

1869.

BOROUGH OF CARDIFF.

THE

OFFICER OF HEALTH'S REPORT

ON

Sanitary Condition of Cardiff,

DURING THE YEAR 1869.

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CARDIFF:

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CARDIFF.

TO THE CARDIFF LOCAL BOARD OF HEALTH.

GENTLEMEN,

In directing your attention to the Sanitary Condition of Cardiff during the year 1869, I shall first notice several collateral circumstances calculated to affect the public health.

The thermal influences have been as follow: The month of January was unusually warm. The maximum temperature registered was 54°, the minimum 25°, the total range 29°, with a mean of 43°. This was considerably above the average of January for some years. The barometer was very unsteady and fluctuating. The month was characterised by frequent and high winds, for 18 days from the West, and for 13 days from the East. The rainfall was heavy, and occurred chiefly between the 1st and 15th. After this the weather was fine, but cold, until the last few days, when it again became wet.

February was unusually warm. The maximum height of the thermometer was 60°, the minimum 29°, the total range 31 degrees, with a mean temperature of 45.7°. The barometer still continued unsteady; the wind was chiefly westerly throughout the whole of the month; the rainfall continued in excess.

March was colder than the average temperature of that month for many years. The thermometer stood below the freezing points 15 nights. The maximum height registered was 57°, the minimum 28°, giving a total range of 29°, the mean being 40.5°. The prevailing winds were W.N.W. the first week; after this time to the end of the month more or less E. As compared with the previous two months, the rainfall greatly diminished; but the total rainfall of the quarter exceeded that of any other quarter of 1869. The great alternations of heat and cold operated very unfavourably, and inflammatory attacks of the respiratory organs were prevalent and severe, and added greatly to the mortuary tables. Six deaths were registered from fever, and three from small-pox. Whooping-cough, scarlatina, and croup prevailed among children throughout the quarter.

April was fine. The maximum temperature was 75°, the minimum 32°; total range 45°. The mean was 51°. The barometer was high and steady. The prevailing winds were the first week westerly, then South-East, afterwards from the West for 11 days, last three days E.S.E. The rainfall was light.

May was cold, with frequent and heavy rains. The maximum temperature was 55°, the minimum 35°; the range was 20°, the mean 50°. The barometer was low and unsteady. The winds were chiefly E.S.E. The rainfall was again in excess.

June was also unusually cold. The greatest height attained by the thermo-

meter was 83°, the minimum 35°; the range was 44°, with a mean of 65°. The barometer was high and steady. The prevailing winds were W.N.W. for three weeks, afterwards N.E. to the end of the month. The rainfall in June was higher than in any other month of the year. The epidemic diseases of children continued severe, especially scarlatina. Six deaths were also registered from diphtheria. Fever was somewhat prevalent, but the mortality from this disease was below the average. Acute inflammatory also continued fatal throughout the quarter.

July was fine. The temperature had increased, the thermometer reaching 88° in the shade. The minimum was 42°, the total range 46°, mean temperature 63°. The barometer was high and steady. The first few days of July the wind was from the N.E.; then more or less W. throughout the month. Rainfall still very light.

August was seasonable in temperature. The thermometer marked 88° as its highest and 39° as its lowest degrees. The mean was 61.3°. The barometer was high and fluctuating the earlier part of the month, then more steady. The winds were chiefly from the W., rainfall still light.

September was wet and boisterous. The maximum height of thermometer was 74°, minimum 38°, the total 36°, with a mean of 57.7°, wind chiefly W. The rains at times were very heavy, the rainfall being the greatest of any month of the year. Zymotic diseases were less prevalent, especially those of children; a few deaths were registered from diarrhoea; no deaths were registered from diphtheria during this quarter.

October was fine during the day time, but the changes of temperature at nights were very trying. The maximum heat registered 74°, the minimum 27°; total range 47°, with a mean of 59.4°. This was an excess of the ordinary temperature of October. The heat of the second week was very oppressive. The wind varied considerably the early part of the month from S.E. to N.W. The latter part of the month it was N.N.E. The rainfall was considerably less than in September, but was above the average.

November was warmer than usual. The maximum height of thermometer 60°, minimum 25°, total range 35°; the mean was 35°. The barometer was very unsteady, the prevailing wind W., rainfall above average.

December was cold, and much below the average. The maximum height of the thermometer was 55°, the minimum 20°; the range was 35°, the mean 37.5°. The barometer was unsteady. The prevailing winds in the early part of the month were E. In the middle these changed to W.N.W., at the end they again changed to the E. The rainfall was heavy. On the 16th the rainfall was 1.40 in 24 hours, being the heaviest in that space of time throughout the year. Zymotic diseases were generally less fatal, but measles prevailed among infantile epidemics.

Through the courtesy of Mr. Waring I am enabled to give the rainfall in Cardiff during the year 1869, with the total rainfall of the years 1866, 1867, and 1868, as taken at the Town Hall.

	Ft.	In.
Diameter of Funnel of Rain Gauge	0	5
Height of top of Rain Gauge } Above ground	1	1
	} Above mean level of the Sea 20	0

TABLE I.

1869.

Month.	1866. Total depth.	1867. Total depth.	1868. Total depth.	Total depth.	Greatest fall in 24 hours. date.		No. of Days in which .0100 more fell in.
	Inches.	Inches.	Inches.	Inches.	Inches.		
January ...	5.04	5.12	5.69	5.29	.91	4th	18
February ...	4.60	3.88	2.17	4.80	.93	12th	21
March	2.30	4.50	2.64	1.70	.46	19th	12
April	2.00	4.38	2.48	1.82	.36	19th20th	11
May	0.98	3.63	1.79	4.92	.73	25th	17
June	3.71	0.79	0.47	0.84	.32	14th	8
July	3.43	2.97	0.38	0.89	.36	25th	7
August	3.65	1.64	5.96	1.38	.43	12th	8
September...	12.09	1.73	4.41	6.82	1.24	18th	23
October	3.09	4.70	4.36	3.16	.70	17th	16
November...	3.34	1.99	1.47	3.68	1.30	28th	18
December ...	5.19	1.69	7.95	3.55	1.40	16th	14
	49.42	37.02	39.77	40.85			173

	1866.	1867.	1868.	1869.
Total Number of Days on which .01 or more fell in each Year	226	181	157	173

The Water Supply is both abundant and good. It is obtained from the mountain streams of the Northern range of Hills about five miles from Cardiff. These streams are conducted into a large reservoir at Lisvane before they can in any way be polluted. After passing through extensive and perfect filter-beds, the water is transmitted to the Town, and supplied to the consumers on the constant system, in its literal sense, as there are no house-cisterns. I have heard no complaints that the supply is interrupted. It has been computed that the quantity of water necessary for domestic purposes per head of the population should be as follows :

Cooking ... ..	...	...	...	...	...	.75
Fluids as drink (water, tea, coffee) ... ..	...	...	...	...	...	.25
Ablution ... ..	...	...	...	...	...	5.
Share of utensil and house washing ... ..	...	...	...	...	...	3.
Laundry washing ... ..	...	...	...	...	...	3.
						<hr/> 12. gallons.
To these may be added : General baths ... ..	...	...	...	...	...	4.
Water-closet ... ..	...	...	...	...	...	6.
Unavoidable waste ... ..	...	...	...	...	...	3.
						<hr/> 25. gallons.
Town and trade purposes ... ..	...	...	...	...	...	10.
						<hr/> 35.

