

gives a diagrammatic summary in the monthly report of his observatory for May last. From this it appears that, while ozone abounds towards the periphery and in the open parts of Paris, it is present only as a trace in the denser central quarters. The fact of the recognizable presence of ozone, even in the populous parts, is something to boast of. The contents of the Montsouris monthly reports are very interesting. Much attention is being given to the photographic delineation of the microscopic particles of the atmosphere, as well as to the products of culture experiments with the living organic portion: and it looks like progress in the right direction to find a systematic table of "Matters contained in the air and rain" of each month, showing opposite each day, for the period of the day and the night, the proportion in 100 cubic *metres* of air, of ozone, carbonic acid, ammonia, nitric acid, and organic matter, and per litre of rain-water, of ammonia, nitric acid, saline residue, and organic matter. Similar systematic information, collected at different points in the same city, will soon supply a solid structure of fact regarding its comparative hygienic conditions. The next step in the use of air-analysis will be as evidence in the enforcement of sanitary work, in matters of ventilation, defective structure, and nuisance removal, which at present are decided on the evidence of the senses or of experts, authorities which may differ. We have only to imagine that, to prove the impurity of the water of a well sunk in the neighbourhood of a cess-pit, we were deprived of the assistance of chemistry, to understand how great is the want of this assistance in the parallel case of air in alleged pollution from whatever cause.

Now, gentlemen, I have taken you over a considerable range of subjects, beginning with the endeavours of the authorities of Glasgow to improve the condition of their poorer citizens, passing through a discussion of the doctrine of density in relation to health, and ending with a reference to the important information to be anticipated from systematic air-analysis in crowded districts, as a key to the real truth in nature expressed by this doctrine of density. Laws of wide action may be lost sight of by the very scope of their influence; and if I have succeeded in convincing you that, however we may modify the effects of density upon health, they still exist, and are measurable in comparable circumstances, then the design of my remarks has been attained.

## CHAPTER VI.

## THE SOCIOLOGICAL ASPECTS OF SANITATION.

The following pamphlets are here included :

1. The House.
2. The House in relation to Public Health.
3. Life in One Room.
4. Ticketed Houses.
5. Uninhabitable Houses.
6. Common Lodging-houses.
7. Sociological Aspects of Sanitation.
8. Sanitation and Social Economics.
9. Public Health and Social Problems.
10. The Children of the City : what can we do for them?

These papers, although delivered at separate times, and before different audiences, form, in reality, a continuous study of the defects of the social organism which militate against the health of the individual, and the well-being of the community.

At the time of their issue they stood almost alone in the wealth of detail which they supplied to legislator and social reformer alike, and scarcely anywhere else—within the limits of a single community at least—have the difficulties which beset the life of the poor in cities been the subject of so much patient inquiry and sympathetic description.

They begin with a simple dissertation on house structure and environment in relation to the requirements of healthy living, but the subject expands in the author's treatment of it, until the house becomes the index to the character of its occupant, and the ticketed house, the uninhabitable house, the house of one room, reflect not only grades in social condition, but degrees of moral abasement. In the paper on "Sanitation and Social Economics" in particular, the vital and social features of the worst of the old City Districts (Bridgeway and Wynds) are followed with a remorseless appeal to facts, which reveals, with an almost Zolaesque vividness, the hopeless abyss into

which whole sections of a population may be plunged by continued indifference to their physical surroundings.

A few notes may serve to indicate the contents of the more important papers.

*The House.*—This, as has been said, deals entirely with structure and environment in relation to healthy living.

*The House in relation to Public Health.*—It is shown that uncontrolled aggregations of population vitiate the physical requirements of healthy living by producing impurity in air, soil, and water.

Illustrations are given to show that this becomes an appreciable factor in the death-rate, from which arises the fact that the aim of sanitation should be to minimise aggregation itself as well as the evils resulting from it.

This leads to a consideration of the part played by the house in relation to public health, and it is shown that the death-rates of different communities vary inversely as the average size of their houses.

What is true of cities generally can be shown to be true of districts of cities, and Blythswood and Kelvinhaugh are cited as districts having the largest proportion of large houses and the lowest death-rates, while Bridgegate and the Wynds have the largest proportion of small houses and the highest death-rates.

Carrying the analysis further into the number of inmates, it is shown, by an appeal to the census returns, that from the average number of persons per room and of rooms per average house, a standard of occupancy may be deduced, which may be expressed thus—the smaller the house as measured by rooms, the greater is the number of inmates per room.

On a basis of actual measurements, it is further shown that the smaller the house, the less cubic space there is per inmate.

The general conditions required to provide wholesome conditions in tenements and small houses are then considered, and the need for Building Regulations to ensure their provisions is pointed out. (Many of these have been supplied by subsequent legislation.)

*Life in One Room.*—The physical surroundings of the poor are here made the basis of a powerful appeal for aid to schemes of District Nursing, Day Nurseries, Poor Children's Dinner Table Funds, Fresh-Air Fortnight Funds, and the like. Aggregation or density of population reaches its most disastrous and most dangerous incidence in houses of one apartment. In the "Physics of Morality" the child is largely the product of his surroundings, and the gutter-child tends to become the loafer of later years. For all this each of us has a direct responsibility. It is shown that 25 per cent. of the inhabitants of Glasgow at

that period lived in houses of one apartment, and only 8 per cent. in houses of 5 apartments and upwards; and that 14 per cent. of the one-room houses and 27 per cent. of the two-room houses contained lodgers.

One-third of the infantile deaths occur in houses of this size, and only 2 per cent. in the houses of five apartments and upwards.

*Ticketed Houses.*—The pamphlet on ticketed houses is an inquiry into the kind of house which becomes "ticketed" and into the character of the tenant who occupies it.

The relation between the death-rates of towns and the average size of their houses is shown by reference to Aberdeen, Leith, Perth, and Edinburgh, which, with houses averaging from three to five rooms, have death-rates below 24 per 1,000; and to Dundee, Greenock, Paisley, and Glasgow, where the average house has less than three rooms, and the death-rates exceed 25 per 1,000.

The same relationship is demonstrated in the districts of Glasgow. Blythswood having the largest and most thinly peopled houses, has the lowest death-rate; Bridgegate and Wynds, with the smallest and most crowded houses, has the highest death-rate.

The relation between rental and death-rate is considered, but is shown to be less constant, the question being, indeed, not so much the sum paid in rent as the cubic space which it procures. This forms the best basis for investigating mortality in relation to size of house.

The inquiry is continued into the causes of death in the several classes of house, and using the largest houses as unity, the death-rate from Zymotic diseases in the medium-sized houses can be stated at 2, and in the smallest as 4. Similarly lung diseases are represented by 2 in the medium-sized houses, and 3 in the smallest; while the diseases of nutrition special to child life were  $2\frac{1}{2}$  in the medium-sized houses, and 5 in the smallest houses.

While it is admitted that the secret of the health of Glasgow lies within the one and two-room houses, the fact remains that between districts presenting the same proportion of these houses, the death-rate may vary from 23 (St. Rollox) to 42 (Bridgegate). St. Rollox has 83 per cent. smaller sized houses, and Bridgegate and Wynds 84 per cent. of one and two apartments; and the question is asked—Is this difference due to house, or to people, or to both?

This leads to a recognition of the fact that ticketed houses form a distinct class within the general body of the one and two-room houses.

It is pointed out that, almost without exception, ticketed

houses are made-down houses. There are defects in ventilation and light. Internally, the average air space per inmate is examined, and it is shown that the ticketed house is small of its kind to begin with, and owes its ticket to the constant disposition of its occupants to overcrowd.

A comparison is established between the rent and air space in ticketed houses and model buildings, and it is shown that in both the tenant of the two-apartment house has better value for his money than the tenant of the one-apartment house.

The question is now asked, whether this relative increase in the cost for smaller quantities of house room results solely from the operation of an economic law, or whether other factors come into operation.

The 75,000 inmates of ticketed houses comprise not only the criminal class, but the social debris of the city. Some struggle with poverty, many more are bankrupt, both in character and fortune. Frequent changes occur, and the tenant of a ticketed house pays interest, not only on his poverty, but on his character.

He is undesirable as a tenant, and the question is asked, how this class is to be dealt with? The erection of Model Buildings brings no advantage to them, because they cannot be accepted as suitable tenants. This leads to a consideration of the duty of Public Authorities and of the community in a private capacity. Reformers should exercise all the power they can get to improve dwellings. The "making-down" of houses should be controlled, and a more summary method of dealing with unwholesome houses devised.

The paper closes with a reference to the work of Miss Octavia Hill.

*Uninhabitable Houses.*—Having in previous papers dealt with one-room houses and ticketed houses, the uninhabitable house here comes up for consideration.

It is asked why they are uninhabitable, and the answer is found in the fact that they are ticketed, structurally defective, and always small. A comparison of rental per cubic space established between Model buildings, ticketed house, and uninhabitable houses shows that the Uninhabitable house is cheap because it is nasty.

In considering who occupy uninhabitable houses, it is found that their tenants, for the most part, are nomadic in their habits. Half have an occupancy of less than a year, almost one-sixth, of less than a month. In addition, 36 per cent. of the houses are farmed out for the night, at 6d. or 8d. to "uninhabitable casuals."

But there are exceptions who preserve a high standard of decent living amidst much moral decay. These are chiefly the

remnants of a former population, whom business necessity compels to remain.

Only one-half of the owners of uninhabitable houses are individuals.

*Some Sociological Aspects of Sanitation.*—Mr. Spencer's dictum that "every man has freedom to do all that he wills, provided he infringes not the equal freedom of any other man" is reviewed, and while general agreement with the principle is expressed, objection is taken to some of its applications to questions of public health. In illustration it is shown that disease—generally considered—does not always kill, but may only maim, and so produce a contrary result to that which the "extinction of the unfit" would seem to imply. Moreover, certain diseases descend vertically, that is, they are hereditary, while others spread laterally in virtue of being infectious. In the one case posterity may be affected—while epidemics do not always "weed out those of lowest development."

These latter have also the property of becoming endemic when conditions are favourable; this usually means unwholesome surroundings; and the conditions which favour endemic disease aggravate some and may cause others which are not of an infectious character. Dirt, in fact, implies disease, and the question, "What am I to do with my dirty neighbour?" affords an opportunity of considering the necessity of co-operation where individual effort is impossible—of balancing rates against improved health—of insisting on the administrative principle that compulsory education of the unwilling is the first step towards reclaiming him.

*Sanitation and Social Economics: An Object Lesson.*—District 14 (Bridgeway and Wynds) is selected because it is the worst district in respect of physical conditions, and associated vital and social characteristics. Half its houses are ticketed, and little less than half the Common Lodging-houses of the City are contained in it. Its deaths exceed its births in number. Twenty-five per cent. of its births are illegitimate, and 24 per cent. of the infants born die in their first year. Nineteen per cent. of its deaths are uncertified, *i.e.*, have no medical care, and the proportion enrolled in Friendly Societies is much below that of good working-class districts. Twenty-nine per cent. of its deaths occur in Public Institutions; 25.4 per cent. in rate-aided Institutions (City Poorhouse, Belvidere, North Prison, Central Police Office); and 4 per cent. in charitable Institutions (Royal Infirmary, Western Infirmary, Maternity Hospital). Thirty-seven per cent. of the burials carried out at the cost of the ratepayers, either by the Parochial Board or the Sanitary Department, were from District 14. Of the children born—10 per cent. were in rate-aided or charitable



Institutions (Maternity Hospital and City Poorhouse). Many others were attended by the out-door staff of the Maternity Hospital. In all, 55 per cent. of the children born in District 14 were born by the help of charity or the rates, as against 25 per cent. in the whole City.

*Vaccination.*—Approximately, 50 per cent. are vaccinated at Institutions supported by the rates or by charity.

*Demands on the Service of the Corporation Departments.*—Of the 16,000 odd visits made by the Sanitary Offices throughout the whole city in one year, 7000 were made in District 14 alone. Large contingents of its children go to Industrial Schools, Infirmaries, Day-feeding Schools, Orphan Homes, Free Breakfast Tables. The Police and Cleansing Departments are largely occupied therein, and parochial officers are never out of it.

The argument is then carried to the credit side of the account by considering the proportion of rates unpaid in this District.

The differing incidence of *rating* on rentals below and above £10 would, even on the assumption that everybody paid rates, leave the occupiers of subjects over £10 with a disproportionate share when compared with the lower rated occupiers, such as inhabit District 14. But of rates levied on rentals of £10 and upwards, only 2.6 per cent. are unpaid; while on rentals between £4 and £10, 20.46 per cent. are unpaid; and rentals of £4 and under are not assessed.

*Poor and School Rates* are levied on 80 per cent. of all rentals, half on owner and half on occupier, and here again all levied on rents above £10 are paid; but 28.5 per cent. of those levied on rents under £10 are unpaid.

A suggestive parallel is then drawn between the number of householders under £10 who fail to pay poor rates and of occupiers under £10 who either fail to pay police rates or on whom no rates are levied, and the number of ticketed houses. A further comparison of persons relieved by the City Parish from the payment of rates because of poverty, and exonerated by the City Police Authorities from payment of Police Rates, suggests that the 24,000 householders are comprised of 5000 honest and 19,000 fraudulent poor. It is also shown that the rental of premises in District 14 which are licensed for the sale of drink is equal to the rental of premises for the sale of food.

The question is asked, Does it pay to have such houses and such people in the City? Can a cordon be drawn round them, and recruiting prevented? At present they lead a wholly parasitic life, and the first remedial measure is to get rid of the unwholesome tenements which attract them. It is untrue to suggest that there is need for such places for these people.

The impossibility is suggested of building houses to accommodate them. It is not want of money so much as want of restraint in the use of it which keeps these people in their present position.

*Public Health and Social Problems.*—Urbanisation of populations a characteristic of the nineteenth century. In 1901, 69.77 per cent. of the population of Scotland, and 77 per cent. of the population of England and Wales were living under urban conditions. Aggregation determines urgency in social problems, and it is the function of Public Health to reduce the dangers of such. Fall in urban death-rates follows; and, when the physical basis of life is sounder, social burdens, poor rates, &c., all tend to lighten. A healthy city is a cheaper city than an unhealthy one, and most of the aims of the social reformer can be reached through administrative hygiene.

*The Children of the City: What can we do for them?*—Early efforts to restrict Growth of Cities were for political rather than hygienic reasons. Growth in Nineteenth Century, England and Scotland; Comparative Composition of Population in Town and Country; the Nativity of City Populations; Waste of Child Life in Cities, and deteriorated physique of survivors; city life quickens the natural impulses, so that if there is more moral earnestness and more intense religious life there is also more crime and more self-indulgence. Child life in the croft and in the wynd compared. The city child suffers from lack of space for his energies. Hence the need for Holiday Colonies, Physical Recreation Societies—above all, the provision of space near their homes for the younger children.—(Ed.)

#### THE HOUSE.<sup>1</sup>

What I have to speak about to-night is "The House" in a city. There are in this city of Glasgow above 119,000 houses, and the question presented from time to time to every householder is—Which of them shall I select as my residence? Necessarily the first element in the practical solution of such a question is—What can I afford to pay for this primary necessity of life, "a covert from the storm and rain?" But different men will answer this question differently, and the difference will depend on the degree of importance which a man attaches to the quality of his house as an element in the attainment of his standard of life. One man will say—My own health and happiness, the comfort and morality of my family, are involved in the answer: I must be satisfied with a shabby coat, I must deny myself luxuries, I must live on the plainest of food—so be it that it is wholesome; but above all things, I

<sup>1</sup> Glasgow Health Lecture, No. iii. (1881).



must have a house of such dimensions, and in such a situation, as will secure to me, and to those depending upon me, the physical conditions of health, so far as these depend upon the size and surroundings of my house. I must live where the sun can look in upon me, where the purest air the city affords will have access to me, where my children can get space in which to play, and where my neighbours shall be decent and tidy, and the ears of my family shall not be shocked by oaths and impure words, and their eyes not become familiar with the doings of the vicious. But another man will say—My motto is, "Let us eat and drink, for to-morrow we die"; it matters not where I live, provided I dress well and fare well. I must have my pipe, I must have my glass, and I must be reckoned a jolly fellow by my friends; I must frequent the theatre and public entertainments, and endeavour to make this at best dull life pass merrily. Then, when the income of such a man falls short of his expenditure in carrying out a programme such as this, he says—Really, house rents are so high, we must keep lodgers, or be satisfied with a smaller house, or remove to a cheaper locality. We cannot afford to be nice.

Or he persuades his wife that she must leave the care of her family and seek work, or take in work of some kind, or take a room with a shop at the back, and involve his household in a muddle with the cares and distractions of business, ending in general discomfort and dissatisfaction, which confirm him in seeking pleasure anywhere but at home, and leave their mark in the health and morals of his children. It is sixteen years since Dr. Hunter, in a Report to the Privy Council on the "Housing of the Poor in Towns," wrote—"From one point of view, crowding in Glasgow means the diversion of income from rent to supply whisky." I fear that to this day these words are true of a great many of our townsmen: but without for a moment seeking to apply them as a sweeping condemnation, I must confess that this is the most reprehensible manifestation, found among the most worthless, of what pervades a large class of the community—a tendency to depreciate the importance of house accommodation in apportioning the outlay of their income between house, food, and dress.

Glasgow is pre-eminently a city of small houses. There are, in round numbers, 107,000 occupied houses within the municipality. Of these, 30 per cent. consist of but 1 apartment, 44 per cent. of 2 apartments, 15 per cent. of 3 apartments, 6 per cent. of 4 apartments, and the remainder, or only 5 per cent., consist of 5 apartments and upwards. The average number of rooms in each house is  $2\frac{3}{4}$  (2.34), and of persons inhabiting each house nearly  $4\frac{3}{4}$  (4.738); so that, including every house in Glasgow, from the humblest to the most luxur-

ous and capacious, there are rather more than 2 persons (2.054) to each apartment; and the average rent of each house is £11 6s. 9d. These figures represent the average judgment of the householders of Glasgow on the question presented to each individually, and decided by each independently, and according to the best of his intelligence—What accommodation do I require, and how much ought I to set aside out of my income to pay for it?

It is the occupants of small houses whose ear I wish to gain.

There are certain common broad conditions of health for the provision and maintenance of which the authorities are responsible. These are—clean soil upon which to stand; pure water and pure air, with all the subsidiary arrangements for drainage, cleansing, and scavenging. It is especially necessary in the interest of the small householder that the local authorities should do their duty in these regards. Even he, however, is a ratepayer, and can make his voice heard through his representatives, and give them moral support and stimulation in their contests, on his behalf, against the vested interests of property. Glasgow is well off in regard to all these general conditions of health except one—the quality of the air. Our water is the purest, our air the most impure in the three kingdoms. This is distinctly remediable, by improvement in the general arrangement of streets and buildings, and by the enforcement of the Smoke Act, and the more rational use of coal. As things are, the greatest obstacle to domestic ventilation is the offensive quality of the outer air. Our housewives find that the best thing they can do is to shut it out with all its smuts and smells. This is a matter worth the attention of Ward Committees and other associations of ratepayers.

In the choice of a house, every householder may assist in a general reform and improvement of the character of the city. The buyer makes the market. So long as there are tenants for unhealthy houses, there will be unhealthy houses to be had. But you may justly say: when we go into the market to buy our food we are protected by the laws of the country from the risk of buying adulterated or injurious articles; why should we not also be protected from the more serious risk of having a house which is not "of the nature or quality demanded?" I can only reply that you ought to be so protected, and that you have only to say it must be, and it shall be. Every house ought to be inspected, and tested, and certified to be in its general structure and arrangements habitable before it can be offered for habitation. As things are the introduction of inhabitants is the test applied. Moreover, just as ships are re-surveyed and re-classed at Lloyd's, houses should from time

to time be tested. Until this is done, you may with advantage consult the record of a "Pathological Register," kept at the Sanitary Office, in which all deaths from infectious diseases are entered opposite the streets, and the numbers of the streets in which they occurred.

Let me now suppose that you are in search of a house, and let me be your adviser for the occasion. What I wish to do is chiefly to get you to think: not that "house-hunting" can ever be engaged in without thought of some kind, for every honest man is forced by the resources of his purse to think in a fashion; and even as to health and air space, "the practical limit of purity will depend on the rent which men are willing to pay for it." But, as I said at the outset, there are two ways of thinking upon house-room, even in an economical aspect. Before you go house-hunting, ask yourself first—"What are the general requirements of my family in respect of space?" The question has to be brought both to a physical and a moral standard. Overcrowding leads as certainly to moral as to physical deterioration.

Just consider for a moment what the small Glasgow house means when viewed from these standpoints. Those who live in large houses, in the customary enjoyment of all their privacies, ought to make an effort to think out in detail how they would feel if their whole life, personal and family, were suddenly to shrink within the limits of one or two apartments; if their refined ideas of delicacy, their virtues of modesty and propriety, their opportunities of private ablutions, their retirement in times of sickness, in the events of birth and of death—were suddenly deprived of the conditions of space, which they have come to regard as essential. It is almost too horrible to express in naked, uncompromising language the jostling of birth and death, and the functions of life which must be the daily experience of those small houses. If grapes grew and ripened in the slums of Glasgow, or the orange and myrtle were as luxurious and plentiful as daisies or thistles in the fields, people would say, It is a miracle; and yet we go confidently in search of delicacy and refinement and heightened morality, amid physical circumstances which are equally inimical to those finer growths and efflorescences of the moral nature of man. Virtue in the individual is to be prized in proportion to the adversity of the conditions under which it has blossomed into life; and therefore I say to those who are virtuous under circumstances which make the task easy, consider the hourly struggle of your less fortunate brethren, and when they have agonised so as to maintain and even bring to perfection "the white flower of a blameless life," honour and respect them for it; but above all things do not

toss the head of pharisaical disdain at their faults and imperfections.

That is all I shall say on the moral aspects of sufficient house-room. It is with the physical I am at present most concerned, and, happily, whether we look at the matter from the one standpoint or the other, we reach the same conclusion. The best physical are the best moral circumstances. On the average, if we have sufficient space for the moral life, we have sufficient for the physical, and *vice versa*. The physical motive of a house is to provide for ourselves a special climate, excluding the changeful elements, shutting off a space around our bodies, into which wind and rain shall not penetrate, which shall be warmer in winter and cooler in summer than the main body of the outer space, and at the same time approach the standard of purity of that outer space as nearly as possible. If you build up a man in a hermetically closed space, the heat evolved from his vital processes will raise the temperature; and the products, gaseous and solid, of these processes, will impregnate the enclosed air. He will be his own fire, and the fire will gradually extract the ingredients in the air which are necessary for its maintenance, and replace them with ingredients which tend to extinguish it. Life is therefore attacked in two directions, and is ultimately destroyed—how soon depends upon the size of the hermetically closed space. As our object is to determine not how long a man will cease to live, but at what point he will cease to be in health, or in circumstances conducive to health, we shall take for our standard that condition of the enclosed air where it has acquired a proportion of the vital effluvia which is so much above that of pure outer air as to be injurious. As a rule, house air must be less pure or more impure than the immediately outside air; but a certain point of excess must be reached before it becomes practically unhealthy. Carbonic acid is regarded as the element in air which affords the best general indication of its degree of purity. There are other even more noxious impurities; but in so far as the whole mass of the contamination of the air rising from animal life is concerned, these bear such a general fixed proportion to the carbonic acid that, having ascertained the one, we may infer the proportional presence of the other. There is, then, a general agreement that air which contains in every 10,000 cubic feet 1 of carbonic acid gas is pure, and that when there is 2 cubic feet of added carbonic acid, it has reached the limit beyond which the air is sufficiently impure to be injurious; so that if you begin with four volumes of carbonic acid in an enclosed space, which is the proportion in normal outer air, as soon as you pass six volumes, the enclosed space becomes unhealthy.



We have started with the supposition that the space is hermetically closed. Obviously in such a case, the time which will elapse before the conditions become unhealthy will depend upon the size of the space. If the space is only 50 cubic feet, then in one minute the limit of health will be passed; if 500, in ten minutes; if 5000, in one hour and forty minutes. We are thus brought to the conclusion that it is upon the renewal of the air within the space rather than its size that unhealthy life depends. No matter how large the initial space, it is only at the most a question of hours how long it will continue to be healthy. Further, we may easily satisfy ourselves that air may be only partially enclosed; and yet, owing to certain physical laws, we shall gain little in the way of renewal, and scarcely at all extend the limit of health. Take the top off our hermetically closed box, and raise its sides perpendicularly, and although the whole expanse of heaven rises above it, a man will soon perish at the bottom.

As has been said—"A man may be suffocated in a well, or even in a crowd in the open air, where the space in each case perpendicularly is unlimited." We therefore conclude that the cubic space in which a man lives must not only be of a certain amount, but it must be distributed in a certain proportion, it must be of a certain superficial area in relation to the vertical height; *i.e.*, in the nomenclature of the house, the floor space and the height of the ceiling must be duly proportioned. Still, adopt whatever initial cubic space we please, and distribute it in width, breadth, and height as we may, we come back to the axiom that it is upon the renewal of the air within the space, rather than its dimensions, that healthy life depends.

This, at first sight, seems not to bring us much nearer to an answer to the question—What are the requirements of my family as to space? Space implies dimensions, and we have arrived at the conclusion that it is upon the renewal of the air within the space, rather than upon its dimensions that health depends. In reality, however, we have come to the threshold of the answer to our question, we are within sight of the principle upon which the question must be answered. Let us throw aside the idea of a hermetically enclosed space and consider the circumstances of an adult man in a space for which means of ventilation are provided—the expulsion and displacement of foul air by fresh. In order to maintain the enclosed air around an adult man at a standard of purity, within 6 cubic feet of carbonic acid per 10,000, it is necessary that he should be supplied with 3000 cubic feet of fresh air per hour, and that whatever the initial size of the apartment may be, because, as we have seen, the benefit of additional space amounts only to a matter of hours at the most added to the time when the

limits within which health subsists shall be overpassed. But renewal of air means the movement of air, and movement of air means draughts, and draughts mean disturbance of bodily temperature, and disturbance of bodily temperature means discomfort or even injury to health. Therefore, efficient ventilation implies essentially the supply of fresh air in quantity sufficient to maintain the standard of purity and yet not derange the temperature and produce draughts. The basement condition of efficient ventilation thus manifestly is the determination of the minimum space through which sufficient air can be made to pass without draughts, or with the least risk of draughts. If you set out with 100 cubic feet of house-room, you must, to obtain the necessary 3000 cubic feet of fresh air per hour, change this 100 cubic feet no less than 30 times every hour, whereas, if you set out with 1000 feet of air, you need only change it three times every hour. In the former case you will have draughts, in the latter none.

I have thus given you the problem of ventilation in the simplest form; but amid all complications, the underlying principle is the same. Healthy people are more independent of draughts than delicate or sick people; but sick people require more frequent renewal of air than healthy people, so that for them ventilation without draughts is more difficult. But the element of temperature is the most disturbing and disconcerting of all; and in this latitude, therefore, warmth and ventilation must go hand in hand, they must be reconciled. This is the great problem in the small houses of the poor. Heat they must have. Their underfed and insufficiently clad bodies demand it, and they too often obtain it by being their own fires, by huddling together so as to utilize the vital heat of their bodies, and closing up every aperture by which that temperature escapes, which means also every aperture by which fresh air may obtain admittance. Our sense of draught depends upon the temperature of the moving air; so that in this climate we require a greater cubic space to secure sufficiently frequent renewal of air; and in cold weather we must either warm the fresh air or submit to diminished ventilation for the sake of heat, and this latter is practically the alternative which is accepted by the majority. Such considerations as these underlie various minimum standards of cubic space which have been adopted where regulations or specific legislative enactments have been found necessary to secure average conditions of health for people in special circumstances, such as soldiers in barracks, the sick in hospitals, paupers in workhouses, prisoners in jails, lodgers in common lodging-houses, and the inhabitants of small houses generally. In barracks there must be 600 cubic feet of room-space per man. In Glasgow, our



Police Act fixes the minimum in small houses at 300 cubic feet per adult, and 150 for each child under eight.<sup>1</sup> Such houses may be measured and "ticketed," that is to say a ticket affixed on the door, so that those who wish to rent them may know what is the maximum number of persons who may legally inhabit them. I was on the point of saying "may safely inhabit them"; but, although the Police Act permits occupants in the proportion of one adult or two children to every 300 cubic feet, you must not run away with the idea that you may take that for your standard. This is one of the risks of legislative standards of any kind. They may be perverted by ignorant or dishonest people. The Vaccination Act says that that simple and beneficent operation must be performed before the child is six months old, and many mothers think it dangerous until that time has expired. A certain proportion of water to solids is selected as a standard of purity for milk, and some milk dealers are scrupulously careful to give you milk which shall approach that standard as closely as possible. In like manner I have heard the 300 cubic feet of the Police Act held up as the golden rule of house room, even for the sick inmates of a poorhouse. So far is this from being the case that the Local Authority of Glasgow are convinced that this space is too little for health; and it can be proved to be so. Knowing this, it was recently proposed to raise the standard for small houses in Glasgow to 400 cubic feet, but the proposal was opposed by the landlords and the house factors, as confiscation of house property, as ruinous for the working classes, and likely, in fact, to result in derangement of the whole fabric of Glasgow society. In truth, to change the air in a space of 400 cubic feet six times an hour in this climate, by the ordinary methods of natural ventilation, would be intolerable, even if practicable. Scarcely half that rate could be accomplished without injurious draughts. When you find that 600 cubic feet is the standard adopted for barracks as necessary for the health of men whose health means available service for the nation, and their sickness not only loss of service but added expenditure, you may conclude that this space is a very fair compromise between the economy of barrack accommodation and the most exacting conditions of health. I shall leave all these important details to your sober and intelligent judgment, as aids to reflection in the choice of a house of size proportioned to your requirements, with this wise saying of Dr. Parkes: "After all, the question is, not what is likely to

<sup>1</sup>By the Police (Amendment) Act of 1890 this was subsequently extended to 400 cubic feet per adult, and 200 feet for children under 10. The provision for ticketing now extends to all houses not exceeding 2600 feet. [(Police) Order Confirmation Act, 1904, Sec. 10.]

be done, but what ought to be done; and it is an encouraging fact that, in most things in this world when a right course is recognized, it is somehow or other eventually carried out."

The next question is whereabouts shall I look for a house, first, in what district of the city? I do not wish in regard to this or any other matter to preach impossibilities. The elements to be taken into consideration are chiefly two—the health of yourself, and especially of your children. Unfortunately these are often somewhat divergent claims. Undoubtedly your own convenience, and in some degree your personal comfort whisper—live near your place of employment; while, as undoubtedly, the health and general welfare of young children say—live as far as you can from the populous centre, whether that be near the workshop or the warehouse or no. I leave this also to your intelligent and deliberate judgment to decide, and in your decision to reconcile as best you can, interests which may happen to be opposed. I only beseech you, in the children's name, sacrifice your own convenience wholly, and your comfort, as much as you conscientiously can, for the sake of giving them room, not merely to exist, but ample enough for health, and with convenient space in the form of a well-lighted court, or a bit of grass, or public garden ground, or square, or in the near neighbourhood of the fields, in which they may play and be happy, out of the hurly-burly of the crowded streets, which are not more dangerous to life and limb than to morals. You have the ready and cheap tram-car to convey you; and even if you should have an early tramp in a dark morning, and a not over-comfortable meal by the roadside, or in your workshop, remember that the life of the parent must, from first to last, be one of self-sacrifice, and that the best legacy you can leave your children is a healthy body, and a mind stored with the pure and cheerful associations of a happy childhood. In whatever direction therefore you may be forced to stint or economise your purse or your personal exertions, don't begin with your house, either in rent or situation. That, believe me, is, in its ultimate issues, the most profitless of all economies.

