.6	17.9	0.22	0.14	0.07	0.19	0.38	2.14	1.97	197	197
Nottingham	244,909	24.9	16.4	0.21	0.10	0.06	0.19	0.23	0.74	1.57	160	160
Derby ...	100,871	26.9	18.5	1.21	0.10	0.18	0.61	0.17	0.44	2.72	158	158
Birkenhead	105,049	31.5	19.6	0.84	0.15	0.11	0.40	0.40	0.74	2.64	166	166
Liverpool	613,463	28.5	23.5	0.88	0.93	0.17	0.58	0.19	0.77	3.52	196	196
Bolton ...	115,846	31.5	25.8	0.78	0.50	0.15	0.95	0.23	1.08	3.69	176	176
Manchester	379,437	35.0	30.6	0.93	0.75	0.39	0.41	0.80	1.20	3.98	188	188
Salford ...	242,509	28.8	22.4	0.41	0.49	0.82	0.75	0.34	1.02	3.83	200	200
Oldham	146,716	27.0	21.2	0.61	0.17	0.04	0.56	0.11	0.51	2.00	180	180
Blackburn	123,553	32.6	23.4	0.14	0.25	0.04	0.18	0.31	1.20	2.12	188	188
Preston ...	105,163	36.2	27.4	0.72	0.23	0.14	0.33	0.28	0.25	4.24	245	245
Huddersfield	94,253	22.6	18.9	0.04	0.07	0.05	0.40	0.40	0.37	1.19	169	169
Halifax ...	82,034	27.9	22.4	0.29	0.29	0.16	0.22	0.18	0.20	1.34	170	170
Bradford	240,515	25.6	20.4	0.90	0.19	0.03	0.22	0.13	0.77	2.24	170	170
Leeds ...	363,799	33.4	22.6	0.26	0.28	0.06	0.50	0.30	0.98	2.38	172	172
Sheffield	332,837	32.2	24.9	0.68	0.81	0.15	0.48	0.21	1.09	3.42	194	194
Hull ...	213,833	31.3	19.3	0.08	0.12	0.09	0.38	0.18	0.97	1.84	159	159
Sunderland	136,506	35.6	22.7	0.15	0.51	0.09	0.38	0.35	0.99	2.47	172	172
Newcastle	162,987	39.8	25.9	0.04	0.16	0.29	0.49	0.23	0.79	2.00	170	170
Cardiff	117,012	39.3	21.1	0.55	0.16	0.13	0.33	0.19	1.05	2.41	165	165

Table VIII. gives the population of each year, the annual deaths from all causes, from the seven chief zymotic diseases, and the death-rates from 1845 to 1890 inclusive :—

TABLE VIII.

Year.	Population.	All Causes.			Seven Chief Zymotic Diseases.		
		No. of Deaths.	Death Rates per 1,000.	Mean of 10 years.	No. of Deaths.	Death Rates per 1,000.	Mean of 10 years.
1845	13,385	324	24.2		51	3.8	
1846	14,212	321	22.6		50	3.5	
1847	15,039	484	32.2		133	8.8	
1848	15,856	579	36.5		186	11.7	
1849	16,693	864	51.7		483	28.9	
1850	17,520	485	27.7		116	6.6	
1851	18,354	525	28.6		81	4.4	
1852	19,724	620	31.4		175	8.8	
1853	21,094	644	30.5		129	6.1	
1854	22,464	925	41.1	32.7	353	15.7	9.8
1855	23,834	641	26.9		665	2.7	
1856	25,204	772	30.6		136	5.3	
1857	26,574	883	33.2		234	8.8	
1858	27,944	753	26.9		128	4.5	
1859	29,314	826	28.1		212	7.2	
1860	30,684	662	21.5		95	3.0	
1861	32,054	837	26.1		100	3.1	
1862	32,804	695	21.2		132	4.0	
1863	33,552	862	25.7		268	7.0	
1864	34,300	932	27.1	26.7	250	7.3	5.4
1865	35,048	867	24.7		161	4.5	
1866	35,796	882	24.6		192	5.3	
1867	36,544	873	23.8		116	3.1	
1868	37,292	843	22.6		109	2.9	
1869	38,040	1,005	26.4		156	4.1	
1870	38,788	903	23.2		133	3.4	
1871	59,494	891	22.5		158	3.9	
1872	62,086	916	22.7		234	5.8	
1873	64,674	995	24.2		103	2.5	
1874	67,262	885	21.2	23.6	154	3.6	3.9
1875	69,850	1,547	22.1		294	4.2	
1876	72,438	1,455	20.8		339	4.6	
1877	75,026	1,475	19.6		255	3.5	
1878	77,614	1,468	18.9		197	2.5	
1879	80,202	1,428	17.6		137	1.7	
1880	82,790	1,634	19.7		306	3.7	
1881	85,378	1,556	18.2		164	1.9	
1882	88,603	1,724	19.4		293	3.3	
1883	91,204	1,807	19.8		253	2.7	
1884	93,468	2,250	24.3	20.0	476	5.0	3.3
1885	97,034	2,481	25.5		521	5.3	
1886	100,736	2,269	22.5		332	3.2	
1887	104,580	2,280	21.8		278	2.6	
1888	108,570	2,212	20.3		324	2.9	
1889	112,712	2,190	19.4		248	2.1	
1890	117,012	2,469	21.1		282	2.4	

The following table shows the total deaths registered and the death-rates during each week in the year 1890. The year is considered, for the purpose of these rates, as containing 52·17747 weeks, and the death-rate per 1,000 for any one week is obtained by multiplying the number of deaths in that week by 52177·47, and dividing by the estimated population. The result is the number of deaths per 1,000 of the population that would occur in a year if the same mortality continued throughout the whole year.

TABLE IX.

No.	Week ending.	No. of Deaths.	Death-rate estimated Population as per Registrar General (117,012)	Death-rate estimated Population (131,638)
1	January 4	54	23·9	21·3
2	" 11	52	23·2	20·5
3	" 18	41	18·3	16·1
4	" 25	48	21·4	18·9
5	February 1	43	19·2	16·9
6	" 8	51	22·7	20·1
7	" 15	55	24·5	21·7
8	" 22	42	18·7	16·6
9	March 1	37	16·4	14·6
10	" 8	43	19·2	16·9
11	" 15	47	20·9	18·5
12	" 22	53	23·6	20·9
13	" 29	47	20·9	18·5
14	April 5	51	22·7	20·1
15	" 12	35	15·6	13·8
16	" 19	36	16·0	14·2
17	" 26	55	24·4	21·7
18	May 3	40	17·8	15·8
19	" 10	36	16·0	14·2
20	" 17	43	19·2	16·9
21	" 24	45	20·1	17·7
22	" 31	30	13·3	11·1
23	June 7	41	18·3	16·1
24	" 14	29	12·9	11·4
25	" 21	31	13·7	12·1
26	" 28	25	11·2	9·8
27	July 5	49	21·8	19·3
28	" 12	31	13·8	12·2
29	" 19	40	17·8	15·8
30	" 26	42	18·7	16·5
31	August 2	22	9·7	8·6
32	" 9	37	16·5	14·6
33	" 16	59	26·3	23·3
34	" 23	47	20·9	18·5
35	" 30	66	29·4	26·0
36	September 6	51	22·7	20·1
37	" 13	44	19·5	17·3
38	" 20	54	23·9	21·3
39	" 27	69	30·6	27·2
40	October 4	45	19·9	17·7
41	" 11	57	25·3	22·5
42	" 18	45	19·9	17·7
43	" 25	67	29·7	26·4
44	November 1	58	25·7	22·2
45	" 8	56	24·9	22·1
46	" 15	47	20·8	18·5
47	" 22	55	24·4	21·7
48	" 29	43	19·1	16·9
49	December 6	50	22·3	19·7
50	" 13	30	13·3	11·8
51	" 20	66	29·4	26·0
52	" 27	59	26·3	23·2
53	January 3	70	31·2	27·6

TABLE X.—STATISTICS OF SUB-DISTRICTS.

Sub-districts.	Estimated Population middle of 1890.	Total Deaths.	ANNUAL DEATH-RATE PER 1,000.											
			All causes.	Seven chief Zymotic Diseases.	Small Pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Typhoid Fever.	Diarrhoea	Phthisis.	Diseases of Respiratory Organs.	Tuberculosis.
Cardiff North	20,962	525	25.0	1.95	0.00	0.57	0.00	0.00	0.19	0.04	1.14	4.15	3.57	0.09
„ South	33,531	724	21.5	2.41	0.00	0.50	0.29	0.08	0.38	0.32	0.80	1.46	4.56	0.11
Roath North	15,175	216	14.2	2.56	0.00	0.72	0.13	0.13	0.52	0.06	0.98	1.12	2.50	0.06
„ South	25,431	498	19.6	1.61	0.00	0.59	0.11	0.19	0.07	0.07	0.55	1.49	3.10	0.04
Canton North	12,718	187	14.7	2.43	0.00	0.00	0.15	0.23	0.62	0.39	1.22	1.41	3.65	0.07
„ South	21,179	319	15.6	2.31	0.00	0.47	0.09	0.09	0.14	0.14	1.36	0.94	2.54	0.00

INFANT MORTALITY.—The rate of infant mortality as measured by the proportion of deaths of infants under one year to 1,000 birth registered, was 165. The following table gives the rates for Cardiff, as compared with those of the large towns, during the years 1885-1890 inclusive:—

TABLE XI.

28 LARGE TOWNS.	Deaths under 1 year to 1,000 births registered.					
	1885	1886	1887	1888	1889	1890
London	148	159	158	146	141	163
Brighton	131	160	149	148	131	164
Portsmouth	131	174	143	134	139	135
Norwich	136	202	158	165	164	180
Plymouth	156	154	196	164	166	161
Bristol	152	149	149	123	146	150
Wolverhampton	140	175	176	168	181	175
Birmingham	157	175	176	149	170	183
Leicester	193	216	215	203	208	195
Nottingham	157	180	170	151	182	159
Derby	137	150	142	143	149	157
Birkenhead	137	162	156	152	170	166
Liverpool	174	188	186	168	188	195
Bolton	160	186	171	173	166	176
Manchester	175	183	191	177	176	187
Salford	174	198	195	184	182	199
Oldham	166	174	187	150	178	180
Blackburn	170	209	201	189	203	188
Preston	218	233	214	188	265	241
Huddersfield	157	167	181	157	167	168
Halifax	132	171	153	154	175	170
Bradford	143	167	178	154	183	169
Leeds	155	181	172	173	177	172
Sheffield	164	168	177	178	174	195
Hull	128	164	165	139	184	160
Sunderland	158	151	151	132	181	173
Newcastle	172	155	174	136	174	169
Cardiff	189	168	172	143	157	165

The preceding table shows that the rate of infant mortality in Cardiff has of late years steadily declined, and that it compares favourably with that of the other large towns. In 1885 there were twenty-five towns with a lower rate of infant mortality than Cardiff, in 1886 there were eleven, in 1887 twelve, in 1888 five, in 1889 five, and in 1890 eight. The mortality of young infants forms, perhaps, one of the most valuable tests of the sanitary condition of a town, it is, moreover, a test which, being based on a known proportion, is not subject to the errors which have been shewn to apply to the general death-rate. It is found that the vast range of infant mortality in different districts of England is due in great measure to the differences in the sanitary conditions in the various localities, and that the causes which operate in the production of a high rate of infant mortality are those unwholesome conditions, which Sanitary Authorities are specially empowered to counteract. The most common causes of death amongst infants are the ordinary infectious diseases of childhood, diseases of the nervous system, diarrhoeal and pulmonary disorders.

Table XII. shows the chief causes of death amongst infants under one year of age. The deaths at this age amounted to 761, and comprised 30 per cent. of all the deaths :—

TABLE XII.

Chief causes of death under one year of age.

Causés of Deaths.	Number of Deaths under One Year of Age.
Premature Birth	82
Congenital Defects	13
Measles	20
Whooping Cough	16
Diseases of the Respiratory System ...	121
" " Nervous System ...	146
" " Digestive System ...	42
Diarrhœa	88
Tabes Mesenterica	17
Tubercular Meningitis	32
Other Tuberculous Diseases	7
Violence	12
Other Diseases	165

ZYMOTIC DISEASES.—The 312 deaths classified under this head included 282 from what are termed the seven chief zymotic or specific febrile diseases, viz. :—Measles 65, Scarlet Fever 19, Whooping Cough 38, Diphtheria 15, Typhoid Fever 23, Diarrhœa 122. The mortality from these diseases was equal to an annual death-rate of 2·4 per 1,000 persons living, as compared with 2·7, that of the 28 large towns, and with 3·5, the mean rate of the previous six years. The zymotic death-rate affords a valuable test of the sanitary condition of a district if used with caution. Its value, however, is apt, as already stated, to be exaggerated. For instance, it varies greatly in different localities according to the proportion of young children in each; and again, although Measles and Whooping Cough may increase this rate more than Scarlet Fever, Diphtheria, or Typhoid Fever, they are much less likely to be influenced by sanitary measures than the latter diseases.

An analysis of Table XIII. shews that the average death-rate from the principal infectious diseases during the six years ending 1889 exceeded by 0·95 the average during the preceding six years, that the diseases which contributed to this excess were Measles, Diphtheria, Typhoid Fever, and Diarrhœa, whereas the average rate from Scarlet Fever and Whooping Cough has decreased during the same period. It is satisfactory, however, to note that during the past year the mortality was in the case of each infectious disease below the average, and that this was also the case, with the single exception of Whooping Cough, during the year 1889.

The number of deaths from the chief zymotic diseases during each month of the year is given in Table XIV., which also shews the number of cases of each disease reported to me under the provisions of the Infectious Disease (Notification) Act. This Act was adopted in December, 1889; it has therefore been in force during the whole of the period to which this report refers. It enacts that householders and medical men in attendance shall notify to the Medical Officer of Health all cases of the following diseases, *i.e.* :—Small Pox, Cholera, Diphtheria, Membranous Croup, Erysipelas, Scarlet Fever, Enteric Fever, Typhus Fever, and Puerperal Fever. A fee of 2s. 6d. is paid for each case in private practice, and 1s. in respect of patients being inmates of public institutions. The total amount paid for notification was £73 12s. 6d. The experience of the past year enables me to report favourably upon the working of this system of notification, although it is only just to remark that even before the enforcement of this Act the majority of cases of Typhoid and Scarlet Fever were referred to the Health Department, and indeed for many years past the medical men in the town have materially assisted the Department in its endeavours to prevent the spread of infectious disease.

The method now adopted gives, I believe, general satisfaction, and owing to the co-operation of the medical men practising in the district it works smoothly and without any friction. There can be no doubt that when proper provision has been made for the isolation of patients in a suitable hospital, this system of notification will prove a most valuable means of arresting the spread of zymotic diseases in the Borough. Even without this provision there are certain obvious advantages to be obtained by its adoption. In cases of Small Pox early notification allows time for successful vaccination of exposed persons, the attendance at school of children from infected houses can be more readily controlled, the inspection of premises frequently leads to the discovery and removal of sanitary defects and of other conditions likely to spread disease, the work of disinfection is very largely increased, and the investigation of the cause of outbreaks of disease is greatly facilitated.

With a view of obtaining a record of the particulars connected with each case notified under the Act, the following plan is adopted. Your Medical Officer of Health, or his assistants visit the premises with as little delay as possible and make inquiries respecting the history of the case, and take such steps as may be necessary for limiting the spread of the disease. In each case report sheets are filled up of which the subjoined are samples :—

ENTERIC, OR TYPHOID FEVER.

Dates of enquiry.	Whence is the supply of Water derived ?
Notified by.	Whence is the supply of Milk derived ?
Name, Age, and Occupation of Patient.	The Washing and Mangling, where and by whom done ?
Residence.	Name and Residence of any Visitor from where Disease exists.
Date of First Symptoms.	Sanitary condition of Dwelling and immediate neighbourhood, probable origin of Disease.
Date and Address of any recent case in same Street.	

SCARLET FEVER.

Dates of enquiry.	Has Child within one week been to School, Church, or other Assembly, or visited any infected house, if so, when and where ?
Notified by.	Date and address of any recent case in same Street.
Name, Age, and Occupation of Patient.	The Washing and Mangling, where and by whom done ?
Residence.	Whence is the supply of Milk ?
Date of First Symptoms ?	Sanitary condition of Dwelling, remarks and probable origin of Disease.

—From these sheets the most important particulars are copied into a register of cases, each particular disease having its own book. From this register it is easy at a glance to ascertain any factor common to several cases, and to trace the relation of the disease to the particular locality in which it occurs. This systematic register is valuable in proportion to its completeness, and it is necessary continually to impress upon the inspectors who visit the houses the importance of practising the greatest exactness and caution. Printed instructions in the following form are left at the infected houses :—

PRECAUTIONS TO BE OBSERVED IN CASES OF INFECTIOUS DISEASE.

The expression " Infectious Disease " means any one of the following Diseases :—Small-pox, Scarlet Fever, Typhoid Fever, Typhus Fever, Measles, and Diphtheria.

1. Where Scarlet Fever, Diphtheria, or Small-pox exists in a house, no child should attend school from the house for a period of at least six weeks after the occurrence of the last case, and in the case of Measles the period should not be less than three to four weeks.
2. The patient should be isolated by being placed, if possible, in a well-ventilated room at the top of the house, all carpets, curtains, and unnecessary furniture should be removed from the room.
3. A sheet should be hung up outside the door of the sick room, and kept wet with a solution of carbolic acid, $\frac{1}{2}$ -pint to a gallon of water, or with some other recognised disinfectant.
4. All bed and body linen as soon as removed from the sick person, and before being taken from the sick room, should be first put into a solution of carbolic acid of the above named strength, or into some other disinfectant, remaining there for an hour, and afterwards boiled in water.
5. All discharges from the patient, especially if the disease be small-pox, scarlet fever, or typhoid fever, should be received into vessels containing some suitable disinfectant, and should be removed from the sick room and disposed of without delay.
6. If the disease is small-pox any unvaccinated infant in the house should at once be vaccinated, and all adults or young persons over twelve years of age should be re-vaccinated.
7. The patient cannot be pronounced absolutely free from conveying infection until all peeling has entirely ceased in scarlet fever, and until the crusts and scales have

been removed in small-pox, and the whole of the body has been well bathed. In all cases of infectious disease the patient should have one or more warm baths before putting on clean clothes.

