

There is just one more point I wish to mention, and that is the form of the new Tribunal. In Scotland any members of either House of Parliament can act, if available, and in addition there is a panel of suitable persons, from whom in the event of necessity a selection for a committee of inquiry can be formed.

Difficulties were anticipated in Scotland on this question of the Panel, and they may perhaps be anticipated here, but having regard to the frequent expressions of opinion from men of all parties in Ireland that reform is necessary, we may hope that a panel formed on the Scottish lines will be accepted. There are excellent men of business on all sides. For instance, the Chairman of County Councils, ex-Foreman of Grand Juries, members of the Chambers of Commerce, and ex-members of Parliament. The only necessity would be that the Committee should be essentially non-political. We have a happy example in the composition of the new Agricultural Department.

I have now come to the end of my remarks. I have avoided as much as I could any strong language, and omitted controversial points. I consider that all parties honestly desire the good of Ireland, though perhaps they may differ as to their choice of means. I think also that the existing mode of conducting Private Bill Legislation, notwithstanding the excellence of the Tribunal, is prohibitive owing to the expense which accompanies it. I see every reason why men of all political parties should unite in securing the removal of this objection, and I feel convinced that if the Irish members, both Lords and Commons, will for once unite in pressing for this improvement, it will be secured, to the great advantage of the country, while the various parties having once experienced the good result of united action, may perhaps be more ready in future to act together for the welfare of the country.

4.—*The Progress of Sanitary Science in Belfast.*

BY COUNCILLOR HENRY O'NEILL, M.D., J.P., OF BELFAST.

[Read Friday, 22nd February, 1901.]

BELFAST is a city of 359,000 inhabitants, situated on the river Lagan, where that river flows into Belfast Lough. The name was originally Balfeirste, derived from Beal (a mouth), and the plural of Fearsat (a ford). It was so called from three fords which crossed the Lagan here. The earliest mention of the place is in the "Annals of the Four Masters" in the year 665 A.D. (Annals of Ulster, 667), when it appears under the simple designation of the Ford (Fearsat), and as the scene of a battle between the Ulidenns and Picts. It was

thus doubtless merely an accessible way between what are now known as the Counties of Antrim and Down.

This position caused it to be selected at first in all probability by the Anglo Norman followers of De Courcy as the site of a Castle, for we are informed (Ing. P.M. 7 Ed. III. No. 39), that William de Burgo, Earl of Ulster, who was assassinated at this spot, June 6th, 1333, held at the time of his death at le Forde a Manor in which was a castle demolished in the War of Faghn.

In 1476, we find the Castle of Belfast in the hands of one of the O'Neills of Clandeboye of that Royal Sept which, in the middle of the preceding century, had crossed the Bann from Tyrone, and almost annihilated the English Jurisdiction in Eastern Ulster.

Its importance as a chief commercial centre, dated from the year 1637, when the Earl of Strafford purchased from the Corporation of Carrickfergus certain privileges of exacting duties as imports and other extensive privileges which that place had previously possessed.

Belfast, a maritime city and Parliamentary borough, the capital of Ulster, the chief manufacturing and commercial city of Ireland, in the Counties of Antrim and Down, 101 miles north of Dublin, latitude 54 deg., 36 min., 85 sec. North longitude, 5 deg., 55 min., 53.7 sec. West, comprises an area in the present boundary of 16,503 acres, 3 roods, 29 perches, including 10,136 acres, 3 roods, 11 perches in the County of Antrim, and 4,579 acres, 1 rood, 6 perches in the County Down, or suburb of Ballymacarrett. There is an additional area of 1,787 acres, 3 roods, 12 perches of tideway included within the municipal boundary. In 1831 the population was 48,224; in 1836, 60,763; in 1851, 100,301; in 1861, 120,777; and in 1871 the population had increased to 174,412; at the beginning of 1876 the estimated population was about 200,000. When the Census was taken in April, 1891, the municipal area numbered 255,922, and the Parliamentary area was 273,055, or an increase of something over 23 per cent. in the population. The present municipal area numbers about 359,000. In the year 1836 the number of houses valued at from £5 to £10 was 3,066; from £10 to £20, 1,464 and above £20, 1,442. In 1898 the number of Ratings was as under:—

Valuations £4 and under, 8,062; valuations over £4 and not exceeding £8, 42,462; valuations over £8 and not exceeding £20, 17,621; valuations exceeding £20, 8,479.