In giving you a standard of purity for the enclosed air of your house, you would observe that it was measured as a certain unavoidable excess of impurity over the free outer air. Obviously, then, the condition of the air outside your house will determine the range within which you may have added impurity inside without transgressing the margin of healthfulness. Without going into details, it may be said that the nearer you live to the outskirts of the town, you secure a better air from which to draw your supply for ventilation, and consequently your houses will not so soon become close and

stuffy, and unhealthy. In the central streets of Glasgow, even what we call the open air is impregnated in general with more carbonic acid than is found in air of the normal standard. But there are confined spaces, such as back courts, sunk areas, and lobbies, which are the main resources for the ventilation of houses, and which all approach dangerously near the utmost limit of added impurity, and in many cases surpass it; so that these houses never can, in the nature of things, be properly ventilated. For this, and various other reasons to be specified, I can at least warn you not on any account to select a house in certain easily recognized positions and circumstances. Don't live in a back tenement, inside a hollow square. You might as well live inside a Chinese puzzle. Don't live in places bearing the ominous designation of "Muse Lane," or in any other narrow and sunless lane, even if it should be dignified with the name of "street." Don't live in a sunk flat, if you wish to have a chance of escaping rheumatism, consumption, and diseases of the lungs generally. Cellar dwellings have been to a certain extent proscribed by law, their unhealthiness is so notorious; but in the necessary legal definition of such dwellings many escape the verbal meshes of the definition, which are quite as unhealthy as those which are illegal. Here we have another illustration of the perversion of a minimum legal standard; because, if your ordinary landlord can trim the requirements of his houses to meet the bare necessities of the law he is satisfied. It is for you to have regard to the spirit—not the mere letter of the law. The spirit of the law is this—that every house against the walls, or any part of the walls, of which the soil rests above the level of the soil beneath the joists of the floor of the ground flat, is unhealthy. The air only should rest upon the walls, otherwise they will be damp, and the space beneath the floor cannot be ventilated; therefore, avoid such houses, and, in general, never live below the level of the earth's surface, whether there be sunk areas or not. I would also advise you to avoid altogether even a tenement which is otherwise unobjectionable, if it has cellar dwellings at its basement. The inhabitants of such places are rarely good neighbours in a moral sense, and they cultivate infectious diseases, whose germs are apt to pervade the upper flats, and attack yourselves and your children. Further, don't take what is technically called a "back-to-back" house; they resemble caves, or the rock dwellings of eastern lands. There can be no through-and-through ventilation, which is the only thorough mode of renewing the air of enclosed spaces. This is most apt to be wanting in single apartments, the best of which are those opposite the stair landing, in which case, the lateral houses, generally of two apartments—one to the back,

the other to the front—are also provided with this condition of health. Finally, avoid what are called "made-down houses," *i.e.*, houses originally of several apartments which have been sub-divided among several tenants. A house is, or ought to be, an idea expressed in stone or brick—a structure designed for a certain mode of occupancy; and if the mode of occupancy is changed, without a corresponding change of structure, it cannot be healthy. These made-down houses are easily recognised if you are observant. Long dark lobbies are a safe ground for suspicion; and if you discover such things as presses, or sinks, or W.C.'s in the lobbies, or traces of hat pegs or gas pendants, or kitchen mantelpieces in one house, and ordinary room mantelpieces in another, your suspicion may be held to be confirmed. These little characteristics explain the cause of the dark lobbies; but the dark lobbies should be enough to frighten you away, whatever its cause.

Having asked you to set aside houses of a certain kind as essentially and irredeemably unhealthy, there are a few questions applicable to all houses which you ought to ask, and a few points to observe which I shall shortly mention. Is this house dry? If you avoid sunk houses, the general cause of dangerous dampness is the premature occupation of newly-built tenements. All building materials are more or less porous. Even a good brick can absorb into its pores from 10 to 20 per cent. of its weight of water, and the best Craigleith sandstone 8 per cent. The mortar and plaster contain still more water. A new tenement, therefore, is saturated with thousands of gallons of water, which must be got rid of and replaced by air. The presence of water is injurious to health in two ways. It stops the natural functions of the walls of the house, which promote ventilation by the passage of air into the interior. This is a little thought of but important element in ventilation—a path for the entrance of filtered air which cannot be altogether stopped up, and does not attract attention by creating draughts. Yet it is possible to blow out a candle through a cylinder of dry mortar coated with wax, and five inches long, and even through a brick similarly prepared; but if the mortar or the brick be saturated with water, they become quite impervious to air. So that the pressure of the wind upon the outer walls of our houses, or the in-draught in cold weather from the outer cold to the inner hot and rarified air are made entirely useless for ventilation by dampness. In another way, also, damp is injurious. A damp house is a cold house. It causes a great loss of heat by evaporation from its surfaces. If you sit next a damp wall, still worse if you sleep next one, the side nearest the wall becomes chilled, rheumatism attacks the joints, the lungs may become inflamed, and other diseases, arising from unequal



cooling of the body are apt to be engendered. Only a large expenditure for fuel will dry a house at your cost, which ought to have been dried gradually by free admission of air, before your landlord put it in the market; and after all, your health cannot but be impaired.

Another question which you should put to yourself when looking at a house is this—Is it airy? Can the winds blow about and against its walls? Are its approaches—the close, the common stair, the lobby, freely ventilated? If you avoid the houses against which I have warned you, you will shun those which are most seriously defective in this respect, but there is still room for care in your final choice. A common stair is simply a lane leading upwards, for public use, and should not have any characteristic smell, or give an impression to the senses different from the open air. There ought to be large ventilating apertures at the top, and windows on every flat. Some stairs are buried in the centre of the tenement, touch the outer walls nowhere, and are simply dark tunnels set on end. Avoid such stairs and prefer those which end in a cupola, with a ventilating space round its entire circumference. Stair windows are almost invariably exactly the same as ordinary house windows; and when one tenant opens another is sure to shut them. A portion ought to admit air independent of any interference, and in crowded staircases in the older parts of the town, a light open grating would be much better than glazed sashes. As it is, and fortunately so, the panes of glass are usually broken in such situations; but while good for ventilation this is an unsightly state of matters, and suggestive of anything but respect for property. It is even more necessary that common lobbies should be full of pure air, and not channels by which the effete air from one house may pass into another. It is as much the duty of your landlord to lead the fresh air up to your very door as it is for him to lead pure water to your kitchen tap.

Both are necessities of life, and you ought to look as particularly into the one arrangement as the other. Light is as necessary as air, and in general they cannot be separated. A staircase, or a lobby, or a house, which are dark, are certain also to be close and ill-flavoured. I would advise you, then, to give the preference to tenements situated in streets which run north and south and are as wide as the height of the tenement, and not to select a house from which you cannot see the sky when you stand at the windows. The best lighted room is one from which you can see the largest area of sky at the farthest distance from the window.

Here I wish to say a few words as to the extreme importance for health of direct sunlight. An Italian proverb says—

“Where the sun cannot enter, the doctor does.” There is an immense body of observed and recorded facts in proof of the life-giving, health-sustaining influence of light; but really I have not time to-night, nor, in fact, am I much in favour of condescending, to lead proof that “the light is sweet, and a pleasant thing it is for the eyes to behold the sun.” Take your Bible, and from its first page, which records that God’s first gift was light, to the last, where we are told that the chief physical feature of heaven is that “there shall be no night there,” because the Maker of the sun has dismissed His faithful servant, and “covered *Himself* with light as with a garment,”—from first to last of the Holy Book, light is associated with physical and moral good, and darkness with physical and moral evil. This association still subsists. I wish, however, to make reference to one recent observation as to the influence of light upon health. You have heard from Dr. Gairdner of that large family of minute living organisms whose representatives are everywhere to be found, and among whom are the greatest enemies of health and life—those germs or bacteria which Pasteur has made his peculiar study. It has been proved by experiment that bacteria may be absolutely killed by sunlight, that sunlight is a universal disinfectant; that this disinfecting influence is exactly proportioned to the duration and intensity of sunlight, most powerful in direct, but still distinct in diffused or indirect sunlight. Therefore, I say to you, avoid houses whose precincts are dark or badly lighted, and have no dark places inside your houses, which may be haunted not by imaginary ghosts, but by these microscopic impurities. Darkness and dirt, generally of the rudest visible sort, always at least of this invisible sort, go together. Admit sunlight freely whenever you can. Keep up the window blinds.

Before finally deciding to take your house, there are one or two matters concerning its internal arrangements about which you ought to satisfy yourself. The best distribution of your apartments is that which gives you access both to the front and back of the tenement, and therefore secures to you through and through ventilation. Two apartments, of which one is at the front, the other at the back, are much better than two at the front or two at the back. In tenements of small houses the water closet should be on the stair. It is a most dangerous “convenience” to have in a house of less than four apartments. Wherever a water closet is, it ought always to be against an outer wall. You will sometimes meet with them on the landing, sandwiched between two houses, and the space on either side used as a cupboard, or even as bed places. Box beds, or built up bed places, are always unhealthy; but when at one end they are separated only by a thin partition from a water-



closet, they become doubly dangerous. There is no sleeping accommodation so healthy as a plain iron bedstead. Look also to your water supply. When, as a community, we have spent two millions of money to fetch pure water from Loch Katrine, it is surely madness to allow a landlord to put it through a cistern over a water closet before you drink it. See that your water tap supplies you direct from the main. The windows ought all to be sashed, and their cords good, so that you can open them at will. All these, and many other minor matters affecting the salubrity of a house, should be seen to before concluding your bargain. In my experience, the tenants of small houses often go about the taking of their houses in a very foolish and unbusiness-like way. They do not look before they leap, and are no sooner into their new building than they discover defects which ought to be perfectly obvious to any person of ordinary powers of intelligent observation, before becoming tenants.

I must now draw these remarks to a close with some advice as to the proper use of your house; for while there are houses which no care or pains on the part of the tenant will make healthy, there are also tenants, who, by mismanagement and carelessness, will make the most healthy house for them unhealthy. I have already told you that a city of small houses, such as Glasgow essentially is, demands much more strict supervision in its general construction, and more ample provision of the common external conditions of health, than one of large houses. I now add that small houses require much more careful and intelligent management, so as to keep within the narrow limits of the internal conditions of health, than large houses. You are working with the smallest possible margin of space between you and disease, or the conditions which produce disease. An asthmatic man is made short of breath by the slightest cold, or the least deficiency in his supply of pure air—and Why? Because he works upon a small margin of health. He is always bordering upon breathlessness, and a change, which makes no difference to a robust man with sound lungs, at once lands him in difficulties.

To maintain the purity of the air contained within the walls of your house must be the prime object of your management. The condition of the air proclaims, with the most sensitive exactness, the condition of all surfaces on which it rests and over which it moves. I, of course, presume that overcrowding does not exist. If it does, then you may be as cleanly as you please, your incessant, necessary vital functions will contaminate the air, and you can only moderate, not prevent the contamination. But always, and in all circumstances, a small house demands scrupulous care and cleanliness on the part of

its inmates. Let us run over shortly, in detail, the chief items of cleanliness which are summed up in the crucial test of a well-arranged house—pure air. There are the containing surfaces, the floor, the walls, the roof. The debris of your bodies, solid and gaseous, settles upon, and adheres to, or is absorbed by those surfaces. The dust of the city, and those minute and injurious organisms of the common air, subside in the quiet house space like the sand in the slow-moving eddies of a river. Therefore, the housewife must be constantly busy dusting and refreshing the surfaces of her house. This labour will be lessened by the nature of those surfaces. The plaster should be smooth and well-finished; the floors carefully laid with well-seasoned wood, so that chinks may be as few and small as possible. Whatever may be the nature of the covering upon the plaster of the walls and roof, it must be kept clean. If it is size colouring, white wash, or lime wash, renew it at least once a year. If it is paint, dust it down frequently and wash it occasionally. If it is paper, select a paper of good quality, with a smooth surface, dust it down also, and always have the dirty old paper carefully scraped off before you put on a new one.

The furniture of a small house ought to be limited to the absolutely necessary, and not bulky. Every cubic foot of furniture introduced deducts a cubic foot from the air space. Let its surfaces be hard and impervious. Avoid haircloth in chairs and sofas. Cushions covered with cloth will afford the requisite comfort, and are easily dusted and cleaned. Carpets, for the same reason, entail much labour, if they are to be prevented from becoming stores of dust. They ought to be kept clear of chests of drawers and other heavy pieces of furniture, so that there may be no excuse for not lifting them frequently. Dust and rub carefully all your furniture. Here science steps in with an interesting and curious contribution of facts in support of the seemingly exacting demands of practical sanitarians. Dr. Angus Smith, who knows more about air and the conditions affecting its purity than any other living man, tells us—"If you wash a chair, or a table, or anything in a room, you will find ammonia in the washing; and if you wash your hands you will find the same; and your paper, your pen, your table-cloth, and clothes, all show ammonia; and even the glass cover to an ornament has retained some on its surface. . . . This ammonia on the surface is partly the result of the decomposition continually taking place, of organic matter adhering to everything in dwellings." This doctrine is of most importance to the women of our households; and don't let them dismiss it with an incredulous smile, because it speaks of that which is only perceptible to the vivid eye of the

philosophic chemist. The greatest triumph of modern surgery, what is called antiseptic surgery, the product of Lister's genius, consists wholly and absolutely of a conflict with that which is imperceptible to the unaided senses—those princes of the powers of the air of which I have spoken, and yet it saves hundreds of lives every year. Let Dr. Smith's curious observation, therefore, give vigour and pith to your arms in your domestic labours. This observation also leads us directly to observe the important relation of the cleanliness of the persons, clothing, and bedding of the inmates of small houses to the condition of the air in which they live. It is possible to be so dirty in all these respects, that although all new vital functions were to cease and determine, the accumulated products of past vitality would contaminate the atmosphere of the house. Be thorough: don't fancy that a clean outer garment, or a clean coverlet are enough. They may save your credit by keeping up appearances, but nothing more. Pursue cleanliness therefore of person and clothing as eagerly and unceasingly as the alchemists did the *elixir vitae*. The quest is more hopeful, because you will certainly find the true secret of a long and healthy life.

There are certain adventitious and temporary causes of air-deterioration which demand a passing word. Remove all refuse, whether of your own bodies, or of your domestic hearths, and cookery immediately. If there is any unusual smell perceived don't rest until you discover its cause. Never neglect a smell. Keep the surface of your W.C.'s scrupulously clean. Take your turn regularly with your neighbours in sweeping and washing the stairs and landings. Put all the dust of your house into the fire. It is volatile. It contains those microscopic powers of darkness among its grosser constituents. You have got them within your power. Reduce them to their primary harmless chemical components by combustion, and you have made an end of their career.

But I am not yet done. All these efforts after cleanliness only put off the evil hour if you do not ventilate your house-room. Minimize as we may the progressive contamination of an enclosed inhabited space, the contamination is still progressive, and without renewal of the air, in a few hours you will reach the boundary beyond which lies impaired health. Open your windows, pull up your window blinds, turn up your mattresses and bed-clothes, and every morning let the products of the night be swept out by the incoming current of fresh air. Then, all through the day, remember to have a small chink open at the top of your windows; or, better still, raise the lower sash, close the opening beneath with a piece of wood fitting closely, and so the air will enter at the junction of the sashes and pass upwards without draught. The secret of

ventilation without draughts is a little and constantly. Once permit the air to become close and stuffy, and the moment you endeavour to remedy this result of carelessness a cold draught will rush in, and the fear of injury will prompt you to stop it. The mere fact of living in a close atmosphere begets a shivery, susceptible condition of body which is intolerant of the slightest sensation of chill. If you accustom yourself and your children to fresh air you become robust; your lungs play freely, the vital heat is sustained and even a draught becomes exhilarating. The sensitiveness of your lungs to irritation and the consequent liability to catch colds arise chiefly from the chronic effects of foul air. The air does not contain oxygen sufficient to aerate and purify your blood. You inhale a proportion of carbonic acid above the standard of pure air, and the blood of your arteries, which ought to be clarified and reddened by every act of inspiration and expiration, approaches more and more the colour of the impure blue blood of your veins. Your bodily temperature falls—in popular phrase, you "look blue," and you feel cold. Your lungs are always congested and loaded with impurities, and you suffer from the prevalent disease of Glasgow—chronic bronchitis. Finally, let me anticipate a criticism upon all this talk about standards of pure air, about cubic feet of space, about constant renewal, so as to maintain the standard below six volumes of carbonic acid per ten thousand volumes or cubic feet of air. You may say, what do we poor folk know about standards and volumes of carbonic acid? We are not men of science. We cannot analyse air. We must live by rule of thumb; and it seems to us, if all this science is necessary to enable common folks to be healthy, we must also die by rule of thumb. Not so fast, however. The standard of carbonic acid was certainly determined first by rigid scientific experiment, under rigid scientific conditions, with all the resources of the chemist; but it occurred to the experimenters that they had noses, that all people, even the commonest, have noses; and that there were certain popular standards founded upon the judgments of those noses, and expressed in such familiar adjectives as "fresh," "close," "stuffy," and so on. The happy thought occurred to them, to endeavour to ascertain how those judgments of the nose would compare with the determinations of the chemist. They first carried their noses from the pure outer air into the confined space of an occupied room, under gradually varied conditions of ventilation. They carefully noted the judgments of their noses in those familiar terms on each occasion. They then, after each judgment, brought their chemical apparatus into the room, and recorded with equal care the precise proportion of carbonic acid present in the air. They entered the figures of their analyses in columns corre-



sponding to the judgments of their noses; and what was the result? There was perfect agreement. Opposite "fresh" there was 5.8 cubic feet of carbonic acid per 10,000 cubic feet of air; opposite "a little smell" there were 7.8 cubic feet per 10,000 of air; opposite "close and disagreeable," 10.3 cubic feet; opposite "close and extremely stuffy," 12.4 cubic feet. So you see every man, woman, and child of you carries about an instrument as delicate as the chemist's balance, viz., a nose.

Only, just as the chemist must keep his balance from rust and dust, otherwise its delicate adjustment will become deranged; so you must keep your noses educated by familiarity with fresh air, otherwise they will cease to be trustworthy. The power of appreciating fresh air is a matter of education and usage. It may be cultivated until the desire for fresh air becomes habitual and irrepressible. It may be neglected and debased until the fresh air is obnoxious, or, at least, foul air ceases to be recognised. My last words to you are, therefore, cultivate in yourselves and your children this wholesome appetite; educate your noses into the recognition of fresh air and they will cease to tolerate foul.

#### THE HOUSE IN RELATION TO PUBLIC HEALTH.<sup>1</sup>

It may be said of space, in a literal sense—In it "we live and move and have our being." In terms of space we may express the main physical conditions of existence in the proportion in which they are shared by men under the varied circumstances in which they live. Our bodies fill a certain cubical space. The basis of this cubical space is the two dimensions of a certain area of the superficies of the earth. On this surface rests the air we breathe; on it falls the regenerating sunlight, and the rain which is the ultimate source of the water we drink; on it we build our houses and conduct the business of our lives. The proportion of the numbers in which we live upon it determines the proportion in which we share the prime physical conditions of health—air, sunlight, earth-space sufficient to give free play to those operations of nature which will keep our environment healthy if they are not overtaxed by the aggregation of men.

These relations of human life to space were recognised by Dr. Farr as soon as the vital statistics of England furnished him with the necessary data. Working upon the mass of facts presented by each successive census, as to the distribution of the population on the soil, considered in relation to the local

<sup>1</sup> Read before the Insurance and Actuarial Society of Glasgow, 26th January, 1887, and published in their *Transactions*, Second Series, No. 5.

incidence of mortality in the intervening decennia, he gradually constructed a physical basis for vital statistics and erected them into a science. He proved that the apparently confused local phenomena of mortality were subject to certain laws capable of exact numerical expression, and of reduction to mathematical formulæ. It became possible even to work out from the results of life under physical conditions thus exactly expressed for one local area the results of life under other physical conditions expressed in the same terms for other local areas. The reflex effect upon sanitation was immediate and obvious. A theoretical standard of health was established, toward which the practice of sanitary science could work on precise lines. The results of this work could be measured and formulated at each census. The evils of aggregation had been measured. The object of sanitation was twofold, to minimize aggregation as an evil in itself, and to discover how to minimize the evils of aggregation in so far as and inasmuch as it is a necessary condition of civilized life.

Dr. Farr had to create a terminology for his new science. *Density* is the number of persons per unit of area on which they live. The unit may be square yards, or square miles, or square metres. Divide the population by the area, however expressed, and you have the number of persons per unit—the density. The *Areality* is the unit of area per person living on that area. The areality is therefore the reciprocal of the density. *Proximity* is a function of the areality. It varies in the ratio of the square root of the areality. Density, areality, and proximity are all founded upon the hypothesis that the population is equally distributed over the surface of the area on which they live. Each individual is supposed to be placed in the centre of a hexagonal plot of ground, and the area of this hexagon being known, the proximity or mean distance between each person can be calculated. The yard or the metre is the most convenient unit in which to express proximity. You will find the mathematical demonstration of these laws, with their formulæ, in the Report of the Registrar-General of England for 1877, p. 231, by Dr. Farr, and by a different method in the Scotch Registrar-General's Report for 1875, by Professor Tait of Edinburgh.

Such were the precise methods of measuring and expressing the different physical circumstances of masses of people in relation to their comparative mortality and the incidence of disease introduced by Dr. Farr. The importance of this new method of dealing with vital statistics cannot be better shown than by contrasting the generalizations derived from a survey of the local incidence of mortality in England before and after Dr. Farr's investigations. In 1775 Dr. Price expressed his



deductions from a review of the imperfect statistics of his day, thus:—"It may be stated in general that whereas in great towns the proportion of inhabitants dying annually is from 1 in 19 to 1 in 22 or 23, and in moderate towns from 1 in 24 to 1 in 28; in country parishes and villages, on the contrary, this proportion seldom exceeds 1 in 40 to 50." Expressing these data in the way more familiar to us, as death-rates per 1000 living, we shall better recognise how unhealthy the nation then was. They range from 53 per 1000 in "great towns," and 42 in "moderate towns," to 20 in "country parishes and villages." But such statements give us no idea of the physical circumstances associated with these death-rates any more than the terms "high fever," "moderate fever," or "feverishness" would enable us to estimate and compare the gravity of three cases of febrile disease. The physician now-a-days would say that the temperatures of the cases ranged from 106 deg. F. to 103 deg. F. and 101 deg. F., his datum point being normal temperature, of 98 deg. F. to 99 deg. F. Contrast Dr. Price's deductions with those of Dr. Farr when in 1871 he surveyed the retrospect of the local mortality of England in the ten years 1861-70. He says:—"Now, excluding the London districts, about which there is some difficulty, we have seven groups of districts where the mortality ranges thus—17, 19, 22, 25, 28, 32, and 39. In the same districts the numbers of persons to a square mile are—166, 186, 379, 1718, 4499, 12,357, and 65,823. Thus in Liverpool, the densest and unhealthiest district in England, there were 65,823 persons to a square mile, of whom 39 per 1000 died annually. This series of facts may be put in a different way: the nearer people live to each other the shorter their lives are. Thus, the proximity of people in 53 districts is 147 yards, the mean duration of life is 51 years; in 345 districts the proximity is 139 yards, and the mean duration of life is 45 years; in 137 districts the proximity is 97 yards, and the mean duration of life is 40 years; in 47 districts the proximity is 46 yards, and the mean duration of life is 35 years; in 9 districts the proximity is 28 yards, and the mean duration of life is 32 years; in Manchester district the proximity is 17 yards, and the mean duration of life is 29 years; in Liverpool district the proximity is 7 yards, and the mean duration of life is 26 years. This is a determined law; and the duration of life being given in one set of conditions, the duration of life in another set of conditions is determined from the proximities."

"The nearer people live to each other the shorter their lives are." Such is Dr. Farr's concise expression of the law of density. It is a correct and important practical deduction from the facts, but it must be applied with a clear understanding of the conditions thus bracketed together in one short

expression. The basement of the law is this, that animal life contaminates its environments. In the process of living man defiles air, earth, and water. This defilement only becomes dangerous when his environment cannot cleanse itself, and this may happen either by shutting in the individual with some impervious structure or by the packing of individuals too closely together. But the aggregation of civilized men in communities involves not only the aggregation of their bodies but of their houses, and the erections required for the special businesses or employments, as well as the convenience, amusements, and other functions of their lives. All this means complicated structural obstructions to the access of air and sunlight. Some employments involve much more defilement of the surroundings than others. Manufactures entail smoke and noxious emanations of various kinds, differing in intensity and offensiveness according to the nature of the manufacture. From these considerations it follows—(1) that proximity does not begin to tell against health and life until it has passed a certain point; (2) that the same degree of proximity under different circumstances will have different degrees of injurious influence, *e.g.* in a market town, in a cotton spinning town, in a town depending on coal and iron industries. It is thus evident that an intimate knowledge of local conditions is necessary to make local comparisons of density, in relation to death-rate, consistent with the rules of inductive reasoning. The conditions of density must be the same in the localities compared.

But we must not exclude from review the practical object of the study of the laws of density in its relation to health. The conditions of density are the subject of the science and practice of Public Health; the efforts of sanitation are directed to the amelioration of the dangers of proximity. In certain degrees of intensity existing in towns, the units of the population live so near each other that the *conditions* of density cannot be ameliorated. It must be attacked directly by the clearing out of the buildings they inhabit and the dispersion of their inmates. But the great mass of sanitary work consists in the enforcement of provisions which neutralize or impair the evil effects of aggregation. In this way local density may remain and yet health may be improved, or over large areas it may steadily increase and yet the standard of health be maintained or even raised.

These considerations are admirably illustrated by the vital statistics of England for the last four decades. The following figures show that while by the steady growth of the towns and the proportionate decay of the rural element in the population, the areality and proximity of the total population have been

rapidly shrinking, the death-rate has never risen in proportion, and has in the last decade, when this shrinkage attained its acme, fallen most decidedly:—

	Arealty in Acres.	Proximity in Yards.	Mean Death-rate.
1841-50.	2.21	111	22.36
1851-60.	1.97	105	22.24
1861-70.	1.75	99	22.51
1871-80.	1.54	93	21.27 <sup>1</sup>

You will be apt to under-estimate the value of a variation of a few modest decimals in the death-rate, but if you remember that in round numbers the mean population of England was 24 millions and a quarter in the decade 1871-80, you will not regard as insignificant an annual saving of 1.24 lives in every thousand in those ten years. It means 300,000 persons preserved to the nation; and this after all merely suggests a long vista of the results associated with such a triumph of sanitation.

You will now understand how Dr. Farr's statement that "the duration of life being given in one set of conditions, the duration of life under another set of conditions is determined from the proximities" holds true only when applied to the data of large areas and within one period of time. In his first investigation, founded on the mortality in the registration districts of London, for the 4 years, 1838-41, he found that "the mortality of districts increased as the 6th root of their densities," but from the data of the decade, 1861-1870, for all England, he found that it was "nearly as the 12th root of their densities." Obviously from the tabular statement, just submitted to you, the law of one decade could not apply to another. Sanitation is operating upon the local conditions from year to year and unequally in different localities, but by taking large areas, these inequalities are averaged, and an improved standard of health, during one decade, is found with a diminished areality and proximity as compared with the decade preceding.

The physical conditions of density may be classified in general under four terms—air, earth, water, and the house. Density without sanitary interference and control deteriorates all four, and in the deterioration each acts and re-acts upon the other. It must therefore be remembered that their separate treatment

<sup>1</sup> 1881-90	1.29	85	18.62
1891-1900	1.15	80	18.06 (Ed.)

is more convenient than accurate. The common atmosphere is at once deteriorated by aggregation through the products of combustion in domestic fires and trade furnaces. The nature and quality of the fuel will modify this result of density: wood is less injurious than coal. Coal differs in smoke producing tendency. The stringency and enforcement or neglect of Acts for smoke prevention will produce local variations in the pressure of density upon health. The arrangement of the buildings, the width of streets in relation to the height of buildings, may be such as to promote or obstruct perflation of winds and general ventilation, so that the character of the local building regulations and their lax or stringent application will determine the influence of density upon health. So also with general police regulations as to paving and scavenging of streets and courts, and public cleansing in all its arrangements and detail. Here we pass into the region of Earth. If filth and garbage are allowed to lie about, especially in the vicinity of houses, upon the bare soil, the earth gets contaminated. Leaking sewers, drains, and gas-pipes, ashpits and conveniences with pervious bottoms, and otherwise defective in construction, all befoul the earth. The earth being foul not only does the air resting on it reek with poisonous emanations, but all water-supply derived from wells becomes impure, and the air drawn from it through the basement area of houses into the rarified space within is noxious. Rivers also soon become unfit for dietetic use in populous districts. We can thus recognize the supreme importance of such otherwise apparently insignificant details as the covering of courts and backyards with seamless pavement, the construction of ashpits and conveniences for the reception of filth so as to be impervious, preventing exudation and excluding rain, the frequent removal of their contents, and free use of water and the scavenger's broom, in relation to the purity of earth and air in densely inhabited districts. By the neglect of these precautions the conditions of density may be developed in their deadliest form; they may be minimized in direct proportion to the degree of stringency of their enforcement. Of all the noxious conditions of density not one can be so easily and so quickly removed as the impurity of the water-supply, and not one is so effective and certain in its baneful influence in all degrees of density. The inhabitants of a farmhouse may in this respect be too near to each other just as truly as those of a large city though with far less excuse. The poisoned well in a rural district may be as deadly as the foul river from which a city derives its drinking water. But the diversion of the course of a leaky drain, or the tapping of a spring beyond the area of the farm-steading, will cure the one effect of proximity at the cost of a few shillings, while only a



water scheme involving an expenditure of millions of pounds will cure the other. Let the farm or the urban district get a pure water-supply and this untoward incident of density is at once removed. In the proportion which it bears to the total incidence of density upon health in that locality Farr's law, that "the nearer people live to each other the shorter their lives are," is thrown out in its comparative local application. Still, in the remaining fractions of the total incidence it remains as effective as ever. There is no doubt that in rural districts it is through the water-supply that density is mainly operative as an element in health. There is no doubt also that the introduction of pure water into towns summarily shuts the most direct access of the baneful physical conditions of aggregation to the vitals of the inhabitants.

We have now arrived at the special subject of this paper—"The house in relation to Public Health." I have adopted a somewhat circuitous route to get at my subject in order to associate it in your minds with the great law of density in relation to death-rate. The house is one of the most important items in the conditions under which density operates upon health. You can readily understand how in the case of cities, where aggregation assumes its highest value as an element in the physical conditions of health, if from any cause the efforts of sanitation have been unequally effective in modifying the conditions of density, that condition which has been least modified will predominate. That the housing of the inhabitants of cities has risen to this position of predominance in every aspect—social, moral, political, and sanitary—no one can question. Nor are the main causes of this difficult to discover. In itself the house-space must in any investigation of the relation of space in general to public health take a first place in importance. It is that portion of space which the householder acquires as his own. It is cut off and enclosed by its walls. He decides that this portion is, in his opinion, sufficient for himself and his family, or at any rate as much of this sufficiency as he can afford to pay for. Within it he acquires a personal right of ownership and liberty of action in the use of it, which cannot be invaded without ample justification on the ground of public necessity or utility. Yet men spend not less than a third, probably nearly one-half, on the average, women three-fourths, and children, in their earliest and most susceptible years, practically the whole of their lives within the house-space. Outside the house the collective mind of the majority or their representatives is all-powerful. A Water Act will improve the conditions of health of those who opposed as well as of those who promoted it; so will a rigidly-applied Smoke Act. Those precautions and operations of general sanitation,

which I have previously described, benefit everybody whether they will or no. A good Building Act and Public Health Act may even secure that every house in the city is in itself sound in the physical conditions of health provided it be occupied and used in a proper way. But every householder has a freedom of choice of his house, and he may dislocate all the relations of health to house-space in the exercise of this freedom. In this way may a man's house not only express in the properties of space many things about himself, such as his social position, his moral character, his intelligence, but it provides, so to speak, a material leverage to those abstractions which enables them to act upon the health of all the inmates. The fact that a man is poor, or drunken, or ignorant does not shut him out from the benefits of pure water, pure external air, general civic cleanliness and sanitation, but singly or in combination they lead to his shutting himself and his family out of the blessings of a wholesome house. The result of these considerations is to prepare us for the fact that in cities the average house-space of the inhabitants has a closer relation to their average health than any other element or condition of health which is capable of statistical expression.

Here I must explain a curious difference in the use of words which exists between England and Scotland, which leads sometimes to much confusion in such discussions as the present. In England "house" has the meaning which "tenement" bears in Scotland, and *vice versa*. Hence the English data as to houses and their inmates are of no use as an indication of the house-space of families or persons; and as the English census gives no information as to the number of rooms in the house, which the Scotch census does, we cannot get for any English town the information which I am about to give as to the house-space of Scotch towns.

If we compare the death-rates of the eight principal towns of Scotland for the ten years 1871-80, with their densities, we find that there is no relation. The reason is that their areas are not populated throughout their whole extent. Glasgow has nearly built over the whole area assigned to it, but Aberdeen and Paisley have not. Consequently while the densities of Glasgow, Aberdeen, and Paisley are 84, 18, and 16 persons per acre, their death-rates are 29, 22, and 28. If we take house-space as the basis of comparison, we find that in every mode of statistical expression it moves closely with the death-rate. The eight towns may be divided into two groups of four—Aberdeen, Leith, Perth, and Edinburgh have death-rates ranging from 22 to 23; Dundee, Greenock, Paisley, and Glasgow from 26 to 29. In the former group there are from 1312 to 1671 persons per 1000 inhabited rooms, in the latter



from 1870 to 2054. In the former group the proportion of the total population living in 1 apartment houses ranges from 10 to 17 per cent.; in the latter from 15 to 25 per cent. In the former group the proportion of the total population living in houses of 5 apartments and upwards ranges from 27 to 15 per cent., in the latter from 14 to 9 per cent. In the healthier towns, with a narrow limit of variation in death-rates, taken individually the house-space does not exactly follow those variations, but in the unhealthy with a wide range of variation, the house-space and death-rate move inversely with exactitude. Glasgow stands alone with the highest death-rate, the highest number of persons per room, the highest proportion of her population occupying 1 apartment houses, and the lowest occupying houses of 5 apartments and upwards. These facts prove beyond a doubt that the predominant factor in the health of cities is the proportion of house-space to inhabitants.

