THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

SEPTEMBER 1, 1898.

PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*Presidential Address to the Congress of Public Health, held under the auspices of the Royal Institute of Public Health, at Dublin, August 18th to 23rd, 1898.*
By SIR CHARLES A. CAMERON, M.D.; D.P.H., Camb.; M.R.C.P.I.; F.I.C.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; Vice-President and ex-President of the Royal Institute of Public Health, and of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, and Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

My first duty on this occasion is to express my warmest thanks to the Fellows of the Royal Institute of Public Health for the honour which they have conferred upon me in selecting me to preside at this important Hygienic Congress. It is by no means the only compliment which the Institute have paid me, for I gratefully bear in mind that four years in succession they unanimously elected me to be their President. I esteem this action of the Institute all the more from the circumstance that their headquarters are

situated in London, whilst I am a resident in Dublin. In the six millions of people in that vast city no difficulty would have been experienced in securing for the presidency of the Institute men of the highest repute in the domain of science. I rejoice to know that under the leadership of my distinguished predecessors, Sir Henry Littlejohn and Professor Smith, the career of the Institute has been one of uninterrupted success, and that at this moment they occupy a high position amongst the many useful organisations in these countries which are supported by voluntary efforts and are without State aid.

My next duty is the pleasant one of welcoming most warmly, on behalf of the Reception Committee of the Congress—and I may indeed say on the part of the citizens of Dublin—the visitors who have come to this city from England, Scotland, Wales, and the Irish provinces to take a part in the proceedings of this Congress. Amongst them are the bearers of names known and respected in many lands. They have done noble work in devising and carrying into effect measures for the mitigation of human suffering, in disease, for the prolongation of life, and for the amelioration of the conditions under which the lower and more dependant classes of the population exist. In our forthcoming conferences their voices will be heard earnestly and eloquently advocating the adoption of every means by which the moral and physical improvement of our race might be promoted. I use the word moral advisedly, for assuredly the strict observance of the laws of physical health cannot fail to exercise a beneficial effect upon our morals. Truly has it been said that cleanliness is next to godliness, and we cannot forget that the first code of sanitary laws came to us from a divine source. The lessening of overcrowding in the tenement houses, the better care of the children of the poor, the multiplication of open spaces and recreation grounds, the provision of means of innocent amusements, cheap baths and wash-houses, healthful dwellings at moderate rents, are all agents for improving the *morale* and *physique* of the people.

HIGH DEATH-RATES IN TOWNS.

The aggregation of a large number of people upon a limited area operates injuriously upon their health, and lessens the mean duration of their lives. Many years ago Doctor—now Sir William—Gairdner, of Glasgow, pointed out that whilst the death-rate in England was 15 per 1,000 persons living on every square mile, it rose as the density of population increased until it became 27 and upwards when the population came to be 2,900 per square mile.

The death-rates in purely rural districts have not been very largely reduced since the beginning of the present century; in the towns the case has been different. Before the system of national registration of deaths was adopted there existed the means of closely approximating the death-rates in towns. From the “Bills of Mortality” of London we learn that the death-rate in that city during the period 1728 to 1780 was about 50 per 1,000 persons living. The deaths therefore greatly exceeded the births, and were it not for the great immigration into the city from the country its population would have become extinct, as the mean age at death of the citizens was only 20 years. According to Sir William Petty, the deaths in London in six years of the seventeenth century exceeded the births by about five-eighths. He showed that at the same period the same relative proportions between births and deaths existed in Dublin.

For centuries the urban death-rates greatly exceeded the rural rates, in many cases by from 20 to 50 per cent.; but during the last 40 years they have been approximating, although a gap far too wide still divides them. In 1896 the estimated population of England and Wales amounted to 30,717,355, of whom 14,883,806 resided in 110 town-districts, each containing more than 35,000 inhabitants, and 15,833,549 in country districts and towns and villages having a smaller population than 35,000. The death-rate in the urban districts was 18, and in the rural districts 15·3 per 1,000—the difference being 2·7 per 1,000. The mean rates in the previous 10 years were 19·7 and 17·2—a difference of 2·5. Let us compare these figures with the statistics of the decade ended in 1860; in that period the

urban rate was 24·7 and the rural 19·9, the difference being 4·8.

Gratifying as it is to find the gulf between the urban and country death-rates narrowing, it is unsatisfactory to observe that the rate of mortality should be so much greater in some towns than in others. In 1897 the rate in Eastbourne was 8·2, in Bournemouth 10·1, Croydon 13·62, and even in the manufacturing town of Darlington 15, whilst in Liverpool it was 26·76, and in Salford 26·88. Brighton, a most fashionable town with a well-to-do population, had a death-rate of 15·23; but Wakefield, Stockton-on-Tees, and Jarrow—all manufacturing towns—had almost the same rate.

CAUSES OF THE HIGH URBAN DEATH-RATES.