There is not a city in Ireland (if indeed any in the United Kingdom), which has so rapidly developed itself from insignificance to vast importance as Belfast. In the year 1757 it contained only 1,779 habitations, mostly straw thatched and

a population of 8,549 inhabitants. In 1782 the population was 13,105; and in 1816 it was 30,720; and the increase in population may be traced through the various years up to the present, by the Census returns as follows:—

Year	1782	1821	1831	1841	1851
Persons ...	13,105	37,117	48,224	75,308	100,301
Year	1861	1871	1881	1891	1900
Persons	120,777	174,412	208,122	255,222	359,000

The city is situated at the mouth of the Lagan, which has its source in Sliebh Croobe Mountains in the centre of County Down. This river separates the Counties of Antrim and Down, and is navigable, except at low tide, for barges and lighters of large capacity from Donegall Quay to the first locks of Annadale.

In 1896, a Bill "to extend the City of Belfast" was promoted and passed, and the Act came into operation on the 25th November 1897.

In 1898, the Local Government (Ireland) Act received the Royal Assent. By it many changes have been effected in municipal administration, and under its provisions Belfast is an administrative County of itself, and is called a County Borough. It has all the powers and duties of a County Council as well as the election of Lord Mayor, which now takes place at the quarterly meeting on the 23rd January.

In 1892, a Charter was granted by Her Majesty Queen Victoria, conferring upon the Mayor of Belfast for the time being the title of "Lord Mayor" and upon the Corporation the name and description of "The Lord Mayor, Aldermen and Citizens of the City of Belfast." During the interval embraced by the time in which these civic changes occurred, there were formed at different periods a Board of Harbour Commissioners, a Board of Water Commissioners, a Chamber of Commerce, and various other public bodies and institutions, such as were rendered necessary by the rapidly increasing requirements of the City.

Her Majesty the Queen, by, and with the advice and consent of His Excellency the then Lord Lieutenant (the Marquis of Londonderry), conferred the rank of City upon Belfast on 8th November, 1888.

Belfast is "the County of the City of Belfast for the purpose of Assize, Sheriff, Lieutenant, Custos Rotulorum Justices,

General Quarter or Petty Sessions, Jurors, Militia, Police, Registration, Coroner, Clerk of the Peace, or other County Officers."

Belfast is situated in the Barony of Upper Antrim and includes in its boundaries the large suburb of Ballymacarrett, in the County of Down, from which it is separated from the River Lagan. The old City comprised an area of 6,806a. 2r. 22p., 4,322a. 0r. 33p. being in the County Antrim, and 1,668a. 3r. 22p. in Down, the remainder being tideway. The acreage of the area added under the Belfast Corporation Act, 1896, amounts to 9,697a. 1r. 1p., of this area 5,814a. 2r. 18p. are in County Antrim side, and 2,910a. 1r. 24p. in County Down side, the total acreage of the extended city being 16,503a. 3r. 29p. and the remainder tideway 972a. 0r. 39p. The total valuation, exclusive of exemptions, on 1st January, 1861, amounted to £270,930; on 1st January, 1876, to £489,824; 1st January, 1897, the last year of the old city, £930,717; 1st January, 1898, £1060,565; on 1st January, 1899, £1,117,884; and on 1st April, 1900, £1,160,051 10s. 0d.