The relation between size of house as measured by number of apartments and the death-rate of these cities deserves special notice. You would observe that the proportion of the population living in 1 apartment houses is lowest in the healthy towns, highest in the unhealthy; while the proportion of the population living in large houses (5 apartments and upwards) is highest in the healthy and lowest in the unhealthy towns. The combined result of these two variables is expressed in the average number of rooms per house. This may be stated, so as to avoid decimals, as the number of rooms in 100 houses, which ranges in the healthy towns from 496 to 298, and in the unhealthy from 285 to 234. This relation between small houses and a high mortality and *vice versa*, is put beyond question by a laborious investigation made by Dr. Anderson, the Medical Officer of Dundee, who ascertained the number of persons living in houses of certain sizes in 1884, and classified the deaths for that year so as to determine the death-rate in those classes of the population for that year. He found that, without taking account of the deaths in the hospital or poorhouses and other public institutions to which the inhabitants of small houses retire to die, the mortality actually occurring in 1 apartment houses was 21.4 per 1000; in 2 apartment houses, 18.8; in 3 apartment houses, 17.2; and in houses of 4 apartments and upwards, only 12.3. It is a moderate estimate to suppose that if the deaths in institutions could have been distributed to the houses from which the persons were removed, the mortality in 1 apartment houses would have been found to be double that in houses of 4 apartments and upwards.

If we divide cities into districts, we find the same general relation between house-space and mortality. In Glasgow, for example, taking the statistics of the three years, 1880-1-2, and

passing in review the 24 statistical districts into which it is divided, we find "Blythswood" and "Kelvinhaugh and Sandyford" at the top with the lowest numbers of inmates per room, the lowest proportions of one apartment houses, the highest proportions of large houses, the *lowest death-rates*; and the "High Street and Cloves (E)" and "Bridgewater and Wynds" at the bottom with the highest numbers of inmates per room, the highest proportions of one apartment houses, the lowest proportions of large houses, the *highest death-rates*. In the intervening districts the relative movements of room-space and mortality do not exactly coincide, but the discrepancies are accounted for by variation in the actual value in cubic space of the unit "room" in the districts. The main cause of this variation is that houses erected at different periods follow a different scale of dimension of apartment. Taking the mean air-space in houses of 1, 2, and 3 apartments of various periods, it is found that in the oldest houses the mean value of the room is 1007 cubic feet, from which there has been a gradual rise to 1322 cubic feet in the most recent and best class of house. In the suburban Burghs, which are all of modern growth, the "room" represents a uniform scale of space, and consequently the death-rate is found to advance, *pari passu*, with the number of persons per room, from Pollokshields with only 627 persons per 1000 rooms and a mortality of 10, to Kinning Park with 2416 persons per 1000 rooms and a mortality of 23. Even in Glasgow, with all its local differences in the cubic value of the room, if we take the mean-house for the whole city and arrange the 24 districts according as their houses are above or below this mean in size and occupancy, we find that we have also got a fair division of the districts above and below the mean death-rate. If we take the mean size of house measured by rooms as the dividing line, we find that above it we have got the districts with low death-rates, and below it those with high. If we take the mean number of persons per room as the dividing line, above it we get the districts with high death-rates, and below it those with low.

The references which I have made to the uncertain value in cubic space of the unit "room" must have directed your attention to the weak point in this endeavour to establish a relation between house-space and health. The unit of house-space which I employ is "a room." It is the only standard of measurement available. The only exact unit is the cubic foot. If I could ascertain the cubic contents of every apartment in every inhabited house and divide the total by the number of inhabitants, I should then be able in one short statement to exhibit to you the relation of the house to Public Health. In the absence of this precise information, I am compelled to get

as near to it as possible, and by various indirect paths to work out this relation. We have seen that the room varies in cubic capacity with the period of erection of the house. In older houses the average room is less capacious than in more modern houses; but the relation of house-space to health is not finally determined by the absolute measurement of the house-space, it consists essentially in the relation of this space to the number of persons living within it. Here again, instead of appealing directly to actual measurement of houses of different sizes, I must work round to an approximate answer to the question—What is the relation of cubic space to occupancy in large and in small houses as measured by the number of rooms? Does the same scale of occupancy prevail throughout? As you rise from 1, 2, and 3 apartment houses to houses of 5, 10, 15, and 20 apartments, do you rise in relative proportion in the number of inmates? The exact question, of course, is, have the inmates of large houses increased in proportion to the increase of house-space? or, is it the fact that the larger the house, the larger the average proportion of house-space to each inmate? The only available unit of measurement of house-space being the "room," I must ask you whether, as a matter of personal observation, it is not the case that the internal sub-divisions of a large house are larger than those of a small one? Take 1, 2, and 3 apartment houses to represent the small house. I can tell you as a matter of fact that in modern tenements the room is a constant unit measuring 1200 to 1300 cubic feet, so that the 2 and 3 apartment houses are as to cubic space simply multiples of the 1 apartment house. In older tenements there is a little gain per room in cubic space in the 2 and 3 apartment as compared with the 1 apartment house; while in the oldest, those in the High Street and Saltmarket, for example, there is a loss per room, *i.e.* the half or the third of a 2 or 3 apartment house is less than the 1 apartment house. But take your own eye-measurements of rooms in small houses and compare them with those of rooms in large houses, whether in flats or in self-contained lodgings, and I think you will grant me this proposition:—*The unit room in large houses has a much higher cubic value than the unit room in small houses.*

The next step in the process of induction through which I desire to lead you, I think I can prove. Referring again to the large towns of Scotland, I have calculated for each the average number of persons found at the census in each 1 apartment house and in houses of 5 apartments and upwards. To avoid decimals, I shall state the number of persons in 10 houses of each size. In Aberdeen there were in every 10 houses of 1 apartment 24 persons, in every 10 houses of 5 apartments and upwards 69 persons; in Leith there were 30, and 63 persons;

in Perth 23, and 68 persons; in Edinburgh 27, and 66 persons; in Dundee 27, and 112 persons; in Greenock 32, and 70 persons; in Paisley 34, and 75 persons; in Glasgow 31, and 78 persons. The number of persons per room and the number of rooms per average house is another aspect of the same facts. It is more complete, because it combines the average result of houses of all sizes in each town in one view. If we range the mean number of rooms per house in each town from the highest to the lowest, we find that the mean number of persons per room rises exactly as the mean size of house falls. At the top is Perth with 496 rooms per 100 houses, and 1312 persons per 1000 rooms; at the bottom is Glasgow with 234 rooms per 100 houses, and 2054 persons per 1000 rooms. We get the same inverse ratio between size of house and occupancy in the 24 districts of Glasgow and in the nine suburban Burghs. From these facts I deduce the following "Standard of Occupancy":—*The smaller the house as measured by rooms the greater the number of inmates per room, and, vice versa, the larger the house as measured by rooms the fewer the number of inmates per room.*

Now, I have proved by actual measurements that the unit room in small houses of modern construction, which constitute the largest proportion of the total existing houses in Glasgow and large towns generally, and thereby make the law, is of nearly uniform size, so that 2, 3, and 4 apartments are multiples of the 1 apartment as to cubic space. You have granted the proposition that the unit room in large houses has a much higher absolute cubic value than the unit room in small houses, therefore, I make my last inference, that:—*The smaller the house the less the cubic space per inmate, and, vice versa, the larger the house the greater the cubic space per inmate.*

These are the laws which govern the relation of the house to Public Health. You will remember that in speaking of density, areality, and proximity in rural as compared with urban districts, I remarked that there was a certain range within which they became effective. Dr. Ogle has made reference to this fact in classifying the districts of England into groups according to their mortality in the ten years 1871-80. He begins with a group comprising rates under 15, and ends with a group comprising rates over 27, but under 34. It is not until we pass above a density of 217 persons per square mile, and a death-rate of over 19 and under 20 that the density and mortality move upwards together. He remarks:—"It is not apparently until the density has reached a certain degree of intensity that it begins to exercise any appreciable effect. This, indeed, might have been anticipated. For though we can readily understand that in crowded communities it may be



a matter of vital importance whether there are 500, or 1000, or 2000, or more persons living on a square mile, yet it can scarcely make any difference, so far as health goes, whether in rural districts there be two acres or three acres on an average to each inhabitant. The differences in the death-rates in these sparse populations are determined by other conditions than aggregation." (p. xx.)

The same fact is apparent in house-space. It is only in the suburban burghs around Glasgow that we can find districts wholly of large houses and wholly of small houses, in both cases of modern construction. Pollokshields has houses averaging a little over 11 rooms, each inhabited by .627 persons, and a death-rate of 10. It is followed by Hillhead, with houses averaging between 6 and 7 rooms, inhabited by .830 persons per room, and a death-rate of 10.5. Crosshill comes next, with houses averaging between 5 and 6 rooms, occupied at the rate of .929 persons per room, with a death-rate of 12. Then follows Pollokshields (E.), with something over 5 rooms per house, 1.071 persons per room, and a death-rate of nearly 14. Afterwards the size of house diminishes, the persons per room increase, and the death-rate rises until we reach Kinning Park, with scarcely 2 rooms per house, between 2 and 3 persons per room, and a death-rate of 23.3. House-space seems therefore to become a predominant factor in the health of an urban district when we approach an average house of 5 apartments, and a mean occupancy of more than 1 per apartment. In short, there is an amount of space both inside and outside the house which is only a luxury, but when space in either case shrinks within a certain limit it becomes a necessary. In other words, *space is a commodity which is used only as a necessary of life by the wage-earning classes, but is used as a luxury by the wealthy.*

If we review these conclusions, to which I have led you step by step, it will be apparent that health and wholesomeness in small houses depend upon a very delicate adjustment of circumstances. The margin between health and disease in the structure of the house and in the use of its contained space is a very narrow one. The smaller the cubic space in which a man lives the more difficult it is, even with the *best* mechanical contrivances, to renew the air within it sufficiently without draught. In a laboratory experiment it has been shown that perfect ventilation of a space of 424 cubic feet can be maintained. With the best conceivable arrangements in a house, 600 cubic feet could be renewed sufficiently without draughts. These ideal conditions will give you some conception of how far short of perfection the ventilation of the ordinary small house must fall in practice, even with a carefully-regulated

occupancy; but we have seen that the tendency to overcrowding grows as the house-space diminishes. The evidence that the supply of this necessary of life is in fact less than health demands is found in the mortality rising as the average space falls, and especially in the large proportion of deaths from diseases of the lungs in all urban communities where small houses most abound.

Let us run over the conditions required to secure the wholesome occupation of tenements of small houses. They must be carefully planned and built. Those small houses must start with the best practicable structural arrangements and sanitary provisions. There is no available margin of space about them which will neutralize any defects in original structure. Their contained air must be put in the best attainable circumstances both as to renewal and as to reducing contamination to a minimum by efficient drainage, water-supply, and the removal of refuse. Supposing such a tenement thus originally well-ordered, it must when occupied be carefully maintained. It works like an engine driven to the full extent of its horsepower. It is always bursting with life from roof-tree to foundation. Every part of its moveable working apparatus, and even its solid structure, is under strain. The inhabitants will not in general by their habits reduce the tear and wear, but "a stitch in time saves nine"; and it is not only necessary for health's sake, but economical for the proprietors, to be watchful and ready to maintain the structure and appliances of tenements of small houses. Supposing the structure and maintenance to be perfect, the mode of occupation must be regulated. The condition of wholesomeness lies essentially in the due proportioning of inmates to cubic space. The houses are in the market, but health is at stake in the choice made by the buyers. Every tenant in making his selection has on the one side of a line drawn by the laws of the universe, health, and on the other, disease. Experience proves that the occupants of small houses cannot be left to their freedom of action in this matter. There is a moral responsibility on the landlord in the first place, and failing him upon the authorities somehow to direct and determine their choice. Supposing this difficulty overcome, can the tenement thus properly built, maintained, and occupied, be left without supervision as to occupancy? I answer, no. Physical and moral chaos will gradually invade the original order if an eye, either the eye of the landlord or the sanitary inspector, is not kept upon the householders to prevent overcrowding.

Now, let us take the case of Glasgow, and for the sake of illustration consider what is done and what is left undone in promoting the conditions of health in tenements. As to their

original structure, new buildings are erected under the powers of the Dean of Guild Court. These are notoriously defective.<sup>1</sup> I say notoriously, because repeated efforts have been made for years to have them extended and amended, but without success. Watch, for example, the Glasgow builder digging his trenches for the walls of his tenements and laying the joists of his basement floors over the grass or the bare soil. He cannot be compelled to clear away an open space, to put ventilating openings through the main walls into this space, much less to exclude the emanations from the soil by covering it with asphalt or concrete, or to prevent the surface water from passing up the walls by a damp-proof course. He need not show his drains and soil-pipes in his plans, and if he does he cannot be made to submit them to inspection before he covers them up. Time would fail me to enumerate the defects in our building regulations—these are a few examples. But it may surprise you to be told that a large proportion of our smallest houses are never submitted to any regulation at all. They are provided by a process known as "making down" large houses. The owner of a self-contained lodging or a tenement of large flatted houses finds that there is no demand for such accommodation in the locality; he forthwith throws open or takes off the front door, and lets the rooms of the large houses as one, two, or three apartment houses: he may even pass his plans for large houses, and next term begin the process of "making down." This process, carried on from time immemorial, has created the most puzzling of all the sanitary problems of house accommodation in Glasgow. We must pay now<sup>2</sup> in Improvement rates for the ignorance of our forefathers, but the pity of it is that we are helpless witnesses of the same mischief-making now. A tenement ought to be an edifice carefully planned for a certain mode of occupancy and number of inhabitants. You cannot alter the mode of occupancy and multiply the number of holdings and inmates without displacing all the arrangement of parts and proportion of conveniences on which health depends. This is virtually the same as erecting a new building, and should necessitate the production of plans and the revision, under authority, of the whole tenement. At present a great part of the work of your sanitary department consists in improving such "made-down" houses

<sup>1</sup>The Buildings Regulations Acts of 1892 and 1900 to a great extent provided a remedy for the difficulties here noted.—[Ed.].

<sup>2</sup>The rate under the original Improvement Act ceased in 1890 but was reimposed after the passing of the Act of 1897, one halfpenny being levied on owners and occupiers respectively. The Water and General Order (Confirmation) Act of 1902 gave power to raise the maximum assessment to 1½d., and at present (1904-5) the amount levied is ¾d., divided equally between owners and occupiers.—[Ed.]

when found to be "injurious to health," by the tedious, expensive, and unsatisfactory powers of the Public Health Act. This cannot be called rational from any aspect.

As to the maintenance of tenements by the summary removal of the defects technically termed "nuisances," which arise in the ordinary course of tear and wear, this is regulated by the Public Health (Scotland) Act, passed in 1867—twenty years ago! Not a line has been revised or a word added to the general health legislation of Scotland for twenty years! I need scarcely say a word more under this head. It appears to me that "nuisances" occurring in tenements have a special gravity as affecting the health of so many persons always living on the verge of disease, and the law should provide the most summary process that can be devised for their removal. Imagine what a leaking drain is below a 1 apartment house, or a choked W.C. on a common stair giving access to 12 or 20 houses.

As to the regulation and supervision of the mode of occupation of small houses, we are better off in Glasgow under the powers of our much maligned local Police Act. The principle is there fully admitted, that in small houses the margin between health and disease depends upon such a close adjustment of occupancy to space, that even in the choice and use of their houses, the householders must be controlled and regulated. In the local Act a minimum cubic space of 1, 2, and 3 apartment houses is fixed. Any such house may be measured, and if its total capacity does not exceed 2000 cubic feet, a ticket can be affixed on or over the outside of the door on which is marked the available space and the legal number of inmates. This is at the rate of 1 person aged eight years or upwards, or 2 below that age to every 300 cubic feet. In the older parts of the city, all houses which can be "ticketed" are so. In the newer parts when overcrowding is discovered, as it soon is by Fever, if by no other sanitary inspector, the landlord is first warned that if he retains such tenants his houses must be "ticketed." The tenants are at the same time advised to remove to larger houses. The inspection of these small houses is carried on at night all the year round. Many, however, are above the total cubic size which warrants ticketing; but if a house contains nightly lodgers, it comes under the Common Lodging-house regulations, provided the sum paid does not exceed 6d. per night; if it exceeds this amount, any house containing a lodger may be scheduled under the Public Health Act. The combined effect of these powers is, that a considerable proportion of the inhabitants of small houses live under close supervision, and many more are restrained by the fear of being subjected to this supervision. It will probably be news to many of you that at least 100,000 of your fellow-citizens live under physical condi-



tions so perilously near to disease that the law has said these physical conditions must be prescribed and maintained. Every night in the year inspectors are out knocking at their doors, counting the people as they lie on their beds, or under them, or on the floor. It seems strange to think that under no other conditions can they be got to live in some measure of consistence with their own health and the safety of the community. In the overcrowded houses there are on an average 6 persons per room, of whom 1 or 2 are lodgers, and the average house-space is less than 200 cubic feet. The opinion of the authorities is, that the minimum size of 1, 2, and 3 apartments houses should be raised from 900, 1500, and 2000 cubic feet to 1200, 2000, and 2400; and that the standard of occupancy should be 400 instead of 300 cubic feet. We failed to get this and many other special powers necessary to the peculiar conditions of a large city through amendment of our Police Act, because the Lord Advocate desired uniformity, and we failed to get them through the Burgh Police Bill, because it was impossible to apply the same stringent laws in Auchtermuchty as in Glasgow! Even 400 cubic feet is a poor standard. In New York it is 600, and that in new buildings erected with a detail of attention to general structure, ventilation, drainage, and plumbing, as prescribed in the Tenement House Act, 1879, which might be studied by us with advantage.

Such is my idea of the method of securing fairly wholesome accommodation for the inhabitants of small houses. Let the houses be constructed with intelligent foresight of the conditions of health, let them be maintained with care and occupied with supervision, so that in their use they may not be made unwholesome. In geology there were at one time two rival theories in accordance with which it was sought to explain the facts. One was the paroxysmal or cataclysmic, the other the doctrine of uniformity. According to the former the configuration of the earth was worked out by spasms of excited action—the mountains were thrown up by earthquakes, and the plains laid out by deluges. According to the latter they were formed gradually by constantly acting forces of cold and heat, rain and wind, the gentle but not less powerful agencies which we still see everywhere active. In Public Health there are also two schools. The one is subject to periods of indifference and repose, then wakes up under the stimulus of some great epidemic or political revolution to the evils which have grown meanwhile, and plunges into paroxysms of eccentric activity. The other never sleeps, but works quietly from day to day, making and keeping things right. There is no department of public health in which those two schools exhibit their characteristics better than in that which deals with the housing of

the poor. I belong to the uniformitarian school. If you fall asleep and leave the poor under the influence of their ignorance and improvidence to settle down into the nearest kennel, and allow the kennels to multiply, you soon have a condition of things which can only be removed by Improvement Schemes and gigantic displacements—thousands are thrown into the street at once. In such circumstances as those of London, where a community of four millions has the stable residential adjustment of its families suddenly disturbed, the result is to inflict untold hardship upon the poor. The social fabric is convulsed, and the "Bitter Cry of Outcast London" appals the ear. In despair the philanthropist develops all kinds of schemes, which the moralist and political economist condemns because of the greater evils which they see in the future. I have told you that a man's house expresses in space many things about himself, such as his social position, his moral character, his intelligence, and that it provides a material leverage to those abstractions which enables them to act upon the health of all the inmates. In short, we are living under moral government, and no one who looks beneath the surface of the misery of small houses can fail to recognise that there is in it a disciplinary element; there is, at any rate, too much of this element to make it safe to attempt to remedy it from the outside; it must be remedied through the householder, by constant pressure upon the man as a rational and responsible being. Nothing will help him to thrift and self-restraint so much as the fact that there are no miserable houses to be had. It will always be that if there are miserable houses to be inhabited there will be miserable people to inhabit them; the two get together as certainly as drops of water coalesce if brought into proximity. There are streets and districts of tenement houses in Glasgow which are well up to the practical requirements of health, and the inhabitants are well up to the average standard of morality and well-ordered life. There are streets and districts of houses which are miserable in the material conditions of health, and their inhabitants are in the main like their houses—they have got together because the houses are there, and their ignorance and improvidence—often their vices and immorality—drive them there, and there they find congenial neighbours. As has been said:—"In crowded districts, where the lower orders are neglected and life is cheaply estimated, if tubs were ticketed 'to be let,' they would soon be tenanted by the most wretched." If we build houses at the cost of the ratepayers and give them to such people, we are relieving them, or most of them, at the expense of the well-doing, of the natural punishment of their ill-doing. If, on the other hand, we keep up the standard of house accommodation,

we may lead the flagitious and improvident to mend their ways. The argument that insanitary houses must be permitted because only such are within the means of their occupants is like that for winking at the sale of adulterated and unwholesome food because the poor cannot afford better and will starve. Both arguments are most frequently advanced by interested parties—the owners of insanitary houses and the sellers of bad food.

It is a remarkable fact, that an essential part of every scheme for providing model dwellings for the wage-earning classes is the acknowledgment of this moral element in house accommodation. Not one of them provides for the actual inmates of the miserable houses—the people who are at the heart of all the social and sanitary troubles of cities. The tenants are selected. The model house is awarded to model people. They are strictly supervised by resident superintendents. No drunkard or vicious or immoral person is admitted or retained. All material nuisances are at once repaired. If every landlord so acted, the disciplinary results would in course of time be marvellous; if every local authority had summary power to weed out and keep down unwholesome houses, and systematically exercised it, the disciplinary results would in time change the aspect of life among the poor. Any exceptional cases of poverty, by no fault of its own, would be met by the charitable and philanthropic agencies working on their present moral basis. We should hear no more of the unwholesome house being a social necessity or of rate-supported schemes, which must either be administered so as to fly in the face of the moral government of the universe or so as to become nurseries of model parasites. In either case they would no more relieve us of our difficulties than the Republic of Plato, or More's Utopia, or the Hygeia of Richardson. The "Bitter Cry of Outcast London" was essentially an indictment against the Local Government of London, not a demonstration that although everybody—the legislature, the vestries, the landlords, the people—had done their duty somehow everything had gone wrong; the rewards had drifted into the hands of the vicious and the punishments had fallen upon the heads of the virtuous.

Gentlemen, when I was asked to appear before your Association I shrank from the honour, because it is but a limited range of subjects which I can venture to treat before such an audience, and within that range I could not think of any which would be interesting to you. When at last I chose my present subject, I felt it would appeal to you as men of education and position, or promise of position, in society. I ask you to accept it, not as a contribution to your professional knowledge, but as a humble endeavour to enlist your intelligent interest in the social problems of your age and city. The facts which have engaged

us to-night form the soil through which creep the roots of revolution and social anarchy, drawing to them the noisome elements on which they feed. I have dwelt strongly upon the moral government of the universe—and we must remember that this includes the rich as well as the poor, the comfortable as well as the miserable, the respectable as well as the outcast. You may be selfish and have no thought of your poor brother, but you cannot get rid of him by not thinking of him. Brains hereditarily debased, and hearts full of gall and bitterness, are dangerous to the state. You live in a country which especially needs all the heart and brains of educated people in dealing with its social difficulties. You live in a city which, of all cities, bears the heaviest burden of civic responsibility. In Glasgow settle the lees of an enormous wage-earning population. Every facility for communication, the spread of intelligence in health matters, which moves first the best of the working-classes outwards, everything tends to leave us with a central mass of people who cannot be trusted to live without supervision and guidance. I hope what you have heard to-night will enable you to take a more intelligent and active interest in the details of our Local Government.

LIFE IN ONE ROOM.<sup>1</sup>

I shall not readily forget an incident in the delivery of the Right Hon. John Bright's Rectorial Address to the students of Glasgow University in 1884. He had discussed certain questions of the future, arising from the relations of this country to our colonies and dependencies and to foreign nations. Turning to home legislation, he thought to make his remarks more impressive by a reference to the condition of the inhabitants of the city in which his youthful audience was assembled, and in which a considerable proportion had been born. Mr. Bright said: "I was reading the other day a book which many of you have seen, called 'Past and Present.' In it there are some statements made from the Census of the Kingdom of Scotland. The writer states that in the City of Glasgow alone 41 families out of every 100 live in houses having only one room." The right hon. gentleman was immediately interrupted with cries of "oh! oh!" and shouts of incredulous laughter; whereupon he interjected the reminder—"That is the official statement of the Census"; and went on to give further information about the homes of the people of Glasgow, which I shall not quote, as Mr. Bright took his figures from the census of 1871 instead of 1881, to which I shall subsequently refer. I

<sup>1</sup>A Lecture delivered to the Park Parish Literary Institute, Glasgow, 27th February, 1888, and published by request.



said to myself—was there ever a better illustration of the proverb that one half of the world does not know how the other half lives? Here were facts which had been lying for 13 years in the Census Report, and which were not only unknown to the 2000 educated youths of the University, but which were so startling in their nature that when made known they were barely believed. Nay more. No passage in that long and eloquent address attracted more attention from the general public. The one and two roomed houses of Glasgow have almost passed into a proverb. They immediately became the subject of leaders in the newspapers, of speeches from statesmen, and the text of sermons. All thoughtful men were startled with the grave significance of those plain figures as to the physical and moral conditions under which our population lives. In short this passage set alight that flame of interest in the social circumstances of the poor which has spread over the land, and which, if the truth must be told, has been fed by facts which were perfectly well known to all men who in an official capacity or from special philanthropic impulses have been keeping touch with the poorer classes. Now, what does this prove? It proves that if the cup of cold water has not been borne to the parched lips, it is not because of want of sympathy, but because of want of knowledge. It is the old story—the mendicant who holds up his feigned distress to the public eye is sated with undeserved alms, while the poor man who hides his real sufferings at home is unnoticed and unrelieved. Carry him out to the wayside, or better still, go and search for him; and there is that divine impulse in the heart of humanity which will make men rush to his relief; even as, when we see a child stumble, our arms are around it before we are conscious of a throb of sympathy. This being so, I hold that it is our duty as Christian men and women to acquire that knowledge of our fellow-citizens which will give us a reasonable ground for determining the measure of our duty towards them. It is one of the blessed prerogatives of childhood to remain in happy ignorance of the anxieties and cares, the schemes and forethought, which fill the minds of those who maintain about them the comforts of their homes. For all they know to the contrary those comforts come to them with as little effort or design on the part of anybody, and are as far beyond the possibility of miscarriage, as the sun which cheers them at play. They will sleep in full assurance of awaking to their customary bountiful repast, while their parents are sleepless with the anticipation of reverse of fortune. But that which is natural in the child is thoughtless and even sinful in the man and woman. We ought to know something of the social machinery which is kept moving around us. We ought not because *our* bread and

water are made sure lazily to take for granted that the bread and water of others give them as little concern. We ought not to preen and expand *our* virtues to the sun in our self-contained houses, putting them in proud contrast with the vices of those who live in the one-roomed house, without asking ourselves how far both the virtue and the vice are native to the physical circumstances in which we find them.

When my friend, your President, asked me to give you an address, it was by thoughts such as these that I was led to choose to speak to you of the City in which we live. You go about the streets of this great city day by day, and I wish you to have an intelligent sympathy with the life of it. A heathen poet said—"I am a man, and nothing that concerns man is without interest to me"; and surely if this was truly felt by a heathen nearly two hundred years before the birth of Christ, we who live nearly two thousand years after that divine expression of sympathy for man, must adopt the words with a fuller, richer meaning. You have experienced the change which passes over our relations to a man as we come to know something about him. We see him day by day taking his place opposite us at the desk, or his seat beside us in the pew, or we meet him from time to time in the tramcar, or pass him as we walk to business at a certain corner of a street. Bit by bit we come to know where he lives, what he does, what his social circumstances are. The man ceases to be a pale abstraction, and in short becomes to us really a man. I cannot in the same sense make you to know the men and women of Glasgow. I can only build up in your minds by the aid of a few figures and general facts, some notion of the physical circumstances of an impersonal average inhabitant. When we think of a citizen of Rome or of Athens, we have before us the outlines of a being whose home-life and occupation and amusements and general surroundings we could describe. Let us see whether we cannot so distinguish in our thoughts the citizen of Glasgow from the citizens of other cities in the country.

The point of time to which my statements refer is the 4th of April, 1881, when the census was taken, and nothing capable of expression in figures as to the condition of the population was left to surmise. The inhabitants of Glasgow numbered 511,520 souls. The area of the earth's surface on which they lived extends from E. to W. 5 miles, and from N. to S. fully 3 miles, and contains 6111 acres or fully  $9\frac{1}{2}$  square miles. These data enable us to work out the most important physical fact in the condition of men in the aggregate, viz. the proportion of their number to the extent of the earth's surface on which they live. A man may learn to exist without air for several minutes if he wishes so to distinguish himself; a man

may live for several days without food; and clothing is not at all essential to life, but *space* to live on and in is an absolute necessity. I do not wish to be led into a discussion of "the rights of man" as a citizen, but it is well now-a-days to remember this at anyrate, that if man has any rights at all, one of them certainly is—the right to enough of the area of the earth's surface to afford him standing room, and enough of the cubic space of air thereon at least to crouch in. You may call it a luxury to give him room to lie down in, and space to stretch himself in, but to deny him standing and crouching room is to say in the laconic language of Aytoun's ballad, "You shall not exist for another day more!" In the phraseology of vital statistics the proportion of population to the earth's surface is called the "density" of that population. In Glasgow the density is 84 persons per acre.<sup>1</sup> The exact meaning of this statement is, that if the whole population were distributed equally over 6111 acres, there would be on each acre 84 persons; or if each person were assigned his own share of this acre it would of course be the 84th part of an acre, or about 58 square yards. The significance of this fact can be brought home to your minds only by comparison with other cities. There is only one city in Great Britain which exceeds Glasgow in density, and that is Liverpool, where there are 106 persons to the acre. The only city which approaches Glasgow in density is Manchester, where there are about 80 persons to the acre. The density of London is only 51, and of Edinburgh only 55. Excepting Greenock and Edinburgh no other town in Scotland exceeds half the density of Glasgow; most are far below that figure.

Let us endeavour to unfold to you somewhat the meaning of this first fact concerning the average citizen of Glasgow—that he has less of the earth's surface on which to live than the citizen of any city save one in the kingdom. This area gives us the proportion of the universal bounties of nature which he enjoys. The vertical space of the general atmosphere rests upon the 84th part of an acre on which he stands. We measure the sunshine and the rainfall by this area. Nor do we fully represent the state of the case if we infer that the inhabitant of the city gets a smaller share of the full quantity of these bounties of nature. The denser the city is, the more befouled is the earth with organic impurities; the thicker becomes the canopy of smoke which cuts off the sunshine; the fouler are the rain and the streams and springs which traverse the earth. The self-purifying functions of soil and air and water are over-

<sup>1</sup>The "density" at the census of 1891 was 93, but by the inclusion of the added areas in November of that year it was reduced to 56, and in 1901 (census was 60 per acre.—[ED.]

powered by the amount of the work thrown upon them and the unnatural circumstances under which it has to be attempted. From these disadvantages of density therefore Glasgow suffers beyond all other cities, and as I have elsewhere said: "Altogether we are as far shut out from the ministry of nature as the necessities of the case, combined with the aggravations of human ignorance, perversity, and wilful self-aggrandisement can place us."

I have said that this element of density is calculated upon the assumption that all persons are equally distributed over the area of the city, each standing in the centre of his or her own plot. On this supposition another fact may be worked out, which is—the average "proximity" of each person to his neighbour. This is simply the length of a straight line drawn from the centre of one plot to the next. In Glasgow this is slightly over 8 yards. You will understand at once that the proximity must vary exactly as the density, and therefore in Glasgow we are on the average nearer to each other than in any city save Liverpool. This means that in the various relations of our lives we are more apt to jostle against and interfere with one another, either for good or for evil. As I confine myself at present to physical relations, it is obvious that we are more apt to interfere with one another to our mutual disadvantage. This is absolutely and universally true as regards physical evil. Take infectious disease as a typical illustration. Throughout the community as a whole, infection, which means the passage of a material something from person to person, must take place in proportion to their average proximity. If that is in Glasgow 8 yards and in Edinburgh 10, then the chances favourable to infection in Glasgow must be in that proportion greater than in Edinburgh, unless indeed by greater care in the treatment of cases of infectious disease we diminish those chances.