8. The sick room should not be visited by any but those in attendance on the patient, as the clothing of visitors is very liable to convey infection.
9. In case of death the body should be completely enveloped in a sheet steeped in a strong solution of carbolic acid (1 pint to a gallon of water) placed in a coffin with a pound or two of carbolic acid powder sprinkled over it, fastened down and buried without delay.
10. On the termination of the case, the sick room, the clothing, and everything with which the patient has come in contact, must be thoroughly disinfected, notice should be sent to the Medical Officer of Health, who will send an Inspector to superintend the process of disinfection.
11. Infected clothing, bedding, and other articles must be given to the Inspector, who will cause them to be removed to the public disinfecting apparatus, where they will be disinfected free of charge, after which they should be thoroughly washed at home. Infected clothing should not on any account or under any pretence whatever be sent to the laundress, and if clothes are received to wash they should not be received until the house is pronounced free from infection.
12. Books obtained from the Free Library should be returned to the Inspector of Nuisances, at the Town Hall.

Your attention is particularly directed to the following provisions of the Public Health Act, and of the Infectious Disease (Prevention) Act, so far as they relate to the prevention of the spread of infectious diseases:—

Any person who:—

- (1) While suffering from any dangerous infectious disease wilfully exposes himself without proper precaution against spreading the said disorder in any street, public place, or vehicle, or enters any public conveyance without previously notifying to the driver that he is so suffering.
- (2) Being in charge of any person so suffering, so exposes such sufferer, or
- (3) Gives, lends, sells, or transmits or exposes without previous disinfection any bedding, clothing, rags, or other things which have been exposed to infection, shall be liable to a penalty not exceeding Five Pounds.

Every person who shall cease to occupy any house, room, or part of a house, in which any person has, within six weeks previously, been suffering from any infectious disease without having such house, room, or part of a house, and all articles therein liable to retain infection disinfected to the satisfaction of a registered medical practitioner, as testified by a certificate signed by him, or without first giving to the owner of such house, room, or part of a house, notice of the previous existence of such a disease, and every person ceasing to occupy any house, room, or part of a house, and who on being questioned by the owner thereof, or by any person negotiating for the hire of such house, room, or part of a house, as to the fact of their having within six weeks previously been therein any person suffering from any infectious disease, knowingly makes a false answer to such question, shall be liable to a penalty not exceeding Ten Pounds.

Any person who shall knowingly cast, or cause, or permit to be cast into any ash-pit, ash-tub, or other receptacle for the deposit of refuse, any infectious rubbish without previous disinfection, shall be guilty of an offence under this Act.

Any Local Authority or the Medical Officer of any Local Authority generally empowered by the Authority in that behalf, may, by notice in writing require the owner of any bedding, clothing, or other articles which have been exposed to the infection of any infectious disease, to cause the same to be delivered over to an Officer of the Local Authority for removal for the purpose of disinfection, and any person who fails to comply with such a requirement, shall be liable to a penalty not exceeding Ten Pounds.

TABLE XIII.

Shewing the total deaths and the death-rates of the seven zymotic diseases for each year during the thirteen years 1878-1890 :—

Year.	1878.		1879.		1880.		1881.		1882.		1883.		Mean of Six Years.		1884.		1885.		1886.		1887.		1888.		1889.		Mean of Six Years.		1890.		
	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	
Estimated Population according to Registrar General.	78,251	80,839	83,427	86,015	88,603	91,204	84,723	93,468	97,634	100,736	104,580	108,570	112,712	117,012																	
Seven Chief Zymotic Diseases.																															
Small Pox	1	0.012	1	0.011	2	0.023	1	0.011	1	0.011	1	0.010	1.0	0.011	8	0.085	2	0.020	1	0.009	11	0.103	4	0.036	...	...	4.3	0.043	...	...
Measles	3	0.038	10	0.123	67	0.803	32	0.361	11	0.120	11	0.120	20.6	0.243	83	0.888	138	2.040	17	0.188	62	0.592	108	0.994	41	0.363	84.8	0.841	65	0.555	
Scarlatina	10	0.127	44	0.544	29	0.347	20	0.232	67	0.756	42	0.460	35.3	0.410	128	1.369	26	0.267	17	0.188	11	0.103	32	0.284	15	0.133	38.2	0.389	19	0.162	
Diphtheria	12	0.153	9	0.111	10	0.119	12	0.139	27	0.305	22	0.241	15.3	0.180	35	0.374	39	0.402	14	0.139	20	0.191	8	0.074	8	0.070	20.7	0.208	15	0.128	
Whooping Cough	70	0.894	20	0.247	77	0.922	58	0.673	38	0.428	68	0.715	55.1	0.650	31	0.330	118	1.216	46	0.456	47	0.449	54	0.497	79	0.701	62.5	0.559	38	0.324	
Fever	28	0.357	21	0.259	23	0.275	21	0.244	18	0.203	35	0.383	24.3	0.286	34	0.363	30	0.402	73	0.724	17	0.162	36	0.331	30	0.258	38.2	0.373	23	0.196	
Diarrhoea	73	0.932	33	0.408	99	1.186	50	0.581	110	1.241	74	0.811	73.1	0.850	157	1.679	99	1.026	164	1.624	110	1.051	82	0.768	75	0.665	114.5	1.134	122	1.042	
Total	197	2.513	137	1.692	306	3.653	164	1.903	293	3.306	253	2.770	224.7	2.639	476	5.088	521	5.367	332	3.265	278	2.958	324	2.994	248	2.191	968.2	3.508	282	2.410	

TABLE XIV.

Shewing the number of cases of infectious diseases reported under the Notification Act, and the Deaths during each month in the year 1890.

Month.	Small Pox.		Cholera.		Diphtheria.		Croup.		Erysipelas.		Scarlet Fever.		Typhoid Fever.		Typhus Fever.		Puerperal Fever.	
	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.	Deaths.	Cases Reported.
January	1	7	2	1	...	...	1	14	...	8	...	...	...	...
February	1	1	...	1	...	...	23	...	4	...	...	...	1
March	5	4	2	...	4	6	20	...	9	...	...	...	...
April	2	5	3	...	...	2	2	23	...	4	...	...	...	...
May	3	1	...	...	3	2	10	...	5	...	...	...	1
June	1	3	1	...	...	2	...	27	...	3	...	...	...	...
July	1	4	...	2	...	5	2	17	...	8	...	...	...	...
August	1	9	...	...	...	5	1	30	...	1	...	...	...	...
September	6	11	1	1	...	4	2	54	...	...	...	...	...	...
October	2	2	1	3	...	6	1	61	...	3	...	...	...	...
November	7	1	...	...	6	2	29	...	5	...	...	...	2
December	1	6	3	...	...	4	...	27	...	2	...	...	...	...
Year 1890	1	...	1	1	15	63	18	9	1	45	19	335	23	152	...	...	2	4

The following table shews the distribution of mortality from the seven chief zymotic diseases, fr m Phthisis, from diseases of the Respiratory Organs, and from Tuberculosis in each Street in the Borough during the year 1890 :—

TABLE XV.—CARDIFF NORTH.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Bedford Street	2	1	4	...	7
Blackweir	1	1	1	...	3
Castle Road	...	1	...	...	...	...	...	1	1	...	3
Cathays Terrace	1	...	2	1	2	...	6
Cathedral Road	2	2	1	...	5
Cairns Street	1	...	2	...	4	...	7
Coburn Street	...	1	...	...	...	...	...	2	1	...	4
Cranbrook Street	1	2	...	3
Cowbridge Road	1	...	...	1
Cogan Terrace	1	...	1
Darran Street	1	...	4	...	5
Dalton Street	2	...	...	...	2
Flora Street	...	1	...	...	...	...	1	...	1	...	3
Fanny Street	1	...	...	1
Fitzroy Street	1	...	...	1
Gordon Road	1	...	...	1
Gladys Street	1	...	...	1
Harriett Street	1	1	2	...	4
Hirwain Street	1	...	...	1
Hamilton Street	1	...	1
Letty Street	1	1	...	...	2
Llantrissant Street...	...	1	...	...	1	...	...	...	3	...	5
Llantwit Street	1	...	...	1
Llandough Street	2	...	...	2
May Street	...	2	...	...	...	...	...	1	1	...	4
Merthyr Street	1	...	...	...	2	...	3
Middy Street	...	1	...	...	...	...	1	...	2	...	4
Mason's Arms Court	1	...	...	1
Miskin Street	3	...	3
Minister Street	2	...	2
Mundy Place	1	...	...	1
Park Place	1	1	...	2
Pitman Street	1	...	...	1
Ryder Street	1	...	...	...	1
Richmond Road	1	...	1	...	2
Russell Street	...	1	...	...	...	...	...	...	4	...	5
Richard Street	2	1	...	3
Ruthin Gardens	1	...	1
St. Andrew's Crescent	1	...	...	...	1
St. Peter Street	1	...	...	1
Thesiger Street	1	...	1	...	2
Treorky Street	...	1	...	...	...	...	...	...	1	...	2
The Barracks	...	2	...	...	...	...	1	...	...	...	3
Tavistock Street	1	...	...	1
Talbot Street	2	...	2
Treherbert Street	1	...	1
Union Workhouse	1	3	57	20	2	83
Upper George Street	...	1	...	...	...	...	...	1	1	...	3
Woodville Road	2	...	2
Whitchurch Terrace	1	...	1
Total	...	12	...	...	4	1	24	87	75	2	205

CARDIFF SOUTH.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Adam Street	...	1	1	...	...	...	1	2	...	...	5
Adelaide Street	...	1	...	...	...	...	...	...	...	...	1
Augusta Street	2	...	2
Bridge Street	2	...	...	...	1	4	...	7
Bute Crescent	1	...	...	...	...	...	1
Beauchamp Street	2	...	...	...	...	2
Buzzard Street	2	...	1	...	3
Baker's Row	1	...	...	...	...	1
Bute Street	3	1	5	...	9
Blake's Terrace	...	1	...	...	...	...	...	...	1	...	2
Bute Terrace	1	...	...	1
Christina Street	...	1	1	...	...	...	...	...	1	...	3
Caroline Street	1	...	...	1	...	...	2
Canal Parade	...	1	...	...	...	...	...	...	1	...	2
Charles Street	...	1	...	...	...	...	...	1	...	...	2
Castle Street	2	...	2
Canal Street	3	...	3
Crawshay Street	1	...	1
Crichton Street	2	...	2
Cross Street	1	...	1
Davis Street	1	1	3	...	5
Duffryn Street	1	...	1
Ebenezer Street	1	1
Ellen Street	...	1	...	...	1	...	...	...	4	...	6
East Terrace	1	...	...	...	1
Edward Terrace	1	1	...	...	2
Evelyn Street	1	4	...	5
Evan's Court	1	...	...	...	1
Eisteddfod Street	2	1	...	3
Eleanor Street	1	...	1
Edward Street	1	...	1
East Dock	1	...	1
Frederick Street	3	...	1	...	2	...	3	1	10
Frederica Street	...	1	1	...	...	...	1	...	1	...	4
Fitzhamon Em ^{bkt}	1	...	...	...	1	...	2
Francis Street	2	...	2
Guildford Street	1	...	...	...	1
George Street	4	2	...	6
Gough Street	1	...	...	1	...	...	2
Giles Court	1	...	1
Gloucester Street	1	...	1
Green Street	1	...	1
Garth Street	1	...	1
Godfrey Street	3	...	3
Gaol	1	...	1
Gaol Lane	1	...	1
Hodges Row	1	...	...	...	...	...	...	...	1
Harris Court	1	...	...	...	...	...	1
Hannah Street	...	1	...	...	...	...	...	...	...	...	1
Hospital Ship	1	...	3	5	...	9
Hills Terrace	...	1	...	...	...	...	1	1	2	...	5
Howard Gardens	1	...	...	1
Havelock Street	1	2	1	...	...	4
Homfray Street	1	3	...	4
Herbert Street	3	...	3
Harrowby Street	1	...	1
Hills Street	1	...	1
John Street	2	4	...	6
Carried forward	...	10	7	2	7	4	18	26	77	2	153

CARDIFF SOUTH.—Continued.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phtthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Brought forward	10	7	2	7	4	18	26	77	2	153
James Street	1	...	1	...	2
Loudoun Square	1	...	...	...	...	1	...	2
Love Lane	2	...	2
Louisa Street	1	1	...	2
Millicent Street	2	...	...	...	...	...	...	3	1	6
Mary Ann Street	2	5	...	7
Moira Street	1	1	...	2
Mill Lane Court	1	...	...	1
Mount Stuart Square	2	...	2
Maria Street	1	...	1
Margaret Street	1	...	1
Nelson Street	1	1	...	...	...	2
North Church Street	1	...	...	1
Noah Street	1	...	1
North William Street	4	...	4
Neville Street	1	...	1
Old Barracks	1	...	1
Plantagenet Street	2	...	...	1	...	...	...	...	3
Plymouth Street	1	...	...	...	1	...	2
Patrick Street	2	1	1	...	...	4
Pendoylan Street	1	...	...	1
Peel Street	3	...	3
Penarth Road	1	...	1
Pellet Street	1	...	1
Queen Street	1	...	...	...	1	...	2
Quay Street	1	...	1
Rawdon Place	2	...	2
Rosemary Street	2	...	2
Rodney Street	1	...	1
Scott Street	2	1	...	1	3	...	7
Sandon Place	1	...	...	...	1
Sandon Street	1	...	...	...	1
South Church Street	1	1	...	2
South William Street	1	1	...	2
South Terrace	1	...	...	1
Sophia Street	2	...	2
Stanley Street	3	...	3
St. Mary Street	1	...	1
Ship "Scarfell"	1	...	1
Steamship "Redhead"	1	...	1
Sailors Home	1	...	1
Tresillian Terrace	1	...	...	...	1	...	2
Tyndall Street	2	...	...	...	1	1	2	4	...	10
Taff Street	1	...	...	...	...	1	...	3	...	5
Thomas Court	1	...	...	...	...	...	...	1	...	2
Thomas Street	1	1	...	1	3
Tudor Road	1	...	...	...	...	2	2	...	5
Tredegar Street	3	...	3
The Tunnel	1	...	1
Union Street	1	3	3	...	7
Union Buildings	1	...	1
Victoria Street	2	...	2
Wood Street	1	1	...	...	1	...	3
West Church Street	1	...	...	...	...	...	...	...	...	1
West Bute Street	2	...	...	2
Windsor Road	1	1	...	2
Windsor Esplanade	1	...	1
Total	17	10	3	13	11	27	49	153	4	287

ROATH NORTH.

Streets.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Albany Road	2	..	..	..	1	..	3
Arran Street	..	1	..	..	..	..	15	..	5	..	8
Aleander Street	..	1	..	..	..	..	..	..	..	..	1
Arabella Street	1	..	1
Charles Street	..	1	..	..	..	..	1	..	1	..	3
Claude Street	1	..	1	..	2
Cottrell Road	..	1	..	..	..	..	..	1	1	..	3
Clive Street	..	1	..	..	..	1	..	..	1	..	3
Croft Street	..	1	..	..	..	..	..	..	1	..	2
Cyfarthfa Street	2	4	..	6
Convent Street	3	..	..	3
Crwys Road	1	..	1
Daniel Street	3	1	1	..	5
Donald Street	1	1	..	..	2
Elm Street	..	1	..	1	..	..	..	1	..	..	3
Glenroy Street	1	..	..	..	1	1	..	..	3
Grouse Street	1	..	..	..	..	..	1
Inverness Place	2	..	2
Keppoch Street	..	2	..	..	..	..	1	..	1	..	4
Kincraig Street	1	..	..	1
Lucas Street	1	..	..	1
Lily Street	1	..	1
Mackintosh Place	3	..	..	..	1	..	4
Milton Street	..	1	..	..	..	..	..	3	2	..	6
Norman Street	1	..	1
Oakfield Street	1	..	..	..	..	1	..	2
Oxford Street	2	..	2
Partridge Road	1	1	..	2
Penylan Road	1	..	1
Robert Street	1	..	2	..	3
Rose Street	1	..	..	..	1	..	1	..	3
Ruthven Street	1	..	1
Shakespear Street	1	..	1	..	2
Treharris Street	..	1	..	..	2	..	1	1	..	1	6
Woodville Road East	1	..	1	..	2
Wordsworth Street	1	..	1
Total	..	11	2	2	8	1	15	17	38	1	95

ROATH SOUTH.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Adeline Street	..	1	..	1	..	..	1	1	2	..	6
Arthur Street	..	1	..	..	..	..	..	..	1	..	2
Burnaby Street	2	..	2
Blanche Street	1	..	1
Bertram Street	4	..	4
Carried forward	..	2	..	1	..	..	1	1	10	..	15

ROATH SOUTH.—Continued.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Brought forward	2	...	1	...	...	1	1	10	...	15
Booker Street	1	...	...	...	...	...	...	...	...	1
Broadway	1	...	...	...	...	...	1	...	...	2
Clifton Street	3	...	3
Clyde Street	1	...	1
Comet Street	1	...	...	...	...	...	5	...	6
Carlisle Street	1	...	...	...	...	1	2	2	...	6
Constellation Street	1	...	...	...	...	...	1	1	...	3
Cecil Street	1	...	...	...	...	...	...	1	...	2
Diamond Street	1	...	1
Eyre Street	1	1	...	2
Emerald Street	1	1	2	...	4
Eclipse Street	1	1	2	...	4
Gwendoline Street	1	...	...	1
Galston Street	2	...	2
Harold Street	1	...	...	...	1	...	...	...	...	2
Habershon Street	1	...	2	...	3
Helen Street	1	1	2	...	4
Howard Street	1	...	...	...	...	...	...	...	...	1
Iron Street	1	...	...	...	1
Infirmery	1	...	7	4	...	12
Janet Street	3	3	...	6
John Street	1	...	...	...	...	2	1	3	...	7
Kingarth Street	1	...	1
Lead Street	1	...	...	...	1
Maud Street	2	...	2
Metal Street	1	...	...	...	...	...	1	1	...	3
Moon Street	1	...	...	...	...	...	...	1
Marion Street	1	...	...	...	...	1	...	2
Orbit Street	2	...	...	2
Ordell Street	2	4	1	7
Pearl Crescent	1	...	1
Planet Street	1	...	1	...	...	...	2
Portmanmoor Road	3	...	...	...	...	...	...	...	...	3
Pearl Street	1	...	...	...	1	3	1	...	6
Ruby Street	4	...	4
Railway Street	1	...	...	...	...	...	1	4	...	6
Splott Road	1	1	...	2
System Street	1	3	...	4
Swinton Street	1	...	1
Sapphire Street	3	...	3
Spring Garden Ter.	1	...	...	...	...	...	...	1
Stacey Road	1	1	...	...	2
Sanquhar Street	1	1	...	...	2
Theodore Street	1	1	...	2
Tin Street	2	...	2
Topaz Street	1	...	...	...	3	1	...	5
Walker's Road	1	...	...	...	3	...	4
Zinc Street	1	...	...	...	...	...	...	...	1
Total	15	3	5	2	2	14	38	79	1	159

CANTON NORTH.