Below is given in tabular form the number of new buildings and the valuation of the City for municipal purposes, including the property of the Harbour Commissioners:—

Year	Total increase	Total No. of New Buildings	Year,	Total
	in value		1st January	
1889	£13,308	1,594	1890	£690,913
1898	£58,256	4,547	1900	£1,160,051

The water supply of Belfast is under the control of the Belfast City and District Water Commissioners, who were incorporated in the year 1840 by Act of Parliament. There are fifteen elected Commissioners—one to each Ward, and they are elected for a term of 3 years. Prior to 1840 the supply of water to Belfast was in the hands of the Belfast Charitable Society, who held certain lands and springs in Malone; but all their rights passed to the Water Commissioners by the Act of 1840. Immediately on their incorporation the Water Commissioners constructed certain works near the Antrim Road for the collection of the water of Carr's Glen for town use. Owing, however, to the growth of Belfast, the water of Carr's Glen became inadequate; and under the powers of the Belfast Water Act, 1855, extensive works in the district of Woodburn, near Carrickfergus, were constructed by the Commissioners. Further extensive works were constructed under the authority of the Belfast Water Act, 1874, and an important addition made to the Water Supply. Under

the powers of the Water Act of 1879 the Commissioners have constructed several large storage reservoirs in the Copeland District near Carrickfergus. They have also completed several works of a secondary character so as to render more perfect the existing system.

The oldest parts of the town are High Street, Bridge Street, Corn Market, William Street South, Waring Street, Church Lane, North Street, Hercules Street and John Street. The old town, consisting chiefly of these streets, was surrounded by a deep ditch and earthen rampart, and had several gates.

The rapid increase of Belfast in population, and its rapid rise in commercial importance, chiefly accounts for the fact that the construction of good streets and erection of its principal public buildings dates from early in the last century.

Like all other large cities, not only in the United Kingdom, but throughout the world, little, if any, attention whatever was paid to sanitary matters until comparatively recent years, streets were laid out to suit the convenience of the owner of the ground, and lanes and alleys were numerous in the immediate neighbourhood of the widest and best streets of the City. No building regulations were in force, and houses were erected without any attention having been paid to the necessary requirements of the inhabitants thereof, but rather with a view to the housing of as many persons as possible, without caring whether there was sufficient air, proper ventilation, water, or any essentials for the health of the people living therein. We have a few records of the death rate since the year 1641,

In the year 1641, a great epidemic occurred, probably Typhus Fever, and in the districts of Belfast and Malone, 3,000 people died of the disease in the short space of four months, and if five cases be allowed for each death, which we must admit is a very moderate estimate, there must have been 25,000 persons struck down with Typhus Fever in this small area. About the year 1689 (fifty years later), another great epidemic occurred in Belfast, thousands of the stricken were crowded into the great hospital at Belfast, and 3,762 people died in the space of six months.

The epidemic of 1689 is remarkable, as it is the first time there is any mention of a hospital in Belfast.

The Belfast Dispensary was formed in 1793 with the object of:—To preserve the lives and health of the poor, the prevention of Small-Pox, and the reviving of persons supposed to be dead.

In 1797, a Fever Hospital was opened in connection with the Dispensary at a house in Factory Row, rented at £20 per annum; the reason for founding this hospital was, that fever and small-pox were always present in the town, and a constant source of danger to the respectable and influential citizens.

Typhus Fever at this time was endemic in the Old Poor House, and the new Fever Hospital was specially intended for the isolation and treatment of these cases.

In 1799, the Fever Hospital was removed to the corner of Smithfield and West Street, and in this year another epidemic of fever occurred of which there are no details.

In the year 1804, vaccination was carried out, free of charge, under the direction of Mr. M'Cluney in connection with the Belfast Dispensary.

In 1817, another great epidemic of Typhus Fever occurred, and 3,527 cases were admitted to the new Hospital in Frederick Street.

During 1822, a society for the relief of the destitute poor, was founded by Mr. Spalding and Dr. Edgar, and in 1837, an auxiliary Medical Charity was founded; this society, in eleven years, gave medicine and medical advice to 74,228 persons, and no one was entered on this list more than once; nearly 7,000 cases per annum amongst the poor, out of a population of 50,000 people, which shows there must have been a phenomenal amount of sickness and disease among the poor of Belfast.