The supply in large towns varies from 12, as at Nottingham, to 32 and 35 gallons, as in London. The daily supply for all purposes, domestic and sanitary, transmitted to Cardiff is 1,300,000 gallons. This gives an average of

33 gallons to every inhabitant of the Town. But as only a portion of the town sewers is flushed by the Waterworks Company's supply, the average per head must be considered as exceeding the 35 gallons.

The storage capability of the Reservoir is equal to 1,000,000,000 gallons, or 70 days' consumption. During unusual droughts the supply can be supplemented from the River Ely. The exceptional dry summers of 1868 and 1869 tested thoroughly the powers of the water supply, and on no single day was it interrupted. Its purity is shown by the subjoined analysis made by Professor Miller, of King's College, London :

	Grains.
Carbonate of Lime	11.54
„ Magnesia	2.17
Sulphate of Magnesia	1.10
Chloride of Magnesium	0.77
„ Sodium	0.66
Combustible and Organic Matter	0.60
Nitric Acid	a trace.
Ammonia	0.02
Total Grains per gallon	16.76

This is a very pure and wholesome water. In water from the chalk or lime the quantity of carbonate of lime is considered satisfactory when it does not exceed 15 grains in the gallon. The quantity of organic matter is very small when less than a grain. In the Cardiff water it barely exceeds half a grain. And as the water contains only a trace of nitric acid, with only an exceedingly small amount of ammonia, this is doubtless of vegetable origin.

The hardness of the water before boiling is equal to 15 degrees, and 5 degrees after boiling. It is sufficiently hard to be grateful for drinking, and not too hard for domestic purposes. The water is supplied to cottage property at a rate of 2d. per week, thus enabling the authorities to enforce its supply to houses of this description. In larger houses the cost is 5 per cent. when the rental does not exceed £20 per annum, and 6 per cent. when it does.

The Drainage System continues in a good condition. The inconveniences likely to have arisen from the difficulty anticipated by reason of the limited fall in the sewers, caused by the low level of the town and district, have been prevented by resorting to flushing and other efficacious and necessary means.

Since my last Report additional sewers have been made to meet the requirements of new streets in Temperance Town, Tredegarville, and other districts. A new sewer has also been constructed in Bute Town, where it was greatly needed. And the branch sewers in the northern part of that district have been much improved by the more efficient flushing of the main sewer.

On one occasion inconvenience and damage arose in the lower part of Bute Town, owing to a sudden and excessive rainfall, lasting for some days, during the equinoctial tides; but as the Storage Reservoir will be completed before the next rain season it is confidently hoped that a recurrence of the mishap will be prevented.

In Harrowby-street a Surface Water Drain has been made, which, with the street works recently completed in the same locality, will remedy a state of

things in that neighbourhood which operated prejudicially to the health of the residents. An efficient system of cesspool, or other drainage, is still required here.

The Catch Pits and Entrances made in 1868 have been of great benefit in dealing with sand and gravel deposits; and the occasional forcible flushing, by interrupting the flow in the upper part of the town and suddenly discharging it, has removed the inconvenience before experienced in some of the sewers.

A Table is appended (*see page 8*) showing the amount of deposits at two periods, by which it will be seen that the sewage matter formerly held in suspension is now almost entirely got rid of, and that considerable improvements have been effected in other ways.

TABLE II.—CARDIFF SEWERS.

DEPTH OF SAND, SEWAGE MATTER, AND WATER IN STREET SEWERS.

Date of Observation : December, 1869, and December, 1866. Low Water or Neap Tides.

POSITION.	HARD SAND.		SEWAGE MATTER.		WATER.		TOTAL.	
	Inches.		Inches.		Inches.		Inches.	
	1869.	1866.	1869.	1866.	1869.	1866.	1869.	1866.
Adam-street	3	2			2	2	5	4
Adelaide-street	2				8	3	10	3
Bute-street, at Charlotte-street.	3	1			5	7	8	8
Bute-street, opposite Rothsay Castle	3				7		10	
Bute-street, opposite Hannah-street					4		4	
Bute-street, at Cabstand					9		9	
Bute-terrace, East end					2	3	2	3
Do., West end	3	6			5	5	8	11
Brewery-street	6	10			9	5	14	15
Charles-street					8	5	8	5
Christina-street	1				7		8	
Crockherbtown, Paradise-place.	2	2			5	3	7	5
Duke-street					2		2	
Davis-street		2			11		11	9
Dudley-street	2	1	1		5	4	7	6
Eleanor-street	4	3	3		7	4	11	10
Ellen-street	12	13			4	2	16	15
Gulldford-street	1				1		2	
Hannah-street	8				6		14	
Herbert-street		5			17	10	17	15
Hayes	3	4			1	3	4	7
Havelock-street					6		6	
Ivor-street	3	5	1		6	4	9	10
Kite-street... ..	5	3	4		5	1	10	8
Luton-place		2			2	2	2	4
Loudoun-place, South	6	7			6	4	12	11
Do., North	5	8			7	7	12	15
Mary Ann-street		5			9	4	9	9
Moirs-place, West					2	2	2	2
Moirs-crescent	5				3		8	
St. Mary-street					2		2	
Mount Stuart-square	3	2			7	5	10	7
Newport-road (Railway bridges)	2	4			4	5	6	9
Plucca-lane	1	2			3	2	4	4
Penline-street					4		4	
Parade, at East Grove						3	2	3
Park-place... ..					2	3	2	3
Park-street, East end	6				3		9	
Pendoylan-street	2	5			2	2	4	7
Plucca-lane					2		2	
Quay-street	2	2			1	2	3	4
South Church-street	2				4		6	
Sophia-street (main sewer)	6	9			7	7	13	16
Sandon-street	3	2			3	2	6	4
South Wales Railway-road					4	3	4	3
Tyndal-street, West end		2			15	13	15	15
Do., East end					16		16	
Tredegar-street		7			8	3	8	10
Thomas-street	15	13			1	1	16	14
Union-street		2			7	3	7	5
Upper George-street								
West Bute-street, back road	7	2			4	3	11	5
West Grove		2			9	6	9	8
Westgate-street	2				3		5	
Wood-street, East end		1			3	3	3	6
Do., West end	4	1			1	1	5	4
Windsor-place								
Outfall Sewer, East Moors		2				14		16