Streets.	Small-Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis.	Total.
Carmarthen Street...	1	...	...	1	...	2
Cowbridge Road	1	...	4	1	6
Conybeare Road	1	...	...	...	1
Clive Road	3	...	1	...	4
Conway Road	2	2	...	4
Ethel Street	1	...	1	1	1	...	4
Egerton Street	1	...	1
Glamorgan Street	2	1	...	1	...	2	...	6
Glynne Street	1	...	2	...	...	...	3
Gladstone Crescent...	1	...	...	...	1
Halket Street	1	...	2	...	3
Harvey Street	1	...	1
King's Road	1	...	...	1	...	2	...	...	4
Llandaff Road	1	...	1	...	2
Loftus Street	1	1	...	2
Lewis' Court	1	...	1
Mortimer Road	1	1	...	2
Market Road	1	...	1
Pen-y-Peel Road	2	3	...	1	1	...	7
Pembroke Road	1	...	...	...	1	4	...	6
Pontcanna Terrace...	1	...	...	1
Pontcanna Place	1	...	...	...	1
Romilly Crescent	1	...	...	1
Radnor Road	1	...	1
Severn Road	1	2	...	3
Springfield Place	1	...	1	...	...	1	2	...	5
Union Street	4	...	4
Westbury Terrace	2	...	...	...	...	...	2
Wyndham Road	2	1	...	3
Wyndham Crescent	3	4	...	7
Total	2	3	8	5	13	18	39	1	89

CANTON SOUTH.

Streets.	Small-Pox.	Measles.	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis	Total.
Andrews Terrace	1	...	2	...	3
Amherst Street	2	...	1	...	3
Alexander Street	1	...	1
Bradford Street	1	...	...	...	...	1	...	...	...	2
Bromfield Street	1	...	...	...	...	...	1
Broomsgrove Street	1	...	...	...	...	1	...	...	...	2
Blackstone Street	1	...	1
Carried forward	2	...	...	1	...	5	...	5	...	13

CANTON SOUTH.—Continued.

Streets.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.	Tuberculosis	Total.
Brought forward	...	2	...	...	1	...	5	...	5	...	13
Cornwall Road	1	...	2	...	3
Chancery Lane	1	...	...	...	...	...	...	...	1
Cambridge Street	2	...	4	...	6
Clare Road	...	1	...	...	...	1	1	...	...	...	3
Clive Street	...	1	...	...	...	...	1	...	...	...	2
Cowbridge Road	1	...	1	...	2
Craddock Street	1	3	4	...	8
Canton Square	1	...	...	1
Court Road	1	...	1
Denton Road	1	...	...	...	...	1	...	2
Dorset Street	1	1	2	...	...	4
De Burgh Street	1	1	...	2
Eldon Road	...	1	...	...	1	...	...	...	3	...	5
East Street	1	...	...	...	1
Earl Street	1	...	1
Eton Place	1	...	...	1
Edward Street	1	3	...	4
Francis Street	...	1	...	...	...	...	1	...	3	...	5
Ferry Road	1	...	1
Hereford Street	...	1	...	...	...	...	1	1	...	...	3
Holmesdale Street	...	1	...	...	...	...	...	1	1	...	3
Hewell Street	1	...	4	...	5
Havelock Street	1	...	1
Kent Street	1	...	...	...	1
Knole Street	1	...	1	...	...	...	2
Ludlow Street	1	...	...	...	1
Lucknow Street	1	...	...	...	1
Llanmaes Street	1	...	...	...	1
Lewis Street	1	...	...	1
Leckwith Road	1	1	...	2
Newport Street	1	1	...	2
North Morgan Street	1	...	1
North Clive Street	2	...	2
Oakley Street	2	1	...	...	3
Penarth Road	...	1	...	...	...	...	...	...	1	...	2
Picton Place	1	...	1
Redlaver Street	...	1	...	...	...	...	2	...	1	...	4
Rolls Street	1	1	...	2
Rennie Street	1	...	1
Rutland Street	1	...	1
Railway Terrace	1	...	1
South Morgan Street	1	...	2	...	3
Stacey Terrace	1	...	1	...	2
Stephenson Street	1	1	...	1
Stoughton Street	3	...	4
Sevenoak Street	3	...	3
Thomas Street	1	...	...	1
Telford Street	1	...	1
Van Street	1	...	1
Wells Street	1	...	...	...	...	1	1	...	3
Wellington Street	1	...	1	4	...	6
Wyndham Place	1	1	...	...	2
Total	...	10	2	2	3	3	29	20	65	...	134

SMALL POX.—No deaths were registered from this disease during the year, and no cases were reported to the Health Department.

MEASLES.—65 deaths were registered during the year, as compared with 41 in 1889, and 108 in 1888. The death-rate was equal to 0·55 per 1,000 persons living, against 0·36 the rate in 1889, and 0·84 the mean death-rate from this disease in the six previous years. The deaths were distributed in the sub-districts as under:—

	Cardiff.	Roath.	Canton.	Total.
First Quarter ...	0	0	0	0
Second Quarter ...	7	0	0	7
Third Quarter ...	13	2	0	15
Fourth Quarter ...	10	24	9	43
Year ...	30	26	10	65

From the above it will be seen that the highest mortality occurred during the 4th quarter, and that the localities chiefly affected were the Cardiff and Roath sub-districts. The disease was almost absent from the town in the first quarter of the year, but became rather prevalent and fatal in the third quarter, the death-rate, as usual rising with the fall in temperature, and reaching its highest points towards the end of the year. Measles is essentially a disease of childhood, and is highly infectious even in its early stage before the characteristic rash makes its appearance, and before the nature of the case is recognized, it is, therefore, not very amenable to sanitary precautions, especially as it is usually regarded by the general public as a trifling ailment, and little trouble is taken to separate the sick from the healthy. That the gravity of the disease is somewhat underrated is shewn by the fact that the average annual number of deaths during the past six years exceeded by 46 that of scarlet fever. The percentage of mortality to cases of measles is, however, small, and the majority of deaths occur amongst children under two years of age.

WHOOPIING COUGH.—There were 38 deaths from this disease registered in the Borough, being equal to an annual death-rate of 0·32 per 1,000 as compared with 0·70 the rate in 1889, and with 0·55 the average rate in the six previous years. As usual, the chief incidence of the mortality fell upon young children, 36 of these deaths occurred amongst persons under 5 years of age. The spread of whooping cough like that of measles is largely due to the general disregard on the part of the parents of any proper precaution in the way of isolation, who seem to think that their children must of necessity contract these diseases.

DIPHTHERIA.—The 15 deaths ascribed to diphtheria corresponded to an annual death-rate of 0·12 per 1,000, as compared with 0·07 the rate in 1889. The number of cases notified to me during the year amounted to 63, as compared with 42 in the year 1889. The death-rate from this disease, although comparatively low, has slightly increased of late years. The average rate during the six years ending 1889 was 0·20, as compared with 0·18 the average of the preceeding six years. Fourteen of the deaths occurred amongst children under fifteen years of age, of these 9 were males, and 6 females. Although the cause of diphtheria is still uncertain, it is frequently associated with sanitary defects, and especially with dampness of soil and dwellings, and generally it is found to be much more prevalent in country districts than in large towns.

SCARLET FEVER.—The 19 deaths registered from scarlet fever were equal to an annual death-rate of 0·16 per 1,000 persons living, as compared with 0·13 the rate in the preceeding year, and with 0·38 the mean death-rate in the six previous years. The number of cases reported to me during the year amounted to 334, as compared with 166 in 1889, and with 151 in 1888. The deaths and cases in the Borough were distributed in each quarter of the year as follows:

	No. of Deaths.	No. of cases reported.	Death-rate per 1,000 persons living.
First Quarter	7	57	0·23
Second Quarter	4	60	0·13
Third Quarter	5	101	0·17
Fourth Quarter	3	116	0·10
Year	19	334	0·16

The proportion of deaths to cases was equal to 5·7 per cent. for the year. The case mortality was thus somewhat below the average, the mean per centage mortality in the London Fever Hospital being 9·5 for a period of 10 years. Indeed the majority of cases were of such a mild character that it was difficult to prevent the exposure of patients in public streets and places before the danger of infection was over. The want of a suitable hospital for the isolation of these cases was therefore more than ever felt during the year as notwithstanding all endeavours it was practically impossible effectually to separate the sick from the healthy in the small and overcrowded houses of the poor. No disease is, however, more thoroughly under the control of sanitary measures than scarlet fever, and it is seldom that other cases break out in the same family if the first case is promptly removed to a hospital, and proper steps are taken to disinfect the house and infected articles in it.

TYPHOID FEVER.—The 23 deaths registered from typhoid or enteric fever, were equal to an annual death-rate of 0·28 per 1,000 persons, as compared with 0·25 the rate in the preceding year, and with 0·37 the mean death rate from this disease in the six previous years. The number of cases notified to me during the year amounted to 152 as compared with 132 in the preceding year, and with 114 in the year 1888; of this number, 78 or 51 per cent. were notified during the last quarter of the year. The deaths and cases in the Borough were distributed in each quarter of the year as follows :—

	No. of Deaths.	No. of cases reported.	Death-rate per 1,000 persons living.
First Quarter	1	21	0·03
Second Quarter	9	31	0·30
Third Quarter	3	22	0·10
Fourth Quarter	10	78	0·31
Year	23	152	0·28

The proportion of deaths to cases was equal to a percentage mortality of 15 for the entire year, and was distributed at different age periods as follows :—

	No. of cases.	No. of deaths.	Mortality per cent.
Under 5 years	6	1	16·6
5 to 10 "	24	4	16·6
10 to 15 "	17	5	29·4
15 to 20 "	18	2	11·1
20 to 25 "	27	2	7·4
25 to 30 "	9	5	55·5
30 to 35 "	10	1	10·0
35 to 40 "	5	—	—
40 to 45 "	2	2	100·0
45 to 50 "	4	1	25·0
50 to 55 "	2	—	—
55 to 60 "	—	—	—
60 years and upwards	1	—	—

The preceding tables shew that the disease prevailed more extensively during the fourth quarter of the year, the majority being between the ages of 20 and 25; that 73·6 per cent. of the cases reported were under the age of 25 years, and that the percentage mortality was highest between 40 and 45 years of age. This distribution agrees generally with that which prevails throughout the country. Enteric fever is essentially a disease of early life, occurring at any period of the year, but chiefly in the later autumn months. The returns published by the statistical committee of the Metropolitan Asylums Board, shew that out of 6,462 cases of enteric fever admitted into the Board's Infectious Hospitals, the proportion of deaths to cases admitted was 17·62 per cent. the mortality ranging from 8·5 between the ages of 5 and 10 years, to 29·6 between 45 and 50 years, 37·9 between 50 and 55 years, and 50 per cent. between 55 and 60 years of age. The majority of cases were admitted to the Board's Hospitals in the autumn, 77 per cent. being under 25 years of age. Although I am not aware of any circumstances connected with the disease as it occurred during the year, which call for any special remark, the mere fact that more than 100 cases occur on an average every year, seems to me to deserve the attention of those responsible for the administration of Sanitary affairs, bearing in mind that the mortality and prevalence of typhoid fever has ever been found to decrease in proportion to the improvement in the condition under which the population has to exist. The Sanitary surroundings connected with all the cases reported were made the subject of special inquiry; in many cases conditions prejudicial to health were found to exist, and structural defects, drainage, and other insanitary conditions were found in forty-three houses in which the disease occurred. Contrary to the generally received views concerning the spread of enteric fever, a certain number of the cases were apparently transmitted by direct contagion, in some, occurring in one household, an interval of some weeks elapsed between the first and subsequent attacks. In more than one instance the disease was seemingly conveyed into a healthy household by a visit from an imperfectly convalescent patient, and again the nurses and others attending such cases contracted the disease. Although the incubation period in enteric fever is uncertain, it is generally considered that about 14 to 21 days elapse between the time of contracting the disease and the appearance of the first symptom. An interval of less than a week between the first and subsequent attacks in a family pointing to a common cause operating upon them, a much longer interval indicating that the disease had spread by means of personal contact. The total number of houses invaded was 140, in 10 of which multiple attacks occurred. In three houses where more than one case occurred, the interval between the first and subsequent attacks was less than a week, in the remainder the interval varied from two to four weeks. The localisation of the disease deserves some attention. Taking the natural division of the district by the River Taff, an examination of the distribution of the cases shows that there was a marked incidence on the west side of the River; that is, in those sub-divisions of the town which are now the Canton, Grangetown, and Riverside Wards. The proportion of cases on the west side was equal to 12·2 per 10,000 of the population, whilst on the east side it only amounted to 7·7. These figures have of themselves no great significance, and relating as they do to a comparatively short period, would hardly justify the inference that any local peculiarity was connected with this inequality of distribution. The imperfection in the records previous to the enforcement of the Notification Act in 1830, renders it impossible to ascertain with any degree of certainty the proportion of cases of the disease to the population in any given area before that date; but judging from the mortality returns, it would seem that during recent years enteric fever has usually prevailed more extensively on the west side of the town. Why this should be so is not altogether clear, but it may be well here to point out certain conditions which may possibly be connected with this peculiarity. On referring to the map, it will be seen that the whole of the district on the west side of the River Taff has a system of sewers entirely separate from that on the east side. In the upper parts of this district the sewers have sufficient fall and capacity, and may be said generally to be self-cleansing. The outfall pipe, protected at its point of discharge into the mouth of the Taff by a tidal valve, is tide locked for some hours during the day, at such time the sewage is retained or driven back within the

low level sewers and house drains, soaking more or less into the soil. Sewer gas is displaced and escapes at the various ventilators and outlets in a concentrated condition, or is forced through traps into houses, the higher parts of the sewer as well as the lower, suffering from this imperfect discharge at the outlet. The position of the outfall also renders it probable that during the flow of the tide, some part of the sewage is carried up the river to be deposited on the banks or oscillates in the tidal portion of the stream.

The essential cause of typhoid fever is supposed to be a specific virus, yielded by the bowels of patients suffering from the disease, the infectious particles being conveyed to sewers or cesspools, gain access to the system through the medium of specifically polluted air, water, milk, and perhaps other food. In our present state of knowledge, it is impossible to tell to what extent the ordinary domestic refuse of a household may contain the specific contagium, but in any case, it is essential that all this decomposing organic material should be ultimately disposed of in such a way as not to cause a nuisance. The tipping of vast quantities of it on waste lands within the boundaries of a large urban district does not, in my opinion, comply with this condition, such vast accumulations of prutescent matter cannot be otherwise than a source of danger to a population exposed to such influences. In this respect the western districts would seem to have suffered most, as by far the largest part of the town refuse has of late years been deposited in it, most of it having been utilized either for filling up low lying land or for road making. In many cases the tipping has taken place in the undrained excavations of disused brick fields, where the dryness essential to rapid decomposition cannot be obtained, and where during the warm weather a constantly recurring nuisance takes place.

The following table shews the death-rate per 10,000 of the population on the eastern and western districts respectively during the years 1888—90 inclusive :—

		Death-rate from Typhoid Fever per 10,000.					
		1888.		1889.		1890.	
Eastern side of River	...	1.9	...	1.6	...	1.1	
Western	..	3.5	...	2.7	...	3.5	

The mortality from typhoid fever has generally been greater on the north than on the south side of the town. In connection with this difference, it may be noticed that certain conditions exist in the southern districts which are not so favourable to the public health, a considerable area of this low lying part of the town is situated on a damp subsoil of impervious clay, the sewers have an inadequate fall and flow, and are not self-cleansing. These districts contain a far greater proportion of old dilapidated and unhealthy houses, inhabited by poor and ill-fed persons, unable to resist the effects of their insanitary surroundings; further, although overcrowding in individual houses does not exist to any great extent the aggregation of population is here greater than in the north of the town.

The following table shews the death-rate per 10,000 from typhoid fever in the sub-districts divided into North and South, during the years 1889 and 1890 :—

1889.	Death-rate.	Death-rate.	1890.	Death-rate.	Death-rate.		
Cardiff, North	... 3.4	Cardiff, South	... 3.0	Cardiff, North	... 0.4	Cardiff, South	... 3.5
Roath	.. 3.3	Roath	.. 7.0	Roath	.. 0.5	Roath	.. 0.7
Canton	.. 4.1	Canton	.. 7.9	Canton	.. 3.9	Canton	.. 0.9

DIARRHOEA.—The deaths from Diarrhoea numbered 122, corresponding to an annual rate of 1.04 per 1000, as compared with 0.66 the rate in 1889, and with 1.13 the mean rate of the previous six years.

The deaths were distributed as follows:—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Year.
Under one year ...	4	4	59	21	88
One and under five years ...	1	0	12	8	21
Five and under fifteen years ...	0	0	0	1	1
Fifteen and under twenty-five years	0	1	0	0	1
Twenty-five and under sixty years	1	0	5	0	6
Sixty years and upwards ...	0	0	5	0	5
Total ...	6	5	81	30	122

From the above it will be seen that the majority of deaths were amongst infants and young children, and that 90 per cent. of them occurred during the third and fourth quarters of the year. As usual, the disease prevailed more extensively during the summer quarter. The number of deaths from diarrhoea during the months of July, August and September was 81, giving an annual death-rate for the quarter of 2·7 per 1,000 persons living, this rate was 0·7 above the rate in the summer quarter of 1889, and 0·1 above the average rate in the corresponding quarters of the five preceding years.

In the twenty-eight great towns the mean death-rate from diarrhoea during the third quarter was 2·04, being under 1·00 per 1,000 in Halifax, Bristol and Huddersfield, and ranging upwards from 3·06 in Sheffield, 3·67 Norwich, 4·22 in Leicester, to 6·83 in Preston.