Now let us turn to the class of facts upon which Mr. Bright touched. As a matter of fact, the population is not equally distributed over the area of any city. The space in which people really live—that space the extent of which most influences their health and comfort, and even conditions the moral relations of their lives—is the space which is their own, viz. their house-room. The extent of this space or the size of the house determines the local density. While the average density of all Glasgow is 84 persons per acre, the local density varies from 26 to 348, in the 24 sanitary districts into which the city is divided. You can apply for yourselves to these facts all that I have said as to the evils of density. If we classify all the houses in Glasgow, we find that in every 100 there are 30 of only one apartment, 44 of only two apartments, 15 of three, and only 5 of five apartments and upwards. This



enormous proportion of small houses will sufficiently explain the low average rental of a Glasgow house. The hovels of the East completely swamp the palaces of the West, and produce an average of only £11 6s. 9d. The size of this average house is only 2.3 rooms, each occupied by 2 persons fully (2.042). The highest average of rooms per house in any district is a little over 4; the lowest considerably under 2.<sup>1</sup> The highest average of inmates per room is about 3; the lowest 1½. I am unable to give you parallel statements regarding any other city, because the data have not been worked out. Indeed, the materials do not exist excepting for Glasgow, so that I may ask you to note this fact, that the authorities of Glasgow have a minute knowledge of the physical condition of their people which no other authorities possess, and therefore ignorance cannot be pled in extenuation of any backwardness in improving this condition. I can, however, give you the exact comparative position of your city among the eight chief towns of Scotland as regards the proportion of their populations living in the various sizes of house. Mr. Bright gave the proportion of families, but it is of more importance in estimating the extent to which the advantages and disadvantages of house-room are imposed upon the population to ascertain the proportion of individuals. Of the inhabitants of Glasgow, 25 per cent. live in houses of one apartment; 45 per cent. in houses of two apartments; 16 per cent. in houses of three apartments; 6 per cent. in houses of four apartments; and only 8 per cent. in houses of five apartments and upwards. There is no town in Scotland which has so large a proportion of its population living in one-room houses. There is no town in Scotland which has so small a proportion of its population living in houses of five rooms and upwards. In Edinburgh, above 27 per cent. of the people live in houses of five apartments and upwards, and only 17 per cent. in houses of one apartment. The dreadful struggle for life in Glasgow as compared with Edinburgh is shown by the fact that in Glasgow one-room houses contain more inmates on the average than in Edinburgh, and the large houses fewer. But even in Glasgow there are only 7.8 persons in the large houses as compared with fully 3 in the one-room houses—a difference in the physical circumstances of these two classes of citizens which alone places them far as the poles asunder in respect of the preservation of health and the opportunity for purity of life. I am anxious to emphasize this difference by the accumulation of facts which can be expressed in cold figures. Figures are beyond the reach of sentiment, and, if they are sensational, it is only because of their terrible,

<sup>1</sup>The 1901 census showed a tendency towards increase in the average size of house and reduction in the average number of persons per room.—[Ed.]

undisguised truthfulness. You must not think of the inmates of those small houses as families in the ordinary sense of the term. No less than 14 per cent. of the one-roomed houses and 27 per cent. of the two-roomed contain lodgers—strange men and women mixed up with husbands and wives and children, within the four walls of small rooms. Nor must I permit you in noting down the tame average of fully 3 inmates in each of these one-apartment houses to remain ignorant of the fact that there are thousands of these houses which contain 5, 6, and 7 inmates, and hundreds which are inhabited by from 8 up even to 13!

Percentages, though an accurate, are but a feeble mode of expression for such facts regarding men and women like ourselves. I have told you that in 1881 the population of Glasgow was 511,520 persons, and that of those 25 per cent. lived in one-room, and 45 per cent. in two-roomed houses; but what does that mean? It means that 126,000 persons *live* in those one-roomed, and 228,000 in those two-roomed houses. But is that all I can say? I might throw down that statement before you, and ask you to imagine yourselves, with all your appetites and passions, your bodily necessities and functions, your feelings of modesty, your sense of propriety, your births, your sicknesses, your deaths, your children,—in short, your *lives* in the whole round of their relationship with the seen and the unseen, suddenly shrivelled and shrunk into such conditions of space. I *might* ask you, I *do* ask you, to consider and honestly confess what would be the result to you. But I would fain do more. Generalities are so feeble. Yet how can I speak to you decently of details? Where can I find language in which to clothe the facts of these poor people's lives, and yet be tolerable? The words of Herr Teufelsdröckh, when at midnight, from his attic lodging, he looked down upon the town of Weissnichtwo, will help me a little. He said to his friend—“Oh, under that hideous coverlet of vapours, and putrefactions, and unimaginable gases, what a Fermenting-vat lies simmering and hid! The joyful and the sorrowful are there; men are dying there, men are being born; men are praying,—on the other side of a brick partition men are cursing; and around them all is the vast, void Night. . . . Wretchedness covers into truckle beds, or shivers hunger-stricken into its lair of straw; in obscure cellars *Rouge-et-Noir* languidly emits its voice-of-destiny to haggard, hungry villains. . . . Riot cries aloud, and staggers and swaggers in his rank dens of shame; and the mother, with streaming hair, kneels over her pallid, dying infant, whose cracked lips only her tears now moisten.—All these heaped and huddled together, with nothing but a little carpentry and masonry between them; crammed in like salted

fish in their barrel; or weltering, shall I say, like an Egyptian pitcher of tamed vipers, each struggling to get its head above the others: *such* work goes on under that smoke-counterpane!"

It is those small houses which produce the high death-rate of Glasgow. It is those small houses which give to that death-rate the striking characteristics of an enormous proportion of deaths in childhood, and of deaths from diseases of the lungs at all ages. Their exhausted air and poor and perverse feeding fill our streets with bandy-legged children. There you will find year after year a death-rate of 38 per 1000, while in the districts with larger houses it is only 16 or 17. Of all the children who die in Glasgow before they complete their fifth year, 32 per cent. die in houses of one apartment; and not 2 per cent. in houses of five apartments and upwards. There they die, and their little bodies are laid on a table or on the dresser, so as to be somewhat out of the way of their brothers and sisters, who play and sleep and eat in their ghastly company. From beginning to rapid-ending the lives of these children are short parts in a continuous tragedy. A large proportion enter life by the side-door of illegitimacy. One in every five of all who are born there never see the end of their first year. Of those who so prematurely die, a third have never been seen in their sickness by any doctor. "The tongue of the sucking child cleaveth to the roof of his mouth for thirst; the young children ask bread and no man breaketh it unto them." Every year in Glasgow the deaths of from 60 to 70 children under five years of age are classified by the Registrar-General as due to accident or negligence; and it is wholly in these small houses that such deaths occur. Half of that number are overlain by drunken mothers, others fall over windows and down stairs, are drowned in tubs and pails of water, scalded, or burned, or poisoned with whisky. I can only venture to lift a corner of the curtain which veils the life which is lived in these houses. It is impossible to show you more.

These are some of the worst fruits of life in the one and two roomed house, the ultimate products of that degeneration, moral and physical, which proves that the whole bias and tendency of life there is downwards. But let us ask ourselves what life in one room can be, taken at its best. Return to those 126,000 men, women, and children, whose house is one apartment, and consider whether, since the world began, man or angel ever had such a task set before them as this—the creation of the elements of a home, or the conduct of family life within four bare walls. You mistresses of houses, with bed-rooms and parlours, dining-rooms and drawing-rooms, kitchens and washing-houses, pantries and sculleries, how could you put one room to the uses of all? You mothers, with

your cooks and housemaids, your nurses and general servants, how would you in your own persons act all those parts in one room, where, too, you must eat and sleep and find your lying-in-room and make your sick-bed? You fathers, with your billiard-room, your libraries and parlours, your dinner parties, your evening hours undisturbed by washing-days, your children brought to you when they can amuse you, and far removed when they become troublesome, how long would you continue to be that pattern husband which you are—in one room? You children, with your nurseries and nurses, your toys and your picture books, your space to play in without being trodden upon, your children's parties and your daily airings, your prattle which does not disturb your sick mamma, your special table spread with a special meal, your seclusion from contact with the dead, and the still worse familiarity with the living, where would you find your innocence, and how would you preserve the dew and freshness of your infancy—in one room? You grown-up sons, with all the resources of your fathers for indoor amusement, with your cricket field and football club and skating pond, with your own bed-room, with space which makes self-restraint easy and decency natural, how could you wash and dress, and sleep and eat and spend your leisure hours in a house of—one room? You grown-up daughters, with your bed-rooms and your bath-rooms, your piano and your drawing-room, your little brothers and sisters to toy with when you have a mind to, and send out of the way when you cannot be troubled, your every want supplied, without sharing in menial household work, your society regulated, and no rude rabble of lodgers to sully the purity of your surroundings, how could you live and preserve "the white flower of a blameless life"—in one room? You sick ones, in your hushed seclusion, listen to Charles Lamb's description of you:—"Household rumours touch him not. Some faint murmur, indicative of life going on within the house, soothes him, while he knows not distinctly what it is. He is not to know anything, not to think of anything. Servants gliding up or down the distant staircase, treading as upon velvet, gently keep his ear awake, so long as he troubles not himself further than with some feeble guess at their errands. . . . He opens his eye faintly at the dull stroke of the muffled knocker, and closes it again without asking—"Who was it?" He is flattered by a general notion that inquiries are making after him, but he cares not to know the name of the inquirer. In the general stillness and awful hush of the house, he lies in state and feels his sovereignty." How would you deport yourself in the racket and thoughtless noise of your nursery, in the heat and smells of your kitchen, in the steam and disturbance of your washing-house, for you would



find all these combined in a house of—one room? Last of all when *you die, you* still have one room to yourself, where in decency you may be washed and dressed and laid out for burial. If that one room were your house, what a ghastly intrusion you would be! The bed on which you lie is wanted for the accommodation of the living. The table at which your children ought to sit must bear your coffin, and they must keep your unwelcome company. Day and night you lie there until with difficulty those who carry you out thread their tortuous way along the dark lobby and down the narrow stair through a crowd of women and children. You are driven along the busy and unsympathetic streets, lumbering beneath the vehicle which conveys your scanty company to the distant and cheerless cemetery, where the acrid and deadly air of the city in which you lived will still blow over you and prevent even a blade of grass from growing upon your grave.

I think you will agree with me in this inference, that in the city in which we live there is great room for the development of practical Christianity. There is probably no better field in the three kingdoms for those who would imitate Christ in ministering to the bodies as well as to the souls of men: and there is no hope for the people who live in one and two roomed houses unless the Church, which is the healing hand of Christ still present in our midst, becomes the motive power in society, directing our rulers to wise public measures, and stirring the hearts of individuals to private beneficence. The question for us is, what can we do? The solution of the social problems of the age is for us the doing of something here and now. Our lives are fleeting: the lives of those who furnish the problem are fleeting, and if we act not now, we shall be "unprofitable servants," and those we might have profited will rise up in the judgment against us.

It is obvious that no manner of occupancy will make a one-room house a home in the proper sense of the word. Not that many an isolated man or woman or aged couple may not find in it a wholesome and suitable dwelling-place, and enjoy therein the privilege of independence. Even the young couple who have "married for love" while yet in the stage of "working for sillar" may light their first fire on the hearth of the one-room house. These are the anomalies of life, and under certain conditions I take no exception to the one-room house in itself, because it undoubtedly meets them; but, I repeat, a home in the proper sense of the word, a place for the nurture of a family it can never be. Therefore there is among us a large population which is, from whatever ultimate cause, absolutely debarred from the requisite physical conditions even of the lowest standard of home comfort, and which is always on the

inclined plane of moral deterioration. We may discuss, if we please, the question whether there ought to be such houses, whether it is necessary that there should be such houses, whether their existence depends upon inadequate wages, or the mis-spending of adequate wages. Indeed these questions ought to be discussed; but let us not meanwhile forget that there they *are*, and that human beings are living in them under the physical and moral disadvantages described, and we are bound to endeavour to make their lives happier and better. I venture to believe this very endeavour is the most natural and most likely way bit by bit to do away with one-room houses, by recognizing that their inmates are our brothers and sisters, and so elevate their aspirations and restore them to self-respect. If we deny them this recognition I see no prospect for them but degeneracy into "Dead Sea apes," or something worse! It is encouraging to know that Glasgow is improving. In 1861 there were in a much smaller population 145,000 persons living in one apartment. There are now, as I have said, 126,000; and there is a corresponding increase in the inhabitants of houses of two and three apartments. We are therefore moving in the right direction, and that not by any revolutionary force from without, but by a higher standard of life growing in the minds of the people. Still the inhabitants of those small houses require our active Christian sympathy and assistance, and in a city which is the greatest aggregation of working people with the smallest admixture of the wealthy class to be found in this country there will always be this necessity.

Here let me interject a word on areas of local government in relation to social helpfulness and sympathy. Local government is the expression in administration of community of interest. Men are not driven together by fortuitous gusts like heaps of dead leaves. The locality of the city is determined by the satisfaction of some motive purpose—the shelter of the castle or the monastery, the stream favourable for traffic, for manufactures, the port for trade, the many various incidents of place which tempt the migrant to become the settler. So by harmony of motive aggregation goes on until in time comes the sense of the need of local government. A boundary must be defined, and it is drawn around the whole community; but frequently the community increases and overflows this boundary. Clearly there ought to be some automatic method of from time to time including these overflows, and so preserving unity of government in that which is essentially an organic whole. Unfortunately, boundaries have political as well as social importance, and are the subjects of gerrymandering; and so our lawgivers regard questions of boundaries with an eye

to political issues. Within the family, which is the unit of society, there is mutual helpfulness and interdependence. Between one family and another in a community there is mutual helpfulness and interdependence. If it were not so communities never would have existed. Where, in the aggregation of families and householders on one soil, under the expanse of one sky, in the soft embrace of one atmosphere, shadowed by the same passing cloud, or made bright by one sun, smitten by the same disease or adversity, rejoiced by the same health or prosperity, where can we safely permit the erection of an administrative barrier, and say, here the necessity for this practical sympathy and co-operation ceases? "What God hath joined together, let not man put asunder." Social philosophy and social morality alike demand unity in the civic life, formal, corporate unity. If the employers have hived off to the west and built themselves suburban villas; if the skilled artisans and mechanics have gathered in colonies, north, east, and south; if the old parent city has gradually become little more than a workplace, the centre of commercial life and the seat of the power which drives the complicated machinery of the communal activities, where she sits surrounded by the hewers of wood and the drawers of water, by the prodigals of her family, the bankrupt in fortune and the criminals, how distraught is the community! Does the political economist ask information as to the amount and the incidence of municipal taxation, as to the prevalence of poverty or crime and the expenditure in poor-rates and police, as to the state of labour, the number of unemployed and the method of providing for them. He can get no information which is not misleading. Does the statistician wish to follow the movements of the marriage-rate, the birth-rate, and the death-rate? The figures we supply are not those of the community at all. If the sociologist attempts to reason upon them he is sure to stumble into fallacies. Water-supply, gas-supply, hospitals, tramways, all those developments of municipal co-operation for the more efficient and economical satisfaction of common needs are essentially crippled in their application. Police, cleansing, sanitation, sewerage, and all the ordinary objects of local government are made more difficult of attainment. Taxation of every kind being sectional is unfair. The strong do not share the burdens of the weak. In one body, traversed by the same system of arteries and veins and nerves, there can be no such thing as a local benefit or a local injury. In such a distraught community as I am describing the local benefit so-called becomes a local injustice. Parks, museums, picture galleries, everything provided by local money for public use is unavoidably enjoyed by those who do not contribute to

the cost or maintenance. There is a constant antagonism in the minds of the several authorities between the broad dictates of state craft and the narrow impulses of parochialism. Some sense of the good of all moves blindly towards the former, but jealousies, rivalries, and the necessity of maintaining a show of local patriotism determine the supremacy of the latter. Glasgow has done much to supply by taxation those physical accessories of small houses which dwellers in large houses provide for themselves, which from mere want of space the poor cannot have, but which, if they are indeed brothers and sisters, they require as much as the rich. Taxation for such purposes is eminently Christian in motive and effect. It may be called Christian Socialism. All contribute, but the well-to-do are not taxed directly for their own benefit, although it is to be hoped we recognize the truth of one of those sayings of the late Prince Leopold which make us regret his untimely death—"Along the ways of wisdom and virtue we shall all advance further, if we all advance together."

Our public baths and wash-houses are the best and most ample in the country. Every inmate of a small house may find there those conveniences for private ablutions which cannot be got at home, and the women may, at a trifling cost, avoid turning their homes into washing-houses. Our model lodging houses help to lessen the horrid evil of lodgers in small houses. The sick, in so far as their sickness arises from infectious disease, have access without special charge to what is the finest Fever Hospital in the country, and infected clothing, &c., is removed, washed and returned clean as punctually and carefully as by any commercial laundry company. We still require public mortuaries to lessen the necessity for the ghastly presence of the dead in the one-room house. Our parks, galleries, and museums furnish means of recreation, culture and instruction, but we have no system of Free Libraries bringing books and quiet room for study to every district of the city. There is also a sad want of play spaces for the little children in Glasgow. I shall have something more to say on behalf of the children when I come to speak of various forms of private beneficence, but I wish our authorities would think a little more of the toddling "things" who cannot walk to our parks, and whose mothers have not time to carry them thither. One often stumbles over them creeping about dark lobbies, and many a time one has to pick his steps carefully, so as not to interfere with their attempts to play at houses on the stairs. If they venture further they will find only the dead air and nauseous environments of the back courts, or the dangerous street. Probably the Glasgow boy is the wildest, most destructive specimen of a boy in existence, and why? It is a law of child-



nature to be constantly moving, constantly doing something, and what can a poor boy do in Glasgow but pull the bricks out of the walls of the ashpits, or climb on to the roof and tear off the slates. The landlords complain that the police do not protect their property. If they would not be so greedy of the soil, but provide more space for innocent games, the evil would be cured. I need scarcely say that I sympathize with the poor boys more than with the landlords. I also think that a few open spaces here and there, made clean and smooth with asphalt or granolithic, where boys could spin tops and little children could sprawl about in safety, would serve the necessities of the rising generation better than the parks. There also, some area, clear of shrubs and flower-beds ought to be preserved for young men. Where can working lads go to get a game at football or play at cricket? The young men of the West-end expend large sums of money to obtain space for these recreations; and even they are every year driven further away and put to greater expense. It is sad to see the poorer lads lounging at the close-mouths, when they ought to be developing their muscles, and acquiring that love of out-door sport which is the best antidote to the temptations of the music hall, the dancing saloon, and the dram shop. Yet, what can they do? Their poor pence will not suffice for the rent of a field, and they ought to be supplied out of the public funds. Let us have public gymnasia; and, if we are to be breeders of men and not of vicious loafers, do not let us confine our efforts to the growing of grass in our parks and the luxury of looking at it over an iron railing.

Now, let us turn to the development of practical Christianity by private effort. Hospitals for the sick are the special product of Christianity. Ulhorn<sup>1</sup> tells us that in Pagan Rome and Greece—"There were no poorhouses and no hospitals. Lazarettos in the Roman Empire were curiously enough known as places for soldiers and slaves only. Antoninus Pius indeed tells us that he had built beside the temple of the Epidaurian Æsculapius, a building for the reception of the sick. But this was not a hospital. It was rather a kind of hostelry for those who had come to pray to the god on account of their sickness" (p. 14). He adds—"They had not charity." Glasgow is well supplied with general hospitals; but not too well. Their resources are drawn upon to meet the wants, not of Glasgow merely, but of the enormous working population of Lanarkshire. Another is about to be built on the south-side.<sup>2</sup> I do not think these hospitals are supported as they ought to be by the public

<sup>1</sup> *Christian Charity in the Ancient Church*. Edinburgh, 1883.

<sup>2</sup> The Victoria Infirmary here referred to was opened in 1890 and enlarged in 1893.—[Ed.]

of Glasgow. If the miseries of sickness in small houses were more vividly before the public mind, I am sure the benevolent gentlemen who give so much of their time to the management of those institutions would not be worried as they constantly are about their finances. They require more of the shillings and half-crowns of the middle classes. There is no way in which money can be charitably bestowed with less risk of being misapplied.

But when thinking of the physical disadvantages of small houses as a subject of benevolent help and alleviation, what comes to my thoughts with ever recurring persistence is the dull, dead, unrelieved monotony of the conditions of life within them and around them. Mr. Buckle wrote a history of civilization, the philosophy of which was that in form and character civilization was determined by the influence of physical agents—climate, soil, food, and the general aspects of nature—on the races of mankind. Under general aspects of nature he contended for "the influence exercised by the external world in pre-disposing men to certain habits of thought, and thus giving a particular tone to religion, arts, literature, and, in a word, to all the principal manifestations of the human mind." Buckle went too far in his desire to make the moral and spiritual nature of man entirely the product of external and material agencies; so that, soul and body, he must change with the flora and fauna of his district. But it is certainly true that the physical surroundings even of the individual man will leave their mark on his soul as well as on his body; and the one result may be as regards his individual responsibility, as inevitable as the other. Place 126,000 human beings in one-room houses, and 43,000 in houses of five rooms and upwards, and, no matter who or what they are, you have at once determined for them much both of their moral and physical future. If their course is downwards, the one class has further to fall than the other before both reach the same depth. If their course is to be upwards, the one class has not so far to rise as the other before both reach the same height. All through life man divides his time between work and sleep and play,—play including all ways of spending those hours which are not absorbed in work and sleep. The education of the child and the toil of the adult are *regulated for him*, and imposed upon him. The *play* of both is in its character *a matter of choice*, and nothing shows more clearly the inner nature than the nature of the play. But the nature of the play is very much a matter of education and of opportunity; and the opportunity of the child is the education of the adult. If the child has only the dark lobby and the stair to play in, then the man and woman will find amusement only in the dram shop, the music hall, and the

dancing saloon. The gutter child grows up into the loafer. The hard-working man when he gets a holiday does not know how to spend it. Even when he finds himself in the country, he has frequently no eye for the scenery, or for the beauties of the grass and the flowers. He carries too often a bottle of whisky in his pocket, and he makes himself an object of alarm and disgust. The hard-working woman either joins in the debauch or thinks no shame to be seen in the company of intoxicated men. There is no way of forming a just opinion as to these habits of the inhabitants of our small houses, but by calmly and conscientiously analyzing what I might call the physics of our own morality. If Buckle has successfully proved regarding mankind in the mass, inhabiting different regions of the earth, that there is an "influence exercised by the external world in pre-disposing men to certain habits of thought, and thus giving a particular tone to religion, arts, literature, and, in a word, to all the principal manifestations of the human mind," and I believe he has, then is it possible that the one and two roomed house piled up in tenements, and these tenements again ranked in streets and packed into back courts, can produce the same manner of men as the large houses with all the luxurious space and opportunity of the softening ministrations of nature *without*, and the tender wooing of light and warmth and comfortable domesticity *within*? I confess for myself that the physical circumstances of the poor in Glasgow are so contrary in their nature to those which have surrounded me throughout my life and I recognize such a close relationship between my physical circumstances and the general character of my life, that I can come only to one or other of two conclusions: Either the poor belong to a different species of the genus man, or the same relationship must exist between *their* different physical circumstances and the different general character of *their* lives.

I feel that I am occupying your time too much with general philosophizing. I have striven to lead you into an intelligent view of your relations as Christians to the city in which we live. I plead for general helpfulness to enable the inhabitants of the one-roomed houses to bear the burdens of their lives. I must leave you to find out for yourselves the various methods, which may lie to your hands and be adapted to your individual circumstances and capacities, of working in the general direction which I have indicated. I commend to your kindly interest and Christian liberality the Association for Nursing the Sick Poor at Home, the Kyrle Society, the Day Nurseries, the Day Feeding Schools, Poor Children's Dinner Tables, Flower Missions, Fresh-air Funds, Foundry Boys' Association, and the like. I put in a special word for the children because of their

essential helplessness, and because they are the men and women of the future. It is so easy to make a child happy. If you only take a few poor children to the country for a day, or admit them to a garden or a plot of grass for an hour or two; or gather a few together on a winter's night and show them a magic lantern, or play to them and teach them a lively game, or sing a nursery rhyme, or tell them a nursery story, their happiness is secured. I read lately the life of Paul Merritt, a man who was born in the most miserable circumstances, but who grew up to be a well-known art critic; and the first awakening of his faculty was a peep through a keyhole into a garden. He writes—"I was in my eleventh year, meanly clothed, poorly fed, and penniless—an errand-boy in receipt of 1s. 6d. a week." He discovered a garden, peeping with a boy's curiosity through the keyhole in the tall wooden gate. "I looked through the keyhole every time I passed and that was four times daily, and always with increased interest, for my flowering aconite. But oh! trouble upon trouble, one day I found the keyhole stopped, and there was an end of my daily joy and of the interest which had awakened in me a new craving for the wonders of nature." A few days after, grubbing among the rubbish thrown out from this garden he found a budding something which seemed to him to have "the promise and potency of life," though of what sort he knew not. He nurtured it in an old teapot, and it shortly burst out—the first crocus he had ever seen. Years after, when surrounded with beauty in his studio in London, he described how—"one sunny, silent, Sunday morning, this crocus opened its golden glowing sacramental cup, gleaming like light from heaven, dropped in a dark place, living light and fire." Let this experience teach you by what simple means—a flower, a song, one bright day in the country—child-nature may in its growth be turned upwards towards the light.

I have now in a way very fragmentary and not at all satisfactory to myself, but the only way possible to a busy man, brought before you the physical circumstances of the inhabitants of the city in which you live as a field for practical Christianity. I have said the only hope for Glasgow lies in the Church, which alone has the hand endowed with virtue to convey healing to those social sores. The same may be said of all our towns according to their special necessities. The constantly increasing proportion of the population of this country which is concentrating round our towns constitutes one of the most anxious features of the times. Be assured if the Church neglects this field, the devil and his ministers will not. Those one and two roomed houses are filled with restless, uncomfortable souls, wakening up to the contrast between



their misery and the luxury of their neighbours, and ready to grasp at any theory or project however wild, which promises material relief. Nihilism, Communism, Socialism, Mr. George, Bradlaugh—any sort "of Morrison's Pill" will be eagerly swallowed. That is the future before us if the Church does not carry soothing and sanity to the physical discomforts of the people. I cannot find words in which to take leave of you and of my subject, better than those of Carlyle:—

"It is to you, ye Workers, who do already work, and are as grown men, noble and honourable in a sort, that the whole world calls for new work and nobleness. Subdue mutiny, discord, wide-spread despair, by manfulness, justice, mercy, and wisdom. Chaos is dark, deep as Hell; let light be, and there is instead a green flowery World. Oh, it is great, and there is no other greatness. To make some nook of God's creation a little fruitfuller, better, more worthy of God; to make some human hearts a little wiser, manfuller, happier—more blessed, less accursed! It is work for a God. Sooty Hell of mutiny and savagery and despair can, by man's energy, be made a kind of Heaven; cleared of its soot, of its mutiny, of its *need* to mutiny; the everlasting arch of heaven's azure overspanning *it* too, and its cunning mechanisms and tall chimney-steeple; God and all men looking on it well pleased."

ON THE "TICKETED HOUSES" OF GLASGOW, WITH AN INTERROGATION OF THE FACTS FOR GUIDANCE TOWARDS THE AMELIORATION OF THE LIVES OF THEIR OCCUPANTS.<sup>1</sup>

We open our new session under circumstances of peculiar sadness. It is only a few weeks since a distinguished member of this Society was removed from among us in the very heyday of his reputation. To-morrow some of us will follow to the grave the remains of a former occupant of this chair, equally distinguished in his own sphere. Both were friends of mine; and I shall only, on the present occasion, endeavour to express what I find in my own mind as the impression left by their contact with me, leaving to other and more competent hands the summing-up of what they were to the Society and to the professions which they adorned.

I had abundant opportunity of forming some estimate of Mr. Sellars as an architect, through occasions arising from my official position. I assisted Mr. Carrick in adjudicating upon the competitive plans sent in for the Victoria Infirmary. As

<sup>1</sup> Presidential Address, read before the Philosophical Society of Glasgow, at the opening of 86th Session, 7th November, 1888.

a director of the Sick Children's Hospital and Dispensary, and of Anderson's College Medical School, I made further acquaintance with his work. The outcome of these experiences was to convince me that Mr. Sellars had a singular grasp of the hygienic and administrative requirements of such institutions, and a wonderful facility in giving them satisfactory structural expression. The originality and boldness with which he encountered difficulties, such for example, as a refractory site in relation to the functions to be performed in his building, bore all the marks of true genius. He seemed never to be trammelled by precedent or to exhaust his fertility of resource. Along with this eminently practical faculty there was a graceful and fastidious taste, which softened all his effects with a refined detail of artistic decoration. I shall not refer to his crowning work—the International Exhibition—excepting to remark upon the singularity of the fortune which led Mr. Sellars to expend the ripeness of his imagination, and exhaust his energies, upon a structure of so much beauty and delight which was yet to serve only a passing purpose. Usually between the transitory life of the architect and the duration of his works there is contrast and not similarity; but here the work passes away with its author, and both alike will remain to us only as a memory or a picture.

With Dr. William Wallace my intimacy was naturally, owing to our relative positions in the public service, much greater and of longer duration than with Mr. Sellars. In 1876, and again in 1879, we were together as members of deputations of the Town Council, visiting sewage works all over England, and in 1880 we travelled alone on the same errand. We were thus for weeks together in continuous friendly and professional intercourse. I may say that the reports of these deputations are practically the work of Dr. Wallace, and there is no part of the enormous literature of the sewage question which has more intrinsic value or is better known. The reason is not far to seek. These reports are remarkable for dealing with a subject which is ravaged by faddists, quacks, and speculators, in a dispassionate, plainly-practical, and common-sense way. This seemed to me to be Dr. Wallace's forte. He applied his knowledge of chemical science to practical purposes, whether industrial, or sanitary, or commercial, with a breadth of view which showed how profound was his knowledge of applied chemistry, how intimate his acquaintance with industrial processes, and how, over all, there presided a sound and clear judgment. In questions of trade nuisances authorities could have no more trustworthy referee, and clients no more honest and skilful adviser. As a man Dr. Wallace was singularly unaffected in manner, equable in temper, and quietly genial

and kindly in disposition. At the grave's mouth it is not qualities of intellect which come uppermost in our thoughts, but those of the heart, and I can say of our departed friend that all his relationships were sweetened by the gentleness of his heart.

But, gentlemen, although its members die, the Philosophical Society lives, and I now propose to tell you something about the "ticketed houses" of Glasgow, and to interrogate the facts for guidance towards the amelioration of the lives of their occupants.

The general relation between the size of the houses in which people live and the health they enjoy has been sufficiently established. Comparing the eight principal towns of Scotland on the basis of their death-rate in the ten years, 1871-80, I have elsewhere<sup>1</sup> shown that they fall "into two well-marked sets of four, viz. :—Aberdeen, Leith, Perth, and Edinburgh, with death-rates below 24, and houses of three to five rooms; and Dundee, Greenock, Paisley, and Glasgow, with death-rates above 25, and houses below three rooms. In this group the death-rate rises *pari passu* with the diminution in size of the average house." Further, following the average number of inmates per inhabited room, it was found that in general the mortality rose step by step with that number in these towns, and, still further, that if we began with Aberdeen, which has 13.6 per cent. of its inhabitants living in one room and the lowest death-rate, we rose gradually, without a break, to Glasgow, with 24.7 per cent. living in one room and the highest death-rate. Again, comparing the twenty-four districts into which Glasgow is divided for statistical purposes, there also the same general relation was demonstrated. "Blythswood" stood at the top, with the lowest death-rate and the largest and most thinly-peopled houses; while "Bridgegate and Wynds" stood at the bottom, with the highest death-rate and the smallest and most crowded houses. In all these investigations I could only be said to work round the question—using such data as were available—arriving at results which were sound and unimpeachable, but still indirect.

In 1877, in a paper "On the Comparative Prevalence of Filth Diseases in Town and Country," which I read to this Society, I said—"I believe that if you were to classify the whole population of the city according as they occupied houses of one, two, three, four, five, or more apartments, and then to ascertain the aggregate death-rate from all causes in each class . . . it would have its maximum in the population living in one-apartment houses, and fall in gradations to a minimum

<sup>1</sup> See paper on "House in Relation to Public Health," which precedes this.—[Ed.]

among those who inhabited the larger houses." In that paper I submitted the death-rates among the inhabitants thus classified from diphtheria, croup, enteric fever, and diarrhoea, calculated for three and a-half years. At that time no similar investigation had been made. The nearest was a classification of the inhabitants of Barmen according to income, which brought out a mortality of 34½ per 1000 among persons having an income of less than £30; of 19 among persons whose income was from £30 to £75; of 18 among persons whose income was from £75 to £150; and of 16½ above £150. Recently the Medical Officer of Dundee has constructed a table of the mortality statistics of that town for 1884, which shows that the death-rate of the inhabitants of houses of one and two rooms and upwards, 12.3—while the general death-rate of Dundee was 20.7. This year, in Edinburgh, an investigation of the results for the first half of the year are as follow :—Under £5, death-rate per 1000 inhabitants, 23; £5 and under £10, 21.34; £10 and under £15, 20.1; £15 and under £20, 15.86; £20 and under £30, 14.1; £30 and under £40, 18.8; £40 and under £50, 13.16; £50 and upwards, 14.76—the general death-rate for the same period being 19. It is premature to draw inferences from these data; but the basis of rental is not so good as that of size of house. Whatever hygienic meaning more extended statistics on this basis may possess must depend upon the relation of rental to the air-space or house-room which it represents, and, therefore, it would be better at once to take the house-room as the basis. The question is—How much does the rental buy?