From 1831 until 1840, there were many painful records of epidemic disease, whereby at least 40,000 people must have been stricken down, by either Fever, Small-Pox, Cholera, Erysipelas or Influenza, the latter travelling from the east of Europe, and leaving its usual train of misery and suffering, the major portion being under treatment at Frederick Street Hospital, and temporary premises in Lancaster Street under Dr. Henry MacCormac (father of Sir William MacCormac, Bart.), as Chief Medical Officer.

The Students of the Belfast College unfortunately appear to have been fellow-sufferers by the Cholera, and they presented a letter of thanks to the Dispensary Committee for their kind and effective treatment.

Nothing, however, shows the thoroughly unhealthy state of the town better than what occurred on the occasion of the Queen's marriage in 1840. At a public meeting of the citizens of Belfast to consider the celebration of the Queen's marriage, it was proposed and unanimously carried "that the town be not illuminated in honor of the Queen's marriage in consequence of the prevalence of epidemic diseases in their midst, and that the money which the illumination would have cost to be devoted to the funds of the Fever Hospital." This resolution at such a time, and in such a place, speaks volumes as to the wretchedly unsanitary state of Belfast; the people were right, the energetic support of the Fever Hospital was of much more importance than the illumination of the town for the marriage of Our Gracious Queen, and no one would understand this better than the Queen herself.

In 1842-4, another epidemic of Typhus Fever occurred; a temporary hospital was erected in the Workhouse grounds, and all the surgical and medical cases in the Frederick Street Hospital were removed to the Cholera Wards, so as to leave the whole hospital free for the fever cases.

Again, in the year 1847-48, a serious epidemic of Small-Pox broke out, accompanied by a severe form of Dysentery. The Plague again visited the City, and more than 13,676 cases were admitted into Belfast Hospitals in about 8 months, and, allowing for private cases, one person out of every four, suffered from this disease.

Shortly after this, Our Gracious Queen, accompanied by Prince Albert, visited Belfast, the whole city was *en fête* to receive them, triumphal arches were erected, the streets were gaily decorated and Royalty received a most enthusiastic reception from her people, but beyond this outward joy and gladness, there hung a black cloud of disease and misery, as up to the week prior to the Royal Visit, more than 2,057 cases of Asiatic Cholera had been admitted to the Belfast Hospital, of which, about one in every three had died.

Public opinion being thoroughly aroused, Medical men, Politicians, Clergymen, and Scientific men of all kinds united, and forced Parliament to reluctantly pass the first of the great series of Public Health Acts, and from 1849 till 1899, there has scarcely been a session of Parliament in which measures relating to public health have not been passed, becoming more stringent every year.

Personal cleanliness, and the prompt removal of filth of every description is the very key-stone of modern sanitary science, and the only effectual means of destroying epidemic disease, and of permanently improving the health of the people.

The past sanitary history of Belfast is only a painful record of the ravages of epidemic diseases with all their attendant misery and want, produced and ministered to by filth of every description. Besides, to make matters worse, in the roads and streets were hordes of filthy beggars showing their sores, with their brood of diseased children, and everywhere was disease, misery and want, and people dying in the lanes and alleys of starvation; and it is also a noble record of the self-sacrifice, but unavailing fight made against all this human evil by the great and good men and women of the day.

Though the health of the city leaves much to be desired, still there has been a slow but gradual improvement therein. About 50 or 60 years ago, there were old docks in what is now known as Queen's Square, Albert Square, and Corporation Square, these, at low water, were covered with sediment of the most filthy description, and constituted a standing nuisance to the houses in the immediate vicinity. Where the fine wide thoroughfare known as Victoria Street, and its continua-

tion into Corporation Street now is, were congeries of narrow lanes and alleys with high houses where free currents of air and sunshine were almost unknown. This state of affairs existed on both sides of our leading Street (High Street). The Corporation, then recently formed, determined to do away with the unsanitary purlieu, where dirt and its attendant sickness prevailed, and the Harbour Commissioners at the same time decided to fill up the docks, and improve their quayage. Victoria Square, now spacious and airy, was then used as a timber pond.