The mortality for the quarter distributed in the various sub-districts, divided into North and South was as follows:—

	Deaths.	Death-rate per 1,000.
Cardiff, North ...	13	2·5
Do. South ...	23	2·7
Roath, North ...	9	2·3
Do. South ...	8	1·2
Canton, North ...	10	3·1
Do. South ...	18	3·3

From the above it will be seen that the highest mortality occurred in those districts situate on the west side of the river Taff *i.e.* the North and South Canton sub-districts, and in this respect agreeing with that of typhoid fever, although this co-incidence may possibly be only an accidental circumstance, I would point out that the same conditions which favour the development of diarrhoea also contribute to the spread of typhoid fever, that both diseases find their natural home amongst impurities of air and soil, such conditions being necessary for the growth of those micro-organisms which have been shewn to be in some way connected with their origin and spread. The relation between the temperature of the air and the prevalence of diarrhoea is very evident, and it is found that mortality is not appreciable until the mean temperature of the air has reached about 60° Fah., and that the rise and decline of the death-rate coincide generally with the rise and decline of the mean temperature. This relation is shewn in the accompanying charts. It is probable, however, that an increased temperature is not the direct cause, but that it acts indirectly by inducing those putrefactive changes in organic matter which seem to be so essential to the development of this disease. As usual, an enquiry was made into the dietary of the fatal cases, and it was found that the majority of infants who died from diarrhoea had been artificially fed, and that the principal article of diet in these cases was cow's milk.

Chart showing the influence of temperature on the diarrheal death-rate in Cardiff during the summer quarters of the years 1872-90.

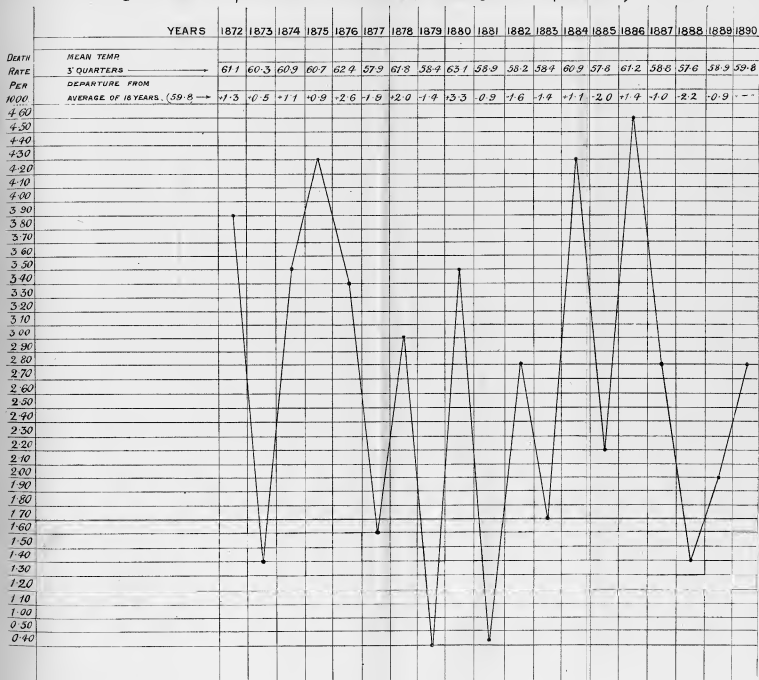


Chart showing the Diarrhoeal Death-rate in England and Wales, in the 28 large towns, and in Cardiff during the 3rd Quarters of the Decennium, 1881-90.

Mean Temperature in the 3rd Quarters of 1881-90 at Greenwich.



ENGLAND & WALES

28 TOWNS

CARDIFF

The following table gives the death-rate from constitutional, local, and developmental diseases, and from violent deaths, during the years 1884 to 1890 inclusive:—

TABLE XVI.

Year.	Class II.	Class III.	Class IV.	Class V.
	Constitutional Death-rate.	Local Death-rate.	Developmental Death-rate.	Violent Death-rate.
1884	3·423	10·097	3·263	1·326
1885	4·122	10·924	3·091	1·184
1886	4·305	10·373	3·563	1·309
1887	3·203	10·384	3·442	1·400
1888	3·306	9·275	2·947	0·994
1889	3·690	9·164	1·446	1·029
Mean of six years	3·675	10·036	2·959	1·207
1890	3·498	10·101	1·692	0·948

SANITARY CONDITION OF THE DISTRICT AND SUMMARY OF WORK
PERFORMED BY THE
OFFICERS OF THE HEALTH DEPARTMENT.

During the year an application was made to the Local Government Board, and an inquiry was held, which resulted in a re-distribution of the Borough Wards in the manner shewn on the enclosed map. The town is now divided into ten wards instead of into five as was formerly the case. The general configuration of the district, the lines of the main sewers, and their point of discharge into the tidal waters, are also shewn on the map.

In the later part of June a careful survey of the town was made by the Chief Inspector of Nuisances and his assistants, with the view of ascertaining the population of each of the Borough Wards. The population was estimated on the basis of the number of inhabited houses, taking the average number of inmates as 6·25 in each house.

This return gave the following results:—

Ward.	No. of Inhabited Houses.	Estimated Population.
Central Ward	2,246	14,037
South „	1,667	10,418
Cathays „	2,408	15,050
Park „	2,471	15,443
Adamsdown Ward	2,150	13,437
Riverside „	2,423	15,143
Canton „	3,263	14,143
Roath „	2,015	12,593
Grangetown „	1,690	10,562
Sploot „	1,214	7,607
Borough „	20,547	128,433

The floating population is estimated at 7,000, making a total of 135,433 persons.

The area of the Urban Sanitary District of Cardiff is as follows:—

TABLE XVII.

Parishes of St. Mary and St. John ...	...	2,791	acres.
Parish of Canton ...	...	2,270	"
" Roath ...	...	3,348	"
" Total ...	...	8,409	acres or 13.13 sq. miles.

NEW HOUSES.—The yearly increase of houses is shown by the following returns obtained from Mr. W. Harpur, M.I.C.E., Borough Engineer and Surveyor.

Number of Houses and Shops in the Borough during the last nine years:—

TABLE XVIII.

From August 1881 to August 1882	...	...	686
" " 1882	" 1883	...	980
" " 1883	" 1884	...	1445
" " 1884	" 1885	...	1345
" " 1885	" 1886	...	1201
" " 1886	" 1887	...	1226
" " 1887	" 1888	...	1062
" " 1888	" 1889	...	603
" " 1889	" 1890	...	948
" " Total	...	...	9496

INSPECTION OF THE DISTRICT.—In conformity with the Regulations of the Local Government Board, a systematic inspection of the district has been made by your Inspectors of Nuisances, and a large number of sanitary defects in various parts of the town have been discovered and remedied.

The following table gives the results of the house to house inspection made during the year:—

HOUSE INSPECTION. CARDIFF, 1890.

Name of Street.	Number of Houses inspected.	Defective Drains	Choked Drains.	W.C. Pans and Siphons Defective.	Defective Stench Traps permitting an escape of Sewer Gas.	Scullery Sinks connected direct with Drain.	Inside Closets not ventilated.	Closets not supplied with water.	Other Nuisances.
Frederick Street	97	2	8	9	6	1	...	97	8
Hill's Terrace	64	...	2	8	...	...	...	64	8
Castle Court	7	...	...	1	...	...	...	7	...
Williams' Court	4	...	1	...	...	...	...	4	...
Canal Street	28	2	2	4	2	...	...	28	...
Leason Terrace	12	...	2	1	...	...	...	12	...
Sandon Place	36	...	...	2	4	...	...	36	15
Patrick Street	33	6	...	2	4	...	...	14	10
Stanley Street	26	...	1	...	...	...	...	26	4
Mary Ann Street	49	2	2	1	...	...	...	49	15
Guildford Crescent	6	5	1	2	2	...	...	5	...
Love Lane	26	1	...	3	...	...	...	26	9
David Street	31	4	...	...	...	...	...	31	10
Hodges Row	12	1	...	4	2	...	...	12	5
Ellen Street	35	1	3	2	...	...	...	35	9
Pellett Street	36	...	3	2	1	...	...	36	4
Garth Street	31	2	2	3	...	...	...	31	4
George Street	53	4	...	5	4	...	...	52	7
Evelyn Street	36	...	3	7	4	...	...	36	13
Woodville Road	127	5	2	...	11	...	...	120	14
Russell Street	47	2	...	3	3	...	...	47	13
Teorkey Street	27	1	...	2	1	...	...	27	5
Total	813	38	32	61	44	1	...	795	143

ROATH, 1890.

Name of Street.	No. of Houses Inspected.	Defective Drains.	Choked Drains.	W.C. Pans and Siphon defective.	Defective Stench Traps permitting escape of Sewer Gas.	Sullery Sinks connected direct with Drain.	Inside Closets not ventilated.	Closets not supplied with water.	Other Nuisances.
Rose Street	47	...	3	2	12	...	...	47	10
Booker Street	13	...	...	2	...	...	...	13	2
Fort Street	13	...	...	1	...	...	...	13	11
Fox Street	12	...	...	2	...	...	...	12	2
Milford Street	37	...	...	1	...	...	...	37	13
Aberystwith Street	7	...	...	...	...	...	...	7	1
Pontypridd Street	13	...	1	...	...	...	...	13	5
Llanelly Street	15	...	...	5	...	...	...	15	2
Milton Street	65	...	1	2	2	...	...	65	30
Fishguard Street	30	...	...	1	...	...	...	30	11
Lily Street	21	2	1	...	2	...	...	21	5
Church Terrace	5	2	...	...	...	...	...	5	2
Kerrycoy Street	36	...	1	...	...	...	...	36	5
Adeline Street	83	2	3	...	5	...	...	83	9
Janet Street	70	...	3	3	4	...	...	70	20
Charles Street	43	2	1	...	4	...	...	43	9
Agate Street	18	...	2	...	...	...	...	18	4
Cecil Street	73	3	...	4	4	...	...	73	9
Maud Street	40	...	2	1	3	...	...	40	7
Platinum Street	18	...	2	...	...	...	...	18	3
Veze Street	18	...	...	2	...	...	...	18	4
Total	677	11	20	26	36	...	...	670	164

CANTON, 1890.

Name of Street.	No. of Houses Inspected.	Defective Drains.	Choked Drains.	W.C. Pans and Siphon defective.	Defective Stench Traps permitting an escape of Sewer Gas.	Sullery Sinks connected direct with Drain.	Inside Closets not ventilated.	Closets not supplied with water.	Other Nuisances.
Cambridge Street	26	2	...	1	2	...	...	26	2
Craddock Street	129	...	...	...	...	...	...	129	2
Chancery Lane	43	...	...	...	...	...	...	43	3
Carpenter's Arms Court	8	...	...	...	...	...	...	8	1
Devon Street Place	26	...	...	...	...	...	...	26	4
Dorset Street	23	...	...	...	...	...	...	23	2
Evans Court	3	...	...	...	...	...	...	...	1
Glamorgan Street	67	2	...	1	...	...	...	67	7
Gladstone Terrace	10	...	...	2	...	...	...	10	3
Havelock Street, Grange	27	...	3	...	1	...	...	27	6
Halket Street	52	1	1	3	...	...	...	52	20
Harvey Street	35	...	...	4	...	...	...	35	5
Hereford Street	12	...	...	...	...	...	...	12	3
Hamilton Street	45	...	...	...	...	...	...	45	1
Kettle Court	4	1	...	...	...	...	...	4	1
Leckwith Road	59	1	...	...	2	...	...	59	8
Loftus Street	35	4	...	4	...	...	...	35	...
Llanmaes Street	16	...	...	...	...	...	...	16	7
Lucknow Street	12	...	...	1	...	...	...	12	4
Pontcanna Terrace	12	1	...	2	2	...	...	12	4
Pentrebane Steeet	19	...	...	...	...	...	...	19	1
Penarth Road	39	...	...	...	...	...	...	39	2
Rolls Street	44	...	...	...	...	...	...	44	5
Rhydlafen Street	37	...	...	...	...	...	...	37	5
Sir Edward Terrace	12	...	...	...	...	...	...	12	2
Stag Street...	13	...	...	2	...	...	...	13	...
Stoughton Street	46	...	...	...	...	...	...	46	10
Saltmead Road	32	...	...	...	...	...	...	32	...
Thomas Street	45	...	...	2	...	...	...	45	8
Union Buildings	21	...	...	1	...	...	...	8	2
Union Street	57	4	...	4	2	...	...	57	6
Total	1009	16	4	27	9	...	...	993	125

Your Inspectors have exercised a strict supervision over the courts, lanes and alleys occupied by the poorest class of people. Great difficulty has at all times been experienced in dealing with these places, which, unless continually inspected are apt to become dirty and a nuisance to the neighbourhood. Notwithstanding much discouragement however, a great deal has been done to improve the sanitary condition of some of our courts, more especially as regards closet accommodation. In some instances, owners have, at my suggestion, substituted the well-known "Trough Closets" for the old and defective apparatus formerly in use. These closets which are most efficient in every way are so strongly constructed that it is almost impossible that they should get out of order, and their working forms a most favourable contrast to that of the "Old Hopperpan System," where only irregular hand-flushing was possible. During the past few years some of these courts have been removed in order to make room for new business premises, but it may be well to remind you, that there are still about forty of these places in the Borough, that some of them are so situated that improvement is impossible, and for which demolition is the only remedy. Courts hemmed in on all sides, so constructed back to back that light and ventilation cannot be obtained (containing in some cases houses enclosed on three sides), and having a totally insufficient air space in front, with such imperfect and insufficient closet accommodation that contamination of the air of the dwellings must necessarily take place. It was in these places that in former years typhus fever and cholera were frequent visitors. It is true that most of the courts in the town are small, and contain few houses, and that they are not overcrowded to any great extent, and that in this respect they probably compare favourably with the courts of many larger towns, yet some exhibit such gross sanitary defects as to render them in my opinion entirely unfit for habitation, amongst these may be mentioned Jenkins' Court, Jonathans' Court, Baker's Row, Mill Lane Court, Evans' Court, Carpenters' Arms Court and Moulders' Arms Court. Concerning these and some others, it will be my duty shortly to advise your Health Committee as to the steps which may be taken with respect to them, under the powers given by the new "Housing of the Working Classes Act."

SANITARY LEGISLATION.—During the Parliamentary Session of 1890, several Acts were passed dealing with sanitary matters and public health administration.

The Housing of the Working Classes Act, a most important piece of legislation, gives greater facilities to Sanitary Authorities for dealing with insanitary areas and houses unfit for habitation, and enables the Authorities to provide lodgings for the labouring classes in their districts. The first part of the Act relates to unhealthy areas, and provides, that on the official representation of the Medical Officer of Health, that within a certain area any houses, courts or alleys are unfit for human habitation, or that from sanitary defects, streets, houses, or groups of houses are dangerous or injurious to the health of the inhabitants, and that these defects cannot be effectually remedied otherwise than by re-arrangement and reconstruction, that if the Sanitary Authority agree with the representation, they shall, forthwith, proceed to make a scheme for the improvement of such area. The scheme must be approved by a Provisional Order, and confirmed by Parliament, and need not, as in former Acts, provide for the construction of dwellings in place of those demolished, unless required by the Local Government Board to do so.

The second part deals with houses unfit for habitation or obstructive buildings, stopping the ventilation or making other buildings unfit. It provides, that it shall be the duty of the Medical Officer of Health to represent to the Local Authority any house which appears to him to be in a state so dangerous to health as to be unfit for habitation, and that the Local Authority shall, if they agree with the representation, take proceedings before Justices against the owner or occupier for closing the dwelling-house. Formerly, great difficulty was caused in closing insanitary property, owing to the delay consequent on the giving and enforcing the necessary notices, under this Act the Local Authority may serve a Closing Order on every occupying tenant, and within a

period not less than seven days he and his family must cease to inhabit the house, and in default, shall be liable to a penalty of Twenty Shillings per day during his disobedience of the order. The Act does not define the dimensions requisite to constitute a place an unhealthy area, so as to be dealt with under Part 1 rather than under Part 2, but indicates that where in London the representation relates to not more than ten houses, proceedings shall be taken under the second part of the Act, and this limit will probably be found convenient in other places.

The adoption of the third part of the Act is optional on the part of the Sanitary Authorities, who, when they have adopted it may erect lodging-houses for the working-classes, or may purchase or lease any such houses. The Authority may charge a reasonable rent for the premises, and may make bye-laws for their regulation and management. This power you have now obtained by a recent resolution.

The Infectious Disease Prevention Act which has also been adopted by you, and which will come into force on May 1st, is supplemental to the Infectious Disease Notification Act, it contains some useful provisions intended to prevent the spread of disease. In cases where the Medical Officer of Health has reason to suspect that illness is caused by milk supplied within the district for which he acts, and from a dairy situate within or without the district, he may, if authorised by a justice, inspect such dairy, and if of opinion that infectious disease is caused by the consumption of the milk he must report the circumstances to the Local Authority who may thereupon require the dealer not to supply any milk within the district for a specified time. The Act further gives more definite and extensive powers for securing the disinfection and destruction of bedding and clothing than those contained in the 121 sec. of the Public Health Act, 1875, and gives increased protection to persons entering into occupation of a house in which infectious disease may have occurred. Powers are given for dealing with the detention, removal, and burial of dead bodies, and for the detention in hospital of infectious patients.

THE PUBLIC HEALTH ACTS (Amendment Act).—This Act is divided into five parts, any or all of which may be adopted by resolution by a Sanitary Authority. The third part deals entirely with sanitary matters, and has been adopted by you and is now in force in the district; amongst other things it provides for the extension of sections 116—119 of the Public Health Act, 1875, relating to unsound meat, making them apply to all articles intended for food and exposed for sale. The Act prohibits the casting of injurious matters, chemical refuse, steam, &c., into sewers, and the throwing of cinders, ashes, or filth of any kind into streams, and makes it unlawful to erect a new building on any ground which has been filled up with any matter impregnated with offensive animal or vegetable matter, unless and until such matter shall have been rendered or have become innocuous. From the above short summary of some of the most important of the Sanitary Acts of last session it will be seen that useful additional powers have been obtained which, if judiciously exercised, should confer great benefit on the community.

BYE-LAWS.—In compliance with the terms of the General Order of the Local Government Board, which, defining the duties of the Medical Officer of Health, state that “he shall advise the Sanitary Authority or any question relating to health involved in the framing and subsequent working of such bye-laws and regulations as they may have power to make.” I advised your Health Committee that it would be desirable to frame bye-laws for the regulation of (1) Common Lodging Houses, (2) Houses let in Lodgings, or occupied by members of more than one family, (3) Seamen’s Lodging Houses. Bye-laws were accordingly framed under the power given by sections 80 and 90 of the Public Health Act, and by the Merchants’ Shipping (Fishing Boats Acts). These Bye-laws were carefully considered by your Committee, and having received the approval of the Sanitary Authority will come into force on their confirmation by the Local Government Board and Board of Trade respectively.