The causes which raise the urban death-rates so much above the rural ones are numerous, and, perhaps, not fully discovered. The causes of the enormous difference between the bills of mortality of the healthiest and least healthy of the towns have not been fully investigated. The contagion of the fevers must clearly be more readily conveyed from the sick to the sound in towns owing to the closer contact of the people. The town atmosphere is less pure than the air of the country; its soils are generally contaminated with filth. In its narrow streets and courts the direct sunlight—so necessary to maintain the purity of the air—and thorough ventilation are wanting. The effete matter from dwellings and workshops, and the sweepings of the streets, are sometimes allowed to accumulate, and to pollute the air by their noisome exhalations. Many of the occupations of townspeople are of a more or less unhealthy nature, and the majority of them are sedentary. The outdoor life of the farmer and agricultural labourer is obviously more healthy than that of the town bakers, shoemakers, tailors, mill-workers, &c. The cabin of the peasant may be, and indeed too often is, a wretched dwelling, but it is at least surrounded by the pure and open atmosphere. In the towns a dozen families often occupy as many rooms in the same house, whilst hundreds of similar houses invest it on all sides. In the narrow

back street and close court we see the children of the poor, with bleared eyes, colourless lips and pallid faces, pining for fresh air and a view of the wide canopy of the sky. How different is not the lot of the country child and young person! They see the hills resplendent with the sheen of the golden gorse, they inspire air fragrant with the perfume of the hawthorn and of many a sweetly odorous flower, they roam over fields of emerald green, through shady woods and by purling brooks and silver rivers, whilst the air is filled with the melody of the feathered warblers. With such environments the country child develops into a strong and healthy adult.

We can hardly expect to make the conditions of infantile life so healthful in town as they are in the country, but much can be done to brighten the life of the children of our great towns, to give a roseate tinge to their pale cheeks, and to strengthen and develop their muscles. Their dwellings should be improved, and places for their recreation in the open air liberally provided. The Earl of Meath has generously established in Dublin two gymnasia and playgrounds for children, and the Corporation are providing a gymnasium on the open space formed by the removal of an old prison in Green-street. Gymnasia for children are, however, required in all parts of this city and of other cities. As the child is in one sense the father of the man, every effort should be made in favour of the physical, moral, and intellectual culture of those who are to form the future men and women of the nation.

THE SANITARY CONDITION OF TOWNS IMPROVING.

The appallingly high death-rates in towns which continued for many centuries have greatly decreased in the present one. The improvement is partly due to greater attention to personal hygiene and a higher standard of comfort, partly and chiefly to improved public sanitation.

The "masses" are now on the whole better fed than they were formerly, their hours of labour are less, and they enjoy more holidays. The causes which rendered so many of the handicrafts unhealthy and even dangerous have been removed, or their effects lessened.

Before the second half of the present century the Public Health Acts enacted were few in number, and, as a rule, were not mandatory on the local authorities. The English Public Health Act of 1872, amended in 1875, and the Irish Public Health Act of 1875, amended in 1878, were the most comprehensive and valuable sanitary laws ever put upon the statute books of these realms, largely owing to the compulsory nature of many of their sections. Under the provisions of these and several subsequent Acts a great improvement has been effected in nearly all the large towns of these countries.

During the ten years ended in 1850 the mean annual death-rate in London was 24·8 per 1,000 persons living; in the decade ended in 1896 the rate was 19·9, or 4·9 per 1,000 less than in the former period. In 1897 the rate was only 17·7, excluding the deaths of strangers in London.

In Glasgow, where vast sums have been expended in the clearing of unhealthy areas and the erection of improved dwellings for the working classes, a great decrease has taken place in the general and zymotic death-rates. In the ten years ended in 1866 the deaths from all causes were in the ratio of 30·2 per 1,000 of the population; in the five years ended in 1897 the rate was only 21·8.

The death-rate in Liverpool in the years 1866 to 1875 was 31·3 per 1,000; in the years 1887 to 1896 it was 25·7, and in 1897, 24·4. The Manchester death-rate was 31 in 1866-1875; in 1887-1896, 25·3; and in 1897, 23·1. Similar statistics could be quoted in reference to almost every other large town.

THE INCREASE IN THE ENGLISH URBAN POPULATION HAS
NOT CAUSED AN INCREASED DEATH-RATE.

In all parts of the world the mean duration of human life is decidedly less in the towns than in the country. In comparing the vital and mortal statistics of countries the relative proportion of their urban and rural populations is a factor of considerable importance. If in one country only 1 in very 10 of the inhabitants lives in a town, and in another country 1 in 5, then, *cæteris paribus*, a lower

death-rate might naturally be expected as regards the former country.

In England by far the larger proportion of the people are located in the towns. In the middle of May of the present year the population of the urban registration districts numbered $21\frac{1}{2}$ millions out of a population of 31,397,078. What a contrast does not this enormous town population present to that of other countries, say to Russia! Of the population of that empire, which numbered last year 126,411,736, only 16,289,184 resided in the towns, some of which were indeed mere villages. Only 8 of the towns had a population exceeding 180,000 each.