Chambers have been made at some of the Ventilating Shafts for deodorizing foul air by passing it through a layer of wood charcoal. These chambers seem to answer the purpose, as in ventilators previously much complained of, when charcoal cages have been introduced, no further inconvenience has been reported, although emission of air has still continued. The most efficient Ventilator is a long Chimney Shaft, in which a good draught already exists, but that is unfortunately seldom attainable. Probably before long engineering skill will devise a plan for accomplishing this end, by means of engine chimneys and furnace or fan drafts, so conveniently placed as to convert the present ventilating shafts into inlets for air, instead of outlets for noxious and offensive gases. The annexed Table shows current passing through a few of the Ventilators, in which the Gas Works chimney in Bute-terrace is especially conspicuous by its effect. Observation should, however, be made at a considerable number of the shafts at nearly the same hour and state of tide and of atmosphere, as far as can be done practicably, to ascertain the amount and direction of draft. It is very probable that during a strong south wind the openings in the main outfall sewer merely serve as a channel for the wind to drive foul air into the upper part of the town.

TABLE 3.—CARDIFF SEWERS.

Observations on Flow of Air through Ventilating Shafts, as taken at High Water of ordinary Spring Tides, by Mr. Waring.

13th April, 1869.

27th April, 1869.

LOCALITY.	13th April, 1869.		27th April, 1869.	
	Efflux, Cubic Feet per hour.	Influx, Cubic Feet per hour.	Efflux, Cubic Feet per hour.	Influx, Cubic Feet per hour.
Flue at Mr. Watson's Brewery, Womanby-street.....	1064	.....	not taken	.....
„ at Messrs. Hill & Son's Dock, Herbert-street	25047	.....	80400	.....
„ at Gas Works, Bute-terrace Ventilating Shaft, opposite Char- lotte-street	75670	.....	80433	.....
Ventilating Shaft, opposite Char- lotte-street	102	.....	704	.....
Ventilating Shaft, Bute-terrace, opposite David-street .....	.....	46	.....	1213
Ventilating Shaft, Maryann-street, South end .....	.....	163	.....	93
Ventilating Shaft, Maryann-street, North end	723	.....	.....	.....
Ventilating Shaft, Tyndal-street, opposite Pendoylan-street .....	.....	.....	443	.....
Ventilating Shaft, Pendoylan- street, South end .....	.....	.....	1073	.....
Ventilating Shaft, Brewery-street, Bute Town	1143	.....	1120	.....
Ventilating Shaft, North London- place	327	.....	not taken	.....
Ventilating Shaft, Mount Stuart- square .....	.....	1026	.....	not taken
Ventilating Shaft, Newport-road, at Railway bridge.....	921	.....	not taken	.....
Ventilating Shaft, East Moors out- fall sewer .....	.....	2123	variable	variable

The additional space obtained by the construction of the large Outfall

Sewer will doubtless have a beneficial effect in reducing the upward pressure of foul air displaced by sewage at high water, but the evil can only be effectively dealt with by establishing extraction stations, worked either by Fans or Furnaces—such as I have just alluded to—placed at points commanding the principal lines of Sewers. Your System of Sewers is, I am told, well adapted for such a process, and it is a matter for consideration whether it would not be more efficacious and less costly to build three or four of these extraction shafts than add deodorising chambers to the numerous open ventilators now existing, which must necessarily shortly require to be dealt with. The great difficulty would be to fix on sites, but the points most suitable for efficiency, I am informed by your Surveyor, would be,

1. The Head of the New Reservoir Sewer.
2. The South end of Bute Town.
3. The North end of Westgate-street.
4. The Canal Tunnel, in Crockherbtown.
5. The Cathays.

These positions would relieve all parts of the Town West of the Infirmary and the Old Cemetery; the sewage East of these points, having superior falls, and therefore quicker discharges, evolves a much smaller quantity of gases.

The principal work in connection with existing Sewers now necessary is the construction of a new Sewer in Tyndall-street, at a lower level adapted to the new outfall. This Sewer was recommended and the necessity for it shown in the Surveyor's Report dated January, 1867, and its construction resolved in the adoption of that Report. It should now be provided for, and carried out immediately on completion of the Outfall.

As sewers are now nearly completed at Cathays District, it should be considered whether the system should also include Blackweir, where many complaints have been made of flooding in winter, and where all surface drainage passes into the Glamorganshire Canal or Bute Docks Feeder.

Provision has now been made for the lands adjoining the Rhymney and Taff Vale Railways, belonging to the Marquis of Bute, Lord Tredegar, Mr. Williams, and Miss Richards. I understand that owing to a want of drainage and uncertainty about access to these properties (this latter difficulty will shortly be put an end to), that they have not been built upon, whilst habitations have been erected upon lands more distant from the town, and out of the Cardiff District, from which nothing towards our local burdens is contributed.

Another question for serious consideration is the Drainage from the Union Workhouse, and the adjoining portion of the district west of the River Taff. Up to the present time it is the practice to drain all the sewage and other matter generated by 400 inmates of the Union into the River Taff, immediately opposite Temperance Town; and as a consequence, at each flow of spring tide, a considerable portion of this sewage is floated up the brook through the field (Cardiff Green), now being built on, near Westbourne-crescent, and up to the swamp at Whitehouse Bridge. The result of this defective drainage, now that houses are being built along its course, cannot fail to be highly injurious to the health of the occupiers. It is true that in the designs for remodelling the

Workhouse, now under the consideration of the Board of Guardians, arrangements are intended to be made for the adoption of earth closets; but even should this system be carried out, there will be a larger amount of liquid drainage from lavatories, washhouses, &c., to be disposed of.