WATER SUPPLY.—Twelve samples of water were submitted to the Public Analyst for Analysis, two of which were found to be polluted; in these cases orders were obtained from the magistrates to close the wells from which these samples were obtained. The following table gives the result of the analysis in those cases in which the water was impure.

Result of Analyses of samples of water, expressed in parts per 100,000, by Thomas Hughes, F.I.C., F.C.S., Public Analyst for Cardiff:—

Date when received.	Description.	Total Solid Matter.	Albuminoid Ammonia.	Free Ammonia.	Nitrogen as Nitrates & Nitrites.	Previous Sewage or Animal Contamination.	Chlorine as Chlorides.	Sulphuric Acid as Sulphates.	Magnesia Salts.	Hardness.			Appearance in Two-foot Tube.
										Temporary.	Permanent.	Total.	
1890. Jun. 6.	Sample B 5.	48·3	0·013	0·005	0·71	6·800	9·1	excess- moder- ate.	...	...	...	faint yellow colour and rather turbid
Aug. 22	„ B 6.	51·5	0·004	0·003	2·19	21·600	4·6	excess- rather excess- sive.	13·3	18·3	31·6	clear & practically colourless.	

From information obtained from Mr. J. A. B. Williams, C.E., Water Engineer, I find that the number of persons at present supplied within the water limits is estimated to be 147,000, and that the amount of water supplied per day has been at the rate of 2,940,000 gallons, giving an average daily supply of 20 gallons per head of the population. The quality of this water is shewn by the subjoined analyses to be sufficiently good for drinking purposes.

Result of Analyses of samples of water, expressed in parts per 100,000:—

No. of Sample.	Description.	Total Solid Impurity.	Albuminoid Ammonia.	Free Ammonia.	Nitrogen as Nitrates & Nitrites.	Previous Sewage Contamination.	Chlorine.	Sulphuric Acid in Sulphates.	Magnesia Salts.	Hardness.			Remarks.
										Temporary.	Permanent.	Total.	
1	Sample B7, Llanishen Water	18·4	0·009	0·001	0·01	nil	1·6	1·68	...	3·8	12·6	16·4	Very faint yellow colour and clear.
2	Sample B 8, Ely Water	32·25	0·004	nil	0·14	trace	1·95	3·19	...	15·6	14·5	30·1	Practically colourless and clear.
3	Sample B9, Town Water (Canton)	30·8	0·012	0·002	0·12	trace	1·85	3·20	...	15·0	14·3	29·3	Faint yellow colour and clear
4	Sample B 10, Town Water (Roath)	17·8	0·009	0·001	0·02	nil	1·55	1·96	...	3·5	12·8	16·3	Faint yellow colour and clear.

SALE OF FOOD AND DRUGS ACTS.—The following articles of food and drugs were analysed by the Borough Analyst, under the provisions of the above Acts, during the year 1890:—

TABLE

Samples.	Number of Samples obtained.	Number of Genuine Samples.	Number of Adulterations.	Remarks.
Milk ...	57	53	4	Four prosecutions: fines £5, 10/-, and 5/- respectively.
Whiskey ...	8	8	0	
Pepper ...	11	11	0	
Coffee ...	14	11	3	
Flour ...	5	5	0	Three prosecutions: fines £5, £1, and £1 and costs.
Bread ...	3	3	0	
Lard ...	2	2	0	
Total ...	100	93	7	

FOOD SUPPLY AND SLAUGHTER HOUSES.—The public abattoirs have been regularly inspected. No private slaughter houses exist in the Borough, and no cases of illegally slaughtering in unlicensed premises came to the knowledge of the Sanitary Authority. Mr. J. Kemmis, the Manager of the Public Market and Slaughter Houses, reports to me that during the year the following animals were slaughtered.

TABLE

Beasts ...	...	...	...	...	6,276
Calves ...	...	...	...	...	2,042
Sheep ...	...	...	...	...	33,099
Pigs ...	...	...	...	...	25,026
Total ...	...	...	...	...	66,443

In addition to the number of animals slaughtered in the Corporation Abattoirs, 1,460 American beasts were slaughtered at the Bute Docks Foreign Cattle Wharf.

The 116 section of the Public Health Act requires the Medical Officer of Health to inspect, in any case in which it may appear to him necessary, any animal carcass, meat, poultry, game, fish, or other article of food exposed for sale, and intended for the food of man, which is deemed to be diseased, or unsound, or unwholesome, or unfit for food of man, and if he find that such animal or article is unfit for food, he shall give such instructions as may be necessary for causing the same to be seized, taken, and carried away, in order to be dealt with by a justice. Under the power given by the above section, the following articles were seized and condemned as unfit for food, and destroyed by order of the magistrates:—

Beef ...	...	...	...	...	3,004 lbs.
Pork ...	...	...	...	...	900 „
Fish ...	...	...	...	...	500 „
Potatoes ...	...	...	...	...	11,872 „
Total ...	...	...	...	...	16,276 lbs.

SCAVENGING OPERATIONS.—The scavenging of the town is undertaken by the Sanitary Authority, and the work has, as usual, been most efficiently performed under the super-

vision of Mr. Woosey, the Superintendent of this department, from whom I have obtained the following particulars connected with the routine of the work :—

The main thoroughfares are cleared every day, commencing at 7 a.m.

Shop refuse is cleared from 8.30 a.m. to 9.30 a.m. every morning.

All main thoroughfares cleared by 11.0 a.m.

Household refuse is cleared three nights weekly, commencing at 11.0 p.m. to 6.0 a.m. on Monday, Wednesday, and Friday nights. All householders are requested to place refuse in a suitable receptacle in the channel in front of the house they occupy. 20 horses and wagons are required three nights weekly to attend to this work.

80 waggon loads is the average each night from 11.0 p.m. to 6.0 a.m.

Back lanes are cleared three days weekly from 11.0 a.m. to 1 p.m. Waggon go around with bells, when the occupier places the ash receptacle inside the yard or garden door ready for men to remove it.

Notwithstanding the regularity with which this system is worked, considerable difficulty has been at times experienced in inducing occupiers of certain small streets and slums to place their house refuse in a suitable, or indeed in any kind of receptacle. In these places the slovenly habit of throwing the refuse on the street prevails, and a nuisance is thereby caused. Proceedings against some of these offenders have been taken under the provisions of the Town's Police Clauses Act, and fines have at times been inflicted.

The ashes and house refuse of all kinds are removed to various tips within the Borough, or are utilized for raising waste pieces of land, or for making roads. I have in a former report pointed out that the depositing of large quantities of decomposing organic filth near to habitations is an unsatisfactory and possibly a dangerous method of disposing of scavenging refuse, and have suggested to you the desirability of obtaining from time to time particulars of the several modes of disposal which have recently been adopted in various towns with the view of ascertaining if any of them are adapted to the requirements of this district. It requires little sanitary knowledge to understand that the health of human beings will scarcely thrive in an atmosphere of decomposing filth. The injurious gases or organic particles contained in the emanations from such matters do not perhaps in their diluted condition produce any marked ill effects, but whether a widespread epidemic of some zymotic disease result or no, the effects in the end must be a general deterioration of the health of a population constantly exposed to such an atmosphere. I allude of course to those accumulations of organic refuse which have not been placed under any kind of cultivation, and which have been allowed to decompose and putrefy with more or less rapidity according to the varying condition of temperature and soil. In some instances advantage has been taken of the Allotment Act, and the most offensive of these tips have been rendered harmless, and have been utilized by conversion into garden plots, and by this means a very satisfactory outlet for the town scavenging refuse has been obtained, and at the same time facilities have been provided for labourers and others to acquire at a very reasonable rate small plots of land for cultivation. Undoubtedly no better method could be adopted for the purification of the soil, the organic refuse rapidly oxidises and nitrifies, supplying ample food in the form of nitrates to the roots of plants.

DAIRIES, COWSHEDS AND MILKSHOPS.—The registered milksellers in the district are 423 in number. Ninety-three new applications for registration were made during the year, and in each case the premises were inspected and the occupiers required to comply with the provisions of the Dairies, Cowshed and Milkshops Order of 1885, and with the regulations made under that order.

An active supervision of the premises occupied by milk purveyors, and a rigid enforcement of the legal powers conferred on the Local Authority by the above provisions has resulted in a considerable change for the better in the condition of these places. In four instances legal proceedings

were taken against dealers for infringing the regulations, and in each case a fine was imposed. In one case a full penalty of £5 was inflicted upon a person for selling milk without being registered, and for continuing the trade after being cautioned, whilst in constant contact with a case of Diphtheria.

The danger to the public health from contaminated milk is now so well established, that it is most desirable that every possible means should be used to protect this article of diet from all unnecessary risk of pollution. I had no hesitation, therefore, in recommending the adoption of the Infectious Disease (Prevention) Act, which confers still further powers in this direction, and enables Local Authorities, in cases where disease is attributable to milk supply, to prohibit under certain conditions the sale of milk in their district from any dairy from whence the disease is supposed to have originated, whether situated within or without the district of the Authority.

INSPECTION OF CANAL BOATS.—Mr. David Vaughan, Chief Inspector of Nuisances is appointed Inspector of Canal Boats, at a salary of £25 per annum, he reports that the number of boats on the Register is 45, and that two new boats have been registered during the year. Forty-three inspections have been made, 28 boats have been visited once and 15 twice. Six notifications of change of masters were received. Five cabins have been abolished, and the boats converted into lighters. No cases of overcrowding were detected, and no trouble was experienced with regard to the separation of the sexes, the boats usually carry two persons only—a man and a boy. Three boats were found to be without water vessels, the attention of the owners was called to the matter, and the defect remedied without delay. No cases of infectious disease have been reported, and no serious nuisance has been found to exist. The boats generally have been kept in a clean and wholesome condition, the ventilation is efficient, and the bilge water regularly removed. No legal proceedings were taken under the provisions of the Canal Boat Act.

John Brydone, Esq., H.M. Chief Inspector of Canal Boats visited Cardiff on two occasions during the year, he inspected several boats, and examined all the books and papers connected with the working of the Acts, and expressed himself as well satisfied with the work performed by the Inspector.

BAKEHOUSES.—The bakehouses in the Borough have been carefully inspected during the year under the powers given by the Factory and Workshops Acts. Most of these places were found to be in a good sanitary condition, but in some, structural defects were found, which required alteration. In all cases the cleansing and whitewashing has been regularly performed in accordance with the provisions of the Acts.

MAGISTERIAL PROCEEDINGS.—Legal proceedings were taken in the following cases during the year 1890:—

	TABLE		Fines.	
	No. of Cases.		£	s. d.
Depositing Refuse in Streets and Lanes	8	...	0	16 0
Exposing unsound Meat for Sale	1	...	10	0 0
Sanitary Defects on Premises	2	...	—	—
Houses unfit for Habitation, closing order obtained	1	...	—	—
Orders obtained to close Polluted Wells	2	...	—	—
Selling Milk without being registered	7	...	7	10 0
Houses overcrowded	1	...	0	10 0
Proceedings under Sale of Food and Drugs Acts	7	...	12	15 0
	29	...	£31	4 0

In the appendix will be found a summary of the work performed during the year by your Inspectors of Nuisances, who have, as usual, paid the greatest attention to their varied and important duties.

I have the honour to be, Gentlemen,

Your obedient Servant,

EDWARD WALFORD, M.D.,

Medical Officer of Health.

APPENDIX.

Report of Inspector of Nuisances

FOR THE YEAR 1890.

Nuisances Inspected	...	...	...	...	1,621
Notices Issued	...	...	...	...	1,591
Nuisances abated without legal proceedings	...	...	...	...	1,588
" " with legal proceedings	...	...	...	...	8
Animals kept so to be a Nuisance	...	...	...	...	54
Injurious and Foul Accumulations	...	...	...	...	475
Nuisances from Smoke	...	...	...	...	4
Suspected Samples of Water obtained for Analysis	...	...	...	...	11
Cesspools Cleansed	...	...	...	...	13
Cesspools Abolished	...	...	...	...	3
Drains Unstopped and Cleansed	...	...	...	...	360
" Trapped and Repaired	...	...	...	...	330
" Tested	...	...	...	...	74
Foul and Offensive Closets Cleansed	...	...	...	...	184
Defective Apparatus to Water Closets Repaired	...	...	...	...	95
Water laid on to Water Closets	...	...	...	...	14
" " Urinals	...	...	...	...	4
Dilapidated and Dirty Houses Cleansed and Repaired	...	...	...	...	18
Articles Destroyed as unfit for Human Food :—					
Beef	...	...	...	...	3,004 lbs.
Pork	...	...	...	...	900 "
Potatoes	...	...	...	...	106 cwt.
Number of Houses Inspected	...	...	...	...	10,347
" Day Inspections of Lodging Houses	...	...	...	...	280
" Night Inspections of Lodging Houses	...	...	...	...	184
" Cases of Overcrowding	...	...	...	...	3
" Houses Disinfected	...	...	...	...	105
" Articles Disinfected	...	...	...	...	977
" " Destroyed	...	...	...	...	26
" Inspections of Dairies, Cowsheds, and Milkshops	...	...	...	...	359
" " Bakehouses	...	...	...	...	279
Lime Brushes given out	...	...	...	...	1,152
Other matters not included above	...	...	...	...	44

D. VAUGHAN,

Chief Inspector of Nuisances.

Meteorological Observations for the year 1890.

MONTH.	Attached Thermometer.	Barometer.	TEMPERATURE IN SHADE.						HYGROMETER.		RAINFALL.				DEATH-RATE PER 1,000.		
			Maximum.	Minimum.	Mean of Maximum.	Mean of Minimum.	Mean of Month.	Earth.		Dry Bulb.	Wet Bulb.	Amount in Inches.	Greatest Fall in 24 hours.	Date of Greatest Fall.	Days on which 0° or more rain fell.	All Causes.	7 Chief Zymotic Diseases.
								1 foot.	4 feet.								
January	...	49	54°·2	28°·0	48°·6	35°·0	41°·8	43°·1	45°·8	43°·9	42°·7	5°·21	0°·61	26th	24	21·2	0·5
February	...	45	52°·0	27°·9	42°·3	34°·0	38°·1	40°·8	44°·6	38°·2	37°·4	0°·55	0°·22	19th	7	20·6	0·6
March	...	49	58°·5	21°·0	50°·3	40°·0	45°·1	40°·2	44°·3	45°·4	44°·5	1°·52	0°·28	24th	14	21·1	1·3
April	...	53	64°·8	32°·0	58°·5	36°·9	45°·2	48°·0	47°·7	47°·0	46°·4	1°·80	0°·34	6th	14	19·7	1·0
May	...	61	77°·0	42°·0	62°·4	47°·0	54°·7	54°·6	52°·9	56°·0	54°·2	1°·99	0°·66	9th	13	17·3	1·8
June	...	63	80°·8	40°·5	64°·3	51°·2	57°·7	60°·7	54°·5	59°·3	58°·3	2°·46	0°·44	25th	17	14·0	1·0
July	...	65	72°·5	46°·0	60°·6	52°·8	59°·7	61°·4	57°·1	61°·7	60°·4	3°·57	0°·73	17th	19	16·3	1·6
August	...	65	75°·0	41°·0	66°·2	53°·4	59°·8	61°·9	58°·7	61°·1	59°·9	3°·95	0°·95	9th	20	23·3	6·4
September	...	64	80°·184	41°·2	66°·7	52°·9	59°·8	59°·9	57°·9	59°·9	59°·0	1°·57	0°·50	17th	11	24·1	4·9
October	...	57	63°·0	32°·0	55°·7	44°·9	47°·5	52°·3	55°·4	52°·0	51°·2	1°·92	0°·41	7th	16	24·1	4·7
November	...	52	59°·8	25°·0	50°·3	40°·3	45°·3	47°·8	54°·2	45°·4	44°·4	3°·89	0°·67	6th	20	22·3	3·0
December	...	40	44°·0	21°·0	41°·4	29°·2	35°·3	39°·6	46°·3	41°·8	31°·9	0°·80	0°·33	18th	4	22·8	1·8

66-8-3 5716
 557 43-1
 52-8-3
 51-9

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Mean Temperature of each month in the year as compared with that of the previous five years :—

MONTH.	1885	1886	1887	1888	1889	Mean of 5 years.	1890
January	38°5	37°5	37°5	38°4	38°9	38°1	41°8
February	44°1	35°6	40°1	36°7	39°1	39°1	38°1
March	42°1	40°7	39°1	39°8	41°8	40°7	45°1
April	46°3	48°4	44°6	44°6	43°4	45°4	45°1
May	49°9	53°1	50°9	52°4	55°3	52°3	54°7
June	59°2	58°8	61°0	56°9	61°6	59°5	57°7
July	63°1	63°0	64°6	58°1	60°8	61°9	59°7
August	59°1	62°9	60°2	58°9	59°5	60°0	59°8
September	51°3	57°6	51°7	55°8	56°7	54°6	59°8
October	45°4	52°3	43°2	48°6	52°2	48°3	47°5
November	44°0	45°0	39°4	47°5	46°2	44°4	45°3
December	38°8	37°7	38°2	42°2	39°9	59°3	35°3

The following table illustrates the daily direction of winds throughout the year :—

Direction of Winds.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
N. ... ..	...	1	...	...	1	2	1	...	...	2	6	1	13
N.E.	5	16	9	14	12	2	5	4	3	8	4	21	103
N.W.	4	1	6	5	2	11	7	7	6	10	9	1	69
N.N.E. ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
N.N.W. ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
S.	5	...	1	2	...	3	2	1	3	...	4	...	21
S.E.	1	3	5	5	12	2	...	6	8	1	1	5	49
S.W.	14	1	10	4	4	8	12	10	6	9	6	1	85
S.S.E. ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
S.S.W.	1	...	...	...	...	...	...	...	...	...	...	...	1
E. ... ..	...	6	...	...	...	...	1	2	2	...	...	3	14
W.	1	...	...	...	...	...	3	1	2	1	...	...	10

TABLE SHEWING RAINFALL AT CARDIFF IN EACH MONTH, DURING THE FIFTEEN YEARS, 1876-90.