Notwithstanding the fact that an increase in the density of a population is unfavourable to health, the rapid increase in the English urban population has not sensibly counteracted the good effects produced by improved public and private hygiene. The density of the population of London has been doubled since 1851. It is truly wonderful that its vast population of 6,291,667, located on only 693 square miles, should have in 1897 so low a death-rate as 17·7 per 1,000. This rate is not greater than that of a fairly healthy rural district. England well deserves the name she has received as the birth-place and home of sanitary science and practice.

That the health of the English people continues to improve, the following statistics prove:—

Mean Annual Death-rate in England and Wales.

1847-1850, 23·2; 1851-1860, 22·2; 1861-1870, 22·5;
1871-1880, 21·4; 1881-1890, 19·1; 1891-1896, 18·45.

The reduction in the death-rate has been chiefly effected by the improved state of the public health in towns.

Mean Annual Death-rate in the Towns.

1851-1860, 24·7; 1861-1870, 24·8; 1871-1880, 23·1;
1881-1890, 20·3; 1891-1896, 19·24; 1897, 16·84.

In the period 1851-1870 the deaths in the towns were 25 per cent. greater than the deaths in the country for equal numbers of the people; in the period 1871-1896 the excess was reduced to 13·5 per cent., or nearly one-half.

En passant, I may here remark that the death-rate is

much lower amongst females than males. It may interest intending benedicts, and strengthen their resolution, to learn that the mean duration of life is greater amongst married men than is the case with celibates. No doubt the former are taken better care of.

Attention has been called to the decided decline in the birth-rate not only in the United Kingdom but in most European countries; but it seems clear that such a decline must necessarily follow a diminished rate of mortality, resulting in an increase of the numbers of the population upon which the birth-rate is calculated. The lowest birth-rates ever registered in England were in 1894 and 1896, and in these years the lowest death-rates were also recorded.

MORTAL STATISTICS OF IRELAND.

The death-rate in Ireland is for the whole country very low. In the 10 years ended in 1896 it was only 18. In the same period the rate in Hungary was 35·6, and in Austria 30. The low rate in Ireland is largely due to the circumstance that by far the larger portion of the population reside in the open country. The urban bills of mortality are very high. In the decade ended in 1897 the death-rate was 24·65 per 1,000 in the 23 largest towns. Their zymotic death-rate was 2·64. There is therefore a great difference between town and country death-rates in Ireland.

STATE OF PUBLIC HEALTH IN DUBLIN.

As this Congress is meeting in Dublin it seems fitting that some account of the sanitary state of the city should be given to it. Thirty-two years ago the sanitary staff of Dublin consisted of one whole man (an Inspector of Nuisances), and a small part of another man (the Secretary to the Markets Committee). At present the staff consists of a Superintendent Medical Officer of Health, who holds also the positions of Public Analyst and Executive Sanitary Officer; 15 District Medical Officers of Health, who hold that position *ex officio* as Poor-law Medical Officers; a Sanitary Engineer; a Superintendent and Assistant-Superintendent of Sanitary Sub-Officers—*i.e.*, Nuisance Inspectors; 23 Sanitary Sub-Officers; 3 Inspectors of Dairies; 3 Food Inspectors; an Inspector of Slaughtering

houses; 2 Inspectors (one a lady) under the provisions of the Shop Hours Act, and about a dozen persons, exclusive of whitewashers and charwomen, engaged in disinfection operations and the removal of fever patients to hospital. The disinfecting premises have recently been improved and enlarged at a cost of £2,000, and a large isolated house, the property of the Corporation, has been fitted up at a cost of £500 as a refuge for persons whose dwellings are undergoing disinfection. Since 1895 no person has been appointed a Sanitary Inspector unless he had proved his fitness for that position by a competitive examination. Sixteen of the Sanitary Inspectors hold certificates of competency, granted to them, after examination, by the Royal Institute of Public Health.

The estimated expense of the sanitary department, exclusive of the cost of making and maintaining sewers, was, in 1897, £23,607. Salaries and wages amounted to £9,068 10s. £1,040 were, however, received as a Parliamentary grant in aid of the salaries of the Sanitary Officers, and a considerable revenue is derived from the baths and wash-houses, and other sources.

Loans for the following purposes have been sanctioned, and all but a small portion obtained and expended:—For clearing unhealthy areas (on which the Dublin Artisans' Dwellings Company have since erected houses) £54,200; artisans' and labourers' dwellings, £137,323; new streets, by which slums were cleared away, £116,000; public abattoir, £16,700; baths and wash-houses, £12,500; improvement in disinfection house, £2,000; a refuge for persons whose houses are being disinfected, £500; a mortuary, £200; open spaces, £2,900; offices for sanitary department and city laboratory, £10,000; underground sanitary accommodation, £2,200 = £354,523. For the following purposes, which also tend to improve the public health, loans have been sanctioned and nearly altogether obtained:—Sewers, and works connected with them, £62,107; works in connection with public and domestic scavenging, £34,050; paving, flagging, and concreting, £421,988; fish and vegetable markets, £98,800; "private improvement" expenses, £12,628. All these make a total of £984,096.