The surface and other liquid drainage of a large portion of the Canton District has its outfall also at the Whitehouse Bridge, and is carried down the stream already mentioned to its junction with the Workhouse Sewer; and although solid matter may be excluded, much sewage of an offensive nature is discharged. It is probable that building will progress in this direction, and that with an improved arrangement of villas in the Cathedral-road, adjoining the Sophia Gardens, houses of a better class will be erected. It is, therefore, most desirable that some scheme for proper closet drainage of premises within the Borough should be arranged in connection with the Cardiff Sewers, confining of course the property to be dealt with to the portion west of the Taff. It appears possible to connect the drainage directly with your system in Temperance Town, so that it may be discharged at the East Moors.

I must now direct your attention to a subject which materially affects the sanitary condition of this locality. I allude to the state of the Dwellings of the Poor. This is a subject especially interesting to your Board, inasmuch as of the various preventable excitants of disease, which have from time to time come under your observation, and which existed in Cardiff when on a mean average of 7 years its mortality was 30 to every 1,000 of the population, this may be said to be the only one now existing in any degree. Absence of a systematic drainage, insufficient and impure water supply, and intramural interments have been dealt with, and their several defects removed; but overcrowding is the great evil which is constantly recurring, and it requires the most active supervision to prevent it. Its importance has been graphically described by Mr. Simon, the Medical Officer of the Privy Council, when, in speaking of Fever and its causes, he states :

“It is essentially a disease of filth. When the unventilated atmosphere of habitually over-crowded places reeks with a stagnant steam from the breathing and sweating of its inhabitants, a steam which condenses in fetid drops on the window panes, or soaks and rots in the papered or plastered walls; or when putrifying fœces are accumulated in cesspools, or ill-ventilated drains, to taint the air, or leak into the drinking water of a population; then this disease prevails in one or other of its forms.”

A large portion of the labouring population of Cardiff consists of Irish labourers and their families, of the poorest class, who have been accustomed to live together regardless of decency or cleanliness; and these pernicious customs are fostered by the circumstance that the demand for humble house accommodation exceeds the supply; the consequence being that rents are exorbitantly high, and altogether beyond the reach of the class in question, unless each tenement is subdivided by its occupier into separate habitations. In a recent inspection I made of the town, I ascertained the amount of rent paid by this class in several streets, and found it to be as follows: Houses in Thomas-street, Pen-doylan-street, and North William-street fetched 7s. per week. The same

description of house, in Ellen-street, 8a. and 8s. 6d. ; in this street the houses are always more over-crowded, unless constantly supervised. In Whitmore-lane the house-rent varies from 4s. to 12s. ; in Tyndal-street the larger houses reach 17s. 6d. ; in Mary Anne-street, 9s. ; in Winstone's-court, 4s. to 12s. ; in Landore-court, 3s. 6d., the accommodation being totally disproportionate to the amount paid. This was especially marked in Stanley-street, where the houses are very small, many of them consisting only of two rooms, one on the basement and one above. Of this description are Nos. 22, 23, and 24. The measurement of the bedroom of each house is 1,320 cubic feet space. There is no thorough ventilation ; no fire place ; only one small window, which is in front. No backlet of any description. Yet for these wretched hovels 5s. 6d. per week is paid. The earnings of the occupiers were very small, in some instances only the pittance made by collecting bones and rags. Hence in three houses the inmates were herded together to a deplorable extent. One of these bedrooms was occupied by two families, consisting of six persons ; so that when the house was closed for the night, the average cubic space for breathing of each member little exceeded 200 feet. Facts such as these are constantly brought before my notice, illustrating this wretched state of things. A short time back on my visiting Love-lane, at No. 28 I found the house consisted of two rooms on the ground-floor, and two bedrooms on the upper. In the front bedroom were two beds, one occupied by a married couple, the other by a single young man. In the back bedroom also were two beds, one occupied by a married couple, the other by a widow and her son. No. 29 was a house of similar description : in the front bedroom of this house there were three beds, one occupied by a man, wife, and child, another by a woman, her daughter, and a child, the third by a single young man about 20 years of age. Another house, No. 32, in the front bedroom had two beds, each occupied by married couples, the beds in the back room being occupied respectively by a married couple and a single young woman. Many of the houses in the streets I have just mentioned were inhabited in a similar way.

I may state, however, that in my recent visits I was much struck with the improved condition of the houses as regarded cleanliness. There is also now much less overcrowding than formerly. I attribute this desirable change to the efficient manner in which Inspector James exercises his supervision. I have also every reason to be satisfied with the accuracy of his daily reports. He has issued 693 notices during the past year to occupiers to reduce the number of inmates. In most instances these notices effect the object sought ; when they are resisted summonses are obtained, and the parties offending are brought before the magistrates. When the offences are of a mild character, the parties are dismissed with a caution upon payment of costs, but the more aggravated cases are punished by fines varying from 20s. to 40s., with the alternative of various terms of imprisonment.

The following table illustrates the growth of house accommodation in Cardiff from 1851 to 1869 :—

TABLE IV.

Year.	Number of Plans for Houses passed by Local Board of Health.	Number of Inhabited Houses according to Census.	Population according to Census.		Mean average of Population proper to each Inhabited House.	Total Population according to Census.		
			Population proper.	Seamen.				
1851	380	2565	16,265	2086	6.3	18,351		
1852	328							
1853	190							
1854	123							
1855	192							
1856	356							
1857	284							
1858	240							
1859	160							
1860	83							
1861	40		4606	31,233	1721		6.0	32,954
1862	40							
1863	16							
1864	60							
1865	107							
1866	59							
1867	152							
1868	152							
1869	130							
	—3092							
	Present estimated Number ...	5312	35,500	4000	6.6	39,500		

Although the above table shows an increase in the average inmates of each house, I am enabled to state that a considerable diminution has taken place in the number of inmates of the formerly much overcrowded houses of the Irish in the Newtown district. These houses are constantly under supervision; they have all been certified as to the number they should contain. The cubic space allowed to each occupant of a sleeping room is 500 ft. The rooms are not allowed to be occupied during day; the windows are required then to be kept open, and the bedclothes arranged so as to ensure a proper amount of cleanliness; the floors washed weekly, and the walls whitelined as often as necessary.

While on this subject, I may mention that a project has been started from which I anticipate much good, namely, the establishment of a Company having for its object the erection of Workmen's Houses. This Company is under the auspices of the Marquis of Bute, and a body of directors composed of gentlemen of position. It is intended that the houses shall afford such accommodation as shall make them comfortable and convenient buildings for Workmen, and at such a moderate rent as will enable a Workman and his family to occupy the whole of the house without the necessity of subletting apartments. It is proposed to select spots for their erection near to places where large bodies of the working class are employed. The site selected on which to erect the first block is near Adamsdown, on the South side of the South Wales Railway, on the gravel formation, and above the general level of the adjoining pasture lands.