Before submitting the results of an investigation of the mortality statistics of the inhabitants of Glasgow for 1885, according to the size of the houses which they occupied, let me say a word on the difficulties of such investigations. It is necessary that the residence of every deceased person shall be sought out and its size noted. If every address led the inquirer to a front door this would be an easy task; but when he finds himself at a close whose number serves for a front land and several back lands, with no end of turnpikes, stairs, flats, and lobbies, the task is anything but easy. The address then becomes something like this: Bridgegate, No. 29, back land, stair 1st left, 3 up, right lobby, door facing! But the description of Nineveh is true of Glasgow :—"That great city wherein are more than six score thousand persons that cannot discern between their right hand and their left hand." Mistakes in the addresses given are very frequent. You may find yourself at the door of a shop, or there may be no such number



in the street, or no such person discoverable at the number given. In short, from a variety of causes, between 2 and 3 per cent. of the deaths registered cannot be traced, and their allocation therefore remains "unknown." Then there are the deaths in Institutions. These are traced as far as possible, but a large number, amounting to between 3 and 4 per cent. of the deaths in the city, cannot be so allocated: and if they represent Glasgow people they simply remain against the Institution. It is obvious that all those deaths of persons whose residence cannot be traced, whether they take place at their own houses or in Institutions, belong to the class of dwellers in small houses, and that we cannot simply set them aside if we wish to get a fair statement of the facts. This is the great difficulty of the inquiry. Our poorhouses in particular are filled with persons from our one and two-room houses. They die there of pulmonary and other diseases, which reflect back whatever hygienic meaning they possess upon the locality where they lived. Yet they frequently cannot be referred to any special house. I shall subsequently explain how I propose to get over this difficulty. Having distributed the deaths, the next question is—What is the population of the various grades of house? This I have got by assuming that the proportion was the same in 1885 as in 1881, which I believe to be sufficiently correct in dealing with the city as a whole.

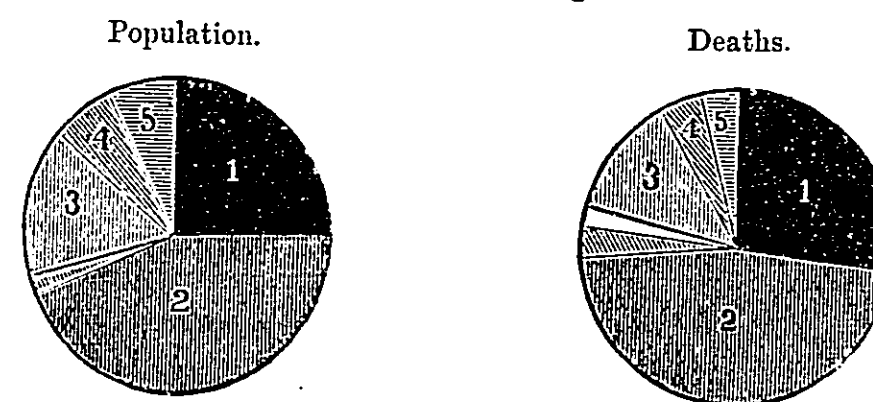
The results of this inquiry, when tabulated, assume very insignificant dimensions considering the time and trouble they represent, but statistical tables of any sort cannot profitably be submitted in speech, and I shall endeavour to put you in possession of their outcome as plainly and briefly as possible. The population of Glasgow in 1885 was 543,295, the number of deaths was 13,439. The distribution of population and the deaths in the inhabited houses according to their size is as follows:—

	Population.	Deaths.
1 Room, - - - -	134,728	3,636
2 Rooms, - - - -	243,691	6,325
3 do., - - - -	86,956	1,747
4 do., - - - -	32,742	581
5 do. and upwards, - -	38,647	434
Institutions, - - - -	6,531	427
Untraced, - - - -	—	289
Whole City, - - - -	543,295	13,439

Let us first consider the proportion of the total population who lived, as contrasted with the proportion of the total deaths which took place, in each size of house. The result is shown in the following table:—

	Population.	Deaths.
1 Room, - - -	24.7 per cent.	27 per cent., or 2.3 per cent. <i>above</i> due proportion.
2 Rooms, - - -	44.7 "	47 " 2.3 " "
3 do., - - -	16 "	13 " 3 per cent. <i>below</i> due proportion.
4 do., - - -	6.1 "	4.3 " 1.8 " "
5 do. and upwards,	7.1 "	3.3 " 3.8 " "
Institutions, - -	1.4 "	3.2 "
Untraced, - - -	—	2.2 "

I have constructed a diagram which will convey to your eyes the general meaning of this mass of figures, which is the excessive incidence of the mortality of the city upon the inhabitants of houses of one and two rooms. The inmates of our institutions are placed along with the inhabitants of one and two-room houses in the Population diagram, and the institutional and untraced deaths alongside the deaths contributed by one and two-room houses in the Mortality diagram. The result is that



those houses contained 70.8 per cent. of the population, and contributed 79.4 per cent. of the deaths, or 8.6 per cent. more than their due proportion; while the remaining 29.2 per cent. of the population, living in houses of three rooms and upwards, contributed only 20.6 per cent. of the deaths, or 8.6 per cent. less than their due proportion.

Let us next compare the death-rates in these various classes of the population. Leaving out of consideration the deaths which could not be allocated, I find—giving the calculations in round numbers per 1000 of the population—that, while the general death-rate of the city in 1885 was 25, the death-rate in one-room houses was 27; in two-room houses 26; in three-room houses 20; in four-room houses 18; in houses of five rooms and upwards only 11. But this leaves 716 unallocated deaths unaccounted for. I have therefore divided the population into three classes, namely—(1) Those living in one and two rooms, with which I include the inmates of Institutions and those unallocated deaths; (2) those living in houses of three and four rooms; and (3) those living in houses of five rooms and upwards. The death-rate in the first class is then found to be 27.74 per 1000, in the second 19.45, and in the third only 11.23.

We now turn to the question—What is the comparative incidence of certain classes of disease upon these classes of the population? I take zymotic or infectious diseases; diseases of the lungs, including consumption; diseases special to children under five years of age, such as convulsions and other affections of the brain and nervous system, atrophy or wasting, and premature birth, which are all essentially connected with disordered or defective nutrition; and I have also selected deaths in children from accident and syphilitic disease, a small class, but one pregnant with meaning.<sup>1</sup> The results are exhibited in another diagram, the height of the columns in which, being on the same scale, will convey to your eyes both the comparative aggregate death-rate in the three grades of houses, and the comparative prevalence among their inhabitants of these classes of disease. The rates are per 100,000 inhabitants, thus con-

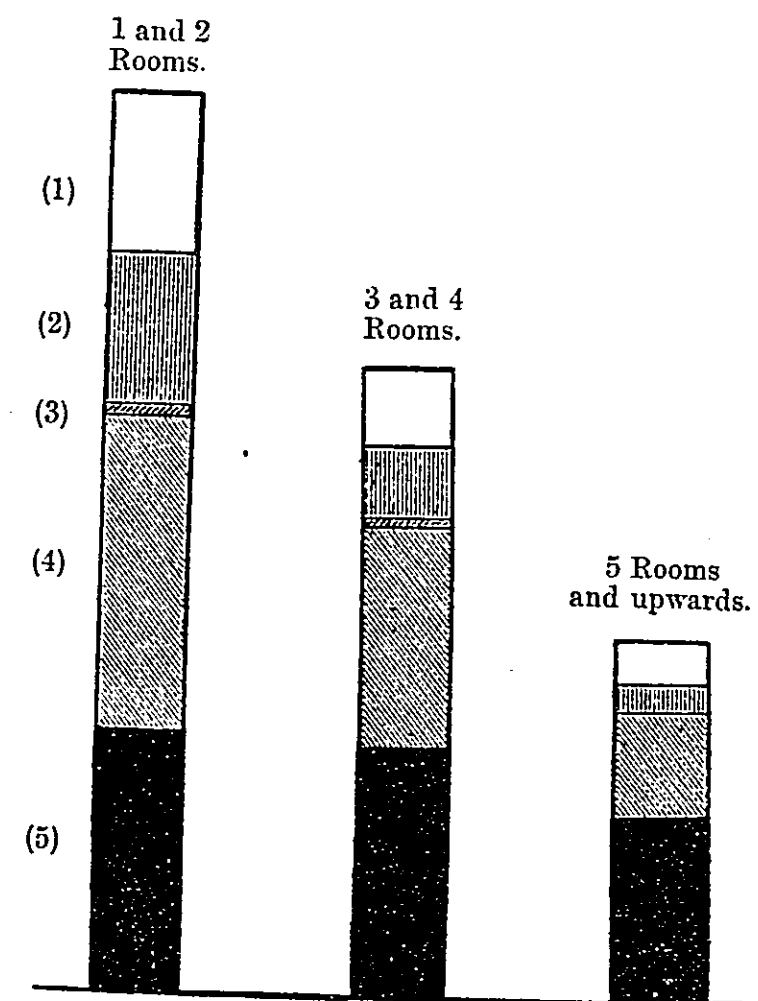
<sup>1</sup>The following Table gives the actual numbers from which the death-rates are calculated:—

Size of House.	Zymotic.	Lungs.	Children.	Accidents, &c.	Others.	Total.
1 Room, - - -	666	1,324	657	63	926	3,636
2 Rooms, - - -	1,118	2,244	1,138	51	1,774	6,325
3 do., - - -	228	637	222	10	650	1,747
4 do., - - -	67	188	59	3	264	581
5 do. and upwards,	44	127	35	—	228	434
Institutions, - - -	32	132	24	5	234	427
Untraced, - - -	24	90	30	2	143	289
Whole City, - - -	2,179	4,742	2,165	134	4,219	13,439

verting the decimals in rates per 1000 into whole numbers:—

	1 and 2 Rooms.	3 and 4 Rooms.	5 Rooms and upwards.
Zymotic Diseases (including Diarrhoea),	478	246	114
Acute Diseases of the Lungs (including Consumption),	985	689	328
Nervous Diseases and Diseases of Nutrition of Children,	480	235	91
Accidents and Syphilis in Children,	32	11	—
Miscellaneous Unclassified Diseases, -	799	764	590
All Causes, - - -	2,774	1,945	1,123

The general result may be summed up with sufficient accuracy in these numerical expressions. Taking the death-rates in the largest houses as unity, the death-rate from



(1) Zymotic Diseases. (2) Nervous and other Diseases special to Children. (3) Accidents and Syphilis in Children. (4) Diseases of the Lungs. (5) Miscellaneous.



*zymotic diseases* was 2 in medium-sized houses and 4 in the smallest houses; the death-rate from *diseases of the lungs* was 2 in medium-sized houses and 3 in the smallest houses; and from *diseases of nutrition special to children* it was  $2\frac{1}{2}$  in medium-sized houses and fully 5 in the smallest houses. There were no deaths from *accident or specific disease* in the large houses; but, taking the death-rate in the medium-sized houses as unity, the death-rate from these causes in the smallest houses was 3. A flood of light is thrown upon these facts by a paper which appeared in the *Transactions of the Royal Society of London* for 1887, on "The Carbonic Acid, Organic Matter, and Micro-Organisms in Air, more especially of Dwellings and Schools," by Professor Carnelley and Drs. Haldane and Anderson. We might safely interpret our figures on general principles as well as from the observations made by the senses of those who are familiar with the comparative cubic space and the prevalent atmospheric conditions of a large proportion of our small houses, that the prevalence of zymotic and pulmonary diseases was causally connected therewith; but precise scientific observation and ascertainment of physical facts are always welcome, and these we have in this paper. "Taking the average quantity (in excess of outside air) of carbonic acid, organic matter, and micro-organisms, respectively, in houses of four or more rooms as unity, then in one and two-roomed houses" the following table shows the results of chemical analysis and the application of Hesse's method of determining the number and nature of the micro-organisms present in the air, in the case of selected houses in Dundee:—

	Houses of 4 Rooms and upwards.	2-Roomed Houses.	1-Roomed Houses.
Cubic space per person, -	1	0.13	0.11
Carbonic acid, - - -	1	1.5	2.0
Organic matter, - - -	1	1.6	4.4
Micro-organisms, total, -	1	5.1	6.7
Bacteria, - - -	1	5.1	6.9
Moulds, - - -	1	5.5	3.0

Dr. Anderson contributes an elaborate "Comparison of the Mortality Statistics with the Composition of the Air of Dwelling-houses," perhaps more elaborate in respect of the

classification of disease in minute detail than the smallness of the figures when so subdivided warrants, but his main conclusions agree in general with mine. He finds "that the rapid increase in the death-rate as we pass from four to one-roomed houses is by far most marked in children under 5"; and that acute diseases of the lungs, and zymotic diseases in general, are also in excess.

Although I have classed consumption with other affections of the lungs, because of dubiety about the diagnosis in the case of people who receive so little medical attention as our Glasgow poor, as shown by the number of uncertified deaths, it is interesting to note that the death-rate from consumption is highest among the inmates of three-room houses in Glasgow, as it is in Dundee. Dr. Anderson's suggested explanation is probably correct, that the high infant mortality from other forms of tubercular disease returned as nervous diseases, atrophy, wasting, &c., prevents the growth of young adults in the smaller houses, these being most prone to the incidence of tubercle on the lungs.

Let me recall to you the fact that the mean death-rate was 27.74, 19.45, and 11.23 in the inhabitants of the three grades of houses. Now it is quite clear that if the whole city is divided into twenty-four districts, in which these three classes of inhabitants are mingled in different proportions, and we find that these districts produce death-rates ranging from 16 to 42, there must be vast differences in the range of mortality even in the same grade of houses. If houses of one and two apartments, of three and four apartments, and of five apartments and upwards were homogeneous in their vital results we might account for death-rates below 28 but not for those above. It must be apparent, from the fact that 70 per cent. of the population live in the one and two-room houses, and only 7 per cent. in the largest houses, that the secret of the health of Glasgow lies within the one and two-room houses. That there are enormous differences in the vital results of the one and two-room houses must be admitted when we find districts which have practically the same proportion of these houses returning death-rates separated by such a wide interval as 23 and 42. These were the death-rates in 1885 of the district of "St. Rollox," so called because it touches the works of that name on their southern border, and of "Bridgegate and Wynds." In the former 83 per cent., in the latter 84 per cent. of the houses are one and two-roomed. The former had a mortality of 23, the latter of 42. What circumstances have fixed this great gulf between the inhabitants of the small houses of St. Rollox and of Bridgegate and Wynds? Is it a difference in the houses, or a difference in the people, or both?

I find in a "Report on the Operations of the Sanitary Department of Glasgow for the year ending 31st December, 1887," data collected with great intelligence and labour by Mr. Fyfe, Sanitary Inspector, among which, supplemented from MS. records of the department, there is material which will help us to a solution of this problem. It is better to retire to one's study with this unpretentious pamphlet than with Karl Marx or Henry George. I may remind you that the Glasgow Police Act confers a discretionary power to regulate the occupation of houses of not more than three rooms, and not exceeding an aggregate capacity of 2000 cubic feet, exclusive of lobbies and recesses. This is done by affixing tinplate tickets on the outer door, stating the cubic contents, and the proportionate inmates allowed, at the very low rate of 300 cubic feet per adult or two children under eight years. These are called "ticketed houses" and are all one or two-apartment houses. A system of night-inspection over such houses is constantly maintained, and results in prosecution for overcrowding when the legal number is exceeded. It was under the guidance of Typhus Fever that this system was originally applied, and its extension still follows the discoveries of the epidemic inspector. But, as you may suppose, the better class of tenants avoid such houses and even their neighbourhood. Consequently, landlords are always warned before tickets are put up in fresh localities, so that they may save the reputation of their property by getting rid of the overcrowding tenant. You will readily recognise that the inhabitants of ticketed houses form a distinct class within the general body of inhabitants of one and two-room houses. Nor are they an inconsiderable class. The total number of ticketed houses in the city is 23,288—namely, 16,413 houses of one room, and 6875 of two rooms. About 11 per cent. in each case were found empty, so that we have 14,642 inhabited houses of one room, containing 46,463 inmates, and 6157 inhabited houses of two rooms, containing 28,704 inmates. It thus appears that 35 per cent. of the whole population of our one room and 14 per cent. of the whole population of our two-room houses have their houses ticketed. Let us endeavour to understand how these people are differentiated from their neighbours. In doing so I shall make reference to those admirable model buildings recently erected by the Corporation in the Saltmarket, using them to furnish us with datum points in this social survey. They could not be ticketed, being far above the limit fixed by the Police Act, but I have had a census of the inmates taken, and have obtained measurements under the same restrictions as are applied to ticketed houses.

I. Observe first that almost without exception those ticketed houses are what we call "made-down houses." No plans of

these houses were ever submitted to the Dean of Guild Court. They may be either, as in the older parts of the city, in tenements erected long before the Police Act of 1866 for the gentry of old Glasgow, or in tenements which have passed the Court recently as houses of three, five, eight, or ten rooms. In short, these houses have all been parts of houses of larger size; often parts of single rooms of houses of larger size, divided by partitions, sometimes of mere wood, run across the floor of those large rooms. This means defective ventilation, defective light, dark lobbies, crowded stairs, and disproportion in the conveniences provided. The proprietor may of his own motion have done something to add to those conveniences. The Sanitary Department may have compelled him to do more. Something may have been done to improve the light and ventilation when disease has brought the inspector upon the scene. But, after all, there remains the fact that tenements of small houses which demand the greatest architectural care and skill to make them physically wholesome, are evolved from structures designed for occupation under totally different conditions. I need scarcely point to the Saltmarket houses as illustrations of the application of foresight and thought to adapt structure to mode of occupation. These aim at the highest standard. The small houses which are not ticketed were either designed as such, or belong to the best class of made-down houses, where a necessary process has been intelligently and conscientiously carried out before occupation, and this is all that is wanted.

II. So much for defective surroundings and accessories: let us now go inside the ticketed house. We find that the average air-space of a one-room house is 1058 cubic feet; the average number of inmates is 3.17, so that the average air-space per inmate is 334 cubic feet. I make no distinction between adults and children, because it is one which is not physiologically justifiable, and besides it would involve more complicated calculations. The average air-space of a one-room house in the Model Buildings is 2213 cubic feet, the average number of inmates 2.92, and the average air-space per inmate 758 cubic feet. This is also a high standard. The ordinary non-ticketed one-room house ranges in capacity between 1200 and 1350 cubic feet, and is never crowded down to the legal minimum per inmate. Turning to the ticketed two-room house, we find that the average total air-space is 1725 cubic feet, the average number of inmates 4.66, and the average air-space per inmate 370 cubic feet. In the Model Buildings the average air-space of a two-room house is 3158 cubic feet, the average number of inmates 4.29, and the average air-space per inmate 736 cubic feet. The non-ticketed two-room house is simply a duplication



or a little more than a duplication of a one-room house, and is always occupied so as keep far above the legal minimum.

COMPARATIVE RENT AND AIR SPACE  
IN  
TICKETED HOUSES AND MODEL BUILDINGS.

		ONE ROOM.			RENT.		
		Total Cubic Space.	Average No. of Inmates.	Cubic Space per Inmate.	Per Month.	Per Inmate.	Per 1000 Cub. Ft.
MODEL,	- - -	2,213	2.92	758	13/4	54.8	72
TICKETED,							
Whole City,	- - -	1,058	3.17	334	7/11	29.96	90
"Bridgegate,"	- - -	1,130	3.12	362	6/11	26.6	73
"Cowcaddens,"	- - -	930	2.82	330	8/	34.0	103
"Calton,"	- - -	976	2.85	343	6/1	25.6	75
"Brownfield,"	- - -	1,044	3.04	343	9/9	38.5	112
		TWO ROOMS.			RENT.		
		Total Cubic Space.	Average No. of Inmates.	Cubic Space per Inmate.	Per Month.	Per Inmate.	Per 1000 Cub. Ft.
MODEL,	- - -	3,158	4.29	736	16/4	45.7	62
TICKETED,							
Whole City,	- - -	1,725	4.66	370	10/3	26.39	71
"Bridgegate,"	- - -	1,777	4.77	373	9/6	23.9	64
"Cowcaddens,"	- - -	1,752	4.83	363	10/3	25.5	70
"Monteith Row,"	- - -	1,659	3.61	460	7/9	25.8	56
"Anderston,"	- - -	1,615	4.67	346	12/6	32.1	93

The ticketed house, then, is small of its kind to begin with, and owes its ticket to the constant disposition to overcrowding

of its inmates. In fact, 13 to 14 per cent. of the one-room houses are found overcrowded when inspected during the night, and 6 to 7 per cent. of the two-room houses. Of the inmates of the ticketed one-room houses, 5 per cent. are lodgers; of the inmates of the two-room houses, 6 per cent.

III. What do these people pay for this accommodation? These houses are taken by the month or by the week. I therefore give monthly rents. These vary slightly in different districts. A ticketed one-room house reaches the lowest average rent in the "Calton," namely, 6s. 1d.; and the highest average, in the small district of "Brownfield," is 9s. 9d. A ticketed two-room house reaches the lowest average in a bad part of the district we call "Monteith Row," namely, 7s. 9d.; and the highest, which is in "Anderston," is 12s. 6d. But if I were to go into the details of the districts I should weary and puzzle you. Let us discuss the average for the whole city. The rent of a one-room house is 7s. 11d. This is 29.96 pence per inmate, and at the rate of 90 pence per 1000 cubic feet of air-space. The rent of a two-room house is 10s. 3d. This is 26.39 pence per inmate, and at the rate of 71 pence per 1000 cubic feet of air-space. If, therefore, we look to the inmates accommodated, the inmate of a two-room house pays 3.57 pence less for 36 cubic feet more air-space than the inmate of a one-room house. If, again, we regard the rent as coming from one pocket, the tenant of a two-room house pays fully 29 per cent. more rent for 63 per cent. more air-space than the tenant of a one-room house. He pays 71 pence per 1000 cubic feet, while the one-room tenant pays 90 pence. We shall be better able to discern the full meaning of these points if we turn to the Model Buildings and consider the whole facts together. There the rent of a one-room house is 13s. 4d. This is 54.8 pence per inmate, and at the rate of 72 pence per 1000 cubic feet of air-space. The rent of a two-room house is 16s. 4d. This is 45.7 pence per inmate, and 62 pence per 1000 cubic feet of air-space. There the inmate of a two-room house pays 9.1 pence less for 22 cubic feet less air-space than the inmate of a one-room house; but the tenant of a two-room house pays 22½ per cent. more rent for 42 per cent. more air-space. He pays 62 pence per 1000 cubic feet, while the one-room tenant pays 72 pence.

Observe, in the first place, that both in the ticketed houses and the Model Buildings the tenant of a two-apartment house gets better value for his money than the tenant of a one-apartment house. In the ticketed house he gets 1000 cubic feet of air-space for 19 pence less; in the Model house for 10 pence less. It is evident that in the Model Buildings the design has been to be generous to the tenant of the one-room

house both in air-space and rent. Still, both cases illustrate the economic law that the greater the number of transactions necessary to dispose of the same quantity or amount of a commodity, the greater the margin which must be allowed to cover risk and outlays. The more a customer takes, he may expect to get the commodity at a diminishing rate per unit of that commodity. The larger the house, the less it will cost per unit of space, so that the man who lives in one room pays much more for his space than the occupant of the self-contained house. Poverty, instead of receiving discount, has to pay interest. But what shall we say about the other fact, that the tenant of the Model house pays less per 1000 cubic feet of air-space than the tenant of the ticketed house? Well, he takes more of it, he takes it for a year and he pays quarterly, and this ought to give him some advantage. A man who buys a quarter of an ounce of tea and pays it by instalments cannot expect to have it at the same rate per ounce as the man who buys a pound. But what if, after all, his quarter-ounce of tea is chiefly sloe-leaves? This is precisely the position of the man who rents a ticketed house. He pays 18 pence more per 1000 cubic feet in his one-room house and 9 pence more per 1000 cubic feet in his two-room house than he would in the Model Buildings, and yet, compared with the article he would get in those buildings, that which he accepts is but as sloe-leaves to the finest product of China. Just cross the street from those buildings and you find yourself in the district of "Bridgeway and Wynds," where the rent of a ticketed one-room house averages only 6s. 11½d., and of a two-room house only 9s. 5¼d.—the most wretched houses in the city, although in cubic space they are above the average of the ticketed class, because they are so often fragments of the houses of the old gentry. Even there the tenant pays 74 pence per 1000 cubic feet of his one room, and 64 pence per 1000 cubic feet of his two rooms, which is in each case 2 pence above the Model Buildings' rate. If we include the sculleries in the Model Buildings, the rent per 1000 cubic feet is reduced to 64 pence and 54 pence, respectively, which is in each case 10 pence below the rent across the street, where there are no enclosed sculleries, or water-closets, or, indeed, any of the elements of health or comfort.

There is something more than poverty in the problem of the high rent paid by the tenant of the ticketed house—high absolutely, and still higher relatively to the quality of the article obtained. He not only pays interest on his poverty, but on his character. Those 75,000 people comprise not only the criminal class, but the whole social *débris* of this large city; some who are bravely struggling with poverty, and far more who are alike bankrupt in character and in fortune. They are

the nomads of our population. If we could see them in their constant movements from place to place the sight would resemble nothing so much as that which meets our eye when we lift a stone from an ant's nest. The City Assessor will tell you that they change their location in hundreds every month. They

"Fold their tents, like the Arabs,  
And as silently steal away,"

leaving, too often, their public and private obligations behind them. Yet their flittings cause no stir in the street. You may see the woman with her gown turned up over her shoulders, so as to enclose a few pots and pans and articles of crockery, while the man carries one of those skeleton-like grates on his back, and the children a chair or a stool, or a meat-can with a string fastened across the mouth to serve as a handle to this improvised pitcher. The more luxuriously furnished can transport their whole property in detachments, with the help of a neighbour or two, in an evening. Poor things, their condition illustrates the old proverb, that "beggars cannot be choosers." If you look in upon them and remark on the discomforts of their house, your sympathy makes them eloquent at once. They are sure to say, "It is not fit for a dog to live in"; but, when you ask them why they stay there, they are silent. You ask what is their rent, and they tell you. You say, "Dear me! you will get a nice little house for the same money at such a place." Their immediate reply is, "Ah, sir! they won't take the likes of us there," which means that there they must pay their rent regularly, be cleanly, have no riotous outbreaks on Saturday nights, and, in short, reform their habits and their lives. So they are thirled to their ticketed house, and become the bond-slaves of their landlords—afraid to complain—paying dearly for a bad article. What can be done for these people? Does the erection of the Model Buildings bring any advantage to them? I must answer, No! You will not receive them there; and why? You have provided wholesome houses, and you feel you have a right to select your tenants; that commercially you can do so. If every landlord had provided himself with a sound article—sound in a much more moderate sense than the Model Buildings—he would, both morally and commercially be in a position to select his tenants, even the humblest of them, and so put a universal premium on good living. But just cross the Saltmarket again, and ask yourself how the owner of such property could select his tenants? Even if morally a man could convince himself that he had a right to pick and choose, commercially it is impossible; and for commercial reasons it is not done, and cannot be done.



You might as well try to sell butterine as fresh butter in the West-End, or offer sloe-leaves for tea or sand for sugar, and insist that your customers shall be well-dressed and intelligent, pay ready money, and always say grace before eating your rubbish. After you have done your best to provide a fairly-honest house, you *may* select your tenants; and when you have an honest intention to keep your property in repair and keep down nuisances, you *may* appoint a caretaker to see to the conduct of your tenants, but not before. The housing of bad tenants involves morally the inner consciousness that you deserve no better, and, commercially, the knowledge that you dare not look for better.

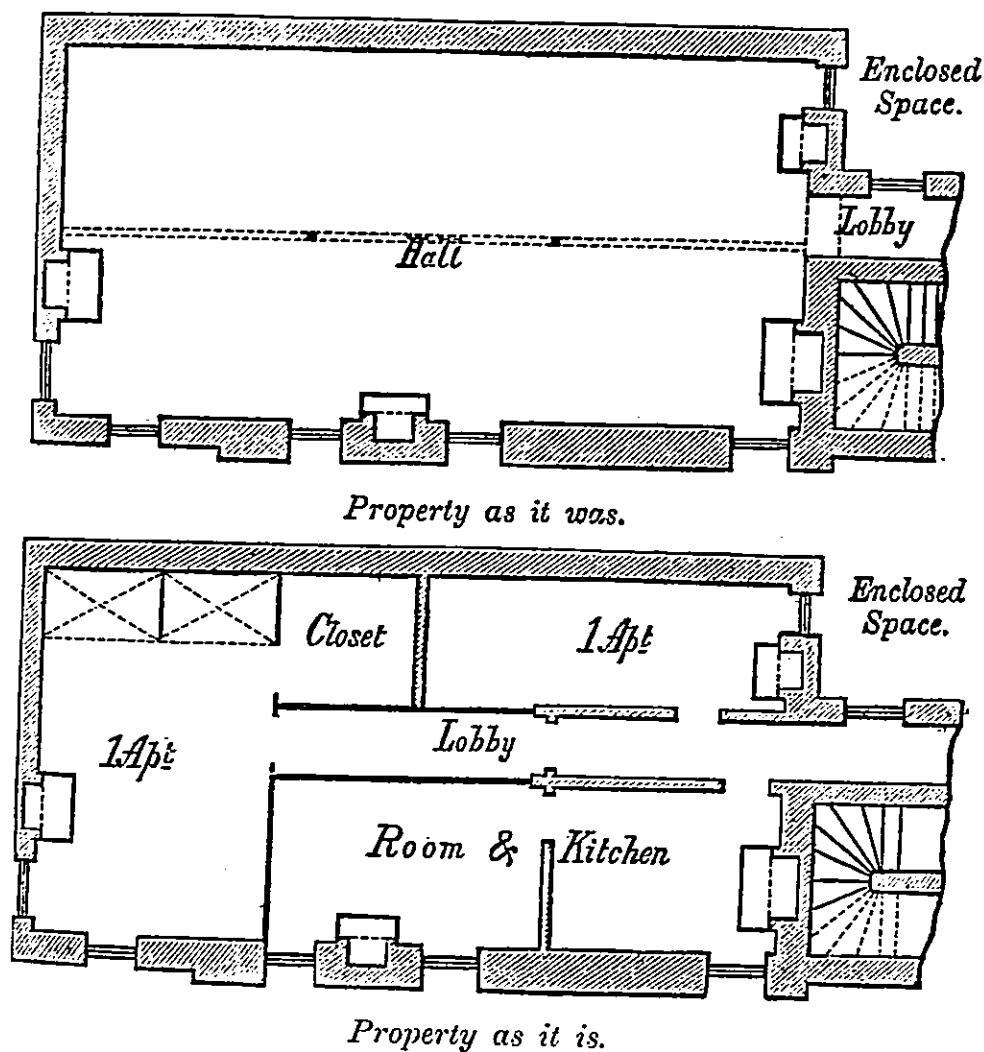
Looking at this problem of house-accommodation calmly in the light of reason, common-sense, and morality—What is the duty of public authorities and of the community in a private capacity?

The duty of authorities is to get the power, if they have it not, and to exercise it if they have, to improve the dwellings which exist by reforming and weeding out the bad, and seeing that the small houses which are being provided are up to a reasonable standard of wholesomeness. This is a wide general statement, and I wish to give it practical point by specifying shortly some powers which the authorities here do not possess,<sup>1</sup> but which I trust will seem so reasonable that they will commend themselves to your approbation.

There is this process of "making down" houses. We have seen that one and two-room houses are not bad *per se*, but only when bad houses and indifferent people are brought on inevitable commercial principles together. It is reasonable that a man should be compelled to submit plans of new buildings to a responsible court, and yet not be compelled to submit plans when he proposes to alter the mode of occupancy and therefore the whole previous careful arrangement and adaptation of structure and convenience, light, and ventilation to the number of families and inhabitants? Why wait until the thing is done and disease appears, and then, by a tedious process, with an array of experts, compel, or endeavour to compel, alterations which can only prevent future mischief, but cannot restore broken health or revive lost lives? The process of "making down" houses is a lucrative one to the original owner. I may mention two of the most recent illustrations which have come under my notice. In one case a tenement containing six houses of six apartments, which stood one year at a rental of £175 on the valuation roll, was subdivided into 12 houses of three apartments, and was returned next year at a rental of

<sup>1</sup>Most of the suggestions which follow took practical form in subsequent legislation.—[Ed.]