For another great sanitary improvement—namely, the main drainage of the city—a loan of £350,000 has been sanctioned, and is being expended. Lastly, if we add the cost of the improved supply of water to the city—namely, £720,000—we have a grand total of £2,054,096 expended on purposes all of which tend to improve the health and comfort of the citizens.

When the main drainage and sewage precipitation scheme is completed—probably in about two years more—the Liffey will no longer be polluted, and the sewage, now impounded for many hours daily, will flow uninterruptedly through the sewers.

I hardly venture to claim that the large sum of money expended in sanitary works in Dublin, and the exertions of the sanitary department of the Corporation, have been the chief means by which the reductions in the death-rate have been effected. I have, however, no doubt that if the sanitary staff still consisted of only one individual and part of another, there would be much more fever in Dublin than there has been for some years past.

In the five years 1876–1880 the death-rate was 29·5; in the period 1881–1885, 27·4; in the next five years, 26·8; in 1891–1895, 26·1; and in 1896–1897, 26·3. In 1897 the death-rate was raised by epidemics of measles, whooping-cough, and scarlet fever. In the 10 years ended in 1885 the mean zymotic death-rate was 4·1; in the following 10 years it fell to 2·62, or 44 per cent. In 1896 the rate was 2·4, but in 1897 it rose to 4·5 in consequence of an epidemic of measles, and slight epidemics of whooping-cough and scarlet fever. Notwithstanding these epidemics, and one of small-pox in 1894–1895, the zymotic death-rate for the five years ended in 1897 was slightly below that of the English towns. The figures are as follows—33 largest towns, 2·84; London, 2·82; Dublin, 2·80. In the first half of the present year the rate was 1·7 in Dublin.

I have given these figures in proof that Dublin is not the hotbed of fevers which even some of its own citizens believe it to be. The visitors at this Congress may rest assured that they are not more exposed to contagion than they would be in London or Manchester.

PECULIARITIES OF THE DUBLIN DEATH-RATE.

If we considered only the zymotic death-rate and the infant mortality of Dublin, the sanitary condition of the city would appear to be as satisfactory as that of the English towns, and even as that of London. Many sanitarians regard the infant death-rate to be as a measure of the salubrity of a district almost equal to that afforded by its fever mortality. In the following table I give the death-rate of infants under one year of age in the 10 years ended in 1897 in Dublin, London, and the 33 large English towns:—

Deaths of Children under One Year of Age in the 5 years ended in 1897.

—	Rate per 1,000 of the Estimated Population under One Year of age	Rate per 1,000 of the Registered Births	Proportion per 1,000 of the Total Deaths	Rate per 1,000 of the Total Population
England and Wales	152.6	152.2	254.8	4.58
33 largest English Towns	174.6	171.8	272.0	5.36
London	158.2	159.6	252.4	4.82
Dublin	171.0	169.8	166.4	3.92

In all Ireland the deaths of children under one year of age are, as a mean, about 99 per 1,000 registered births.

These figures prove that no larger proportion of the infants born in Dublin perish in the first year of their existence than is the case in the 33 largest English and Welsh towns. The small percentage of total deaths, which are those of infants, as compared with the English towns indicates a very high rate of mortality amongst those of greater age. Whilst the infantile mortality is less in Dublin than it is in the 33 largest English and Welsh towns, it is practically the same as that of the 67 smaller towns (with an aggregate population of 3,812,631)—namely, 169. In some of these towns the infantile death-rate was very high—in Wolverhampton it was 217; in Salford, 219; in Ashton-under-Lyne, 228; in Langton, 252; and in Preston, 262.

The high infantile mortality is chiefly due to neglect and the physical evils arising out of poverty. Amongst the well-to-do classes about 6 per cent. of the deaths are those of children under five years of age, whilst out of every 100 deaths of persons belonging to the labouring classes 40 are those of children under five years of age.

The children of the poor suffer from the insufficiency and improper nature of their food. They are not adequately protected from cold in winter. It is melancholy to see tender boys and girls out in the streets in the depth of winter shoeless, and with only the most scanty garments. Young persons offer less resistance to the influence of cold and wet than adults; yet, even sometimes amongst the rich, we see the naked legs and arms of young children exposed to a temperature which would make their parents shiver if they were not well protected by warm clothing.

The Society for the Prevention of Cruelty to Children and the Police-Aided Society for Providing Clothing for Poor Children are associations which deserve the warmest sympathy and generous support of the humane public. They have done great good, and could do much more if they were adequately supported.

Deserving, too, of a great tribute of praise are the kind people who provide a day's "outing" in the country for the children of the slums, and those, too, who secure for the pale seamstress and the tired shop or factory girl a few days in the country. The change may be all too brief, but it at least more than realises the earnest wish of the poor toiler expressed in one of Hood's most pathetic poems:—

" Oh, but to breathe the-breath
Of the cowslip and primrose sweet,
With the sky above my head,
And the grass beneath my feet,
For one short hour."