The streets giving access to this site are in course of construction, and building operations will shortly commence.

Having thus enumerated the chief collateral causes calculated to improve or deteriorate the public health, and thus enable it to resist or pre-dispose it to succumb to the direct influences of disease, I have now to refer you to the mortuary tables illustrating the special causes of death, and to compare those with the mortality ruling other localities.

The population of Cardiff contributing to the death returns may be divided into two sections—1st, the population proper, or ordinary residents of the town, estimated in 1866 at 35,500; and 2nd, the fluctuating population, namely, the average number of seamen constantly in the port; this number varies according to the prevalence of particular winds. Thus, in 1851, when the census was taken, the total tonnage for the year leaving the port was 710,660; the number of seamen sleeping on board ship the previous night was 2,086; in 1861, when the tonnage for the year reached 1,555,133, or more than doubled itself, the census for that year gave the number of seamen as only 1,721. On the first occasion easterly winds prevailed, detaining vessels in the port; on the second occasion westerly winds, causing vessels to leave the port. Through the courtesy of Mr. Miller, Comptroller of Her Majesty's Customs at this port, I am enabled to append a statement of the yearly tonnage up to 1869. That year it amounted to 2,385,755, less the tonnage of 3,965 vessels leaving Penarth Docks and Harbour, but included as belonging to Cardiff port. I have consulted those specially competent to form a proximate estimate of the average number of seamen constantly in the port during 1869, and they compute it at 4,000.

TABLE V.

THE NUMBER OF VESSELS WHICH ENTERED THE PORT OF CARDIFF FOR EACH OF THE YEARS FROM 1847 TO 1869, BOTH INCLUSIVE.

Years.	Number of Vessels Inwards.		Total Number of Vessels both Foreign and Coastwise.	Tonnage.		Total Tonnage of Foreign Trade and Coastwise inwards.
	Foreign.	Coastwise.		Foreign.	Coastwise.	
1847	633	5787	6420	77,164	367,804	444,968
1848	964	6522	7486	145,772	426,437	572,199
1849	1182	6166	7344	182,981	307,892	580,873
1850	1366	6314	7680	236,283	429,093	665,376
1851	1387	6490	7877	260,916	449,753	710,669
1852	1711	6212	7923	331,369	431,696	763,065
1853	2113	6200	8313	428,403	447,836	876,239
1854	2688	6304	8992	502,951	461,115	964,066
1855	2720	5662	8382	607,136	415,781	1,022,817
1856	3106	6018	9124	688,477	446,442	1,134,219
1857	3082	6256	9338	752,336	453,009	1,205,345
1858	2969	6406	9375	650,344	487,978	1,138,322
1859	3274	6888	10,062	786,118	548,631	1,334,749
1860	3528	7379	10,907	911,442	609,064	1,520,506
1861	3603	7933	11,536	879,778	675,355	1,555,133
1862	4292	7971	12,263	1,047,400	692,197	1,739,597
1863	4622	7715	12,337	1,135,090	684,009	1,819,099
1864	4146	7768	11,914	1,120,754	655,287	1,776,041
1865	3879	7678	11,557	1,127,560	662,723	1,790,283
1866	4335	7573	11,908	1,379,350	646,655	2,026,005
1867	4466	7397	11,863	1,456,110	630,438	2,086,548
1868	4632	6962	11,594	1,578,619	591,205	2,169,824
1869	4508	6995	11,803	1,698,570	637,185	2,385,755

	Total Number of Vessels Foreign and Coastwise.	Total Number of Vessels Foreign and Coastwise.	Total Number of Vessels Foreign and Coastwise.	Average Tonnage per Vessel.
	1867.	1868.	1869.	
Penarth Docks	969	1235	1364	500 Tons.
Tidal Harbour	1797	2069	2601	70 Tons.
Total.....	2766	3304	3965	

The total population of the town of Cardiff for 1869 may be reckoned as 39,500.

The number of Births registered during the year has been as follows :

In the Winter Quarter ending March	402
„ Spring „ „ June	326
„ Summer „ „ September	334
„ Autumn „ „ December	357
	<u>1419</u>

The Deaths at corresponding periods :

	Disease.	Inquests.	Total.
In the Winter Quarter	253	30	283
„ Spring „	213	29	242
„ Summer „	210	27	237
„ Autumn „	221	22	243
	<u>897</u>	<u>108</u>	<u>1005</u>

The number of Births has been 1,419 ; of Deaths, 1,005, the excess of Births over Deaths being 414.

As the relative number of Births compared with Deaths to a certain extent indicate the sanitary condition of a locality, I append a table illustrating this comparison extending over a series of years.

In considering the indirect bearing on the health status of Cardiff of the relative number of Births and Deaths, it is to be borne in mind that the average residents of the fluctuating portion of our population—the 4,000 seamen—contribute to swell up our Death returns, but in no way to add to the number of our Births.

TABLE VI.

Years.	Births.	Deaths.	Excess of Deaths over Births.	Excess of Births over Deaths.
1847	331	484	153	...
1848	428	579	151	...
1849	466	864	395	...
1850	504	485	...	19
1851	575	525	...	50
1852	696	620	...	76
1853	865	644	...	221
1854	950	925	...	25
1855	1079	641	...	438
1856	1227	772	...	455
1857	1367	883	...	484
1858	1356	753	...	602
1859	1336	826	...	510
1860	1246	662	...	584
1861	1223	837	...	386
1862	1268	695	...	573
1863	1302	862	...	440
1864	1399	932	...	467
1865	1382	867	...	515
1866	1331	882	...	449
1867	1397	870	...	527
1868	1387	843	...	544
1869	1419	1005	...	414

From this table it will be seen that up to the year 1850 the deaths exceeded the births. In 1850 sanitary arrangements were commenced, the town having been placed under the Sanitary Act, empowering the authorities to carry out a new and more perfect system of drainage, to exercise a thorough supervision of the lodging-houses and habitations of the poor, and to remove all nuisances likely to be excitant causes of disease. A company had also been formed for the supply of pure and wholesome water.

We have now to consider the proportionate death rate observed in Cardiff during 1869, as compared with the death rate ruling other towns and districts: this, on the estimated population of 39,500, has been 25·44 per 1,000; the death rate of the kingdom for the year being, in 142 districts and 56 sub-districts, comprising chief towns, 24·60; in the remaining districts and sub-districts of England and Wales, comprising chiefly small towns and country parishes, 20·04.

The mortality in a few large towns is less than 25 per 1,000; in upwards of 96 large town districts it exceeded 25 per 1,000; in 38 of these it varied from 28 to 36 per 1,000.