£222. In another case a tenement containing six houses of four apartments, which stood one year at a rental of £78, was sub-divided into 21 houses of one room, and was returned next year at a rental of £134. Neither case is an example of the worst forms of "making down," but there was no expenditure incidental to the change at all equivalent to the profit of the transaction, still less adequate to the requirements of health. It is the owner who makes this change who ought to bear the cost of alterations. When the property is sold it is sold at the increased rental. Not uncommonly the first effect of the intervention of the Sanitary Department is to lead to such a sale; and then, of course, any expenditure becomes a loss to the new owner. I do not object to "making down" houses. The "made-down" house is as necessary as a second-hand clothes market. I say it must be regulated, and until it is regulated all our efforts to raise the standard of the small dwellings of Glasgow will only resemble the labour of Sisyphus.



I show two plans which illustrate well the liberty which may be taken by proprietors in the way of manufacturing small houses by this process, so long as they do not interfere

with the external walls, and thus bring their operations under the review of the Dean of Guild Court. This alteration was effected a year ago, and was only discovered when an epidemic inspector came upon some suspicious cases of disease which I was asked to see. One plan shows a hall or workshop which had ceased to bring in a satisfactory rent to the owner. He accordingly sub-divided it as shown in the other plan, producing two houses of one apartment and one of two apartments. The thick hatched lines show the portions of the necessary partitions which were built of brick, the remainder, in thin lines, being merely wood. It will be observed that the back main wall is a "dead wall," that is to say, it contains no windows or other apertures. There can be no ventilation of the large single apartment, so that the end occupied by the beds and the room called a "closet" are filled with stagnant air, which there is no possibility of renewing. The single room against the dead wall has only a small window opening into a "well" or space enclosed by other buildings. So long as small houses can be produced in this irresponsible fashion, insanitary dwellings will spring up in one place as fast as they are abolished in another. This glaring case was discovered by the incidence of disease, and can only be remedied by a process under the Public Health Act, expensive to all parties, and possibly ending in a poor compromise.

We also want in Glasgow the following summary method of dealing with unwholesome houses, the steady application of which during the last nine years goes far to account for the almost unexampled improvement which has taken place in the health of Edinburgh. I quote from the Edinburgh Police Act (1879), section 206 :

"206. If the Medical Officer of Health and the Burgh Engineer shall certify in writing to the Magistrates and Council that any house or building, or part of a house or building, is unfit for human habitation, the Magistrates and Council may, by their order, affixed conspicuously upon such house or building, declare that the same is not fit for human habitation, and it shall not, after a date in such order to be specified, be inhabited; and every person who shall, after the date or time mentioned in such order, let or occupy, or continue to let or occupy, or suffer to be occupied, such house or building, or part of such house or building, shall be liable to a penalty not exceeding five pounds, and a further penalty not exceeding forty shillings for every day during which such occupation is continued, provided always that before pronouncing any such order the Magistrates and Council shall call upon the owner to show cause against the said certificate within such reasonable time as they consider proper, and shall give such owner an opportunity of being heard before them, and, if he appear, shall hear him and such evidence as he may adduce; provided

also, that if at any time after such order has been made, the Magistrates and Council shall be satisfied that such house or building, or part of such house or building, has been rendered fit for human habitation, they may revoke the said order, and the same shall thenceforward cease to operate. The Magistrates and Council shall also, at such times as they shall fix, hold open courts for the consideration and disposal of appeals against such certificates, and it shall not be necessary that a majority of the Magistrates and Council be present to constitute such courts; provided, further, that the preses of such court shall have a deliberative as well as a casting vote."

You will observe that this constitutes the representatives of the people of Edinburgh, advised by their officials, the final judges when a house is "unfit for human habitation," and they are clothed with the most effective means of compelling the owner to make it fit for habitation—namely, the power to make it cease to be a rent-producing subject until the requisite improvements are effected, if improvement is possible. By a general clause in the Act the Town Council may devolve their functions on committees. This function is therefore vested in the Health Committee, sitting as a court, presided over by its chairman. This is an illustration of a principle which is applied throughout the States of America: that the Board of Health, elected by the people, shall be clothed with summary power to protect the health of the people. It would certainly open the eyes of some folks to read the "Manual for the use of Boards of Health of Massachusetts, containing the statutes relating to the public health, and the decisions of the Supreme Courts of Massachusetts relating to the same." One of these decisions, for example, is to this effect:—"The adjudication of the Board that a nuisance exists is conclusive, and no appeal lies therefrom." All the City Boards of Health in this State have the same summary powers as the Edinburgh Health Committee over house property, but embracing any and every condition or circumstance which is "a cause of nuisance or sickness to the occupants or the public." Still more worthy of the study of the people of this country is the "Tenement House Act,"<sup>1</sup> passed last year by the "People of the State of New York, represented in Senate and Assembly." I shall quote only one clause, in the hope that it may attract attention to the unexhausted resources of legislation for the amelioration of the social difficulties of the day, if only the people would wake up to the

<sup>1</sup> A tenement house is thus defined in this Act:—  
"Every house, building, or portion thereof which is rented, leased, let or hired out to be occupied or is occupied as the home or residence of three families or more, living independently of each other, and doing their cooking upon the premises, or by more than two families upon any floor, so living and cooking, but



fact that health has proprietary rights as well as heritable property :

"§ 659. Whenever it shall be certified to the Board of Health of the Health Department of the City of New York, by the Sanitary Superintendent, that any building or part thereof in the City of New York is infected with contagious disease, or, by reason of want of repair, has become dangerous to life, or is unfit for human habitation because of defects in drainage, plumbing, ventilation, or the construction of the same, or because of the existence of a nuisance on the premises, and is likely to cause sickness among its occupants, the said Board of Health may issue an order requiring all persons therein to vacate such buildings, or part thereof, for the reasons to be stated as aforesaid. Said Board shall cause said order to be affixed conspicuously in the building, or part thereof, and to be personally served on the owner, lessee, agent, occupant, or any person having the charge or care thereof; if the owner, lessee, or agent cannot be found in the City of New York, or do not reside therein, or evade or resist service, then said order may be served by depositing a copy thereof in the post office in the City of New York, properly enclosed and addressed to such owner, lessee, or agent, at his last-known place of business, or residence, and prepaying the postage thereon; such building, or part thereof, shall, within ten days after said order shall have been posted, and mailed as aforesaid, or *within such shorter time, not less than twenty-four hours*, as in said order may be specified, be vacated; but said board, whenever it shall become satisfied that the danger from said building or part thereof has ceased to exist, or that said building has been repaired so as to be habitable, may revoke said order."

I cannot better illustrate the difference between this sort of legislation and ours than by quoting an instance in which a single-apartment house had an open drain beneath the floor. The mother complained to us because the rats, walking in and out of this hole, alarmed her lest they should bite the children. Weeks were spent in serving notices, inspecting, certifying, and again notifying, before the proprietor removed this abominable nuisance.

having a common right in the halls, stairways, yards, water-closets, or privies, or some of them."

Various specific provisions with reference to houses so occupied are worth noting, for example:—

Water-closets, privy-sinks, or other similar receptacles, to be provided at the rate of not less than one for every two families.

Each occupant of a tenement-house must have not less than 600 cubic feet of air-space.

Whenever more than eight families live in any tenement-house, in which the owner thereof does not reside, there shall be a janitor, housekeeper, or some other responsible person, who shall reside in the same house, and have charge of the same, if the Board of Health shall so require.

After everything has been done by Parliament and by Local Authorities which can be done to exterminate unwholesome houses, and banish adulterated property from the market as resolutely and successfully as adulterated food, there will still be a necessity for the assistance of private effort. The public of Glasgow trust too much to authorities and officials for the solution of their social difficulties—more, I think, than any other community. Where are the "Open-spaces and Playgrounds Associations," the "Artizans' Dwellings Companies," and the like, which unite the business capacity and Christian sympathy of the citizens of so many other cities in successful labour for the common good? Why have we not an Octavia Hill in Glasgow? There are various ways in which private associations might help to elevate the 75,000 inhabitants of the ticketed houses of this city. They might attack the question of building new tenements of small houses, to be let at monthly rents, to return a modest interest on the outlay, and yet be within the means of those who could be tempted to try to lead orderly lives if they had the chance of physical circumstances which would help them up and not help them down, or keep them down. They might buy a tenement here and there which could be "made-down" in an honest fashion, and yet yield a reasonable return on the money invested. They might acquire a poor tenement, and try to acquire the poor tenants also, and make them feel the elevating influence of the introduction into the relation of landlord and tenant of friendly interest and moral responsibility. Or they might undertake the factorage of such properties held by private individuals, administering them on the principle that the maintenance of the property shall be the first charge on the rental. These last are undoubtedly the best directions which private enterprise can take. They are the methods of Miss Octavia Hill and those who work under her. They are far better than building model houses, selecting the good and casting the bad away, even if the good belong to the class for whom they were intended, which they seldom do. It is the people you reject who require your help. If you go on selecting you merely leave somewhere in the city a more utterly hopeless and homogeneously bad residuum. Read Miss Hill's book on the "Houses of the London Poor," in which she relates her practical experiences. You will find that she is no soft sentimentalist, spoiling the poor by shutting her eyes to their frailties, and subverting the order of the universe by making intemperance and vice comfortable. She first convinces them that she will do her duty by them as their landlady, and then exercises the moral right which she has thus acquired, and which they do not fail to recognise, to make them pay their rents regularly.

and otherwise do their duty by her. If the relationship between landlord and tenant is of this nature, no more powerful influence exists than that which the landlord possesses over the poor, unless it be that which exists where the relationship is commercial and not moral. The difference is that the former makes for the good, the latter for the evil. In the one case the eyes of both meet on rent day, with a consciousness of mutually-unfulfilled duty. The one winks at the derelictions of the other. In the other case the landlord's eye is friendly but firm with a sense of rectitude, and there is no flaw in his relations to which the tenant may appeal for excuse or defence.

#### UNINHABITABLE HOUSES :

WHO INHABIT THEM? WHO OWN THEM? WHAT IS TO BE DONE WITH THEM?<sup>1</sup>

The Medical Officer of Health is familiar with the consideration of the question of habitability which is raised by the existence of certain conditions technically called "nuisances" in connection with dwelling-houses. The first great category of nuisances under the Scotch Public Health Act is thus described—"Any insufficiency of size, defect of structure, defect of ventilation, want of repair or proper drainage, or suitable water-closet or privy accommodation, or cesspool, and any other matter or circumstance rendering any inhabited house, building, premises, or part thereof, injurious to the health of the inmates, or unfit for human habitation or use." Before steps can be taken to compel an "owner" to remove any condition falling within this definition, the medical officer must apply his mind to the question, does it render the inhabited house "injurious to the health of the inmates or unfit for human habitation or use?" Unless he can certify to this effect, no steps can be taken. It will be observed that the formula is "injurious to health or unfit for habitation." I have always held that if any condition is such as to render the house which was intended to cherish and promote the health of the inmates actively "injurious" to their health, then one must further certify that it is "unfit for human habitation." In the majority of cases, however, uninhabitability is merely a legal attitude which must be assumed in order to get into fighting position. This is somewhat unfortunate. It reduces the phrase very much to the position of those expressions of affection and respect with which we close our letters. So long as a perforation in the pan of a W.C., which a drop of solder will stop,

<sup>1</sup> Paper read at the Congress of the Sanitary Association of Scotland, held in Glasgow on 23rd and 24th August, 1894.

and an overflow and deposit of sewage beneath the floors of a house, must be alike certified to render a house "injurious to health and unfit for human habitation," it is no wonder if, in the ears of the law, in course of time, the certificate sounds like a mere form of speech. The real cure for this is to specify by Act or bye-law a long series of easily defined conditions which, being proved to exist, shall be held to be nuisances, and shall forthwith, on notice, be removed. It seems sad to think that, at this time of day, we are virtually allowed to take no account of progress in sanitary knowledge, and are liable to be called upon to certify, and it may be even to prove, that the property of some cantankerous factor is not exempt from the operation of natural law. Meanwhile, I am in the habit of appending to the certificate an N.B., emphasizing the gravity of the nuisance by a more or less graphic description of it, so as to make it clear that the house is, as the children say, "really and truly" unfit for habitation.

All this refers to the method of dealing with uninhabitability under the Public Health Act, and is interesting as, however imperfect in providing for the reaching of the end in view, it clearly establishes the principle that every house which injures the health of the inmates should, in the last resort, be closed. The clause already quoted from the Scotch Public Health Act and the corresponding clauses in the English and Irish Acts are scheduled in the Housing of the Working Classes Act, in order to their more effectual application under Part II. of that Act. This paper is founded upon the experience of Glasgow in carrying out the same purpose in a still more direct and expeditious way under clause 32 of the Glasgow Police (Amendment) Act, 1890. Shortly stated, this clause enables the police commissioners, by a committee with a quorum of five, on receipt of a certificate under the hand of the medical officer, sanitary inspector and master of works that any house or building, or part thereof, is unfit for human habitation, having heard the owner and such evidence as he may adduce, to close, if they see fit, the premises in question. An appeal is given to the Sheriff. On houses so closed being rendered fit for habitation, the commissioners may revoke their closing order. The Committee on Health has been deputed to exercise those powers. It is summoned *pro re nata*, and meets in the burgh court hall. The clerk to the commissioners reads the joint certificate, and submits evidence that a copy thereof has been served upon the "owner," usually the factor. As a rule, the owner is represented by an agent, who then makes a statement on his behalf. The certificate does not express the bare opinion that the house or premises are uninhabitable, but supports it by an ample array of specific allegations—dampness, darkness,



want of ventilation, leaking roofs, and other signs of disrepair, want of latrine accommodation, offensive proximity of ashpit, and so on. Notes are made from personal inspection of the defects of each several house, but they are certified, as far as possible, in groups, having major defects in common. The first question put by the court is, "Do you admit that these allegations are correct?" They seldom are seriously disputed. Tenants have been produced in defence, but that is always a mistake. Architects, factors, or others, give the owner's version of the facts or explain proposals for remedying the admitted conditions. The certifying officials are present to supplement or support their certificate. When anything like a clear issue arises between the official certificate and the case of the owner, the court will adjourn to inspect the property in question—a step which is always disastrous to the owner, for no words can convey to the mind a full idea of the actual conditions. The statement with which agents most frequently open their case is, "This is the first we have heard of those complaints regarding this property. We are anxious to do everything required by the sanitary department. No notice has ever been served upon us regarding these matters, and we think this rather unfair." This is not always a perfectly accurate statement, but the court has invariably replied that it is the duty of proprietors to keep themselves acquainted with the state of their property. The admission that notice from the sanitary department first informed them of the facts before the court proves that they are in default. Thus, either after more or less discussion, or, at once, by the non-appearance of the owner, or his prompt admission of the contention of the certificate, the issue of the closing order is arrived at, and the only point left for consideration is the date of its taking effect. The interests of the tenants alone are considered. Sometimes an endeavour is made to induce the court to suspend the order for a lengthened period, with the intention meanwhile of effecting structural improvements. Such overtures are always rejected for the obvious reasons that the house is injurious to the health of the inmates from day to day continuously, and that the conditions causing this cannot be removed while the house is inhabited. Hitherto, closing orders have always been pronounced to take effect in one month; and the court informs the owner that nothing will give it greater satisfaction than to revoke the order when the officials certify that the houses have been made habitable.

I have been thus particular in describing the method of working the 32nd clause, because of the novelty of the procedure. As we have seen, the principle that an uninhabitable house ought to be closed until it is made habitable is admitted

and laid down in the statute law. The question is, how best to carry out that principle? In Edinburgh and Glasgow, and, with a much restricted application, in England by byelaws under the Public Health Act, the local authority, as advised by their officials, are entrusted with this duty, and, as it seems to me, with good reason. The question of habitability is not one of law, but of fact. The facts are mainly facts of observation, the existence of which, in case of dispute, the senses of police commissioners are as capable of perceiving as those of any lawyer or doctor in the land. Then, having your facts, you have to apply a standard of habitability, which, after all, is not a figment of medical officers, or a thing to be dogmatically applied by experts, but is essentially the application of the golden rule. Who better fitted than the representatives of the citizens to apply, with this sense of moral responsibility, their judgment as business men to the determination of the question of habitability? Of course, there are special risks attending representative administration to which I merely vaguely allude, to show that I am not ignorant of them. I now have to do simply with Glasgow, where, in my opinion, the procedure introduced by the 32nd clause has worked admirably. I believe experience is to the same effect in Edinburgh. The new powers were first applied in March, 1891, and, up to last July, 282 houses, belonging to over 40 proprietors, have been dealt with. A closing order has been issued in every case. No appeal has been made to the Sheriff, excepting in one, and that on a technical point not involving the merits. Only 16 houses have been made habitable, so that the order could be revoked—a fact which expresses the simple truth that the remainder were so bad that it was impossible to patch them up. No complaint has been made of injustice being done, either through the press or by any association either of landlords or house factors. I am therefore justified in claiming for our 32nd clause the credit of unqualified success.

We have now to speak of 282 uninhabitable houses, of which 237 were inhabited. On former occasions I have endeavoured to arrange some facts for the use of social reformers regarding the One-roomed house and the Ticketed house, and those who live in them. I now desire to do the same as regards the Uninhabitable house. *Facts* relative to social matters are now-a-days more than ever necessary.

As to why the uninhabitable house is uninhabitable I need not, in view of what has already been said, say much more. Words give a very inadequate conception of the facts. We say "damp" when the hearth-stone never dries, when the joists are buried in earth and rotten, or the bits of old carpet or waxcloth spread on the planks to cover the holes are wet

and mouldy, when the hand applied to the wall is soiled with wet size-colour. We say "defective in light" when, in the brightest and longest summer day, the gas, or more usually a paraffin lamp, is kept burning, and when often, in the extremity of poverty, there is no artificial light but a glimmer from a handful of red ashes, and, going in off the light outside, one hears voices, but can see no one. We say "out of repair" when the walls are as bare of plaster inside as outside, when the lathes of the ceiling are naked and broken in, when the skews are bare and the rhones gone and the sky is visible through the tiles or slates, and the rain-water runs down the walls; when the bricks in the partition are as free of mortar as the stones in a dry-stone dyke, and the people have stuffed paper into the crevices with their knives to stop the draughts. We say "want of ventilation" when the house door opens off a court with a window beside it, and if you go to the innermost recess of the apartment the air seems to be a sort of residue of all the breath that has ever been breathed in it.

COMPARATIVE RENT AND CUBIC SPACE in Ticketed Houses, Improvement Trust Model Buildings, Houses of Workmen's Dwellings Co., and Uninhabitable Houses.

## ONE ROOM.

CLASS OF HOUSE.	Total Cubic Space.	Average number of Inmates	Cubic Space per Inmate.	RENT.		
				Per Month.	Per Inmate.	Per 100 Cubic Feet.
Improvement Trust Model,	2,213	2.92	758	13/4	54.8	72
Workmen's Dwellings Co.,	1,189	2.25	528	8/7	45.77	87
"Ticketed," - - -	1,058	3.17	334	7/11	29.96	90
"Uninhabitable," - -	1,265	3.08	411	6/5	25.0	61

## TWO ROOMS.

Improvement Trust Model,	3,158	4.29	736	16/4	45.7	62
Workmen's Dwellings Co.,	1,964	3.51	563	11/7	39.6	71
"Ticketed," - - -	1,725	4.66	370	10/3	26.39	71
"Uninhabitable," - -	1,690	4.24	398	8/6	24.0	69

The uninhabitable house is always a small one, practically either of one or two rooms. Of the 282 dealt with, 223 were houses of one apartment, and 52 of two apartments. They were all ticketed, and the fact that 16 per cent. were untenanted shows that they were rapidly falling below the standard even of the class who inhabit uninhabitable houses. Of the 237 occupied houses, 40 were held in lots by persons who farmed them out in rooms furnished to nightly lodgers, generally families. I have constructed a table on the plan of that at page 14 of my pamphlet on ticketed houses.

The average air-space of an uninhabitable house of one room is 1265 cubic feet; the average number of inmates is 3.08, so that the average air-space per inmate is 411 cubic feet. The average air-space of an uninhabitable two-room house is 1690 cubic feet; the average number of inmates is 4.24, so that the average air-space per inmate is 398 cubic feet. These figures show that so far as the average goes these houses were not overcrowded; but then we know that on the average "ticketed houses" never come out overcrowded, though in point of fact night inspection shows that nearly 13 per cent. are so.

What do those who inhabit uninhabitable houses pay for the accommodation? The average monthly rent of a one-room house is 6s. 5d.; of a two-room house, 8s. 6d. This represents 25 pence per head accommodated in the former and 24 pence per head in the latter. Reducing the rent to a unit of air-space obtained, we find that 1000 cubic feet costs 61 pence in a one-room and 69 pence in a two-room house. The table enables us to give some meaning to those figures by comparison with the mass of ticketed houses, with the Improvement Trust tenements, and with the property of the Workmen's Dwellings Co. It is quite evident, in the first place, that the uninhabitable house constitutes the cheapest of the ticketed houses. The average rental of the ticketed house of one room is 7s. 11d., as compared with 6s. 5d.; and of the ticketed house of two rooms, 10s. 3d., as compared with 8s. 6d. In the one-room ticketed house the cubic space costs 90 pence per 1000 feet, as compared with 61 pence; and in the two-room house 71 pence, as compared with 69 pence. This is evidently a fresh illustration of the old saying—cheap and nasty. After all, even without discount for the nastiness, are these uninhabitable houses cheap at the money? If we turn to the Glasgow Workmen's Dwellings Co., we shall see how an honest article compares with this fraudulent article in the market. They own 95 one-room and 108 two-room houses, consisting partly of new property specially erected, but mostly of notorious tenements of ticketed houses now reconstructed and made thoroughly wholesome. The rent of an uninhabitable one-room house is



6s. 5d. per month; of a Workmen's Dwellings Co.'s house 8s. 7d. The cost per 1000 cubic feet of uninhabitable air-space is 61 pence; per 1000 cubic feet of wholesome air-space 87 pence. The rent of an uninhabitable two-room house is 8s. 6d. per month; of a Workmen's Dwelling Co.'s house, 11s. 7d. The cost per 1000 cubic feet of uninhabitable air-space is 69 pence, while the Workmen's Dwellings Co. supply the same quantity of a wholesome article at 71 pence, or only twopence more.

The question—*Who inhabit uninhabitable houses?*—is not so easily answered, because the answer cannot be expressed in figures. It involves the element of character, and character has no dimensions. In the main it is a matter of opinion. Still, there are some precise data which may help us to form a general conception of the inhabitant of the uninhabitable house. He is obviously *nomadic*. You become aware of this in the course of your inspections. If the property is not certified speedily, the names of your tenants require to be changed. In point of fact, if you note the length of occupancy of each tenant who holds direct from the factor, you will find that half of them have lived in the house in which you find them less than one year; and a third of that half, or nearly 17 per cent., less than one month. Then there is the large class of what we may call "uninhabitable casuals," to whom 36 per cent. of the uninhabitable one-room houses are farmed for nightly payments of 6d. or 8d. But all the tenants of uninhabitable houses are not nomadic. You will find, even in the worst tenements, instances of prolonged tenancy which attract your attention like ancient buildings in modern streets. Amid all the coming and going, the racket and rowdyism, these people have remained for 10, 20, 30, even 40 years—a notable fact, deserving close scrutiny as to its meaning, but which meanwhile we merely note and pass on.

If we ask the *employment* of the inhabitant of the uninhabitable house, half of the male householders return themselves as "labourers," half of the female as simply the housekeeper. The other half, in the case of the men, are shoemakers, firewood choppers, carters, and a long miscellaneous list of tradesmen of all kinds, while in the case of the women they are cleaners and washers, hawkers, millworkers, &c. There can be no doubt that in the case of the men, excepting those who call themselves "labourers," the designation of the others is but a mark to indicate the high estate from which they have fallen.

Thus we are brought to the expression of the opinion formed from personal observation of those who inhabit uninhabitable houses. I have been in their houses, have spent much time

talking with them, and my opinion is that in the main they are the *débris* of the city, the chips and dishonoured stones which fall from the social structure and litter its base. There are the open and undisguised bad, the criminal and immoral, the obviously good, and the enigmatical and mysterious, who are in truth most probably bad. I should estimate the good at some 10 per cent. of the whole, including a few rough souls who are not exactly teetotallers, but who confine their potations to Saturday night and Glasgow Fair, and as a rule work hard when they can get work to do. Indeed, the uninhabitable house is pervaded with the smell of whisky, predominant over all the other smells. The thief and the prostitute are borne along by it through their brief and unhappy lives. You go into one house and you find that twins have been born a few hours ago, and a knot of neighbour-women sit round the bed, and the mother and her friends are alike maudlin with whisky. You go into another house where at your last visit you saw a child very ill, and you see the mother huddled up on the top of the bed sleeping a drunken sleep, and you know that the child is dead. They baptise with whisky and they bury with whisky.

The inhabitant of the uninhabitable house follows the usual law of stratification or assortment. One comes to know the lair of the criminal. It is always the back land where watch is readily kept, where defence is easy and attack difficult, where shame is unknown and honour is of the quality which prevails among thieves. When at noonday you find all the men about playing cards or loafing in the closes and on stairs, and superfluous women lolling over windows or nursing black eyes in corners, you can have no doubt of the calling of the inhabitants. The sanitary official sees them as no one else sees them. They receive him frankly. He takes no notice of the evidence of gruesome business he sees about. His eyes are only for the leaking roof or the damp wall. The man with short-cropped hair shows where the drip comes down over the bed, and the frowsy woman asks if you are going to put "the poor unfortunate" out of their house again? The 32nd clause has broken up several such retreats of vice. It is in such quarters you chiefly meet with the mysterious and enigmatical tenant. There is the house in which you are told So-and-so lives, but you never can find him in or get clearly to know what he does, for information as to the comings and goings of people in those localities is difficult to get, but the sanitary man never tells the police, and so you at last learn that Mr. So-and-so does a shebeen business and really lives in a more reputable locality except from Friday or Saturday until Monday, when he inhabits the uninhabitable house. Another mysterious personage is the

tidy, respectable-looking, old woman who lives right in the middle of the recesses of the back land, in a house of two or even three apartments, which differs from all the rest in that it looks clean and comfortable—the worn boards of the floor scrubbed white, and the bedding clean though poor, with some attempt at bizarre decoration. She is always alone, but she tells you she has a goodly detail of sons and daughters at work, as they ought of course to be. She follows you about in your inspection, softly deprecating every criticism—the stains on the ceiling are old; the laird put on some slates after the last storm; she is going to lime-wash it to-morrow if her rheumatisms are better; the midden below her window has no smell whatever; it is as sweet and airy a house as ever she was in. An unwary social reformer or lady visitor would certainly fall in love with this old lady, but somehow she reminds me of the Book of Proverbs. It is not always a good sign to find an uninhabitable house clean and tidy.

Uninhabitable houses which are found in front lands or in single-storey ranges like "colliers' rows," abutting on some un-built space or ranged round three sides of a square, are usually occupied by colonies of unskilled workmen and labourers, who may be rough in their ways and find their only relaxation in whisky, which now and then leads them to the police-court as "riotous and disorderly," or "drunk and incapable"; but they are very different from the vicious and criminal people of the back lands.

But what about the sprinkling of undoubtedly decent people one finds in those uninhabitable houses, especially those who have lived long years in them, whose rent-book is always duly discharged? What is their history? How came they there in such incongruous company? Why do they remain? There are the two old women living in a garret at the top of a stair, the bottom of which is blockaded by the physical darkness which in the daytime can be penetrated only by the help of a match, and by the still denser moral darkness of the unhappy people who hold the lower flats of the tenement. I had worked up and reached the end of my inspection, and knocked at the last door. I cannot forget my astonishment when after some delay it was opened, and I found myself in the presence of two old ladies, each with their seam. I took without hesitation the proffered chair. There was no carpet, but a well-scrubbed floor—a very scanty plenishing altogether, but a clean fireside, and you felt you had found a shrine of godliness and industry where you least expected it. Next we have the two old bill-stickers, who lived in a land where the partitions were of ancient panelled wood—a method of sub-division which might do in quiet society, but which when you have thieves and

prostitutes all around, is no better than the paper partitions of Japan. There are the cases of a scavenger who had lived for 28 years in a one-room house in a tenement every other room in which was farmed out to casual lodgers of the lowest type, and the close by which he entered was haunted even in the day by bad characters, and made noisome with naked vice; of the old widow who for 14 years had inhabited an uninhabitable one-room house, with a ceiling 7 feet high, dark, damp, and in total disrepair—her sole companion a gaucie tomcat—in the far recesses of a court which must have been like pandemonium at night. I must also introduce the old firewood-cutter, tenant, with his wife and lodger, of a two-room house, dark as a primitive cave dwelling. For years that old man has been familiar to me. You could see him through a small window, which could admit no light because it opened into a narrow close, sitting, with his pale, shrivelled face visible in the light of a paraffin lamp, sorting sticks in bundles, and tying them up with string. At any time of the day there you would see him industrious to the full extent of his feeble ability. He had been 13 years in this house. I had the satisfaction of seeing him a few days ago in another two-room house, the rent of which is 8s.—the same as he paid for the uninhabitable house which he was compelled to leave. He was as usual busy bundling sticks, now in the wholesome light of the sun, but its brightness was eclipsed for him by the death of his old wife, as he told me with tears. I cannot close my gallery of portraits without pointing to the most interesting of them all—"Salvation Sal"; not that that was her name, but I have somehow come to call her so in my imaginings—a sturdy woman of say 50 years, with a rugged face, bearing many a scar got in the service of the devil, but every rough feature now instinct with the soul which had at last gained the victory. Her voice and her movements were full of nervous energy. She lived by cleaning a warehouse. Her house was the only one taken direct from the factor at a monthly rent, in a miserable dilapidated tenement in a narrow *cul-de-sac* wholly farmed out to hawkers, beggars, and street-walkers. The floor was earthen, but with her own hands she had papered the damp walls and painted the wood-work. It was on the ground floor in this narrow passage and so was very dark, but to send the light further into its recesses she had whitewashed a square of the opposite wall. The chief attraction this hovel had to "Salvation Sal" was that she had been converted in it. She would point with a dramatic gesture to a part of the earthen floor and tell you that it was on that very spot the Lord found her one Sunday morning, when she awoke to discover that she had "pawned the very shift off her back," and fell on her knees



and vowed to drink no more. She used a phrase to indicate her wickedness which I had never heard before, and have not heard since—"I was a real bad cup o' tea." Poor Sal was troubled with a bad husband, who frequently got drunk, but she said she always walked up and down in the passage until he fell asleep, for she was afraid her old tongue might break loose and blows arise, but she hoped the Lord would some day convert him too.

Gentlemen, I am afraid some of you may in this *fin-de-siècle* smile at Salvation Sal's old-fashioned phraseology, if not at me for believing in her, but you remember how Carlyle has recorded that it was in Leith Walk, at a precise spot which he never forgot, that he "authentically took the devil by the nose," and he says, "It is from this hour I incline to date my spiritual new birth; perhaps I directly thereupon began to be a man."

The case of these people is intensely interesting to me. They are the salt of the otherwise festering population of the uninhabitable house, the ten men for whose sake peradventure they will not be destroyed. As a lad the story of the backwoods man used to fascinate me, with the curl of blue smoke from his solitary hearth rising over the trees of the primeval forest, the ambushes and stratagems of the day, the weird noises, the phantom shapes, the war-whoops and sudden onslaughts of the night. Just such a life do those people live. Their doors are always locked. They open them with caution, and they shut them before, under their breath, they speak about their neighbours. Their uniform answer is that they have no intercourse with them. As the old woman with the tomcat said, "I slip in and I slip out. They dinna meddle wi' me, and I dinna meddle wi' them." The fact is, the friendship of such neighbours is as objectionable as their enmity. It consists in perpetual borrowing of pence to get things out of the pawn, of furniture and utensils which never return, even begging of pinches of salt, slices of bread, or tea and sugar—a process like having your flesh picked off your bones. Think of them then here and there in the closes and wynds of Glasgow, like the backwoodsmen among the Indians, moving out warily in the day light, keeping close inside in the dark, with the storm of the drunken brawl bursting on their ears from the court beneath and the noise of the drunken dosser in the lobby or the kick of the fuddled man who has mistaken the door breaking in upon their sleep, making the heart for the moment falter with fear. But you say, as I have often said—"Why do they remain there? Why does the native of St. Kilda stay there? Why do the inhabitants of Achill Island stay there?" It is often difficult for one human being to understand the action of another, because we always look through our own eyes

and appreciate our own motives. I think, however, I can bring these people fairly into line with the rest of humanity. The majority are remnants of a previous generation of respectable tenants, all of whom have gone, as the property deteriorated. Well, in any of the old residential streets of Glasgow or in the suburbs, you will find old people spending the last of their days in houses which are now isolated in rows of business premises or shut in by tenements built upon their lawns and gardens. A few have formed little businesses in connection with their houses—firewood-making, coal-selling, cobbling, &c.—and we all know how loth we are to shift in these circumstances, and how the interests of our family life are apt to be sacrificed to those of our business. The solitary women and old couples usually have some subvention from the parish, church funds, or other sources. None of these people have children about them and few have even young people—a fact which deprives their position in such localities of much of the possibility of either physical or moral mischief. After all has been said to account for the presence of the ten righteous in the uninhabitable house, I am bound to believe that there is a process of moral and physical acclimatization. Indeed, the shock which we experience from seeing indecent actions and hearing blasphemous words is largely physical; and just as sleep may be unbroken by sounds to which we have become accustomed, so the ear and the eye may cease to convey to the understanding and the heart of these good folk sounds and sights which would fill our imaginations with gross conceptions.