WHY IS THERE A HIGH RATE OF MORTALITY IN THE ADULT POPULATION OF DUBLIN?

Amongst the poorer classes there is in every town a higher death-rate than prevails amongst the affluent classes. I have long been of opinion that as compared with London especially, and with many other towns, there is a larger

proportion of the poorest classes in Dublin. It is admitted that Ireland is a very much poorer country than either England or Scotland. It is highly probable that this comparison holds good for town as well as country. If that be the case we may, to some extent, account for the high mortality from non-infective diseases in Dublin, as compared with the English towns, from the circumstances of the larger number of poor people in the former. Dublin and London cannot be fairly compared, for, as Dr. G. V. Poore truly remarks,* "London is very largely a city of wealthy and well-to-do people, most of whom must be looked upon as sojourners rather than dwellers in the city. Amongst such as these, who command every luxury and necessary in life, including change of air, death-rates ought to be low." Mr. Sergeant, in a paper published in the *Journal of the London Statistical Society* for June, 1864, advances the opinion that in comparing the death-rates of London and Birmingham an allowance of 1·5 per 1,000 should be made in favour of the latter, on account of the comparatively small proportion of the affluent classes which inhabit it.

To our distinguished Registrar-General, Dr. Grimshaw, is due the merit of being the first to publish the rates of mortality amongst the different classes of the Dublin community. When similar information is given in the reports of the English and Scotch Registrars-General we shall then be in a position to form some estimate of the relative proportions of the poorer classes in Dublin as compared with London, Edinburgh, and other cities.

HOUSING OF THE VERY POOR.

The improvement in the viability of the working classes which has taken place within the last 30 years is to some extent due to the better dwellings provided for them. Owing to the benevolence of the late Mr. Peabody, Lord Iveagh, and other philanthropists, a considerable number of healthful dwellings have been built for artisans and labourers. A still larger number have been erected by

*"London Ancient and Modern. From the Sanitary and Medical Point of View." By G. V. Poore, M.D., F.R.C.P.

companies, some of which have been founded on semi-philanthropic, semi-commercial lines. In this city and its suburbs the Dublin Artisans' Dwellings Company own dwellings occupied by 2,194 families, who pay from 1s. 9d. to 12s. per week. This Company is now constructing 188 additional dwellings.

The City and Suburban Artisans' Dwellings Company have provided dwellings for 284 families, who pay from 2s. 6d. to 6s. per week; the Industrial Tenement Company own a block of buildings in which there are 46 separate tenements, let at from 2s. to 4s. per week. Many employers of labour, such as railway companies, brewers, distillers, &c., have erected improved dwellings for their employés.

Fourteen years ago I suggested to the Corporation the desirability of putting in force the provisions of the Housing of the Working Classes Acts. The suggestion was acted upon, and at the present time the Corporation have provided 375 separate dwellings, let at the following rents—25 from 6s. 6d. to 10s. (with shops), 12 from 4s. 9d. to 5s. 6d., 84 at 4s. 6d., 98 from 3s. 6d. to 4s., 98 from 2s. 6d. to 3s. 3d., 47 at 2s., 14 at 1s. 9d., and 23 at 1s. 6d.

Although so much has been done in providing improved dwellings for the working classes the vast majority of them are still lodged in wretched tenements. A few years ago I had a kind of census taken of the city, and found that 32,000 families were located in about 7,000 houses, affording $1\frac{1}{2}$ rooms per family. On the other hand, the remaining 22,000 families of the city occupied 17,000 houses.

Whilst much has been accomplished in the way of providing proper dwellings for artisans and the better class of unskilled workers, practically nothing has been done to improve the miserable state of the homes of the very poor. In every large town there are, exclusive of beggars, thieves and vagrants, &c., many honest people whose precarious earnings barely suffice to keep body and soul together. Amongst this class are to be found small dealers, pedlars, hawkers, charwomen, rag-pickers, night-watchmen, the inferior class of seamstresses, porters, and labourers, the

miserable creatures carrying placards termed "sandwich-men," and men and women engaged in many other poorly remunerative employments. Beside these there are the dull-witted and the physically feeble people, who are only capable of earning the merest pittance.

It is in the wretched homes of these poorest of the poor that the seeds of fever are developed as in a hotbed. Their dwellings are a peril to the whole community, for their inmates carry contagious matter into the streets, shops, factories, and other places. The effluvia from them taint the atmosphere, in the purity of which all are interested. It is the dwellings of the very poor that demand nearly all the attention of the sanitary inspector. He finds it almost an impossibility to get their owners—who are often nearly as poor as their tenants—to keep them in even moderately good condition.