In Cardiff the death rate during the last year has been higher than that of the few previous years; but a temporary increase cannot be considered indicative of a deteriorated sanitary condition, as it has always been found that from time to time exceptional causes—causes which are not preventable—will increase or diminish the mortality of a district, and it is only by taking the mean rate observed for a given period of years that a right conclusion can be arrived at. Thus, in the decennial period ending in 1869, the mean annual death rate

of the town districts of England has been 24·31 per 1,000, while in Cardiff it was 22·83. The death rate of Cardiff, therefore, contrasts favourably when compared with that of the mortality ruling town districts ; while its improved sanitary condition, since provisions have been adopted in the shape of efficient drainage, good water supply, and other wholesome regulations, is remarkably striking. When the mean decennial death rate, just given, is contrasted with that of the decennial period ending 1849, before these works were commenced, the annual death rate exceeded 30 per 1,000, and the registered deaths exceeded the births.

In directing your attention to the death ratio of Cardiff, I should also mention that in comparing these with other districts, allowance is to be made in consequence of collateral circumstances which increase the death ratio here, but which do not exist in many other places—namely, the Union Workhouse, which admits a large number of aged people ; and of cases of acute and chronic mortal diseases belonging to the rural districts. Also, the Cardiff Infirmary, into which are received most of the cases of serious and fatal injuries arising from railway accidents, and accidents in large works situated in the eastern and northern divisions of this important mineral county ; to which are to be added 35 deaths registered from drowning, most of these occurring in the docks and canal, and were not among the residents of this town.

The following table illustrates the direct causes of death registered in Cardiff in 1869, with the preceding four years—(*See p. 18*).

TABLE VII.

DISEASE.		1865	1866	1867	1868.	1869.			
Sporadic Diseases, known seat.	Disease of Brain & Nervous System.	Convulsions	55	56	60	69	63		
		Inflammation and Dis. Brain ...	15	13	20	13	19		
		Apoplexy	4	10	12	10	6		
		Paralysis	4	6	13	12	19		
		Epilepsy	2	4	1	3	3		
		Delirium Tremens	1	0	1	5	1		
		Insanity	0	0	0	1	0		
		Hydrocephalus	11	6	18	9	18		
		Diseased Spine	1	3	2	2	4		
			-93	-98	-127	-126	-133		
Sporadic Diseases, known seat.	Diseases of Chest.	Phthisis	89	118	113	106	113		
		Bronchitis	69	67	50	49	62		
		Inflammation of Lungs	61	58	56	32	72		
		Pleurisy	0	2	1	3	4		
		Asthma	4	3	7	4	13		
		Hydrothorax	0	0	1	0	0		
		Empyema	0	0	0	0	0		
		Laryngitis	1	1	1	0	0		
		Disease of Heart	42	28	41	40	46		
			-42	-23	-41	-40	-46		
Sporadic Diseases, known seat.	Visceral Diseases.	Disease of Stomach... ..	0	2	2	2	3		
		" Liver	6	14	10	9	16		
		" Bowels	14	9	14	15	14		
		" Kidney	7	10	10	7	12		
		" Bladder	1	4	2	4	2		
		" Womb	1	1	1	3	1		
		" Æsophagus	1	0	1	0	1		
			-30	-40	-40	-40	-49		
		Sporadic Diseases, known seat.	Zymotic Diseases.	Fever, Contd. and Typ.	42	65	32	29	25
				" Scarlet	21	23	16	21	50
" Rheumatic	0			1	2	2	1		
" Intermittent... ..	0			0	1	0	1		
Measles	14			4	14	11	17		
Small Pox	44			2	0	4	4		
Whooping Cough	17			15	23	10	33		
Croup	11			13	7	8	18		
Diarrhoea and Dysentery	15			19	23	30	15		
Cholera	1			47	2	0	0		
Choleraic Diarrhoea	0	12	3	0	0				
Erysipelas	4	1	3	0	2				
Diphtherite	7	4	0	2	11				
	-178	-206	-126	-117	-177				
Sporadic Diseases, uncertain seat.	Sporadic Diseases, uncertain seat.	Anæmia	0	0	0	0	0		
		Stomatitis	3	3	1	1	0		
		Phlegmon	5	4	5	8	3		
		Scrofula	2	2	8	3	8		
		Gangrene	1	1	1	0	1		
		Cancer	12	7	15	7	14		
		Syphilis	3	11	9	16	13		
		Hæmorrhage	4	1	0	1	2		
		Dropsy	6	7	7	4	8		
		Atrophy, Deb. and Mesentery ...	108	85	106	101	100		
Hydrophobia	0	0	0	0	0				
Hernia	2	0	0	4	4				
Scorbutus	0	0	0	0	0				
Teething	11	7	9	12	18				
Exhaustion	6	1	8	11	6				
Gout	1	0	0	0	1				
Other Diseases	0	7	3	2	2				
Tetanus	1	0	1	1	2				
Metria	10	7	8	17	7				
Disordered Joints	0	0	0	0	0				
Congenital	0	0	0	0	1				
	-175	-143	-181	-188	-190				
Sporadic Diseases, uncertain seat.	Sporadic Diseases, uncertain seat.	Age	38	32	36	26	29		
		Unknown	5	4	0	3	5		
		Accidents	4	2	3	4	4		
		Inquests	80	80	87	95	108		
			-127	-118	-126	-138	-146		
Total		867	882	870	843	1005			

An analysis of this table indicates in the year a somewhat larger mortality from diseases of children than usual. These diseases may be divided into two classes—the sporadic diseases, which produce death among children; and the epidemic, which prevail only at intervals, and then give a temporary increase to the general death rate of a locality, as has been the case in this town during the past year, and to which I shall have to allude in speaking of the zymotic causes of death.

Among the first class, the most fatal diseases of children, numerically speaking, are the nervous. According to a report made by the Medical Officer of the Privy Council, the death rate from convulsions, hydrocephalus, and teething, of all England—that is, town and country districts combined—is usually about 1·93 per 1,000. In Cardiff, last year, these diseases produced a mortality of 2·02 per 1,000. In Monmouthshire and Wales the average generally is 2·53 per 1,000. Cardiff, therefore, is in excess of that of the average of the Kingdom, but less than that of Monmouthshire and Wales. It is also greatly exceeded in towns which in description of population are similar to Cardiff; for instance, in Liverpool the mortality is 3·38 per 1,000; in Bradford, 3·34; Manchester, 3·07. These diseases are always lowest among thinly-scattered populations of rural districts, and highest in large towns, especially in manufacturing and mining districts, where numerous Irish labourers are congregated together. The effect of such diseases is greatly aggravated by want of sufficient nutrition and the vitiated atmosphere of over-crowded dwellings. In addition to these also may be mentioned the imperfect nursing of the mother, who is obliged to contribute by her own exertions to the scanty earnings of the family. All these conjoined operate unfavourably at a time when the hold of life is feeble, and the child either succumbs to these diseases, or struggles through them only to reach adult age with a deteriorated constitution, and in its turn to give birth to a progeny more sickly than itself. Atrophy, debility, including premature births and mesenteric diseases, diseases essentially of early life, and influenced by causes I have just described, were fatal in the proportion of 2·531 per 1,000 to 2·129 per 1,000, that of town and country districts combined.