There are still many lanes and alleys in the City which require considerable attention, but in the great majority of these little can be done, unless by the total removal of the houses, and reconstruction of the streets, so as to ensure proper air and light; this has been done by the Corporation within the last few years, under the Housing of the Working Classes Act, and the adoption of Model Building Bye-Laws. Of course care must be taken that the persons removed from the houses will have other houses in which to reside, and that they will not be compelled to overcrowd, and thereby make unsanitary the other houses in the vicinity of those from which they removed. The people of Belfast have many difficulties to overcome to maintain good health, apart from the fact of the employment of a large number of people in mills and factories, compelling them to be subject to the variations of temperature, the lower portion of the City is built on blue esturian clay, and in the upper the red brick clay is mainly prevalent, both of these are cold and damp, and very retentive of moisture, in addition, although we rarely have heavy rains, yet the air is always more or less charged with moisture, and we have but little sunshine.

The death rate has been steadily decreasing, as the following Table shows:—

TABLE SHOWING THE BIRTH AND DEATH RATES FOR THE FOLLOWING YEARS, 1892-1900, IN THE COUNTY BOROUGH OF BELFAST.

	Birth Rate	Death Rate
1892	33·7	26·1
1895	33·1	24·3
1898	32·1	22·8
1900	32·1	21·3

A great improvement has taken place in the prevention of the spread of Infectious Disease. According to the Local

Government Board Returns in the year 1865 there were 26,566 cases of fever generally among the poor of all Ireland, and in the year 1897 only 2,787, showing for every 100 cases occurring 33 years ago, there are now about 10 cases—a reduction of nearly 30 per cent. in about 30 years.

The Public Health Committee of the County Borough of Belfast for 1901, consists of 15 members under the Chairmanship of Alderman James Graham, M.D., and the Executive Sanitary Officers consist of:—A Medical Superintendent Officer of Health, an Executive Sanitary Officer, an Assistant Executive Sanitary Officer, two Chief Sanitary Sub-Officers, one Inspector under the Food and Drugs Act, one Inspector under the Shop Hours Act and Factory and Workshops Act, one Inspector of Cowsheds and Dairies, 24 Sanitary Sub-Officers.

In order to enjoy life in good health each person must (1) breathe pure air; (2) drink and use pure water; (3) eat good food; (4) keep the body clean; (5) wear warm clothing; (6) work regularly; (7) live in a healthy house; and (8) avoid mental anxiety.

Obedience to these simple laws of health is a personal matter, and is essential for the health and comfort of each individual.

The Public Health of the City of Belfast is under the care of the Corporation, whose duty it is to preserve the health and prolong the life of the citizens in comfort and safety.

The monetary value of human life to the State has been estimated by the late Doctor Farr, who states the value of the nation of a Norfolk agricultural labourer to be £246 at the age of 25.

By making careful calculations it is possible to state approximately the saving of money to the State that may be obtained simply by saving human life. We may calculate the number of persons who die from preventible causes. This calculation has been made with great care by Dr. Farr and Sir John Simon, formerly Medical Officer to the Privy Council. By comparing the deaths that occurred in unhealthy towns with those which took place in healthy districts, they concluded that more than 100,000 deaths occurred every year in Great Britain that might, with proper care, have been prevented.

Sir Spencer Wells takes the average cash value of human life of each person at about £150.

The average duration of human life in Great Britain 60 years ago has been reckoned at about 30 years. According to Mr. Humphrey's recent life tables it is now about 49 years.

By estimating the actual diminutions which have taken place during the past 20 years in the death rate from consumption—a disease which occurs chiefly between the ages of 15 and 55—at this time of life £200 is a fair value to take of each life saved. The Registrar-General's tables state that from

1863 to 1883 the mortality from consumption has been reduced 750 for each million of the population, or a total of 20,000 lives each year, with a saving to the nation in money value every year of over four millions pounds sterling.