Since 1879 more than 3,000 houses have been de-tenanted and closed in Dublin on account of their insanitary condition; of these not one-half have been rebuilt or rendered fit for human occupation. The closing of insanitary houses and the clearing of unhealthy areas, have, however, been of little benefit to the poorest of the poor. The people who lived on the unhealthy areas have not returned to occupy the neat dwellings which replaced their wretched tenements. The rents of the new dwellings were beyond their means. The unhealthy areas have been cleared, but the condition of the people who dwelt on them has remained unchanged. They have sought on other areas low-rented tenements as insanitary as those from which they had been ejected.

If all the lowest-rented and consequently least sanitary of the Dublin tenement houses were compulsorily closed, where, save in the workhouse, could their inmates obtain shelter?

I feel convinced that the ordinary landlords of tenement houses, the majority of whom are leaseholders only or yearly tenants, cannot provide proper dwellings at from 1s. to 2s. per week, the rent which the very poor can only afford. Dwellings so low-rented can be provided only by the municipality, or by philanthropic societies, and

individuals. They will pay very little if any interest on the money expended on their erection and maintenance, but every unhealthy dwelling which they replace will be a distinct gain to the whole community. The replacement of unhealthy by healthy habitations means less illness, longer duration of life, and diminished pauperism.

It may be said that if you give a dwelling to a man at less than its market value you pauperise him. To this it may be rejoined that children are not pauperised by receiving their education free; the students in the state-endowed colleges and universities are not pauperised by acquiring not merely a general education but money-making professions chiefly at the cost of the tax-payers. We already give the poor medical advice and medicine gratis; let us go a step further and provide the most dependent of them with dwellings in which they can live under reasonably healthy conditions.

An attempt is now being made to raise a sum of money sufficient to erect a block of tenements, which it is proposed to let at from 1s. 6d. to 2s. per week. It is to be hoped that generous support will be given to those who are engaged in this meritorious project.

THE MUNICIPAL AUTHORITIES SHOULD BE ENCOURAGED
TO PROVIDE WORKPEOPLE'S DWELLINGS.

The borrowing powers of municipal authorities are limited to a sum equivalent to two years' valuation of the town for rateable purposes. Thus, if a town were valued at a million of pounds its governing body would be empowered to borrow two millions. When this restriction was placed upon civic authorities the money borrowed by them was expended nearly if not altogether on what might be termed unproductive works, such as the paving, sewer-ing, and lighting of the thoroughfares, &c. It seems to me to be unreasonable that the money expended by urban authorities in providing artisans' dwellings, baths and wash-houses, abattoirs and markets, from which revenues are derived, should be included in the amount authorised to be borrowed. Mortgages on these buildings as well as the security of the rates is required by the Treasury for loans

granted in connection with them. It is evident that as the loans for the erection of artisans' dwellings are to be placed in the same category as loans for sewers and other non-revenue producing works, the power of municipal authorities to provide dwellings for the working classes must be extremely limited. It is to be hoped that this disability will soon be removed.

The market value of the artisans' dwellings in the possession of the sanitary authorities should be ascertained and the sum found added to the amount allowed to be borrowed on the two years' rateable valuation system. Thus, if a corporation could borrow a million for unproductive purposes and that it possessed artisans' dwellings valued at £100,000, then their borrowing powers should be extended to £1,000,000.

RACKRENT IN RELATION TO PRIVATE IMPROVEMENT EXPENSES.

In the abatement of nuisances, involving structural alterations in a dwelling, the expense has frequently to be defrayed by persons having little or no interest in the benefits derived from the structural alterations. In order to prevent this injustice, as it may be termed, an amendment of the Public Health Acts of both England and Ireland is necessary. The cost of private sanitary improvements, insisted on by the sanitary authority, is borne by the person who receives the rackrent of the premises. The definition of rackrent in the English Public Health Act of 1875 is not so simple as that of the Irish Act, which defines it to be two-thirds of the rateable valuation of the premises. Thus if a landlord lets a house for £60 a year which is valued at £40 he receives a rackrent, and must pay for the cost of sanitary improvements, although he may have let the premises on lease for 999 years. In such a case as this surely it is the leaseholder who ought to pay for the improvements, as he alone enjoys them.

A curious point in connection with private improvement expenses is the liability of the person who receives rent from the occupier for the cost of the improvements, although he himself may pay a rackrent. He is termed

the "immediate" rackrenter. I know of a case where a person who paid £80 a year for a house valued at £75 was obliged to sublet it for £60 in consequence of depreciation of house property in the street. Although losing £20 a year by the house he was obliged to pay nearly £50 in providing it with improved drainage and sanitary arrangements, whilst the landlord, who received £80, was by law exempt from contributing to the expense of the improvements. It seems only fair that every person having a beneficiary interest, present, proximate, or remote, in a house, should be obliged to contribute to the expense of its improved sanitation, the proportion to be determined by the magistrate who makes the order for carrying out the improvement.

THE WATER-CARRIAGE OF FILTH.