The deaths registered in Cardiff last year occurred at the following ages :—

Under one year ...	...	...	...	...	282	
Above One year, and under Two years ...	...	...	...	...	79	
Two	..	Three ...	...	...	43	
Three	..	Four ...	...	...	29	
Four	..	Five ...	...	...	26	
						459
Five	..	Ten ...	...	...	45	
Ten	..	Fifteen	...	...	22	
Fifteen	..	Twenty-five	...	...	86	
Twenty-five	..	Thirty-five	...	...	79	
Thirty-five	..	Forty-five	...	...	95	
Forty-five	..	Fifty-five	...	...	67	
Fifty-five	..	Sixty-five	...	...	62	
Sixty-five	..	Seventy-five	...	...	53	
Seventy-five	..	Eighty-five	...	...	30	
Eighty-five	..	Ninety-five	...	...	7	
Nine-five	..					

— 546

The proportion of deaths under 5 years of age to total population averages in the following places: Liverpool, 14.46 per 1,000; Cardiff, 9.52; Bristol, 9.49. During the past year, owing to causes to which I have referred, it has been temporarily increased to 11.77.

Diseases of the respiratory organs were remarkably fatal owing to the severe weather experienced in the latter part of the Winter Quarter, and early Spring months, which occasioned a greater number of deaths from acute inflammatory affections, namely, Bronchitis, Pneumonia, and Pleurisy.

The death-rate from pulmonary diseases ruling the Kingdom is 5.666 per 1,000. In Cardiff, during the year, it was 6.678 per 1,000. Under ordinary circumstances the death-rate of Cardiff from Phthisis is somewhat larger than that of the kingdom (town and country districts combined), Cardiff being 2.86 per 1,000 against 2.565. This may be attributed to the predisposing causes of disease of a constitutional character which exist among our poorer class of inhabitants, and to which I have alluded in my remarks on infantile deaths, but the excess is, comparatively speaking, trifling, and the phthisical death-rate of Cardiff contrasts very favourably with that of other large towns.

Diseases of the heart, with the abdominal viscera, observe the ordinary rate of mortality.

The mortality from zymotic diseases contrasts very favourably with that of former years; the total number of deaths registered in Cardiff in 1869 from this class of diseases being 177. From this class puerperal deaths have been removed, and placed under the head of metria, among sporadic diseases of uncertain seat: in accordance with the system adopted by the Registrar-General, this is evidently more correct, as, except on occasions now fortunately rare, when deaths after childbed are from puerperal fever of a contagious nature, the deaths in no way partake of a zymotic character; they are generally referable to accidental causes, as hæmorrhage, ruptured uterus, or exhaustion.

The death-rate from zymotic diseases in Cardiff in 1869 was 4.48, that of the kingdom (town and country districts combined), on average of five years, being 4.89. This is exceedingly satisfactory, inasmuch as Dr. Simon, in his able and exhaustive Report on the Sanitary State of the People of England, in speaking of diseases of this class, says—"That the local excesses of fatality are due to local circumstances of aggravation; that these aggravating circumstances are such as it is fully possible to counteract; and that of the total mortality ascribed to those influences in England, a very large share is preventable." And in a report made by him to the City of London, he urges: "No city, as far as science may be trusted, can deserve immunity from epidemic disease except by making absolute cleanliness the first law of its existence; such cleanliness as consists in the perfect adaptation of drainage, water supply, scavenging, and ventilation to the purposes they should respectively fulfil; such cleanliness as consists in carrying away by these means, inoffensively, all refuse materials of life—gaseous, solid, or liquid—from the person, the house, the factory, or the thoroughfare, so soon as possible after their formation, and with as near an approach, as their several natures allow, to one continuous current of removal."

The purport of these remarks applies with great force to the sanitary history of Cardiff. Thus in the three years antecedent to sanitary reform in 1850, when the population of Cardiff was 15,000, the yearly average of deaths from fever was 49, or at the annual rate of 3.25 per 1,000. In one of these years the deaths were 72. From 1850 a gradual and progressive diminution in the number of deaths from fever has taken place. Each of the external causes of zymotic disease, so graphically described by Mr. Simon, has been, as far as practicable, removed. The deaths registered from fever in 1869 were only 21, or, on an average of three years, 28, being at the annual rate of 0.63 per 1,000, the population having increased from 15,000 to upwards of 39,000, the proportionate number of deaths from this cause being four times greater in the former than in the latter period. It is also a matter of satisfaction that certain localities, namely, Stanley-street and others, where our Irish labourers reside, reported by Mr. Rammell, as being never free from fever, when, by direction of the Privy Council, he made an inquiry into the sanitary condition of Cardiff, enjoy now such comparative immunity, that no single death has been registered from fever during 1869, either in Stanley-street, Love-lane, Pendoylan-street, Thomas-street, North William-street, Ellen-street, Rosemary-street, or Herbert-street, and only one in Tyndall-street, although these streets are occupied almost exclusively by the Irish, who probably exceed 2,000 in number. These streets contain upwards of 300 houses, constantly under the sanitary supervision of the inspector of lodging-houses, who daily makes a report to me of the condition of the houses in these localities, and the excess of sickness when he observes any in them. In these reports he rarely has to call my attention to zymotic disease in anything like a severe form.

The zymotic diseases which have been most fatal in Cardiff during the year were scarlatina, measles, and whooping-cough. These are diseases incidental to childhood, which from time to time prevail, and on such occasions temporarily increase the general as well as infantile death rates of a locality. I am enabled to state, with respect to these diseases, as I did in my remarks on fever, that as compared with the other parts of the town, they did not exist in any unusual degree in the Irish districts. And, remembering that the diseases alluded to are essentially the most contagious, the above gratifying facts strongly confirm my statement regarding the improved sanitary condition of the dwellings of the Irish labouring classes.