The population of the City of Belfast for 1900 has been calculated by the Registrar-General as consisting of 359,000 persons. Of this number 7,642 persons died.

	1900.	1899
Including deaths from consumption of	1,115	1,112
" " diarrhœa,	241	285
" " typhoid fever,	261	263
" " whooping cough,	115	215
" " measles,	42	146
" " diphtheria,	54	61
" " scarlet fever,	13	24
" " simple fever,	8	10
" " typhus fever,	3	1

Making a total of 1,852 persons during 1900, and 2,117 during 1899 who have died from preventible diseases because of disobedience to the ordinary laws of health; while obedience to the laws of Sanitary Science by the citizens, under the guidance of our medical men and City Corporation (who are the Guardians of the Public Health of Belfast), would have the effect of completely stamping out all preventible disease.

Dr. Farr states—"By the laws of life no man can be certain that he shall continue in existence a single year, much less any definite number of years; but, with an average constitution, he may justly expect his days to be long in the land if he keeps the Divine commandments brought down and proclaimed by Science."

The monetary loss to the City of Belfast during 1900 caused by the death of 7,642 of our fellow-citizens has been considerable. With reference to the value of the agricultural labourers and professional men, I have already stated that Dr. Farr, Sir John Simon, and Sir Spencer Wells calculate the worth to the State of each individual to be at least £150. By this method of reckoning, the loss to the City of Belfast by the death of 7,642 of the residents during 1900 is equal to a loss of money value of at least £1,146,300 sterling, as compared with 7,933 persons who died during 1899, equal to a loss of money value of at least £1,189,950 sterling.

A serious question for each of our people—How can we prevent death from these preventible diseases in the present?

It is quite evident that a remedy for this lamentable condition of matters existing in our City is urgently required. Under the guidance of our medical men and Corporation, and with the co-operation of the more intelligent of our citizens, a much greater degree of improvement would be practicable in the lives and comfort of our people

than can be expected to result from isolated effort; and such co-operation for the public welfare, whilst relieving the condition of the sick and lengthening the term of life, would also add much to the happiness and wealth of the citizens, and make our great, enlightened, and prosperous City of Belfast the Northern Hygeia, a City of Health on the island of Saints.

5.—*The Housing of the People, with special reference to Dublin.*

BY CHARLES DAWSON, ESQ.

[Read Wednesday, 27th March, 1901.]

THERE is no necessity to apologize for introducing this subject to the notice of the Society. It fills the public mind almost beyond any other domestic question. We know, from recent utterances, that it occupies the attention of statesmen, and even the King, who acted on the Royal Commission in 1885, has, since his accession to the throne, more than once introduced the subject into his speeches. It is, therefore, quite clear from this that, notwithstanding what has been done by legislation, by local bodies, by philanthropy and commercial enterprise, the solution of the question of the housing of the people has not, as yet, been arrived at. I do not use the word working classes, I prefer the term used by Sir Sydney Waterlow, "The Weekly Wage Classes." With few exceptions the most of us are workers, but the difficulty of finding suitable house accommodation, though there is sometimes some difficulty, is not so great with us as with those who are at physical work all day, or looking for it, whose pay is weekly, in many cases small and frequently precarious, and who have neither time nor money to fight their own battle. In fact, in this matter they are helpless. The condition of things is very bad in Dublin, as the public press of the day is pointing out in graphic pictures, but there are parallels to be found in most civilized countries. From a report of the medical officer of health of the London County Council of September, 1897, I find the following state of things described in the statement of the Inspector of Camberwell:—

"For instance, a night inspection had been made in the course of last year, which revealed the fact that a ground-floor room, 880 cubic feet in capacity, was occupied by fourteen persons and a baby. Two married couples and the baby occupied the bed, four children were accommodated upon one mattress, five children upon a second one, and a young girl slept in an orange box at the foot of the bed. It may be added that eight cases of small-pox were removed during the