YEAR.	JANUARY.				FEBRUARY.				MARCH.			
	Rain fall in month. Inches.	Days on which 0.01 or more rain fell.	Greatest fall in 24 Hours.	Date of greatest fall.	Rain fall in month. Inches.	Date on which 0.01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rain fall in month. Inches.	Days on which 0.01 or more rain fell.	Greatest fall in 24 Hours.	Date of greatest fall.
1876	1.91	12	0.68	2nd	5.38	22	0.90	14th	3.92	22	0.54	9th
1877	5.77	27	0.72	3rd	2.79	20	0.42	11th	2.66	21	0.55	23rd
1878	1.73	17	0.36	27th	3.07	16	0.87	27th	1.25	8	0.40	28th
1879	5.95	10	1.30	1st	5.95	23	0.86	20th	1.14	14	0.32	23rd
1880	0.87	11	0.42	13th	3.88	22	1.06	18th	1.90	12	0.75	2nd
1881	0.92	12	0.23	26th	4.81	15	1.12	9th	3.88	16	0.68	3rd
1882	3.19	13	0.82	2nd	2.56	15	0.60	28th	2.26	19	0.32	1st
1883	5.75	25	1.11	24th	3.73	20	0.65	10th	0.60	10	0.12	19th
1884	6.03	21	0.99	31st	4.40	22	1.35	17th	3.39	16	1.27	3rd
1885	3.71	20	0.58	9th	3.65	22	0.67	26th	1.87	16	0.53	29th
1886	5.03	23	0.91	30th	1.32	11	0.62	28th	3.97	13	0.68	20th
1887	2.76	15	0.73	7th	1.45	6	0.73	3rd	3.21	10	1.16	15th
1888	1.70	12	0.49	1st	1.07	9	1.09	2nd	4.62	15	0.76	24th
1889	1.58	10	0.58	9th	2.00	16	0.64	10th	3.89	16	1.17	8th
1890	5.21	24	0.61	26th	0.55	7	0.22	19th	1.52	14	0.28	24th

TABLE SHEWING RAINFALL AT CARDIFF, IN EACH MONTH DURING THE FIFTEEN YEARS, 1876-90.

YEAR	APRIL.				MAY.				JUNE.			
	Rainfall in Month.	Days on which 0.01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month.	Days on which 0.01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month.	Days on which 0.01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.
1876	1.91	17	0.38	28th	0.23	4	0.12	24th	1.91	9	0.52	15th
1877	2.90	20	0.52	20th	2.47	14	0.99	16th	1.48	12	0.41	1st
1878	4.10	21	0.75	9th	4.82	24	0.71	16th	3.68	15	1.65	16th
1879	2.64	17	0.73	19th	2.85	15	0.88	29th	6.48	23	1.64	30th
1880	1.98	13	0.40	5th	1.45	11	0.46	26th	2.38	19	0.53	17th
1881	1.44	7	0.60	13th	2.62	10	1.73	17th	3.59	18	0.63	16th
1882	5.68	20	0.60	12th	2.72	13	0.59	22nd	4.28	20	0.82	5th
1883	0.67	7	0.28	26th	1.90	12	0.70	11th	1.81	17	1.16	27th
1884	1.56	11	0.43	3rd	2.37	14	0.50	2nd	1.92	9	1.11	28th
1885	2.52	16	0.67	1st	3.86	27	0.71	19th	2.61	13	1.04	23rd
1886	2.98	15	0.73	7th	6.38	19	1.52	31st	0.70	7	0.28	1st
1887	1.63	10	0.45	26th	1.94	14	0.63	19th	0.60	4	0.51	2nd
1888	1.48	13	0.30	17th	1.69	8	0.40	17th	3.69	17	0.74	17th
1889	3.54	18	0.71	30th	2.51	16	0.38	31st	0.58	6	0.41	1st
1890	1.80	14	0.34	6th	1.99	13	0.66	9th	2.46	17	0.40	10th

TABLE SHEWING RAINFALL AT CARDIFF IN MONTHS, DURING THE FIFTEEN YEARS, 1876-90.

YEAR.	JULY.				AUGUST.				SEPTEMBER.			
	Rain fall in month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 Hours.	Date of greatest fall.	Rain fall in month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 Hours.	Date of greatest fall.	Rain fall in month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 Hours.	Date of greatest fall.
1876	1·91	10	0·41	6th	6·06	27	2·72	19th	7·08	19	1·28	30th
1877	4·94	18	1·27	14th	5·70	21	1·14	27th	3·25	8	1·39	27th
1878	2·01	9	0·78	23rd	10·82	24	3·64	15th	3·21	9	1·28	22nd
1879	4·00	21	0·81	19th	8·12	22	1·34	27th	4·85	17	0·69	7th
1880	6·64	23	0·95	17th	0·77	7	0·27	2nd	3·67	15	0·77	17th
1881	2·62	15	0·77	30th	6·94	20	1·45	22nd	2·09	13	0·48	22nd
1882	5·77	24	0·84	6th	6·75	16	1·14	22nd	3·94	17	0·79	28th
1883	3·56	21	0·82	20th	2·09	16	0·73	8th	6·14	19	1·53	23rd
1884	4·05	20	0·94	23rd	2·21	9	0·84	31st	1·96	15	0·64	21st
1885	0·72	6	0·31	18th	2·74	12	1·07	6th	6·51	23	1·76	10th
1886	4·85	17	0·71	29th	1·68	9	0·44	9th	4·08	14	0·75	4th
1887	1·51	13	0·85	26th	2·88	11	1·02	16th	4·07	17	1·24	1st
1888	6·83	25	1·16	7th	3·50	17	0·74	29th	1·21	8	0·52	27th
1889	3·85	12	1·16	9th	3·90	15	0·65	2nd	2·09	9	1·53	23rd
1890	3·57	19	0·73	17th	3·95	20	0·95	9th	1·57	11	0·50	17th

TABLE SHEWING RAINFALL AT CARDIFF IN EACH MONTH, DURING THE FIFTEEN YEARS, 1876-90.

YEAR.	OCTOBER.				NOVEMBER.				DECEMBER.				YEARS. Rainfall per Annum. Inches.
	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	
1876	3·84	17	0·62	16th	5·27	18	0·75	12th	7·13	23	0·80	17th	46·62
1877	4·89	16	1·15	24th	6·54	25	1·06	24th	3·40	25	0·88	28th	46·79
1878	5·76	18	1·09	23rd	5·76	13	0·84	9th	2·70	10	0·75	28th	45·71
1879	1·51	12	0·35	19th	0·43	8	0·18	20th	2·11	9	0·79	31st	44·79
1880	4·94	15	1·45	25th	3·67	15	0·90	15th	6·70	20	1·09	14th	38·85
1881	3·23	13	0·72	22nd	4·98	23	0·65	26th	4·50	15	1·77	7th	41·62
1882	8·33	23	1·64	23rd	6·26	21	0·90	7th	4·86	25	0·73	31st	56·60
1883	4·23	17	0·61	15th	6·38	24	0·80	21st	1·92	17	0·57	10th	38·78
1884	1·01	17	0·35	8th	2·12	16	0·47	30th	5·87	20	0·68	5th	36·89
1885	5·59	22	1·60	22nd	5·47	16	1·11	27th	1·74	17	0·05	5th	40·99
1886	5·09	21	0·87	15th	5·39	21	1·03	5th	6·64	21	1·33	26th	48·11
1887	2·80	13	1·14	29th	3·48	21	0·69	3rd	3·46	20	0·75	12th	29·79
1888	1·74	11	0·52	23th	7·04	26	1·13	12th	3·61	16	0·88	27th	38·18
1889	3·77	25	0·48	8th	1·87	12	0·75	24th	2·40	14	0·80	21st	31·38
1890	1·92	16	0·41	7th	3·89	20	0·67	6th	0·80	4	0·33	18th	29·23

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.

1st Quarter, ending March 29th, 1890.

CAUSES OF DEATH.	DEATHS AT AGES.								Death-rate per 1000 Inhabitants.	
	Under 1 Year.	1 and under 5.	5 and under 16.	15 and under 25.	25 and under 60.	60 and under 80.	80 and upwards.	Total.	Est. Pop. 117,012	Est. Pop. 131,658
	CLASSES.									
I. Specific Febrile or Zymotic Diseases	11	9	4	2	8	2	...	36	1-23	1-09
II. Parasitic Diseases	...	...	...	...	...	...	...	...	...	...
III. Dietic	...	...	...	...	2	...	...	2	0-06	0-06
IV. Constitutional	11	13	9	13	67	9	...	122	4-17	3-70
V. Developmental	23	1	...	...	...	22	3	49	1-67	1-48
VI. Local	83	96	13	13	131	58	7	341	11-65	10-36
VII. Violence	4	2	3	4	10	3	1	27	0-92	0-82
VIII. Ill-defined and not specified causes	27	3	...	0	1	5	...	36	1-23	1-09
Total	159	63	30	32	219	99	11	613	20-9	18-6
CLASS I. Miasmatic Diseases.										
Scarlet Fever	...	5	2	...	...	...	...	7	0-23	0-21
Influenza	...	...	1	1	7	2	...	11	0-37	0-33
Whooping-cough	5	3	...	...	...	...	...	8	0-27	0-24
Diphtheria	...	...	1	...	...	...	...	1	0-03	0-03
Enteric Fever	...	...	...	1	...	...	...	1	0-03	0-03
Diarrhaal Diseases.										
Diarrhoea, Dysentery...	4	1	...	...	1	...	...	6	0-20	0-18
Venereal Diseases.										
Syphilis	1	...	...	...	...	...	...	1	0-03	0-03
Septic Diseases.										
Erysipelas	1	...	...	...	...	...	...	1	0-03	0-03
Total	11	5	4	2	8	2	...	36	1-23	1-09
CLASS II.										
CLASS III. Chronic Alcoholism										
Total	...	...	...	...	2	...	...	2	0-06	0-06
CLASS IV.										
Rheumatism	...	...	...	...	...	1	...	1	0-03	0-03
Cancer	...	...	...	...	10	5	...	15	0-51	0-45
Tabes Mesenterica	2	2	...	2	...	...	...	6	0-20	0-18
Tubercular Meningitis (Acute Hydrocephalus)	6	7	4	3	1	...	...	21	0-71	0-63
Phtthisis	2	2	2	9	46	2	...	68	2-15	1-91
Other Forms of Tuberculosis, Scrofula	1	1	3	...	7	1	...	13	0-44	0-39
Anæmia, Chlorosis, Leucocythæmia	...	1	...	1	...	...	...	2	0-06	0-06
Diabetes Mellitus	...	...	...	...	1	...	...	1	0-03	0-03
Total	11	13	9	13	67	9	...	122	4-17	3-70
CLASS V.										
Premature Birth	19	...	...	...	...	...	...	19	0-64	0-57
Cyanosis	2	...	1	...	...	...	...	3	0-10	0-09
Spina Bifida	2	...	...	...	...	...	...	2	0-06	0-06
Old Age	...	...	...	...	...	22	3	25	0-85	0-75
Total	23	...	1	...	...	22	3	49	1-67	1-48
CLASS VI. Diseases of Nervous System.										
Inflammation of Brain or its Membranes	...	1	...	...	...	...	...	1	0-03	0-03
Apoplexy	...	...	...	...	10	5	...	15	0-51	0-45
Softening of Brain	...	...	...	...	1	1	...	2	0-06	0-06
Hemiplegia, Brain Paralysis	1	...	...	...	1	2	...	4	0-13	0-12
Paralysis, Agitans	...	...	...	...	4	2	...	6	0-20	0-18
Epilepsy	...	...	...	...	3	1	...	4	0-13	0-12
Convulsions	39	6	1	...	...	1	...	47	1-60	1-42
Paraplegia, Diseases of Spinal Cord	...	...	...	...	1	...	...	1	0-03	0-03
Other Diseases of Nervous System	...	...	...	...	...	1	...	1	0-03	0-03
Diseases of Circulatory System.										
Endocarditis, Valvular Disease	1	1	...	1	4	21	5	32	1-09	0-97
Pericarditis	...	...	...	...	...	1	...	1	0-03	0-03
Syncope	...	...	...	...	...	4	...	4	0-13	0-12
Aneurism	...	...	...	...	3	2	...	5	0-17	0-15

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.—Continued.

CAUSES OF DEATH.	DEATHS AT AGES.								Death-rate per 1000 Inhabitants.	
	Under 1 year.	1 and under 5.	5 and under 10.	10 and under 25.	25 and under 50.	50 and under 80.	80 and upwards.	Total.	Est. Pop. 117,612	Est. Pop. 131,638
CLASS VI. <i>Diseases of Respiratory System.</i>										
Laryngitis ... ..	...	...	...	...	1	...	...	1	0-03	0-03
Croup	2	3	2	...	...	...	...	7	0-23	0-21
Bronchitis	21	4	2	1	25	19	3	75	2-56	2-27
Pneumonia	15	18	2	4	26	11	4	80	2-73	2-43
Pleurisy ... ..	...	...	...	...	3	1	...	4	0-13	0-12
Other Diseases of Respiratory System	1	...	...	...	...	...	...	1	0-03	0-03
<i>Diseases of Digestive System.</i>										
Stomatitis ... ..	...	1	...	...	...	...	...	1	0-03	0-03
Dentation ... ..	...	1	...	...	...	...	...	1	0-03	0-03
Diseases of Stomach	2	...	...	...	2	...	...	4	0-13	0-12
Enteritis	1	1	...	...	...	...	...	2	0-06	0-06
Ileus, Obstruction of Intestine	...	...	...	...	1	...	...	1	0-03	0-03
Hernia ... ..	...	...	...	...	3	1	...	4	0-13	0-12
Peritonitis ... ..	...	...	2	...	...	...	...	2	0-06	0-06
Ascites ... ..	...	1	...	...	...	...	...	1	0-03	0-03
Cirrhosis of Liver ... ..	...	...	...	...	...	2	...	2	0-06	0-06
Other Diseases of Liver	...	...	...	1	2	1	...	4	0-13	0-12
<i>Diseases of Urinary System.</i>										
Acute Nephritis ... ..	...	...	1	2	5	1	...	9	0-30	0-27
Bright's Disease ... ..	...	...	1	...	4	2	...	7	0-23	0-21
Uræmia ... ..	...	...	...	...	2	...	...	2	0-06	0-06
Disease of Bladder and of Prostate	...	...	...	...	1	...	...	1	0-03	0-03
Other Diseases of Urinary System	...	...	...	...	1	...	...	1	0-03	0-03
<i>Diseases of Organs of Generation.</i>										
Ovarian Disease ... ..	...	...	...	...	1	...	...	1	0-03	0-03
<i>Diseases of Parturition.</i>										
Abortion, Miscarriage ... ..	...	...	...	...	1	...	...	1	0-03	0-03
Other Accidents of Childbirth	...	...	...	...	4	...	...	4	0-13	0-12
<i>Diseases of Organs of Locomotion.</i>										
Caries, Necrosis ... ..	...	...	...	...	...	...	...	...	...	...
Other Diseases of Organs of Locomotion	...	...	1	1	...	...	...	2	0-06	0-06
Total	83	36	13	13	131	58	7	341	11-65	10-36
CLASS VII. <i>Accident or Negligence.</i>										
Fractures, Contusions ... ..	...	...	...	1	3	2	1	7	0-23	0-21
Burn, Scald	1	1	3	2	...	...	...	7	0-23	0-21
Drowning... ..	...	...	...	...	5	...	...	5	0-17	0-15
Suffocation	3	1	...	...	...	...	...	4	0-13	0-12
Otherwise ... ..	...	...	...	1	...	...	...	1	0-03	0-03
<i>Homicide.</i>										
Cut, Stab ... ..	...	...	...	...	...	1	...	1	0-03	0-03
Poison ... ..	...	...	...	...	1	...	...	1	0-03	0-03
Otherwise ... ..	...	...	...	...	1	...	...	1	0-03	0-03
Total	4	2	3	4	10	3	1	27	0-92	0-82
CLASS VIII. <i>Debility, Atrophy, Inanition</i>	23	3	...	...	...	2	...	28	0-95	0-85
Tumour	1	...	...	...	...	...	...	1	0-03	0-03
Abscess	1	...	...	...	1	...	...	2	0-06	0-06
Sudden (Cause unascertained)	1	...	...	...	...	2	...	3	0-10	0-09
Other ill-defined and not specified	1	...	...	...	...	1	...	2	0-06	0-06
Total	27	3	...	...	1	5	...	36	1-28	1-09

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.

2nd Quarter, ending June 21st, 1890.

CAUSES OF DEATH.		DEATHS AT AGES.							Death-rate per 1000 Inhabitants.		
		Under 1 Year.	1 and under 4.	5 and under 14.	15 and under 24.	25 and under 49.	50 and under 80.	80 and upwards.	Total.	Est. Pop. 117,012.	Est. Pop. 131,638.
CLASSES.											
I.	Specific Febrile or Zymotic Diseases	12	15	4	2	8	1	42	1.43	1.27	
II.	Parasitic Diseases	1	..	..	..	..	..	1	0.03	0.03
III.	Dietic	..	..	..	1	2	2	5	0.17	0.15
IV.	Constitutional	15	10	4	16	57	7	110	3.76	3.34	
V.	Developmental	22	..	..	..	..	14	39	1.33	1.13
VI.	Local	58	26	14	8	88	53	248	8.47	7.53	
VII.	Violence	2	3	3	3	9	1	21	0.71	0.63	
VIII.	Ill-defined and not specified causes	22	3	..	..	4	2	31	1.05	0.94
Total		132	57	25	30	168	80	497	16.8	15.1	
CLASS I. Miasmatic Diseases.											
	Measles	2	5	..	..	..	..	7	0.23	0.21
	Scarlet Fever	1	2	1	..	..	..	4	0.13	0.12
	Whooping-cough	5	5	..	..	..	..	10	0.34	0.30
	Diphtheria	..	3	..	..	..	..	3	0.10	0.09
	Enteric Fever	..	..	2	1	6	..	9	0.30	0.27
Diarrhœal Diseases.											
	Diarrhœa, Dysentery	4	..	..	1	..	..	5	0.17	0.15
Septic Diseases.											
	Pyæmia, Septicæmia	..	..	1	..	2	1	4	0.13	0.12
Total		12	15	4	2	8	1	42	1.43	1.27	
CLASS II. Thrush											
	Thrush	1	..	..	..	..	..	1	0.03	0.03
CLASS III.											
	Scurvy	..	..	..	1	..	1	2	0.06	0.06
	Chronic Alcoholism	..	..	..	..	2	1	3	0.10	0.09
Total		..	..	..	1	2	2	5	0.17	0.15
CLASS IV.											
	Rheumatic Fever, Rheumatism of Heart	..	..	..	1	1	1	3	0.10	0.09
	Rheumatism	..	..	..	1	..	..	1	0.03	0.03
	Rickets	..	1	..	..	..	..	1	0.03	0.03
	Cancer	..	..	..	..	7	3	10	0.34	0.30
	Tabes Mesenterica	3	2	..	..	..	..	5	0.17	0.15
	Tubercular Meningitis (Acute Hydrocephalus)	11	7	1	2	..	..	21	0.71	0.63
	Phthisis	..	..	1	11	47	3	63	0.06	0.06
	Other Forms of Tuberculosis, Scrofula	1	..	2	..	..	..	3	0.10	0.09
	Purpura, Hæmorrhagic Diathesis	..	..	..	1	..	..	1	0.03	0.03
	Anæmia, Chlorosis, Leucocythæmia	..	..	..	..	2	..	2	0.06	0.06
Total		15	10	4	16	57	7	110	3.76	3.34	
CLASS V.											
	Premature Birth	20	..	..	..	..	..	20	0.68	0.60
	Cyanosis	1	..	..	..	..	..	1	0.03	0.03
	Cleft Palate, Harelip	1	..	..	..	..	..	1	0.03	0.03
	Old Age	..	..	..	..	..	14	3	0.58	0.51
Total		22	..	..	..	..	14	39	1.33	1.13
CLASS VI. Diseases of Nervous System.											
	Inflammation of Brain or its Membranes	..	..	..	..	..	1	1	0.03	0.03
	Apoplexy	..	..	..	5	7	..	12	0.41	0.36
	Softening of Brain	..	..	..	1	2	..	3	0.10	0.09
	Hemiplegia, Brain Paralysis	..	..	..	..	4	..	4	0.13	0.12
	Paralysis, Agitans	..	..	..	..	1	1	2	0.06	0.06
	Chorea	..	..	..	1	..	..	1	0.03	0.03
	Epilepsy	..	..	..	3	3	1	7	0.23	0.21
	Convulsions	34	4	..	1	1	1	40	1.36	1.21	
	Idiopathic Tetanus	..	..	..	1	..	..	1	0.03	0.03
	Paraplegia, Diseases of Spinal Cord	..	..	..	..	2	..	2	0.06	0.06
	Other Diseases of Nervous System	..	..	..	..	..	1	1	0.03	0.03
Diseases of Circulatory System.											
	Endocarditis, Valvular Disease	..	3	1	25	7	..	36	1.23	1.09	
	Pericarditis	..	1	..	..	..	..	1	0.03	0.03
	Syncope	..	1	..	1	1	..	3	0.1	0.09	
	Aneurism	..	..	..	..	3	..	5	0.10	0.09

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.—Continued.