Croup was fatal in 18 cases, this disease being more severe in Cardiff during the early part of the year than it had been for some time, and was doubtless occasioned by the varying cold and tempestuous weather of the spring months. Diarrhoea was less fatal than usual, and chiefly among children. Diphtheria was fatal in 11 cases; these cases are generally reported more numerously, as they have been this year, when epidemic scarlatina exists. There were four deaths from small-pox.

Table VIII. illustrates the proportionate rate of mortality of deaths from a zymotic as well as general disease. From this it will be seen that the mortality from sporadic diseases of uncertain seat maintain the usual average, observing only an increase concurrent with the increase of population.

TABLE VIII.—ILLUSTRATING PROPORTIONATE DEATH-RATE IN CARDIFF, AS CONTRASTED WITH THAT OF THE KINGDOM.

DISEASE.	Total.	Proportionate rate to every 1000 living in Cardiff.	Proportionate rate to every 1000 living in the kingdom, an average of 5 years.
Convulsions	63	1·595	1·276
Inflammation and Dis. Brain	19	0·481	0·248
Apoplexy	6	0·151	0·468
Paralysis	19	0·481	0·492
Epilepsy	3	0·075	0·122
Delirium Tremens	1	0·025	0·040
Insanity	0	...	...
Hydrocephalus	18	0·404	0·368
Diseased Spine	4	0·1	...
	133	...	...
Phthisis	113	2·86	2·565
Bronchitis	62	1·567	1·638
Inflammation of Lungs	72	1·822	1·199
Pleurisy	4	0·1	0·043
Asthma	13	0·329	0·201
Hydrothorax	0	...	...
Erapyema	0	...	...
Laryngitis	0	...	...
	264	...	...
Disease of Heart	46	1·164	0·919
	46	...	...
Disease of Stomach	3	0·075	0·138
" Liver	16	0·405	0·373
" Bowels	14	0·354	0·233
" Kidney	12	0·303	0·267
" Bladder	2	0·05	0·025
" Womb	1	0·025	0·059
" Æsophagus	1	0·025	...
	49	...	...
Fever, Contd. and Typ.	25	0·632	0·846
" Scarlet	50	1·265	0·905
" Rheumatic	1	0·025	0·126
" Intermittent	1	0·025	0·007
Measles	17	0·43	0·478
Small Pox	4	0·1	0·190
Whooping Cough	33	0·835	0·527
Croup	18	0·454	0·279
Diarrhœa and Dysentery	15	0·126	0·761
Cholera	0	...	...
Choleraic Diarrhœa	0	...	...
Erysipelas	2	0·05	0·087
Diphtherite	11	0·278	0·204
	177	...	...
Anæmia	0	...	...
Stomatitis	0	...	...
Phlegmon	3	0·75	0·023
Scrofula	8	0·2	0·160
Gangrene	1	0·025	0·065
Cancer	14	0·354	0·368
Syphilis	13	0·29	0·063
Hæmorrhage	2	...	...
Dropsy	8	...	0·419
Atrophy, Deb. and Mesentery	100	2·531	2·129
Hydrophobia	0	...	...
Hernia	4	0·1	0·041
Scorbutus	0	...	...
Teething	18	0·454	0·202
Exhaustion	6	0·151	0·01
Gout	1	0·025	0·013
Other Diseases	2	0·05	0·146
Tetanus	2	0·05	...
Metria	7	0·177	0·113
Disordered Joints	0	...	...
Congenital	1	0·025	0·082
	190	...	...
Age	29— 29	0·734	1·386
Unknown	5— 5	0·126	0·145
Accidents	4— 4	0·1	0·043
	100— 100	0·724	0·711

I have now only to direct your attention to deaths from violence or accidents, and on which coroner's inquests have been held. The total number of inquests held during the year was 108; of these 92 were males, and 16 females. The following is a classification of these:—

	Males.	Females.	Total.
Drowned in Bute Docks.	21	0	
„ Glamorganshire Canal	6	1	
„ River Taff	2	0	
„ Bristol Channel	4	0	
„ Cardiff Roads... ..	1	0	
„ Penarth Roads	1	0	
Accidents—Railway... ..	14	0	
Accidents—Ordinary	12	0	
Scalds	2	1	
Burns	2	0	
Run over	1	1	
Still-born	2	0	
Murder	2	0	
Manslaughter	1	0	
Suicide	1	0	
Natural causes	20	13	
	—	—	
Total	92	16	108

Of these deaths 30 were registered in Winter Quarter, 27 in the Spring, 27 in the Summer, and 22 in the Autumn.

Having thus brought before your notice the several causes operating so as to produce death, and suggested certain requirements necessary to be done by your Board to further improve the sanitary condition of this town, I may now enumerate the measures adopted by your Executive.

A constant supervision has been made, night and day, of the dwellings of the poor and the labouring classes, with the object of reducing the number of inmates when the houses are over-crowded; of enforcing lime-washing the walls and cleansing the floors of the rooms as often as necessary; of maintaining as perfect ventilation of the sleeping apartments as possible; of removing all kinds of offensive accumulations and nuisances from the backlets, or near the dwellings of the labouring classes; of cleansing the various courts scattered over the town; and of adopting other remedial measures which are required from time to time. Brushes for lime-washing have been lent to the occupiers of 219 houses, and every assistance afforded to carry out those sanitary provisions by John James, the inspector of lodging-houses and nuisances; and I can bear testimony to the efficient manner in which he discharges these onerous duties, as well as others of a like description. He is now engaged in remedying the serious evil of indiscriminate herding together of adult members of different sexes and families in the same sleeping-room; and from the partial experience we have had of the effect of this attempt already commenced, I have no doubt much improvement will follow.

In three instances proceedings have been adopted to remedy dangers likely to result from noxious trades, and orders for improvement or removal made.

A constant supervision has been exercised over the supply of the Meat Market; 1,992lbs. of meat have been seized and destroyed, 11 butchers have been proceeded against, and penalties inflicted varying in amount from 10s. to £5.

Several quantities of unwholesome fish have been also seized and destroyed, and penalties imposed on the parties offering them for sale.

Having thus enumerated the several matters pertaining to the public health of Cardiff, I may be allowed, in conclusion, to observe that although a higher death rate has ruled in Cardiff during the past year, this has been occasioned only by the temporary and disturbing cause to which I have alluded, and which will from time to time occur—namely, the prevalence of infantile epidemic diseases. Happily in all other respects the sanitary condition of the town has been satisfactory, and the improvement of late years steadily maintained.

I have the honour to be, Gentlemen,

Your obedient Servant,

H. J. PAINE, M.D.,

Medical Officer of Health.