You have probably been surprised that I have said nothing yet about *the death-rate* in the uninhabitable house. In Glasgow we have got beyond the stage of sanitary evolution when every nuisance must be labelled with its precise contribution to the death-rate. We don't believe that we shall ever come upon an uninhabitable house which is wholesome and a blessing in disguise. I am therefore never asked to prove that those houses do not conduce to longevity, and I never proffer such evidence. But I may tell you that I generally have it where the heathen Chinese keeps his reserve of cards. There are three characteristics of the uninhabitable house. (1) The deaths always exceed the births. It destroys more life than it produces. (2) The infantile death-rate is enormous. (3) The general death-rate is mediæval in its dimensions. As an illustration—in one of the last lots closed, during the last five years there were 27 deaths and 19 births. The death-rate under one year was more than 26 per cent. of the children born, the city rate being 15 per cent. The general death-rate was 58 per 1000, the city rate being 24.

The important question—*Who own uninhabitable houses?*

—may be very shortly answered. There were 41 proprietors involved, and only 21 of these were individuals. The remainder were either trustees or executors or joint beneficiaries. This has an obvious bearing on personal responsibility. It behoves every person occupying the position of a trustee to enquire into the character of the property which he administers. It behoves every person who is a beneficiary of a trust to ascertain whence the rents are derived. Moral responsibility is not the less real because the rent is pooled by trustees and then distributed. As for the individual proprietors, they live in houses in the west-end, in villas in the suburbs, at coast and in country. Probably no one would be more astonished than those persons themselves if they were told that they had been living upon the proceeds of such property. But to plead ignorance is to plead guilty. If they did not know they ought to have known, and this is the lesson I would impress upon all owners of house property whether as individuals or through trustees. Upon you the responsibility lies. Factors may represent you under the 32nd clause, and so keep your name from a publicity which, in the circumstances, would be richly deserved, but nevertheless on you and your ill-got rents I am old-fashioned enough to believe a curse rests which will be sure to find you out. Just think of it. They are collected from week to week and month to month by your agents at the doors of those houses. It may be, the very coins which are the reward of iniquity are put into their hands. It is all the same as if you stood at those doors and held out your own hand for the money. But no! you send someone else to get it, and perhaps you give a subscription to the Home Mission or the Social Union, or you discuss the great city Babylon in your drawing-rooms, and you stand afar off and bewail and lament when you see the smoke of her burning.

The question—*What is to be done with the uninhabitable house?*—has been answered already: shut it up until it has been made habitable. If operations are not begun at once for its restoration, the structure soon disappears. In twenty-four hours there will not be a pane of glass unbroken; in a week the window-frames, doors, and woodwork generally will be on the move; soon the demon boy will make his way through the roof, and so the work of destruction goes on until the very walls are levelled. As I have already said, only 16 out of the 282 houses dealt with have been restored and reopened. They were all one-room houses of the "colliers' row" type, occupied by the rough unskilled labour class of men. The rents of six houses were raised 18 per cent., and of nine, 20 per cent. The old tenants for the most part returned to their houses at these rents. The net result is, therefore, 16 houses restored to the market in a wholesome condition, and 266 condemned and

withdrawn from the market, like the unsound flesh or fish which is constantly being seized by our food inspectors. This may seem to some but a poor result of the application of powers which would enable us to deal with all the uninhabitable houses of Glasgow. But those who hold the helm of affairs in a large city must occupy the conning-tower and watch what is going on around. Your president and I have had many an anxious conversation about this 32nd clause. The question is not merely what is to be done with the uninhabitable house, but what is to be done with the people who inhabit it? It is for the sake of the people that the houses are closed. It must be remembered that you are dealing with quite a limited section of the population. Those 282 were "ticketed" houses. I have elsewhere estimated the number of ticketed houses at 23,000, and the number of their inhabitants at 75,000, and I have said—"Those 75,000 people comprise not only the criminal class, but the whole social *débris* of this large city; some who are bravely struggling with poverty, and far more who are alike bankrupt in character and in fortune" ("Ticketed Houses of Glasgow"). We have seen how accurately this description applies to the inhabitants of the uninhabitable house. What, then, is the result of disturbing such people? The effect as regards the bad is like nothing so much as the driving away of a swarm of flies from a raw place on an animal. They rise in a flight and settle down upon the nearest other raw place. Your criminal and your drunkard look out for the nearest property where they will be received, and that is sure to be but a little better than the place they left. For the compact between the tenant and the landlord of such property is an immoral compact. The necessity of finding house-room makes the vicious and criminal person accept any hovel; the consciousness that he has an unsound article to sell makes the landlord accept the criminal and the vicious as his tenants. The object to be aimed at by the sanitarian is to make such a compact impossible by taking away the only reason the landlord has for entering upon it—the fact that he is possessed of an unsound article. But caution is necessary. In Glasgow of late there has been an immense work of destruction of unwholesome property and consequent disturbance of this restricted part of the population, quite independently of the 32nd clause. I have received most interesting statements from Mr. Menzies, manager to the Improvement Trust, of the operations of that Trust during the last five years, which show that there have been demolished—

311	houses	rented	at	£5	and	under.		
265	do.		at	above	£5	and	under	£10.
27	do.		at	£10	and	upwards.		



There have been erected—

169	houses rented	at £10 and under.
102	do.	at above £10.

There have been reconstructed—

47	houses rented	at £5 and under.
99	do.	at above £5 and under £10.
9	do.	at £10 and upwards.

In the same time the Glasgow Workmen's Dwellings Company have bought and reconstructed certain notorious tenements, containing 82 one-room and 65 two-room houses. They have also erected new tenements, containing 13 one-room and 43 two-room houses. These demolitions are special and extraordinary, over and above the continuous destruction of house property of inferior quality in the course of railway construction, business extension, and other changes incident to the growth of a city. I find also from the sanitary inspector's report that, during the three years which have elapsed since the Police Amendment Act was passed, 3755 W.C.'s and 455 sinks have been introduced into tenements.

Now, what is the general result of all this to the householder? In every case of demolition and of reconstruction, the original occupants are first of all dispossessed. Then the process of selection begins. No owner of new property will look at the old tenants. Apart from this, it is evident from the rents of the Improvement Trust new property that they are not within reach of the old tenants. The rents of the Workmen's Dwellings Co. tenements are within their reach, but, all the same, their character shuts them out. Similarly, in the case of every reconstruction which begins with the eviction of the tenant, the opportunity is taken to purge the rent-roll of all persons who are undesirable as tenants. The 10 per cent. of good tenants may go into the promised land, but the 90 per cent. of bad are compelled to wander in the wilderness. Truly the way of transgressors is hard. It is intended to be so. In the testing of principles, there is nothing like pushing them to their extremes. Supposing *every* landlord said, "I shall not lay out a penny on my property, I can always get somebody to inhabit it; I shall not put a slate on to keep the water out or replace a rhone to keep the wall dry, or repair the paving of the court to prevent pools of stagnant water, or lift a choked drain though the tenants are wading in sewage; I shall listen to no complaint of tenant until I get a notice from the sanitary department, and then I shall put off as long as possible, and lead the authorities through every possible form which involves delay." There are landlords who do this, or their factors for them; but suppose they all did so, what would be the state of

the city? I need not attempt the description. It would require an artist of the impressionist school, with a very large canvas and a liberal supply of the primary colours. Supposing, on the other hand, every landlord said, "I shall keep my property in thorough repair; I shall inquire into every complaint from my tenants, and attend to every notice from the sanitary department at once; and by inspection shall endeavour to anticipate those complaints and notices; I am determined not to harbour thieves and prostitutes; I shall not put up with the drunkard and the midnight brawler; I shall not make the world easier to live in for the profligate and the unclean." The majority of landlords and factors set before themselves this standard of business. Why not all? If all, what then would be the state of the city?

Gentlemen, there are many schemes of social restitution before us at present. The oldest of all is in the Bible, and it is based upon righteousness—not righteousness in the air or in the earth, in this or in that, but in the individual. I fancy that if we would all leave off talking, and each look to the fragment of responsibility which lies at our own door, we should do more to bring on the golden age of human hope. If I were desirous to promulgate a theory of social reform, I would base it by preference upon the higher morality of house-owning—a very broad basis, because it includes not merely the landlord and the factor, but the trustee, the beneficiary, the bondholder, and it touches every tenant. No matter through what channel the rent of the uninhabitable house reaches our pocket, it brings a burden of responsibility with it. Let us not for gain make broader the way which leads to destruction both of soul and body.

#### COMMON LODGING-HOUSES.<sup>1</sup>

Ladies and Gentlemen,—If you wish to learn something of what the "Common Lodging-houses" of Glasgow really were before the era of police and sanitary regulation, I would refer you to a little book published last year by one of our local booksellers, entitled "Hawkie, the Autobiography of a Gangrel," edited by John Strathesk. Hawkie was a well-known Glasgow character in the first half of this century—a beggar, street orator, and wit—who amused the closing years of his erratic life, spent in the City Poorhouse, with the composition of this autobiography. The original is couched in the purest Glasgow Scotch, spelled phonetically, but as published it is translated into decent English, and is an authentic record of the experiences of one of those "Jolly Beggars" immortalized by Burns.

<sup>1</sup> Paper read at a Conference in Edinburgh, March, 1889.

The exuberant genius of the picture drawn by the poet may make us forget "the pity of it," but there is a naked, unadorned realism about Hawkie which presents nothing to divert our minds from the moral and physical horrors of his story. Lodging-houses were in those days high places of debauchery and disease. There was no house too miserable for the purpose, and no limit to the number admitted. One result was that to keep a lodging-house was one of the surest and quickest ways to fortune. As Hawkie says:—"These most notorious characters, lodging-house keepers, are suffered to take an old house, perhaps an old stable or condemned house; they start a lodging-house, which, every second night, will return their original outlay." He gives in the course of his story many examples from his own experience. He tells us of a place at the foot of the Old Wynd, "a celebrated spot called the Flea Barracks," the precise location of which he fixes by those landmarks. "This place was on a ground floor near a dung heap." We read of a house of two apartments, only one having a fireplace, in which he had seen as many as 40 lodgers at one time, at 3d. per head. Then there was Billy Toye's "in the entry from the Old Wynd to Jeffrey's Close." The house rent was £6, and he took 10s. per night out of his beds or "snoozes." No wonder that Billy was able in nine years to give up his lodging-house and purchase a farm in Ireland. Another man is mentioned who in four years saved £200, and when he emigrated the whole plenishing of his house only fetched 9s. Although I select these illustrations from Hawkie's experience in Glasgow, I am bound to state that there was scarcely a town or village in Scotland south of the Forth, or in the North of England, in which he had not lodged, and that in them all his allusions and stories show the same savage conditions of life, with their necessary results, recklessness, immorality, and disease. The worst form of barbarism is that which gathers at the base of civilisation, and here we had it in perfection.

The lodging-house contains not only the men and women who are striving to live by honest labour, though it is of such a fickle or ill-paid kind, that they are never even a day ahead of their wants. There also we find the criminal, at open war with society and the whole *débris* of the social structure. Neglected, they form together a fermenting mass of moral and physical putrefaction. The history of lodging-house reform and regulation is the old one. It sprung from the necessity of self-preservation being borne in upon the respectabilities in the upper tiers of society. If some disease-proof partition could have been erected which would have prevented the spread of the flames of fever, the inmates of the comfortable houses

would have thanked God that they were not as these other men, and left the fire to die away among the ashes of its victims. But happily such is not the order of the universe. Typhus and cholera established their headquarters in the common lodging-houses. Their wretched inmates not only died there, and had to be buried at the public expense, but in their nomadic movements they carried these plagues far and wide. Common-sense taught us that to root out the Barbary pirates we must bombard Algiers; and the statutory regulation of lodging-houses was resorted to from the same homely view of the situation. I refer you to Dr. Glover's historic Report on the Common and Model Lodging-houses of the Metropolis, with reference to epidemic cholera in 1854, for evidence of the immediate and remarkable result. He proved that the inmates of the ordinary lodging-houses "suffered less from cholera than almost any other class in the metropolis," and that the inmates of the model lodging-houses "enjoyed all but complete exemption from the epidemic." It is worth while quoting the conclusion of this report, written 34 years ago, to show you how old are the lessons which societies such as yours are repeating, and still endeavouring to drive home the practical issues. Dr. Glover says:—"The facts adduced in the above report appear to me to prove that in proportion as you improve the dwellings of the people and secure them proper ventilation, good drainage, sufficient supply of water, and inoffensive water-closet accommodation, you advance the standard of their general health, and exempt them from cholera and other epidemic diseases. . . . More difficult to express in figures, but not less certain, are the still greater benefits which may with confidence be anticipated from rendering houses comfortable and healthy, such as the enhancement of the domestic affections, the correction of vicious habits, and the opening the way for the admission of the higher and holier influences of religion to the most numerous and hitherto most neglected classes of the community."

I have thus introduced the subject of model lodging-houses, of which we have 7 in Glasgow, and regarding which I am led to understand you desire some information. Glasgow is a city in which the keeping of lodgers may be said to be so prevalent as to be a serious social disease. At the census of 1871 it was found that 23 per cent. of all our families contained lodgers besides their natural constituents. If we put this fact alongside of the other fact that 20 per cent. of these families with lodgers were dwellers in one-room and 48 per cent. in two-room houses, you will admit that I am amply justified in regarding the tendency to keep lodgers as a serious social disease. To introduce strange men and women within the narrow limits of



those small houses must demoralize the family, and precipitate the tendency to moral and physical degeneration, which is inherent in the one and two-room house. When the Improvement Trust began to clear out the areas scheduled under their Act, and to consider what was to be done to provide accommodation for the inhabitants displaced, it was found that a large proportion were lodgers. Very careful inquiries were made, which showed that in 14 per cent. of the one-room houses, in 27 per cent. of the two-room houses, and in 32 per cent. of the three-room houses there were lodgers. While we were satisfied that sufficient and satisfactory accommodation, provided by the ordinary processes of private enterprise, existed for the reception of families as such, it was obvious that the migratory casual lodgers would only extend into other small houses and intensify the practice of receiving strangers into the crowded family circle of the poor, which their condition, even under the control vested by statute in the authorities, had satisfied us was not to be desired. Besides, as carried on, the private business of a common lodging-house keeper was evidently a lucrative one. It returned usurious interest upon the capital of the proprietors, but under conditions which were thoroughly immoral in the sense that the accommodation was inferior, the discipline lax, there was no premium upon virtue, the miserable pence of the lodger were the first and only consideration; he might be drunken, or obscene in language and conduct, he might come and go at any hour. Poverty drove the homeless into circumstances in which contamination or deterioration of the whole being were inevitable. The Improvement Act contained powers to erect and maintain dwelling-houses for the displaced inhabitants, and for a double purpose it was determined to provide for the waifs and strays among them. To use a word with which we are now becoming familiar, it was thought that by building *model* lodging-houses the lodgers might be elevated and the keeping of lodgers might be "moralized." It might be shown that the business of a lodging-house keeper could be conducted so as to be at once moral and commercial. I hope to satisfy you that both ends have been attained. Between 1871 and 1879 seven *model* lodging-houses were erected in as many different industrial centres of the city. In round figures they cost £87,000. They contain 1922 beds, so arranged that each has a private compartment, with 400 cubic feet of air space. I need not enter into any detailed description of the various attached comforts and conveniences—the reading-rooms, dining-rooms, baths, cooking, and washing facilities, &c. You will soon have in the Grassmarket, provided by private enterprise, a *model* lodging-house in which all that is good in our models has been copied,

and many features have been so improved upon that we shall have in return to take further lessons from you. Only one of these *model* lodging-houses, containing 96 beds, is reserved for females. It has given more trouble both financially and in respect of discipline than the other houses for males—a fact which has its melancholy meaning. The woman who has, from whatever circumstances, been divorced from home-life, drifts further from self-respect and good living than the man. The males pay 3½d. and 4½d. per night, and the females 3d. Let us now turn shortly to results.

Financially, those houses have been a success. They have returned an average of 4¾ per cent. on their original cost; and this including a period of great depression in trade, when the demand for beds was not always sufficient to keep them full, which they now generally are in spite of the competition of private parties. This is another result and the best evidence also of their commercial success. There are now at least three large *model* lodging-houses conducted by private parties, drawn to the business just as men are led to embark in any enterprise which they see yielding a profit to other people. One of these houses contains 510 beds, while the largest of the original houses only contain 328 beds. The business has thus been so far "moralized."

As to the inmates, their moral and physical elevation cannot be presented in exact numerical statements. They must go to bed at the latest by half-past ten, they must turn out at 8 a.m. No spirituous liquors are permitted to be brought into the house. No gambling, quarrelling, profane or indecent language, or noise of any description, or any conduct calculated to disturb peace and good order are allowed, under pain of expulsion. Then consider the humanizing effect of being cared for. The evidence of this care is in the first place the mere fact that such accommodation has been provided by the community. There are few so insensible to kindness, or so thoughtless as not to reflect when they lay their head on the clean pillow and draw over them the clean bed-clothes, that they ought to care somewhat more for themselves when they are so well-cared for by others. Besides, the inmates are placed in circumstances in which it is possible for those who are moved by a sense of their brotherhood and sisterhood to the poorest and meanest of the great family of man, to minister to their amusement by concerts and readings, and to their religious instruction by Sabbath services. It is at least not incongruous to speak of another life to those who have been surrounded with physical conditions which show that *this* life has not been forgotten.

As to health, I can say from an official acquaintance with

those model lodging-houses extending over the whole period of their existence, that there has been a complete immunity from infectious disease. The superintendents are instructed to get medical assistance at once in case of illness. It is very rare to find a case of infectious disease originating among the inmates, and we have never found that a succession of cases arises, excepting on one occasion, when small-pox got hold in one of the houses. All medical men will understand how this might occur. Even then the discipline and direct control over the inmates, enabling preventive measures to be adopted with a thoroughness which in an ordinary lodging-house is impossible, made it easy speedily to stamp out the disease. On the other hand, our experience is that infectious diseases, especially typhus, frequently invade the common lodging-house, and spread in spite of all our efforts, unless we can remove all the inmates and shut up the house for a time.

Another incidental advantage to the community has been the dispersion of the nomads of the population, who used to be concentrated in the Central District of the City. In 1871 there were 153 common lodging-houses in this district. There were none in the Northern or Western Districts, and only one or two in the Eastern or Southern. Now there are only 93 in the Central District, and only one outside of it. The total number of those houses has therefore been greatly reduced, and that wholly by their abstraction from the Central District, where the lowest elements of society always tend to collect. This is obviously a change to the advantage of social order and good government.

The last of the benefits which have followed the establishment of these model lodging-houses and their extension in private hands, to which I shall allude, is perhaps the greatest. I refer to their attraction from the small houses, of a large proportion of that evil element in the domestic life of the poor—the casual lodger. The evidence of this is to be found in the records of the night inspections for the detection of overcrowding in our “ticketed” houses. These comprise the smallest of our houses, in which overcrowding is a physical evil, no matter how it arises, but in which no language can adequately express the moral evil which is engendered, when strange men and women are intruded beside man and wife, adult sons and daughters, and young children within the four walls of one room. Of the 23,000 ticketed houses of Glasgow, 16,000 are one-room, and 7000 are two-room houses, and these, as I have said, of the very smallest. In the five years 1872-76, when there was only one model lodging-house, it was found that in 71 per cent. of the ticketed houses which were found to be overcrowded there were lodgers. In the five years 1877-81,

during which the other houses were erected, the proportion of overcrowding arising from lodgers was reduced to 65 per cent. In each successive year this proportion has steadily fallen, until in 1888 it reached the lowest point—viz. 29 per cent., as contrasted with 71 per cent. when the system of model lodging-houses was first introduced. These are poor bald figures, but I leave you to judge what they mean in the prevention of the *occasion* of sin and demoralization, and the extension of domestic purity among the poorest of the householders of Glasgow.

#### ON SOME SOCIOLOGICAL ASPECTS OF SANITATION.<sup>1</sup>

It is a wise usage of this Society which gives the president-elect a year in which he may enjoy the honours of his position without the labour of giving a set address. I confess, however, that this grateful space has been spent in a bewildered survey of the task rather than in a deliberate preparation for its fulfilment. Amid the various subjects which might fitly be brought before this Society, you will, I am sure, recognise my prudence in seeking to discharge my obligation to deliver a presidential address by discoursing to you on “Some Sociological Aspects of Sanitation.”

It has happened to me, from time to time, in the course of my life, to have some learned friend shrug his shoulders and drop the hint that my official work, the ultimate object of which is the conservation of life, somehow was opposed to the laws of the universe. These criticisms generally included in their expression the phrases “struggle for existence,” “natural selection,” “survival of the fittest.” I wish now to look into this grave suggestion. The ultimate source of these criticisms is Mr. Herbert Spencer, and I take their full exposition from his book, “Social Statics,” and their more recent and popular reiteration in “The Man *versus* The State.”

First let me acknowledge that I am heavily handicapped in my task by the personal interest I have in opposing these doctrines—what Mr. Spencer calls the “class-bias,” which he defines as “a reflex egoism.”<sup>2</sup> It is, however, so far fortunate that I am “in the same condemnation” as the whole medical profession, who, we are told, “moved as are the projectors of a railway, who, whilst secretly hoping for salaries, persuade themselves and others that the proposed railway will be beneficial to the public—moved as all men are under such circumstances, by nine parts of self-interest gilt over with one part of

<sup>1</sup>President's Address to the Philosophical Society of Glasgow, at opening of 85th Session, 2nd November, 1887.

<sup>2</sup>The Study of Sociology, 6th edition, p. 242.



philanthropy— . . . are vigorously striving to erect a medical establishment akin to our religious one."<sup>1</sup> I pass by these and other passages to the like effect with the remark that they are not fair. Doctors live by the treatment of disease, and if, as a body, they have been the chief advocates of methods of preventing disease, which is a historical fact, the circumstance that a small percentage of the total number have thereby obtained official emolument is but a decimal to the credit of the whole professional income, against the vast sum which has been deducted by their aggregate efforts. I trust the allegation of "class-bias" will not prevent the merits of my argument from being considered.

Mr. Spencer sets out from the "law of right social relationships that every man has freedom to do all that he wills, provided he infringes not the equal freedom of any other man."<sup>2</sup> Again, "here, then, we reach the ultimate interdict against meddling legislation. Reduced to its lowest terms, every proposal to interfere with citizens' activities further than by enforcing their mutual limitations, is a proposal to improve life by breaking through the fundamental conditions of life."<sup>3</sup> These principles are applied to the whole round of State legislation, as, for example, the Regulation of Commerce, Religious Establishments, Poor Laws, National Education, Government Colonization, Sanitary Supervision. I have no fault to find with the principle, but I question some of its applications to sanitation. I agree heartily with much of the rigid, uncompromising, unanswerable criticism to which the interferences of the State in these various departments of legislation are subjected. Even sanitary legislation furnishes examples of blundering. I agree that the evolution of the individual is best promoted by leaving him, as far as consists with the general well-being, to his own deserts. Paternal government or grandmotherly legislation produces a poor weakling, maintained in the battle of life by artificial props outside of him. The natural incentives of rewards and deterrents of punishments are inoperative; and deterioration, moral and physical, is the aggregate result. But these are unsatisfactory generalities. It is only when we follow Mr. Spencer into the details of his method of dealing with public health that we can discover whither he would lead us. He maintains that it is not the duty of the State to protect the health of its subjects. Sanitary administration by the State is wrong. Sanitary administration by municipal authorities is wrong. All taxation for sanitary superintendence, being the abstraction from the citizen of more property than is needful for the efficient defence of his rights,

<sup>1</sup> *Social Statics*, 1868, p. 409.

<sup>3</sup> *The Man versus The State*, p. 105.

<sup>2</sup> *Social Statics*, p. 121.

is to be condemned. "Be it by general government or by local government, the levying of compulsory rates for drainage, and for paving and lighting, is inadmissible, as indirectly making legislative protection more costly than necessary, or in other words, turning it into aggression; and if so, it follows that neither the past, present, nor proposed methods of securing the health of towns are equitable."<sup>1</sup> Mr. Spencer proceeds: "This seems an awkward conclusion; nevertheless, as deducible from our general principle, we have no alternative but to take to it." Then he goes on to sketch a method of sanitation consistent, as he supposes, with his general principle. I give his own words, for although the passage is long, the best method of criticism is to do so:—"How streets and courts are rightly to be kept in order remains to be considered. Respecting sewerage there would be no difficulty. Houses might readily be drained on the same mercantile principle that they are now supplied with water. It is highly probable that in the hands of a private company the resulting manure would not only pay the cost of collection, but would yield a considerable profit. But if not, the return on the invested capital would be made up by charges to those whose houses were drained: the alternative of having their connections with the main sewer stopped being as good a security for payment as the analogous ones possessed by water and gas companies. Paving and lighting would properly fall to the management of house-owners. Were there no public provision for such conveniences, house-owners would quickly find it their interest to furnish them. Some speculative building society having set the example of improvement in this direction, competition would do the rest. Dwellings without proper footway before them, and with no lamps to show the tenants to their doors, would stand empty, when better accommodation was offered. And good paving and lighting having thus become essential, landlords would combine for the more economical supply of them."<sup>2</sup>

If you say this is impracticable, Mr. Spencer replies that therein lies the virtue of the scheme; for the impracticability arises from the imperfect morality of mankind, and perseverance in these impracticable methods will elevate the general morality until it becomes practicable. If you say, out of the intermediate chaos will arise disease, which will involve good and bad, moral and immoral, in one common destruction, he welcomes disease, especially epidemic disease, as one of the saviours of society. "Partly by weeding out those of lowest development, and partly by subjecting those who remain to the never-ceasing discipline of experience, nature secures the growth of a race who shall both understand the conditions of

<sup>1</sup> *Social Statics*, p. 430.

<sup>2</sup> *Social Statics*, p. 430.

existence, and be able to act up to them."<sup>1</sup> Again—"Mark how the diseased are dealt with. Consumptive patients, with lungs incompetent to perform the duties of lungs, people with assimilative organs that will not take up enough nutriment, people with defective hearts that break down under excitement of the circulation, people with any constitutional flaw preventing the due fulfilment of the conditions of life, are continually dying out, and leaving behind those fit for the climate, food, and habits to which they are born. Even the less imperfectly organised, who, under ordinary circumstances, can manage to live with comfort, are still the first to be carried off by epidemics; and only such as are robust enough to resist these—that is, only such as are tolerably well adapted to both the usual and incidental necessities of existence, remain. And thus is the race kept free from vitiation."<sup>2</sup> And thus we are introduced to "natural selection" and "the survival of the fittest." In "Social Statics" (p. 353 *et seq.*), we are desired to note how aged and infirm ruminants are killed and eaten by "their carnivorous enemies," and so the average happiness and well-being of both are promoted. In man, among other analogous processes, are specified "the beneficence which brings to early graves the children of diseased parents, and singles out the low-spirited, the intemperate, and the debilitated as the victims of an epidemic." In "The Man *versus* The State," written thirty-three years later, Mr. Spencer refers to Mr. Darwin's doctrine of "natural selection," promulgated in the interval, as strengthening his position, and expresses surprise that, despite the general acceptance of this doctrine by cultivated people, "now more than ever before in the history of the world, are they doing all they can to further survival of the unfittest."

In the first place, let us consider what is the comparative value of disease as a factor in natural selection in civilized man and in the lower animals? We must not think of disease, or rather its causes, merely as producing death, as we are apt to do when the elevation of the race by the extinction of the individual fills up our field of vision. Disease is not like the deer-stalker's bullet, when his aim has been true, and one falls while all the rest of the herd gallop away unharmed. It resembles the discharge of "buck-shot" or "sparrow hail," which scatters, and for every one killed there are a number maimed. Granting, then, that the most unfit dies, round every *deceased* unfit there are a number *surviving* more or less unfit, because of the effects of disease. This is the invariable result of the action of disease or disease-producing agencies on life. But in the lower animals the predatory instincts of one

<sup>1</sup> *Social Statics*, p. 413.

<sup>2</sup> *Social Statics*, p. 414.

order promote the development of another by killing and devouring its weaklings, and within the order itself sexual selection tends to isolate the individual from posterity. In civilized man the weaklings survive, and sexual selection does not effectively prevail. The analogy is perfect between the effects, immediate and remote, of a cartridge fired at a large covey or a volley on the battlefield, and the comparative value of disease as a factor in natural selection in these cases. In the former there are the dead which are bagged by the sportsman, and the wounded who are eaten before nightfall by hawks, weasels, cats, &c.; in the latter there are the dead who are buried, and the wounded who are carried away and survive with various deformities and injuries. If you want full evolutionary value out of disease in man, regarded merely as an animal, you must kill or seclude from society; but killing is murder, and sexual selection can only be promoted by the diffusion of knowledge and the elevation of morality to such a sublime pitch that the individual will limit his happiness, subdue his desires, and in short extinguish himself for the benefit of posterity. How far we are from this consummation no one has had a better opportunity of judging than Dr. Maudsley. Speaking of certain diseases having a strong hereditary tendency, he says:—"Those who, having fallen in love, are aware of the existence of them in their families, are, therefore, not a little troubled sometimes with scruples of conscience, and anxiously ask medical advice whether they shall marry or not. In the end they commonly marry, whatever the advice given them, having persuaded themselves that the epilepsy was not real epilepsy, but a form of strong hysteria; that the lung mischief was not constitutional phthisis, but the accidental consequence of a neglected cold; that the insanity was not the outcome of family degeneracy, but an incidental effect of a blow on the head, which was thought nothing of at the time. Would the earth ever have been peopled had cool reason been potent enough to quench the hot passion of love?"<sup>1</sup> On the whole, then, from these premises I conclude that, in existing circumstances, the most efficacious and direct method of promoting the survival of the fittest in civilized man is to prevent disease of all kinds by the removal of its causes. Indeed, Mr. Spencer's argument from natural selection really strikes, not at *prevention* of disease, but at all forms of artificial interference with the tendencies of disease which maintain in life sick, crippled, and, in general, physically or morally impaired and unsound individuals.

So much for disease in general, but different diseases present different sociological aspects. Some begin and end in the

<sup>1</sup> "Heredity in Health and Disease."—*Fortnightly Review*, May, 1886.



individual, and do not descend vertically or spread laterally as morbid entities. Their value in the process of natural selection is confined to the extinction or the weakening of the staying-power of the individual. They exercise no direct physical influence on existing individuals, and on posterity only by impairing reproductive power, or diminishing the viability or the chances of vigorous and healthy life in the product of such parents. Simple inflammations, such as pleurisy and pneumonia, are illustrations of this class. Other diseases descend, or tend to descend, vertically. They are distinctly hereditary—as epilepsy, insanity, gout. Others, again, are remarkable for lateral extension, from person to person, from town to town, from country to country. These do not descend vertically, and influence posterity only indirectly in the same ways as the first class. But they stand out as the most potent sociological disease factors in virtue of their power of lateral extension or infectivity. You have no doubt remarked how frequently Mr. Spencer brings in epidemics as his ministers in the discipline of mankind, and, though I propose to derive quite other lessons as to their influence, we cannot over-estimate their teleological importance. I cannot display this feature of infectious disease in more apt and impressive words than those used by Dr. Farr, who says:—"Diseases of this class distinguish one country from another—one year from another; they have formed epochs in chronology; and, as Niebuhr has shown, have influenced not only the fate of cities, such as Athens and Florence, but of empires; they decimate armies, disable fleets; they take the lives of criminals that Justice has not condemned; they redouble the dangers of crowded hospitals; they infest the habitations of the poor, and strike the artisan in his strength down from comfort into helpless poverty; they carry away the infant from its mother's breast, and the old men at the end of life; but their direst eruptions are excessively fatal to men in the prime and vigour of age." This last statement is not exactly in harmony with what you have heard of "sweeping away by pestilence tens of thousands of unhealthy livers," or "weeding out those of lowest development." . . . [Several paragraphs descriptive of the ravages of the major infectious diseases are here omitted.—(ED.)]

I have thus rapidly caused to pass in review before you the most important communicable diseases which infest mankind. They present interesting differences, but, speaking of them generally, I ask your attention to the following points:—

1. *The property of lateral extension.*—Given one person in a community attacked by communicable disease, and the one tends to become two, the two to become four; or it may be the one tends to become three, the three to become nine, and so

on. In all cases you have a tendency to geometrical progression, but the ratio will vary according to the intensity of the tendency in the special disease. This tendency carries the disease from its centre of origin, as the prairie fire licks up blade after blade of grass and leaps from tree to tree with an ever-widening front. Every sick person is a menace to those who are well. The settler does not awake to his danger when the careless match is thrown down among the dry grass miles away, but it began then, not when the lurid reflection of the gathering fire lights up the horizon.