When, in 1879, the Department of Public Health was placed under my direction, I commenced to wage a determined war against the system of storing filth in pits, which had prevailed in Dublin for centuries, exclusively in the poorer quarters of the city, and partially in the other districts. To this storage of filth must be ascribed the polluted condition of the soil, which still has not yet been got rid of. It was no easy task to induce or compel the owners of houses to adopt the water-carriage system of filth removal, but the task has practically been accomplished. Unfortunately the occupants of the tenement houses too often do not take proper care of the improved sanitary conveniences supplied for their use, and the landlords complain that they are constantly called upon to repair injuries to the sanitary arrangements, due to the action or carelessness of their tenants. The Public Health Act provides that in the case of two or more houses having sanitary accommodation in common the tenants can be collectively proceeded against for the abuse of the sanitary arrangements. The law should be made to apply to single houses inhabited by two or more families. In this connection I would like to express my strong opinion that every separate dwelling should be supplied with sanitary arrangements for its exclusive use. Those which are used in common by several families will never be kept in proper

order. I may mention that in the Corporation Artisans' Dwellings, Bow-lane, every tenement—and there are 24 let at only 2s. a week—has its own scullery and sanitary arrangements.

There are many persons, including medical men, who believe that the general introduction of the water-carriage system of filth removal has not been a benefit to Dublin, but the reverse. They are under the impression that fever has increased since the old system of filth storage has been superseded. The statistics which I have brought before this Congress conclusively disprove the statement that fever has increased in Dublin; it has, on the contrary, decreased. In every town in the United Kingdom in which the water-carriage system has been adopted the public health has been improved.

Dr. Scurfield, Medical Officer of Health for Sunderland, shows, in a report presented to the Corporation of that town in 1897, that in 33 towns in which the water-carriage system of filth riddance prevails the deaths from enteric fever averaged 15 per 100,000 of the population; while in 33 towns in which the conservancy method remained, the rate was 26 per 100,000. In the former the deaths from diarrhoea were in the ratio of 52 per 100,000, whilst in the latter the rate was 108. The deaths from all causes were 2·6 per 1,000 more in the conservancy, than in the water-carriage, towns.

In Nottingham during the period 1887–1896 there was 1 case of enteric fever in every 558 houses from which filth was removed by the agency of water; whilst in every 37 houses having middens there was 1 case of this fever.

At the International Hygienic Congress, held in Madrid this year, the following resolution was adopted:—"That the general health of the population is improved and the spread of the disease prevented in towns and dwellings by the immediate removal of all foul matters and by a copious supply of pure water."

PREVALENCE OF TYPHOID FEVER IN DUBLIN.

The mortality caused by typhoid fever is greater in Dublin than in nearly every other town in the United

Kingdom. In Ireland, Belfast alone has a higher death-rate from this disease. On the other hand, diphtheria is very much less fatal in Dublin than in the English towns. I have come to the conclusion that both diseases have, to a great extent, a telluric origin; they seem to be in some way intimately connected with the soil. If, then, we take both and regard them as semi-malarial, Dublin will not occupy a worse position than the English towns. The deaths from enteric fever and diphtheria combined were in 1887-1896 in the ratio of 55 per 100,000 persons living in Dublin, and 60 per 100,000 in London. In 1897 the rate was 54 in Dublin and 64 in London. In 1896 the mean diphtheria rate alone was 50 per 100,000 in London, Wales, Essex, Kent, and Worcestershire; in Dublin diphtheria and enteric fever combined caused 44 deaths per 100,000 inhabitants.

Dublin has a supply of water of great purity; its street sewers can compare favourably with those of other towns; and the plumbers' work in its houses is as good as it is in the great majority of towns. Why, then, should there be so much enteric fever in Dublin? I have long been of opinion that the micro-organisms of this disease have an abiding place in its soils, which for so long a period were polluted by leakage from the filth receptacles and defective sewers of former times. I believe that, under certain conditions, to which I have often referred in papers and reports, these malignant organisms escape from the soil into the atmosphere, from which they pass through various media into the bodies of human beings.

That there is a connection between enteric fever and the soil is shown by the results of observations of the distribution of more than 4,000 cases of the disease in Dublin. Where gravel forms the site of streets, there is far more typhoid fever than in districts which rest upon the stiff boulder clay. This is clearly owing to the fact that the *Bacillus typhosus*, which is *aërobian*—that is, requires oxygen—can get it more freely in the loose gravels than in the stiff clays. In the gravel, too, there is a much greater space for the development and movement of the bacilli. It has long been assumed that the soil of Dublin lying nearest to the river was always water-logged, and it was suggested that the drainage of this

soil and its sub-soil might lessen the prevalence of enteric fever. A few years ago I caused a number of wells to be sunk in the ground near the river, and at the higher parts of the city. Long-continued observations of the height of the ground, or sub-soil water in those wells proved that, in the higher, the water came to within 4 or 5 feet of the surface of the ground, whilst near the river the water remained at from 12 to 18 feet from the surface. It seems strange that the surface of that part of the city from 50 to 70 feet above the level of the river, at high water, should be only 4 or 5 feet above that continuous sheet of subterranean water termed sub-soil or ground water, whilst the low-lying districts have from 12 to 18 feet of dry soil. The explanation is, after all, a simple one. The low-lying districts rest on gravel, which permits the rain to sink into it very deeply, whilst the high grounds are stiff clays which retain the water.