CAUSES OF DEATH.	DEATHS AT AGES.								Death-rate per 1000 Inhabitants.	
	Under 1 year.	1 and under 4.	5 and under 15.	15 and under 25.	25 and under 60.	60 and under 80.	80 and upwards.	Total.	Est. Pop. 117,012	Est. Pop. 181,638
CLASS VI. <i>Diseases of Respiratory System.</i>										
Laryngitis	...	...	...	...	1	...	...	1	0-03	0-03
Croup	1	4	...	...	...	...	...	5	0-17	0-15
Emphysema, Asthma	...	...	...	...	1	...	...	1	0-03	0-03
Bronchitis	8	8	...	1	5	7	...	29	0-99	0-88
Pneumonia	9	9	6	...	15	7	...	46	1-57	1-39
Pleurisy	...	...	...	...	...	1	...	1	0-03	0-03
<i>Diseases of Digestive System.</i>										
Dentition	...	1	...	...	...	...	...	1	0-03	0-03
Hæmatemesi.	...	...	...	...	...	1	...	1	0-03	0-03
Diseases of Stomach	2	...	...	...	...	...	...	2	0-06	0-06
Enteritis	3	...	...	...	2	...	...	5	0-17	0-15
Ulceration of Intestine	...	...	...	...	...	1	...	1	0-03	0-03
Hernia	...	...	...	...	2	...	...	2	0-06	0-06
Peritonitis	...	...	1	...	2	1	...	4	0-13	0-12
Cirrhosis of Liver	...	...	...	...	1	2	...	3	0-10	0-09
Other Diseases of Liver	1	...	...	...	2	1	...	4	0-13	0-12
<i>Disease of Lymphatic System and Ductless Glands.</i>										
Addison's Disease	...	...	...	...	1	...	...	1	0-03	0-03
<i>Diseases of Urinary System.</i>										
Acute Nephritis	...	...	...	...	1	...	...	1	0-03	0-03
Bright's Disease	...	...	...	...	7	3	1	11	0-37	0-33
Uræmia	...	...	...	...	1	1	...	2	0-06	0-06
Disease of Bladder and of Prostate	...	...	...	...	...	2	...	2	0-06	0-06
<i>Diseases of Parturition.</i>										
Abortion, Miscarriage	...	...	...	...	2	...	...	2	0-06	0-06
Placenta Prævia Flooding	...	...	...	...	1	...	...	1	0-03	0-03
Other Accidents of Childbirth	...	...	...	1	...	...	...	1	0-03	0-03
<i>Diseases of Organs of Locomotion.</i>										
Caries, Necrosis	...	...	...	...	2	...	...	2	0-06	0-06
Arthritis, Ostitis, Periostitis	...	...	1	1	...	...	...	2	0-06	0-06
Total	58	26	14	8	88	53	1	248	8-47	7-53
CLASS VII. <i>Accident or Negligence.</i>										
Fractures, Contusions	...	...	...	1	1	...	...	2	0-06	0-06
Burn, Scald	...	2	...	...	...	...	...	2	0-06	0-06
Drowning	...	1	3	1	5	...	...	10	0-34	0-30
Suffocation	2	...	...	...	...	...	...	2	0-06	0-06
Otherwise	...	...	...	...	2	1	...	3	0-19	0-09
<i>Suicide.</i>										
Cut, Stab	...	...	...	1	...	...	...	1	0-03	0-03
Otherwise	...	...	...	...	1	...	...	1	0-03	0-03
Total	2	3	3	3	9	1	...	21	0-71	0-63
CLASS VIII.										
Dropsy	...	...	...	...	...	1	...	1	0-03	0-03
Debility, Atrophy, Inanition	22	3	...	...	...	1	...	26	0-88	0-79
Abscess	...	...	...	...	1	...	...	1	0-03	0-03
Hæmorrhage	...	...	...	...	2	...	...	2	0-06	0-06
Other ill-defined and not specified	...	...	...	...	1	...	...	1	0-03	0-03
Total	22	3	...	...	4	2	...	31	1-05	1-94

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.

3rd Quarter, ending September 27th, 1890.

CAUSES OF DEATH.	DEATHS AT AGE ^s .								Total.	Death-rate per 1000 Inhabitants.	
	Under 1 Year.	1 and under 5.	5 and under 10.	15 and under 25.	25 and under 50.	50 and under 80.	80 and upwards.	Est. Pop. 117,012		Est. Pop. 131,658	
CLASSES.											
I. Specific Febrile or Zymotic Diseases	70	36	7	...	6	5	1	125	4.27	3.79	
II. Parasitic Diseases	...	...	...	...	...	...	...	...	...	...
III. Dietic	...	...	...	...	1	...	...	1	0.03	0.03
IV. Constitutional	22	10	10	16	41	10	...	109	3.72	3.31	
V. Developmental	20	1	...	...	1	19	8	49	1.67	1.48
VI. Local	78	29	14	9	69	36	6	241	8.23	7.32	
VII. Violence	2	...	4	2	13	1	...	22	0.75	0.66	
VIII. Ill-defined and not specified causes	56	4	...	...	3	1	...	64	2.18	1.94
Total	248	80	35	27	134	72	15	611	20.8	17.04	
CLASS I. Miasmatic Diseases.											
Chickenpox	1	...	...	...	...	...	...	1	0.03	0.03
Measles	4	11	...	...	...	...	...	15	0.51	0.45
Scarlet Fever	1	3	1	...	...	...	...	5	0.17	0.15
Whooping-cough	1	7	...	...	...	...	...	8	0.27	0.24
Diphtheria	1	3	3	...	1	...	...	8	0.27	0.24
Enteric Fever	...	...	3	...	...	...	...	3	0.10	0.09
Diarrhœal Diseases.											
Simple Cholera	1	...	...	...	...	...	...	1	0.03	0.03
Diarrhœa, Dysentery	59	12	...	...	5	4	1	81	2.76	2.46
Veneral Diseases.											
Syphillis	2	...	...	...	...	...	...	2	0.06	0.06
Gonorrhœa, Stricture of Urethra	...	...	...	...	...	1	...	1	0.03	0.03
Total	70	36	7	...	6	5	1	125	4.27	3.79	
CLASS II. Thrush											
...	
CLASS III. Chronic Alcoholism											
...	...	...	...	...	1	...	...	1	0.03	0.03
CLASS IV.											
Rheumatic Fever, Rheumatism of Heart	...	...	...	2	...	...	...	2	0.06	0.06
Rheumatism	...	...	...	...	1	...	...	1	0.03	0.03
Rickets	1	...	...	...	...	...	...	1	0.03	0.03
Cancer	...	...	...	...	6	6	...	12	0.41	0.36
Tabes Mesenterica	9	3	...	...	...	...	...	12	0.41	0.36
Tubercular Meningitis (Acute Hydrocephalus)	10	6	6	1	2	1	...	26	0.88	0.79	
Phthisis	2	...	3	11	28	3	...	47	1.60	1.42	
Other Forms of Tuberculosis, Scrofula	...	1	1	...	1	...	...	3	0.10	0.09
Anæmia, Chlorosis, Leucocythæmia	...	...	...	2	1	...	...	3	0.10	0.09
Diabetes Mellitus	...	...	...	...	2	...	...	2	0.06	0.06
Total	22	10	10	16	41	10	...	109	3.72	3.31	
CLASS V.											
Premature Birth	18	1	...	...	...	...	...	19	0.64	0.57
Cyanosis	1	...	...	...	...	...	...	1	0.03	0.03
Cleft Palate, Harelip	1	...	...	...	...	...	...	1	0.03	0.03
Old Age	...	...	...	...	1	19	8	28	0.95	0.85
Total	20	1	...	...	1	19	8	49	1.67	1.48
CLASS VI. Diseases of Nervous System.											
Inflammation of Brain or its Membranes	...	...	1	...	1	...	...	2	0.06	0.06
Apoplexy	...	...	...	1	4	1	1	7	0.23	0.21
Paralysis	...	...	...	...	...	2	...	2	0.06	0.06
Softening of Brain	...	1	...	...	...	1	1	3	0.10	0.09
Hemiplegia, Brain Paralysis	...	...	...	...	5	...	...	5	0.17	0.15
Paralysis Agitans	...	...	...	...	...	1	...	1	0.03	0.03
Epilepsy	...	...	...	...	1	...	...	1	0.03	0.03
Convulsions	37	8	2	1	...	...	...	48	1.64	1.45
Idiopathic Tetanus	...	...	...	...	1	...	...	1	0.03	0.03
Paraplegia, Diseases of Spinal Cord	...	...	...	...	1	1	...	2	0.06	0.06
Diseases of Circulatory System.											
Endocarditis, Valvular Disease	...	...	2	3	11	13	1	30	1.02	0.91
Pericarditis	...	...	1	...	...	...	...	1	0.03	0.03
Angina Pectoris	...	...	...	...	1	1	...	2	0.06	0.06
Syncope	...	...	...	...	1	1	...	2	0.06	0.06
Aneurism	...	...	...	...	2	...	...	2	0.06	0.06

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.—Continued.

CAUSES OF DEATH.	DEATHS AT AGES.								Death-rate per 1000 Inhabitants.		
	Under 1 year.	1 and under 4.	5 and under 14.	15 and under 25.	26 and under 60.	60 and under 80.	80 and upwards.	Total.	Est. Pop. 117,012	Est. Pop. 121,838	
	CLASS VI.										
<i>Diseases of Respiratory System.</i>											
Croup	...	3	...	...	...	1	...	3	0-10	0-09
Emphysema, Asthma	1	0-03	0-03	
Bronchitis	...	14	4	1	...	10	6	2	37	1-26	1-12
Pneumonia	...	8	9	3	1	12	4	1	38	1-29	1-15
Pleurisy	...	1	3	4	0-13	0-12
<i>Diseases of Digestive System.</i>											
Dentition	...	4	1	...	...	...	...	5	0-17	0-15
Diseases of Stomach	...	1	...	...	...	1	...	2	0-06	0-06
Gastritis	...	3	...	...	...	...	...	3	0-10	0-09
Enteritis	...	6	1	...	...	...	...	7	0-23	0-21
Ileus, Obstruction of Intestine	2	...	...	2	0-06	0-06	
Peritonitis	2	1	1	1	5	0-17	0-15	
Jaundice	...	2	...	...	...	...	...	2	0-06	0-06
Hepatitis	...	1	...	...	...	...	...	1	0-03	0-03
Cirrhosis of Liver	1	2	...	...	3	0-10	0-09	
Other Diseases of Digestive System	1	...	...	...	1	0-03	0-03	
<i>Diseases of Urinary System.</i>											
Acute Nephritis	1	...	...	1	0-03	0-03	
Bright's Disease	3	1	...	4	0-13	0-12	
Uræmia	2	1	...	3	0-10	0-09	
Other Diseases of Urinary System	1	...	...	1	0-03	0-03	
<i>Diseases of Organs of Generation.</i>											
Diseases of Uterus and Vagina	1	...	1	0-03	0-03	
<i>Diseases of Parturition.</i>											
Childbirth	2	...	...	2	0-06	0-06	
Placenta Prævia, Flooding	1	...	...	1	0-03	0-02	
<i>Diseases of Organs of Locomotion.</i>											
Caries, Necrosis	1	...	...	...	...	1	0-03	0-03	
<i>Diseases of Integumentary System.</i>											
Carbuncle	1	...	...	...	1	0-03	0-03	
Eczema	...	1	...	...	...	...	...	1	0-03	0-03
Pemphigus	...	1	1	...	...	...	...	2	0-06	0-06
Total	...	78	29	14	9	69	36	6	241	8-23	7-32
CLASS VII.	<i>Accident or Negligence.</i>										
Fractures, Contusions	1	1	8	1	...	11	0-37	0-33
Burn, Scald	1	1	2	0-06	0-06
Drowning	2	1	4	7	0-23	0-21
Suffocation	...	2	2	0-06	0-06
Total	...	2	...	4	2	13	1	...	22	0-75	0-66
CLASS VIII.	<i>Debility, Atrophy, Inanition</i>										
Tumour	...	55	3	1	59	2-01	1-75
Abscess	1	1	0-03	0-03
Hæmorrhage	1	1	...	1	0-03	0-03
Other ill-defined and not specified	...	1	1	2	0-06	0-06
Total	...	56	4	3	1	...	64	2-18	1-94

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.

4th Quarter, ending January 3rd, 1891.

CAUSES OF DEATH.	DEATHS AT AGE-								Total.	Death-rate per 1000 Inhabitants.		
	Under 1 Year.	1 and under 4.	5 and under 14.	15 and under 24.	25 and under 64.	65 and under 80.	80 and upwards.	Total.		Per 1000	Per 1000	Per 1000
										117,014	117,014	181,638
CLASSES.												
I. Specific Febrile or Zymotic Diseases	43	44	11	5	6	...	...	109	3.47	3.08	...
II. Parasitic Diseases	...	...	...	...	...	...	...	...	...	...	...
III. Dietic	...	...	...	...	1	...	...	1	0.03	0.02	...
IV. Constitutional	9	20	5	14	57	16	...	121	3.85	3.42	...	
V. Developmental	30	...	1	...	1	19	10	61	1.94	1.72	...	
VI. Local	93	38	8	11	123	73	6	352	11.21	9.96	...	
VII. Violence	4	7	1	8	20	1	...	41	1.30	1.16	...	
VIII. Ill-defined and not specified causes	43	5	...	...	8	6	1	63	2.00	1.7	...
Total	222	114	26	38	216	115	17	748	23.8	21.1	...	
CLASS I. Miasmatic Diseases.												
Measles	14	27	2	...	...	...	...	43	1.36	1.21	...
Scarlet Fever	1	2	...	...	...	...	...	3	0.09	0.08	...
Influenza	...	...	...	1	...	...	...	1	0.03	0.02	...
Whooping-cough	5	5	2	...	...	...	...	12	0.38	0.34	...
Diphtheria	...	1	2	...	...	...	...	3	0.09	0.08	...
Enteric Fever	...	1	3	3	3	...	...	10	0.31	0.28	...
<i>Diarrhaal Diseases.</i>												
Diarrhoea, Dysentery	21	8	1	...	...	...	...	30	0.95	0.84	...
<i>Veneral Diseases.</i>												
Syphilis	2	...	...	...	...	...	...	2	0.06	0.05	...
<i>Septic Diseases.</i>												
Erysipelas	...	...	...	1	...	...	...	1	0.03	0.02	...
Pyæmia, Septicæmia	...	...	1	...	1	...	...	2	0.06	0.05	...
Puerperal Fever	...	...	...	...	2	...	...	2	0.06	0.05	...
Total	43	44	11	5	6	...	...	109	3.47	3.08	...
CLASS II. Thrush												
...	
CLASS III. Chronic Alcoholism												
...	...	...	...	1	...	...	...	1	0.03	0.02	...
CLASS IV.												
Rheumatic Fever, Rheumatism of Heart	...	...	...	...	1	...	...	1	0.03	0.02	...
Rheumatism	...	...	...	...	1	...	...	1	0.03	0.02	...
Gout	...	...	...	...	...	1	...	1	0.03	0.02	...
Rickets	...	1	...	...	...	...	...	1	0.03	0.02	...
Cancer	...	...	...	...	9	13	...	22	0.70	0.62	...
Tabes Mesenterica	3	6	...	...	...	...	...	9	0.28	0.25	...
Tubercular Meningitis (Acute Hydrocephalus)	5	13	1	...	1	...	...	20	0.63	0.56	...
Phthisis	...	...	3	13	40	2	...	58	1.84	1.64	...
Other Forms of Tuberculosis, Scrofula	1	...	1	...	1	...	...	3	0.09	0.08	...
Anæmia, Chlorosis, Leucocythæmia	...	...	...	1	1	...	...	2	0.06	0.05	...
Diabetes Mellitus	...	...	...	...	2	...	...	2	0.06	0.05	...
Other Constitutional Diseases	...	...	...	...	1	...	...	1	0.03	0.02	...
Total	9	20	5	14	57	16	...	121	3.85	3.42	...	
CLASS V.												
Premature Birth	25	...	...	...	...	...	...	25	0.79	0.70	...
Cyanosis	2	...	...	...	...	...	...	2	0.06	0.05	...
Spina Bifida	2	...	1	...	...	...	...	3	0.09	0.08	...
Imperforate Anus	1	...	...	...	...	...	...	1	0.03	0.02	...
Old Age	...	...	...	...	1	19	10	30	0.95	0.84	...
Total	30	...	1	...	1	19	10	61	1.94	1.72	...	
CLASS VI. Diseases of Nervous System.												
Inflammation of Brain or its Membranes	...	1	1	...	...	...	...	2	0.06	0.05	...
Apoplexy	...	...	...	1	5	8	...	14	0.44	0.39	...
Paralysis	...	...	...	...	5	2	...	7	0.22	0.19	...
Softening of Brain	...	...	...	...	1	1	...	2	0.06	0.05	...
Hemiplegia, Brain Paralysis	...	...	...	...	5	2	...	7	1.22	0.19	...
Epilepsy	...	...	...	...	1	...	...	1	0.03	0.02	...
Convulsions	35	5	1	...	...	...	...	41	1.30	1.16	...
Idiopathic Tetanus	...	...	1	...	...	...	...	1	0.03	0.02	...
Paraplegia, Diseases of Spinal Cord	...	...	...	...	1	...	2	3	0.09	0.08	...
Other Diseases of Nervous System	...	...	...	...	1	...	...	1	0.03	0.02	...
<i>Diseases of Circulatory System.</i>												
Endocarditis, Valvular Disease	1	...	2	...	24	11	2	40	1.27	1.13	...	
Syncope	...	...	...	1	6	1	...	8	0.25	0.22	...
Aneurism	...	1	...	...	4	1	...	6	0.19	0.16	...