When a soil becomes infected by the *materies morbi* of typhoid fever it is difficult to eradicate it. The recent experiments of Dr. Sidney Martin, recorded in the supplement to the Annual Report of the English Local Government for 1896-7, show that typhoid bacilli put into soil multiply in it, and ramify throughout it; at the expiration of 105 days they were quite lively. These experiments, and the investigations of other scientists, especially of Dr. Porter of Stockport, clearly prove that typhoid bacilli can live and multiply in soils containing organic matter. I feel satisfied that they are to be found in the soils of Dublin and other places. Now that the pollution of the soil in Dublin has almost ceased, we may expect that the *pabulum* of the typhoid organism will gradually be used up, with consequent diminution of the amount of enteric fever.

OUR DAYS BETTER THAN THE OLD TIMES.

The belief that former ages were happier than the one we live in does not rest upon a foundation of fact. The "brave days of old" of the poet were too often days of pestilence and famine, of war and rapine, of might over right, of coarseness of language, of absence of public opinion as a censor of morals, of sanguinary criminal laws. During many centuries Europe was periodically devastated by pestilences. In the fourteenth

century the terrible "black death" carried off twenty-five millions of its inhabitants. Population stagnated: that of England remained stationary for three centuries, not so much owing to war as to pestilence and famine. In 1664-5 the plague almost depopulated London.

In that long and gloomy period, so truly named the "dark ages," the towns were the hotbeds of disease, from which their poisonous seeds were spread throughout the land. Their denizens were crowded into ill-ventilated houses in narrow, sunless streets. Their water supplies were polluted by the oozings from cesspools, which were almost as numerous as the houses themselves. There were no main sewers, no systematic removal of filth, no municipal sanitary organisations. Even so late as the last century, Howard, the philanthropist, drew terrible pictures of the insanitary state of the prisons, and even of many of the hospitals and orphanages. The wretched condition of the floating homes of sailors, even those of the Royal Navy, is graphically described in the humorous but truthful pages of Smollett.

The present time is better than the old time. Leprosy and malarial fevers have vanished from these countries. Typhus fever, which once filled the wards of the Dublin Fever Hospitals with patients, is now rarely met with. Fifty years ago people disfigured by small-pox might be seen in every street; now that loathsome disease is disappearing under the influence of vaccination and improved hygienic conditions of towns and people. In this connection I must express my satisfaction that vaccination is still compulsory in Ireland, although no longer so in England. I believe that the medical profession are practically unanimous in regretting that the Vaccination Act, just passed, permits in England and Wales the so-called "conscientious objector" to refuse to have his child vaccinated. In Ireland, if vaccination is sometimes neglected, it is not from want of belief in its efficacy, or from contempt of the law—indeed the complete absence of agitation in Ireland against compulsory vaccination is a proof of that respect for law and order so characteristic of the Irish people.

SANITARY EFFORTS SHOULD NOT BE RELAXED.

Although a great improvement has taken place in the

state of public health in these countries and most parts of Europe, a further improvement is required and is attainable. So long as two or three out of every thousand of the population perish annually from diseases which are termed "preventable," so long must the efforts of the sanitary reformers and professors of Preventive Medicine be continued. Phthisis, which is as fatal as the "preventable diseases," ought now to be included amongst the latter, for its nature shows that it, too, might be eradicated.

We require, perhaps, some additions to and amendments of our sanitary laws, but what is most required is the thorough enforcement of the laws such as they are—and they confer great powers upon the sanitary authorities. The notification of infective diseases and the laws relating to disinfection should be strictly enforced. The proper isolation of fever patients should be provided for. The speedy and complete removal of filth from houses and towns should be secured. Healthy dwellings and cheap baths and wash-houses for the most dependent classes of the community should be multiplied. The "unhealthy occupations" should be rendered innocuous, or, at least, less unhealthy. The injurious emanations from certain kinds of works should be prevented or reduced to a minimum. These are only some of the measures required in order to assimilate our towns as nearly as possible to that ideal City of Hygeia which Richardson has described.

The efforts of a sanitary authority to improve the state of public health cannot attain to a full measure of success unless supported by public opinion and private practice. One of the objects of such Associations as the Royal Institute of Public Health and the Dublin Sanitary Association is to educate the general public on the important subjects of public and domestic sanitation. Just in proportion as the citizen is convinced that his health and longevity are favourably affected by the operation of the sanitary laws, will he respect and observe them, even at personal inconvenience and some expense. Let us hope that the Sanitary Congress, which this day commence their deliberations in this ancient City of Dublin, will be able to prove that it is in the power of its citizens to make it one of the healthiest cities in the world.