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.—Continued.

CAUSES OF DEATH.	DEATHS AT AGES.							Total.	Death-rate per 1000 Inhabitants.	
	Under 1 year.	1 and under 4.	5 and under 14.	15 and under 24.	25 and under 60.	60 and under 80.	80 and upwards.		Est. Pop.	Est. Pop.
									117,012	121,638
CLASS VI. <i>Diseases of Respiratory System.</i>										
Laryngitis					2			2	0-06	0-05
Croup		5						5	0-15	0-13
Emphysema, Asthma					1	1		2	0-06	0-05
Bronchitis	22	5			16	20	2	65	2-07	1-84
Pneumonia	18	18	2	4	24	10		76	2-42	2-15
Other Diseases of the Respiratory System ..	1							1	0-03	0-02
<i>Diseases of Digestive System.</i>										
Dentition		2						2	0-06	0-05
Hæmatemesis				1				1	0-03	0-02
Diseases of Stomach					1	1		2	0-06	0-05
Gastritis	4				1			5	0-15	0-13
Enteritis	10	1			1			12	0-38	0-34
Ileus, Obstruction of Intestine					1			1	0-03	0-02
Stricture or Strangulation of Intestine ..					1	2		3	0-09	0-08
Hernia					2	4		6	0-19	0-16
Peritonitis	1			1	1			3	0-09	0-08
Ascites						1		1	0-03	0-02
Jaundice	1					2		3	0-09	0-08
Cirrhosis of Liver					3	1		4	0-12	0-11
Other Diseases of Liver					1			1	0-03	0-02
<i>Diseases of Urinary System.</i>										
Acute Nephritis			1		1	1		3	0-09	0-08
Bright's Disease				1	5	2		8	0-25	0-22
Uræmia						2		2	0-06	0-05
Disease of Bladder and of Prostate					2			2	0-06	0-05
<i>Diseases of Organs of Generation.</i>										
Metritis					1			1	0-03	0-02
Ovarian Disease					1			1	0-03	0-02
Pelvic Abscess					1			1	0-03	0-02
<i>Diseases of Parturition.</i>										
Childbirth				2	1			3	0-09	0-08
Puerperal Convulsions					1			1	0-03	0-02
Placenta Prævia, Flooding					1			1	0-03	0-02
<i>Diseases of Organs of Locomotion.</i>										
Arthritis, Ostitis, Periostitis					1			1	0-03	0-02
<i>Diseases of Integumentary System.</i>										
Carbuncle.....										
Total	93	38	8	11	123	73	6	352	11-21	9-96
CLASS VII. <i>Accident or Negligence.</i>										
Fractures, Contusions		1		5	10	1		17	0-54	0-48
Burn, Scald		6	1	1	1			9	0-28	0-25
Drowning.....				1	1			2	0-06	0-05
Suffocation	4			1	6			11	0-35	0-31
Otherwise					1			1	0-03	0-02
<i>Homicide.</i>										
Murder, Manslaughter					1			1	0-03	0-02
Total	4	7	1	8	20	1		41	1-30	1-16
CLASS VIII. <i>Dropsy</i>										
Debility, Atrophy, Inanition					1			1	0-03	0-02
Mortification	40	5			1	4	1	51	1-62	1-44
.....					1	1		2	0-06	0-05
Hæmorrhage					1	1		2	0-06	0-05
Sudden (cause unascertained)	3				4			7	0-22	0-19
Total	43	5			8	6	1	63	2-00	1-78

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.

Year 1890.

CAUSES OF DEATH.	DEATHS AT AGE-.								Total.	Death-rate per 1000 Inhabitants.	
	Under 1 Year.	1 and under 4.	5 and under 14.	15 and under 24.	25 and under 49.	50 and under 69.	70 and upwards.	Est. Pop. 117,012		Est. Pop. 131,658	
CLASSES.											
I. Specific Febrile or Zymotic Diseases	136	104	26	9	28	8	1	312	2-666	2-370	
II. Parasitic Diseases	1	...	...	...	...	...	...	1	0-008	0-007
III. Dietic	...	...	...	1	6	2	...	9	0-076	0-068
IV. Constitutional	57	53	28	59	222	42	1	462	3-948	3-509	
V. Developmental	95	1	2	...	2	74	24	198	1-692	1-504	
VI. Local	312	129	49	44	408	220	20	1182	10-101	8-978	
VII. Violence	12	12	11	17	52	6	1	111	0-948	0-843	
VIII. Ill-defined and not specified causes	148	15	...	...	17	13	1	194	1-657	1-475
Total	761	314	116	130	735	365	48	2469	21-110	18-755	
CLASS I. Miasmatic Diseases.											
Chickenpox	1	...	...	...	...	...	...	1	0-008	0-007
Measles	20	43	2	...	...	...	...	65	0-555	0-493
Scarlet Fever	3	12	4	...	...	...	...	19	0-162	0-144
Influenza	...	...	1	2	7	2	...	12	0-102	0-091
Whooping-cough	16	20	2	...	...	...	...	38	0-324	0-288
Diphtheria	1	7	6	...	1	...	...	15	0-128	0-113
Enteric Fever	...	1	8	5	9	...	...	23	0-196	0-174
<i>Diarrhœal Diseases.</i>											
Simple Cholera	1	...	...	...	...	...	...	1	0-008	0-007
Diarrhœa, Dysentery...	88	21	1	1	6	4	1	122	1-042	0-926	
<i>Veneral Diseases.</i>											
Syphilis	5	...	...	...	...	...	...	5	0-042	0-037
Gonorrhœa, Stricture of Urethra...	...	...	...	...	...	1	...	1	0-008	0-007
<i>Septic Diseases.</i>											
Erysipelas	1	...	...	1	...	...	...	2	0-017	0-015
Pyæmia, Septicæmia...	...	...	2	...	3	1	...	6	0-051	0-045
Puerperal Fever	...	...	...	...	2	...	...	2	0-017	0-015
Total	136	104	26	9	28	8	1	312	2-666	2-370	
CLASS II. Thrush											
Thrush	1	...	...	...	...	...	...	1	0-008	0-007
CLASS III. Scurvy											
Scurvy	...	...	...	1	...	1	...	2	0-017	0-015
Chronic Alcoholism	...	...	...	...	6	1	...	7	0-059	0-053
Total	...	...	...	1	6	2	...	9	0-076	0-068
CLASS IV. Rheumatic Fever, Rheumatism of Heart											
Rheumatism	...	...	...	3	2	1	...	6	0-051	0-045
Rheumatism	...	...	...	1	2	1	...	4	0-034	0-030
Gout	...	...	...	...	...	1	...	1	0-008	0-007
Rickets	1	2	...	...	...	...	...	3	0-025	0-022
Cancer	...	...	...	...	32	27	...	59	0-504	0-448
Tabes Mesenterica	17	13	...	...	2	...	...	32	0-273	0-243
Tubercular Meningitis (Acute Hydrocephalus)	32	33	12	6	4	1	...	88	0-752	0-668	
Phthisis	4	2	9	44	161	10	1	231	1-974	1-753	
Other Forms of Tuberculosis, Scrofula	3	2	7	...	9	1	...	22	0-188	0-167	
Purpura, Hæmorrhagic Diathesis	...	...	...	1	...	...	...	1	0-008	0-007
Anæmia, Chlorosis, Leucocytæmia	...	...	...	4	4	...	...	9	0-076	0-068
Diabetes Mellitus	...	...	...	...	5	...	...	5	0-042	0-037
Other Constitutional Diseases	...	...	...	...	1	...	...	1	0-008	0-007
Total	57	53	28	59	222	42	1	462	3-948	3-509	
CLASS V. Premature Birth											
Premature Birth	82	1	...	...	...	...	...	83	0-709	0-630
Cyanosis	6	...	1	...	...	...	...	7	0-059	0-053
Spina Bifida	4	...	1	...	...	...	...	5	0-042	0-037
Imperforate Anus	1	...	...	...	...	...	...	1	0-008	0-007
Cleft Palate, Harelip	2	...	...	...	...	...	...	2	0-017	0-015
Old Age	...	...	...	...	2	74	24	100	0-854	0-759
Total	95	1	2	...	2	74	24	198	1-692	1-504	
CLASS VI. Diseases of Nervous System.											
Inflammation of Brain or its Membranes	...	2	2	...	1	1	...	6	0-051	0-045	
Apoplexy	...	...	...	2	24	21	1	48	0-410	0-364
Paralysis	...	...	...	...	5	4	...	9	0-076	0-068
Softening of Brain	...	1	...	...	3	5	1	10	0-085	0-075
Hemiplegia, Brain Paralysis	1	...	...	...	11	8	...	20	0-170	0-151
Paralysis, Agitans	...	...	...	...	5	4	...	9	0-076	0-068
Chorea	...	...	1	...	...	...	...	1	0-008	0-007
Epilepsy	...	...	...	3	8	2	...	13	0-111	0-098
Convulsions	145	23	4	1	1	2	...	176	1-504	1-336	
Idiopathic Tetanus	...	...	1	1	1	...	...	3	0-025	0-022
Paraplegia, Diseases of Spinal Cord	...	...	...	1	4	1	2	8	0-068	0-060
Other Diseases of Nervous System	...	...	...	...	1	2	...	3	0-025	0-022
<i>Diseases of Circulatory System.</i>											
Endocarditis, Valvular Disease	2	...	8	8	81	36	3	138	1-179	1-048	
Pericarditis	...	...	2	...	1	...	...	3	0-025	0-022
Angina Pectoris	...	...	...	...	1	1	...	2	0-017	0-015
Syncope	...	...	1	1	12	3	...	17	0-145	0-129

DEATHS REGISTERED AT AGES FROM THE SEVERAL CAUSES.—Continued.

CAUSES OF DEATH.		DEATHS AT AGES.								Death-rate per 1000 Inhabitants.		
		Under 1 year.	1 and under 5.	5 and under 10.	10 and under 15.	15 and under 20.	20 and under 30.	30 and under 40.	40 and upwards.	Total.	Est. Pop. 117,012.	Est. Pop. 131,688.
CLASS VI.	<i>Diseases of Respiratory System.</i>											
	Laryngitis ...	...	...	...	...	4	...	...	4	0-034	0-030
	Croup ...	3	15	2	...	...	...	...	20	0-170	0-150
	Emphysema, Asthma ...	...	...	...	...	2	2	...	4	0-034	0-030
	Bronchitis ...	65	21	3	2	56	52	7	206	1-760	1-564	
	Pneumonia ...	50	54	13	9	77	32	5	240	2-051	1-823	
	Pleurisy ...	1	...	...	...	6	2	...	9	0-076	0-068
	Other Diseases of the Respiratory System	2	...	...	...	...	...	...	2	0-017	0-015
	<i>Diseases of Digestive System.</i>											
	Stomatitis ...	...	1	...	...	...	...	...	1	0-008	0-007
	Dentition ...	4	5	...	...	...	...	...	9	0-076	0-068
	Hæmatemesis ...	...	...	...	1	...	1	...	2	0-017	0-015
	Diseases of Stomach ...	5	...	...	...	4	1	...	10	0-085	0-075
	Gastritis ...	7	...	...	...	1	...	...	8	0-068	0-060
	Enteritis ...	20	3	...	...	3	...	...	26	0-222	0-121
	Ulceration of Intestine	...	...	...	...	...	1	...	1	0-008	0-007
	Ileus, Obstruction of Intestine	...	...	...	...	4	...	...	4	0-034	0-030
	Stricture or Strangulation of Intestine	...	...	...	...	1	2	...	3	0-025	0-022
	Hernia ...	...	...	...	...	7	5	...	12	0-102	0-091
	Peritonitis ...	1	5	2	4	2	...	...	14	0-119	0-106
	Ascites ...	...	1	...	...	...	1	...	2	0-017	0-015
	Jaundice ...	3	...	...	...	...	2	...	5	0-042	0-037
	Hepatitis ...	1	...	...	...	...	...	...	1	0-008	0-007
	Cirrhosis of Liver ...	...	1	2	4	5	...	...	12	0-102	0-091
	Other Diseases of Liver	1	...	...	1	5	2	...	9	0-076	0-068
	Other Diseases of Digestive System	...	...	...	1	...	...	...	1	0-008	0-007
	<i>Diseases of Lymphatic System and Ductless Glands.</i>											
	Addison's Disease ...	...	...	...	...	1	...	...	1	0-008	0-007
	<i>Diseases of Urinary System.</i>											
	Acute Nephritis ...	...	...	2	2	8	2	...	14	0-119	0-106
	Bright's Disease ...	...	1	1	19	8	1	...	30	0-256	0-227
	Uræmia ...	...	...	...	...	5	4	...	9	0-076	0-068
	Disease of Bladder and of Prostate	...	...	...	...	3	2	...	5	0-042	0-037
	Other Diseases of Urinary System	...	...	...	...	2	...	...	2	0-017	0-015
	<i>Diseases of Organs of Generation.</i>											
	Metritis ...	...	...	...	...	1	...	...	1	0-008	0-007
	Ovarian Disease ...	...	...	...	...	2	...	...	2	0-017	0-015
	Diseases of Uterus and Vagina	...	...	...	...	...	1	...	1	0-008	0-007
	Pelvic Abscess ...	...	...	...	...	1	...	...	1	0-008	0-007
	<i>Diseases of Parturition.</i>											
	Childbirth ...	...	...	...	2	3	...	...	5	0-042	0-037
	Abortion, Miscarriage	...	...	...	...	3	...	...	3	0-025	0-022
	Puerperal Convulsions	...	...	...	...	1	...	...	1	0-008	0-007
	Placenta Prævia, Flooding	...	...	...	...	3	...	...	3	0-025	0-022
	Other Accidents of Childbirth	...	...	...	1	4	...	...	5	0-042	0-037
	<i>Diseases of Organs of Locomotion.</i>											
	Caries, Necrosis ...	...	...	1	2	...	...	...	3	0-025	0-022
	Arthritis, Ostitis, Periostitis	...	...	1	1	1	...	...	3	0-025	0-022
	Other Diseases of Organs of Locomotion	...	...	1	1	...	...	...	2	0-017	0-015
	<i>Diseases of Integumentary System.</i>											
	Carbuncle... ..	...	...	...	1	...	...	...	1	0-008	0-007
	Eczema ... ..	...	1	...	...	...	...	...	1	0-008	0-007
	Pemphigus	1	1	...	...	...	...	...	2	0-017	0-015
	Total	312	123	49	44	408	220	20	1182	10-101	8-978	
CLASS VII.	<i>Accident or Negligence.</i>											
	Fractures, Contusions ...	...	1	1	8	22	4	1	37	0-316	0-281
	Burn, Scald	1	9	5	3	2	...	...	20	0-170	0-151
	Drowning... ..	...	1	5	3	15	...	...	24	0-205	0-200
	Suffocation	11	1	...	1	6	...	...	19	0-162	0-144
	Otherwise ... ..	...	...	...	1	3	1	...	5	0-042	0-037
	<i>Homicide.</i>											
	Murder, Manslaughter ...	...	...	...	...	1	...	...	1	0-008	0-007
	<i>Suicide.</i>											
	Cut, Stab... ..	...	...	...	...	1	1	...	2	0-017	0-015
	Poison ... ..	...	...	...	...	1	...	...	1	0-008	0-007
	Otherwise... ..	...	...	...	...	2	...	...	2	0-017	0-015
	Total	12	12	11	17	52	6	1	111	0-948	0-843	
CLASS VIII.	<i>Dropsy</i> ... ..	...	...	...	...	2	...	...	2	0-017	0-015
	Debility, Atrophy, Inanition	140	14	...	...	2	7	1	164	1-401	1-245
	Mortification ... ..	...	...	...	...	1	1	...	2	0-017	0-015
	Tumour	1	...	...	...	2	...	...	2	0-017	0-015
	Abscess	1	1	...	...	1	...	...	4	0-034	0-030
	Hæmorrhage ... ..	...	...	...	...	3	2	...	5	0-042	0-037
	Sudden (cause unascertained)	4	...	...	...	4	2	...	10	0-085	0-075
	Other ill-defined and not specified	2	...	...	...	2	1	...	5	0-042	0-037
	Total	148	15	...	...	17	13	1	194	1-657	1-475

K² 11. TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH, DURING THE YEAR 1890, IN THE URBAN SANITARY DISTRICT OF CARDIFF, CLASSIFIED ACCORDING TO DISEASES, AGES AND LOCALITIES.

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS IN EACH LOCALITY, COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.													NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALITIES, FOR TREATMENT IN ISOLATION HOSPITAL												
	Census, 1881.	Estimated to middle of 1890.			FEVERS.						FEVERS.						FEVERS.						FEVERS.							
					Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Baneric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Brysielas.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Baneric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Brysielas.				
Cardiff Urban Sanitary District	85,378	117,012	4600	(c)	1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12	13
Union	...	...	...	Under 5 5 upwards...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Infirmary	...	...	...	Under 5 5 upwards...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hamadryad Hospital Ship	...	...	...	Under 5 5 upwards...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	85,378	117,012	4600	Under 5 5 upwards...	137	15	198	48	9	128	2	6	2	1	45	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...