2. *The habit of endemicity* or of lurking during the intervals between epidemics in places where the conditions are peculiarly favourable to the maintenance of the disease. It may be a house in a street, or a street in a district, or a district in a city, or some special area in a country, or some country in a continent. It may even be one special corner in the world; but in all cases it is the permanence and intensity in the lurking place of the conditions which sustain the disease in life, which lead to the settling down of the disease in this particular place. The interest of the houses, streets, districts, and countries which have never been visited by an epidemic, or have successfully expelled it, in these endemic centres is this—that a perpetual menace of re-invasion is thus kept up. It is the same interest which the lair of the tiger has for the inhabitants of the neighbouring villages; or which the Scandinavian fiords, whence the Norse men put out, had to the east coast of Scotland and England; or the seaports of North Africa, where lurked the Barbary pirates, to the seafarers of the Mediterranean and the English Channel.

3. *The artificial and therefore remediable nature of the local conditions which foster endemicity.*—Climate, soil, and other physical features may give those conditions greater efficiency and energy, but the conditions themselves are all essentially of the nature of uncleanness, and at most the physical peculiarities only emphasize the necessity of cleanliness. Cholera, Yellow Fever, Enteric Fever, and Typhus all positively live upon gross and palpable dirt, and wherever they sustain themselves in the endemic condition there will that dirt be found most gross and most palpable, and from thence may they be exterminated by the removal of that dirt.

4. *Even those communicable diseases, such as Smallpox, Measles, Scarlet-fever, and Whooping-cough, which can scarcely be said to live upon uncleanness, but attack man as man, are ALL aggravated thereby.* Their epidemic tendency is increased, their fatality heightened, their capacity for indiscriminate extension intensified.

5. *The soil which sustains the communicable disease in the*

endemic condition and promotes the epidemic expansion is the same which produces general unwholesomeness. A city or a country which is noted for epidemics, and which harbours communicable diseases as endemics, is always unhealthy. The measures which will exterminate the communicable diseases will promote general health by lessening the prevalence of non-communicable diseases. In short, the adoption of radical measures for preventing epidemics covers the whole field of sanitation. The wider result follows with certainty the enterprise undertaken with the narrower aim, and cannot otherwise be attained.

6. *Whoever persists in a manner of life calculated to produce or promote communicable disease injures himself first, but next, and with certainty, his neighbour.* The lawyer's question—"And who is my neighbour?" here rises involuntarily to our lips, and I know of no path which leads us to a wider answer to this old question than that which we have been following to-night. Who is the neighbour of the man living under the conditions of civilized life? Mr. Darwin by the same route reached this conclusion:—"Man is liable to receive from the lower animals, and to communicate to them, certain diseases, as hydrophobia, variola, the glanders, syphilis, cholera, herpes, &c.; and this fact proves the close similarity of their tissues and blood, both in minute structure and composition, far more plainly than does their comparison under the best microscope, or by the aid of the best chemical analysis."<sup>1</sup> Carlyle got a step higher through Dr. Alison's story of the "poor Irish widow," whose husband had died of typhus "in one of the lanes of Edinburgh," and who wandered about the town with her three children, seeking help, and finding none returned to her lane and died there, and set a-going a local epidemic which ended in the death of "seventeen other persons." He says:—"Very curious. The forlorn Irish widow applies to her fellow-creatures, as if saying, 'Behold, I am sinking, bare of help; ye must help me! I am your sister, bone of your bone, one God made us; ye must help me.' They answer, 'No, impossible; thou art no sister of ours.' But she proves her sisterhood; her typhus fever kills them: they actually were her brothers, though denying it! Had human creature ever to go lower for a proof?"<sup>2</sup> It certainly was low enough, but human nature requires such arguments, and the ultimate cause of the existence of communicability in disease is, I believe, to enforce the golden rule upon us in reference to the physical well-being of mankind. For "who is my neighbour" in this aspect? Not only is the Irishman in his miserable hut

<sup>1</sup> *Descent of Man*, 2nd edition, p. 7.

<sup>2</sup> *Past and Present*, Book III., chapter 2.

neighbour to Dives in Belgravia, but the Polish Jew in his filthy "quarter"; not only the unvaccinated children of Leicester, but the unvaccinated French Canadian; not only the poor man in the slums, but the Indian ryot, who washes in the village tank and casts his dead into the sacred stream; the Mahommedan pilgrim, who drinks at Mecca the waters of the sacred well of Zem-Zem, which the profane chemist tells us is polluted with sewage and a main factor in the dissemination of the cholera which he carries a long stage on its journey to Europe; and the fellahs of Egypt, and every inhabitant of every unsavoury town and village in Europe where the cholera encamps on its progress to Great Britain. Indeed, in these days rapid transport has so shrivelled up space, and commerce so intermingles and distributes articles of trade which may carry disease, that it is hard to say who in the wide world may not prove their affinity to me as forcibly as my next-door neighbour.

The practical question is—"What am I to do with my dirty neighbour?"—and we must bring to the solution of it a little common sense and ordinary business principles as well as philosophy. The first thing to be done is to make him a voting unit in some convenient area of local government. Let the boundary be fixed in populous places so that the whole continuous or contiguous inhabited area shall be one; in rural districts so that sufficient mental area shall be secured to swamp local indifference and sustain an adequate executive machinery. Let the rates for all local purposes be raised from the same area, or somehow make it possible for any intelligent ratepayer to balance his liabilities for poor rates, police rates, water rates, public health rates, and so on, from time to time, and so satisfy himself that it pays to be cleanly and healthy. Impose upon these local administrative bodies the duty of providing the physical conditions and appliances of health, such as water-supply, sewerage, drainage, epidemic hospitals, disinfecting apparatus, &c., and of carrying out the daily operations, such as scavenging and sanitary supervision, necessary to keep the district clean outside and inside the houses of the inhabitants. To provide against the contingency of my dirty neighbours having a local majority, as well as to maintain a staff of higher capacity to advise in special emergencies and hold local inquiries, let there be at the head of the sanitary administration of the country a local government board armed with power to enforce the performance of such duties as, being neglected, first injure the locality, but next involve a risk to the general well-being of the country. The local administrative must, of course, have parallel power of prosecuting and punishing the dirty neighbour for overcrowding and other nuisances



which affect the well-being of the neighbourhood. The principle to be strictly followed both in the case of the personal and the local administrative unit must be not to do anything for them, but make them do it for themselves, and bear the expense as they will reap the benefits. In this way, a constant process of education would be carried on, and a sense of personal and local responsibility be maintained. Besides, every means of directly educating the dirty neighbour should be adopted. Let his children be taught in wholesome schools, where personal cleanliness and decency should be enforced during school hours; and let them have lessons in the rudimentary facts of hygiene, and the relation of disease to pauperism, crime, and taxation.

As a mere matter of business all this requires official administrative machinery. Every business man knows that if you really wish any function implying co-operation to be properly performed, there must be executive machinery, departmental sub-division, and general supreme supervision and co-ordination. Nothing is more conspicuous than the helplessness of the individual under the conditions of civilized life to secure the physical basis of health. What can one man wedged up in a crowd do to get fresh air, pure water, more standing room, or to avoid his neighbours' disease? It is a question of personal physics, not of personal morality. There must be co-operation, with the unavoidable concomitant of sacrifice of some individual liberty. To trust to voluntary association, without legal sanction which shall coerce the unwilling minority, who have the power to undo all that the majority are doing, soon works its own cure by a *reductio ad absurdum*. There will always be stupid or wicked people, who must be coerced not for their own sake but to save the wise. In America, although the locust plague was estimated to entail a loss of 200 millions of dollars per annum on the Union, no single farmer or even State could effectively combat the winged enemy. Congress appointed an Entomological Commission who drew up a scheme of national co-operation against the national plague, but they had also to take account of the dirty neighbour, and call for "State legislation to compel the indifferent and slovenly members of each community to co-operate with their more careful neighbours in carrying out precautionary measures for the destruction of locust eggs or newly-hatched insects."<sup>1</sup> The same has been our experience in Cyprus in combating the same insect. Purely voluntary co-operation failed. The apathetic peasants sometimes would not protect their own crop, to which no one would have objected if they could have starved alone.

<sup>1</sup> *Nineteenth Century*, January, 1885. "Locusts and the Farmers of America." Miss Gordon Cumming.

The solidarity of human interest in the face of communicable disease has in recent times asserted itself far beyond the submerging of the individual. Nations are now learning that organization, to be equal to the task of successfully resisting the inroads of such diseases as cholera, yellow fever, and small-pox, must embrace not only local authorities within nations, but nations themselves. Even the United States, with all its jealousy of central interference with the doings of individual States, learned from the ravages of yellow fever in the Mississippi valley in 1878 that some general co-ordination and direction was necessary for the national good, and hence the Act establishing a National Board of Health passed by Congress in the following year. Canada felt that she, being in territorial continuity, could not stand aloof, and, although as yet without legislative interference, the officials of the two countries have by conferences come to an understanding as to interchange of information and mutual assistance against the common enemies of their health and life. In Europe the same powerful agency has brought governments into negotiation. "Cholera conferences" between representatives appointed by the various governments have been held. Great Britain, under whose rule the habitats of cholera exist, has been made to feel her responsibility to all Europe. At the International Sanitary Congress which recently met in Vienna, a resolution was adopted to the effect "that an international convention between the different States be established against cholera, plague, and other communicable diseases." Certain principles were accepted as the basis of this international co-operation, among which were not merely compulsory notification of each case, concentration of intelligence of new movements of disease in a central Board sitting in some neutral State, and redistribution therefrom of disease-warnings, rules as to commerce, passengers, inspection, disinfection, &c., but stipulations as to water-supply, drainage, and other measures for the prevention of disease at its point of origin. In this way, step by step, the final end of the existence of communicable disease is being worked out. Self-interest enlists the most enlightened nations in the promotion of the physical welfare of the poorest and most wretched inhabitants of the remotest corners of the earth.

#### SANITATION AND SOCIAL ECONOMICS: AN OBJECT LESSON.<sup>1</sup>

At next meeting I shall leave this chair and the elevated position which, by your favour, I have occupied for three

<sup>1</sup> President's Address at opening of 87th Session of Glasgow Philosophical Society, 6th November, 1889.

years. It is a usage of this Society, the wisdom of which my successor will no doubt fully recognise, to require the retiring President to introduce the Session with an Address. You will see from the subject of this Address, as announced in the billet, that I am not going to lead you into "fresh fields and pastures new." I hope, however, you will think it not altogether unnatural or inexcusable, on my part, to seize this last opportunity of obtaining for an old cause the attention which the eminence of the chair of the Philosophical Society of Glasgow always commands.

In a Report on "The Vital Statistics of the City of Glasgow," published in 1886, in which I described *seriatim* the districts into which the city is divided for statistical purposes, specifying the main physical features of each in relation to the health of its inhabitants, you will find the following with reference to—

"DISTRICT 14, or 'Bridgegate and Wynds.'			
		1871.	1881.
Population, - - - - -		14,294	7,798
Acreage, - - - - -		35	35
Density, - - - - -		408	223
Mean number of rooms per house,			1.855
Do. persons per room, - - -			2.946
(1880) Percentage of houses of 1 room, 49; 2 rooms, 35;			
5 rooms and upwards, 1.			
Percentage of Irish-born, 32.			
DEATH-RATE.			
All ages—mean, - - - - -	1871-2,	42.3	1880-1-2, 38.3
Under five years—mean, - - -	" "	166.1	" "
MEAN, 1880-1-2.			
Birth-rate, - - - - -			37.1
DEATH-RATE.			
Under 1 year, per 1,000 born, - - -			206
All ages from Infectious Diseases, - - -			4.15
Do. Consumption, - - - - -		5.28	16.75
Do. Acute Diseases of Lungs, - - -		11.47	
Percentage of Total Births, Illegitimate, 22.			
Do. Total Deaths, Uncertified, 25.			
Do. Do., Insured, 32.			

"District 14, or 'Bridgegate and Wynds,' bears a sufficiently descriptive designation. It lies between Stockwell Street and Saltmarket on the west and east, and Trongate and Clyde on the north and south. The Union Railway occupies the very centre. Between the clearances necessary to its formation and the operations of the Improvement Trust, this District has been, so to speak, disembowelled. Still, in those portions which remain, we find a population the like of which, for social and moral degradation, is not to be found in the City. Their houses, though much has been done for them, are radically bad, and total demolition and reconstruction is the only remedy. To enumerate those plague spots would simply mean to catalogue all the

wynds, narrow, noisome streets and closes of this unhappy area, and to bring once more into public notice names which have been the heartbreak of successive generations of Glasgow philanthropists.

"We began this survey of the districts of Glasgow with 'Blythswood,' which was remarkable as having the lowest proportion of inmates per inhabited room, the largest proportion of large-sized houses, the lowest death-rate, the lowest birth-rate, the lowest mortality under five years, the lowest proportion of deaths under 1 year per 1,000 born, and the lowest proportion of Irish-born. We end it with the 'Bridgegate and Wynds,' which has the largest proportion of inmates per inhabited room, the largest proportion, save one, of 1-apartment houses, the highest death-rate over all, the highest death-rate under 5 years, the largest proportion of deaths under 1 year per 1,000 born, and the highest percentage of Irish-born inhabitants."

It is this district which I propose to take as an Object Lesson on the relation between Sanitation and Social Economics. I quote this passage to satisfy you that, although I shall confine the details of this Object Lesson to the year 1888, I select District 14, not merely because in this single year it was the worst district in Glasgow in all sanitary and social aspects, but because it has *always* occupied this unenviable position. Further, I make the *worst* district in Glasgow my Object Lesson, because there we find in their greatest intensity the physical conditions and the associated vital and social characteristics which determine the position of every other district in Glasgow in the sanitary scale. The difference in the causes which produce the different results is a difference in degree, not in kind.

Speaking to a Glasgow audience it is unnecessary to spend much time over the location or the physical features and conditions of District 14. I repeat that it is to 1888 that my statements refer. The district embraces an area of 35 acres, in which there are 1308 houses, inhabited by 7150 persons. This is .57 per cent. of the total area inhabited by 1.29 per cent. of the total population of the City. The healthiest district of Glasgow, "Kelvinhaugh and Sandyford," or District 17, embraces 10.24 per cent. of the area, and is inhabited by 5.62 per cent. of the population.

The character of the house accommodation and the physical conditions generally are sufficiently described in the passage quoted. I shall only add that 51 per cent. of the houses are "ticketed," and thus subjected to the system of night inspection for the prevention of overcrowding, described in my address last year. In "High Street and Closes (E.)," (District 6), there are 55 per cent., and in "Cowcaddens" (District 16) 57 per cent. of such houses, while in "Kelvinhaugh and Sandyford" (District 17) there are only 1.4 per cent. District 14 also contains 43 of the total 99 Common Lodging-houses in the City.



There were 232 deaths and 218 births, so that this district produced 14 fewer lives than it consumed. District 17 had 431 deaths against 811 births, thus contributing a surplus of 380 lives; while the whole city had a surplus of 7722 lives. Reduced to rates per 1000 of the population, these figures represent for District 14 a birth-rate of 30.49, a death-rate of 32.45; for District 17 a birth-rate of 26.14, a death-rate of 13.89; for the City a birth-rate of 34.92, a death-rate of 20.91. The infantile death-rate when calculated per 1000 born is of more value as a gauge of health than the general death-rate, especially seven years after the census, because the data are unquestionable. In District 14 the death-rate of children under 1 year of age was 239 per 1000 born; in District 17 it was only 88, and in the City 133. This means that in these districts and in the City 24 per cent., 9 per cent., and 13 per cent. of the children born did not survive their first birth-day.

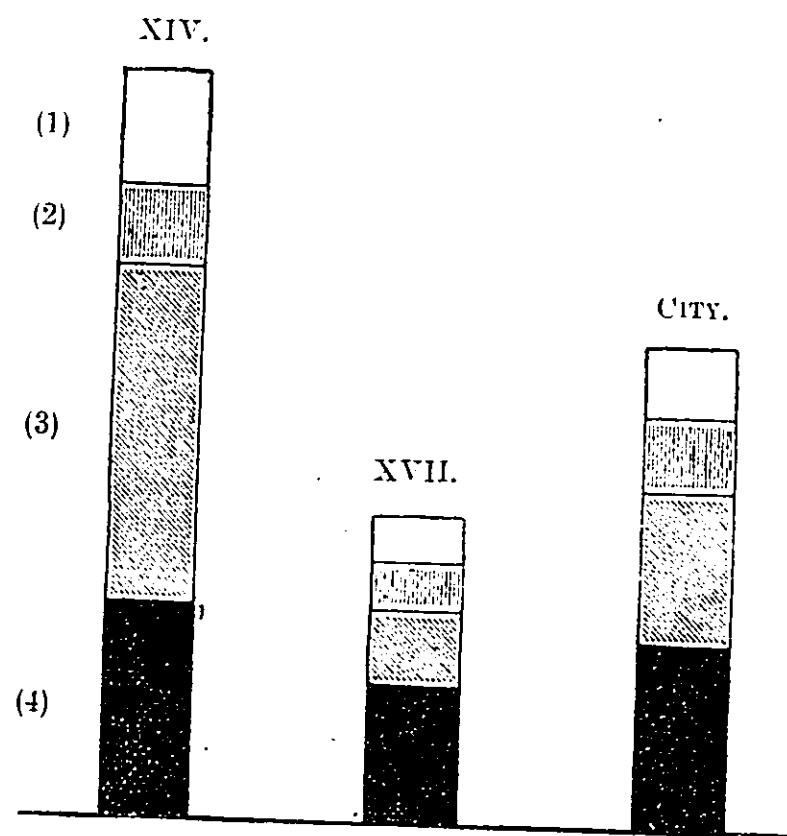
*Illegitimacy* introduces us to the morality of the district. In District 14, 25 per cent. of the children were born out of wedlock, in District 17 only 3 per cent., and in the City 8 per cent. No district approaches District 14 in illegitimacy: 1.29 per cent. of the population contributes 3.7 per cent. of the illegitimate, and not 1 per cent. of the legitimate births in the City.

In the following table the comparative mortality from Zymotic or Infectious Diseases, from Diseases of the Lungs, and from Nervous Diseases and Diseases of Nutrition in Children, in Districts 14, 17, and in the City is exhibited in death-rates per 1000:—

	xiv.	xvii.	City.
Zymotic Diseases (including Diarrhoea), -	4.76	1.67	2.84
Nervous Diseases and Diseases of Nutrition in Children, -	3.36	1.84	3.00
Acute Diseases of the Lungs and Consumption, -	14.68	3.93	7.00
Miscellaneous Unclassified Diseases, -	9.65	6.45	8.07
	32.45	13.89	20.91

These death-rates are shown in a diagram, in which the columns are on the same scale, so that your eyes can estimate not only the comparative total mortality, but also the comparative fatality of the classes of disease. It is obvious that Infectious Diseases and Diseases of the Lungs are the two scourges of District 14. The death-rate from Diseases of the Lungs alone is greater than the death-rate from all causes in District 17. The comparative loss of life among children is not sufficiently shown from contrasting the death-rates on the basis of the whole population; the proportion of children living below five years being so small in District

14. If we take the deaths from Debility owing to Premature Birth, and represent them in rates per 1000 born, we not only get a better gauge of the deadly influences to which children are subjected after birth, but we also discover that they extend into intra-uterine life. In District 14, 41 per 1000 of the children born died because they were born prematurely; in District 17 only 12, and in the City 17.5 per 1000.



(1) Zymotic Diseases. (2) Nervous and other Diseases special to Children. (3) Diseases of the Lungs. (4) Miscellaneous.

The matter of *Certification* throws some light on the care bestowed upon the sick. If the cause of death is duly certified to the Registrar the person who died must have received some amount of attention. On the other hand, if it is not certified there must have been neglect, and for every such uncared-for death-bed there must have been many uncared-for sick-beds. In District 14, 18.5 per cent. of all the deaths were not certified, in District 17 only 3 per cent., and in the City 5.7 per cent. In some of these cases a medical man was alleged to have seen the patient, but was unable to certify, from lapse of time or from being unable to identify the person. In the majority of cases in District 14 there was no medical attendant. Absolutely no medical man had seen the deceased during their last illness. This was alleged to the Registrar in 15.5 per cent. of the fatal sicknesses in District 14, not in 1 per cent. in District 17, and in 3 per cent. in the City.

The proportion of the deaths in a district in which the deceased was enrolled in a *Friendly Society* gives us a fair

indication of the extent to which the virtue of providence or foresight prevails in that district. In District 14, 40 per cent. of those who died were members of Friendly Societies, as compared with 45 per cent. in District 17, and 56 per cent. in the City as a whole. But we must turn to the good working-class districts for a proper comparison. In the District of "Greenhead and London Road" 65 per cent. of the deceased were members of Friendly Societies, in "St. Rollox" District 67 per cent., and in the District of "Springburn" 70 per cent.—the highest in the city. It is quite evident from these figures that the inhabitants of District 14 are not distinguished for providence.

We come now to the *Social Economics* of District 14. What does the existence of this unhealthy area mean to the community of which its inhabitants form a part? *Sickness* in our own families we know means expense. On whom does the cost of treatment fall in their case? We can only get at a partial answer to this question, and in an indirect way, by observing where the fatal cases of sickness were treated. There were 232 deaths. Of these we have seen that 43, or 18.5 per cent., were uncertified, and therefore received no useful, or what can in any sense be considered satisfactory, medical care in their last illness. I find that 69, or 29.7 per cent., died in public institutions, and 120, or 51.8 per cent., died at home, and the cause of their death was duly certified. We may classify the institutions into those supported by public rates and those supported by charity. The distribution of the deaths among the rate-supported institutions was the following:—In the City Poorhouse, 47; in Belvidere Fever Hospital, 10; in the North Prison, 1; in the Central Police Office, 1;—so that the cost of treating those 59 fatal cases of sickness, or 25.4 per cent. of the whole, was defrayed out of public rates. The distribution of the deaths among charitable institutions was as follows:—In the Royal Infirmary, 6; in the Western Infirmary, 3; and in the Maternity Hospital, 1;—so that the cost of treating those 10 cases, or 4.3 per cent. of the whole, was defrayed from the free contributions of the charitable. As I explained to you last year, there are very many deaths which take place, especially in Poorhouses, of persons who have been so long resident therein that they cannot be referred to any special address in the city, though they all came from the poor quarters. These deaths remain against the institutions as unallocated. There were 328 such in Glasgow institutions in 1888, and an unknown proportion doubtless originally came from District 14. There are other circumstances which go to prove that 30 per cent. by no means represents either the proportion of the total sickness or the

total deaths in this district, which entailed expense upon the public, both as ratepayers and as contributors to such charities as hospitals, dispensaries, nursing associations, and the like. The probability is that very little medical aid is obtained in this district except what the public pay for, or the profession bestow for nothing. The proportion of all the deaths in the City which took place in institutions of all kinds was 15.5 per cent.

The cost of *interment* is a very definite and unavoidable item in the general expenditure which accompanies disease. I find that 86 of the persons who died in District 14 were interred at the expense of the ratepayers, or 37 per cent. of the total. Of these, 49 were interred by the Parochial Board, and 37 by the Sanitary Department, as Local Authority under the Public Health Act. This is exclusive of 10 still-born children, also interred by the Sanitary Department, a suggestive item in the sum of wasted life which is recorded against this unhappy district. No less than 22 per cent. of all the interments, the expense of which was defrayed by the Sanitary Department in 1888, were of children still-born in this and other similar districts in the city. Of those who died in the whole City 9.28 per cent. were interred at the public cost.

Expense attends our entrance upon life as well as our exit from it. Of the *children born* in District 14, 15 were born in the Maternity Hospital and 6 in the City Poorhouse—21 children who began their lives at the cost of charity and the rates, or 10 per cent. of the total births credited to the District; and 21 mothers maintained and provided for. A much larger number of women received the minor benefaction of attendance at their own houses by the doctors and nurses of the Maternity Hospital. The births of 98 children were so attended, or 45 per cent. of the total; so that at least 55 per cent. of the children of District 14 made their *début* in the tragedy of their lives by the help of charity or the rates, as compared with 25 per cent. in the whole City (3 per cent. in hospital and 22 per cent. attended at home).

*Vaccination* is another item of expenditure necessary to be incurred on behalf of every child born who does not die before the six months allowed by law have elapsed. A large proportion of the children of District 14 do so die, and between the Sanitary Department (86), and the Royal Infirmary (21), and the Parochial Vaccinators (?), the vaccination of the remainder is effected—another service defrayed by the ratepayers and the charitable. Approximately, 50 per cent. are thus vaccinated as compared with 25 per cent. in the whole City.

The extent of the *demands made upon the services of the Sanitary Department* by the several districts of Glasgow is



clearly shown in the Sanitary Inspector's Annual Reports. If we take various forms of personal work done by officials within the bounds of this small area we shall get some conception of the amount of public money expended on it merely in the shape of the time of subordinate officers:—

Inspections of Nuisance and Epidemic Inspectors, -	7,104
Searches after Vaccination Defaulters, -	62
Applications of the Smoke Test to drains, -	17
Inspections of Common Lodging-Houses, -	3,002
Do. Houses Let in Lodgings, -	108
Night Inspections of Ticketed Houses, -	2,620
House Visitations by Female Inspectors, -	3,616
	16,529

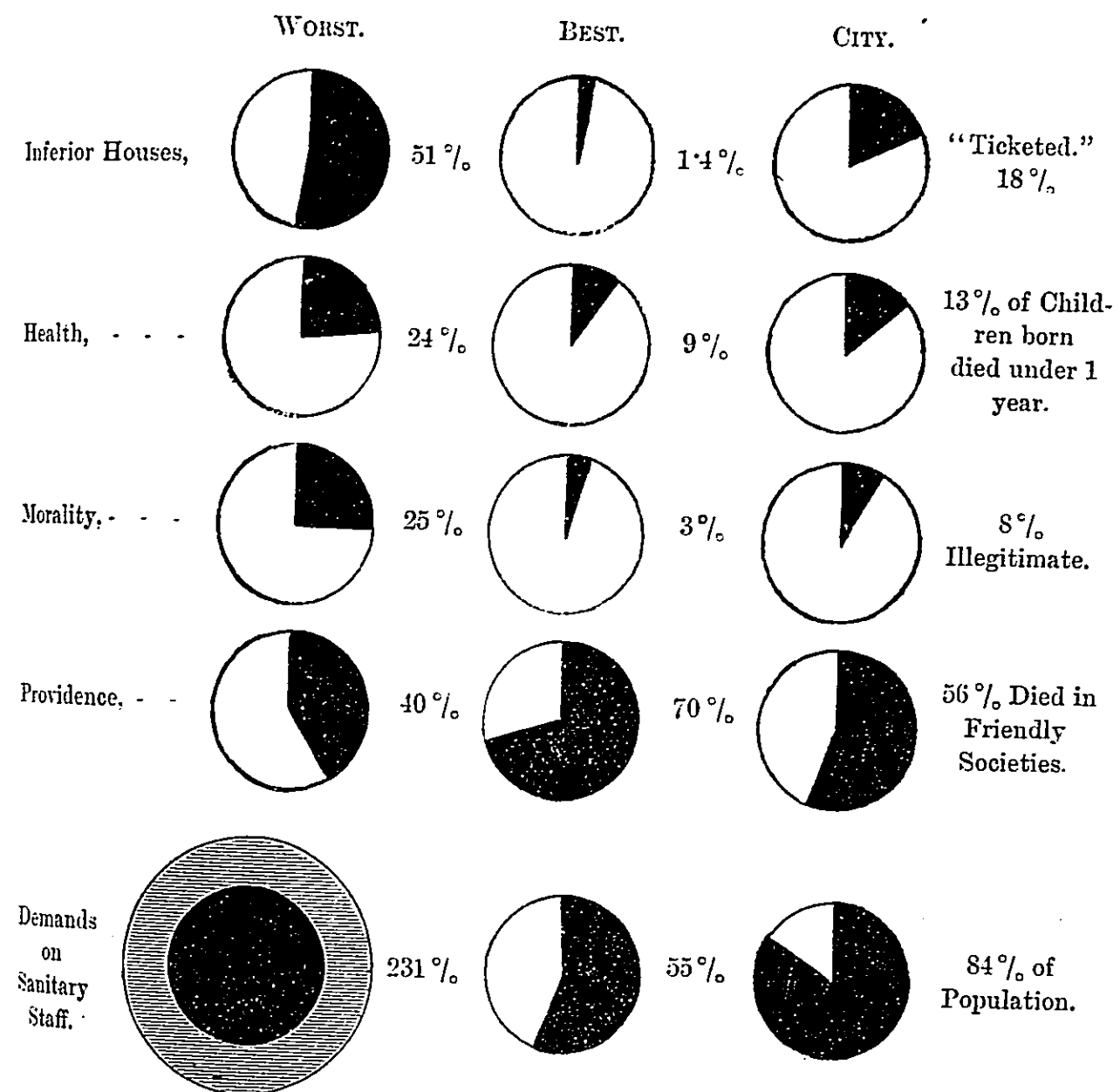
—being a grand total of 16,529 individual expenditures of official time within the district, or 231 per hundred of the population. In District 17 the same services amounted only to 53 per hundred of the population, and in the City to 84. Behind all this personal service within the district follows a proportionate amount of office work, of expenditure for the removal of nuisances, of work in police and other courts, of outlay in treating infectious disease, in cleansing and disinfecting houses and clothing, and otherwise in carrying out miscellaneous sanitary operations. The nuisances discovered amounted to 38 per hundred inhabited houses in District 14, as contrasted with 15 in District 17, and 16 in the City as a whole.

I cannot present you with a similar precise comparative statement of the demands made upon the official time of the other public departments, but I fancy the review of the long procession of statistical details which I have made to pass before you has convinced you that these demands must be in somewhat the same excessive proportion as compared with the other districts of the city as in the case of the Sanitary Department. There is the Police Department. Notwithstanding the undoubted improvement of the past 20 years, District 14 is still the Alsatia of Glasgow. It is still the headquarters of those who live in open defiance of the law. I have the authority of the Captain of Police for saying that it furnishes the greater part of the work of the Central Police Court. It would be safer to fall asleep at the foot of a tree in Central Africa than at the foot of a lamp-post in the Bridgegate. One has only to walk through it and observe how in the day time, when in a normal working-class district only children are seen in the streets, there every close has its knot of idlers; and to enter the houses where only mothers are to be seen elsewhere and find men and women sleeping by day in preparation for the dismal work of the night, to understand how freely the

police rate is expended in or because of District 14. The Cleansing Department is largely occupied in sweeping-up and removing filth which is thrown over the windows and deposited

GLASGOW, 1888.

VITAL STATISTICS AND SANITARY DEMANDS OF DISTRICTS XIV. (Worst), XVII. (Best), AND CITY.



N.B.—Demands on Police, Cleansing, Parochial, and School Board services in like proportion.

about the courts. There are men employed doing nothing else but going round these courts and closes every few hours throughout the day with brush and hose and water-pail, and yet they are never clean. It is but fair to the inhabitants to add that these bad habits are encouraged, if not caused, by the abominable privy system. There are only 105 W.C.'s in the whole district. Just as the officers of the

Sanitary Department have to hunt for vaccination defaulters there, so have the School Board officers to concuss parents and follow up children. The Parochial officers also are never out of this district. It sends large contingents to Industrial Schools, Reformatories, Day-feeding Schools, Orphan Homes, and the like. It surrounds the Free Breakfast Table with its hungry crowds. It scours the West-End with its beggars, and is, in short, in words which I used many years ago, "a sort of running sore upon the body of the community, diverting its substance from healthy uses, and draining the lifeblood of the public."

So far, I have been giving you the various items on the debit side of the social account of District 14. Let us turn now to the credit side, in so far as it can be shown from *the payment of rates*. For the purposes of my argument it is necessary that I should remind you of the incidence of municipal taxation in Glasgow, which is, as regards the rates which are chiefly affected by the characteristics of District 14, I believe peculiar to Glasgow; and the effect of this peculiarity of incidence is to make my argument more weighty as applied to Glasgow than to any other city in the kingdom.

(1) Occupiers at rents of £4 and under are assessed for no municipal rates whatever. The owner is liable for Police, Statute Labour, and Sanitary Assessments (Local Act), under a deduction of 25 per cent. He is further liable for the Roads and Bridges and Public Health Assessments on the same class of property without deduction. No assessment is made on such rentals for City Improvement, Parks and Galleries, or any other municipal purpose.

(2) All rents are assessed at a uniform rate for Statute Labour.

(3) All rents below £10 are assessed for the Police Rate proper (for Police, Cleansing, Lighting, Fire Brigade, Baths and Wash-houses, &c.), and the Sanitary Rate (Local Act), at half rates; that is to say, at £10 and upwards the rate per £1 is twice the rate below £10 (including £4 and under), and above £4 the whole assessment is raised from occupiers.

(4) There are other rates, such as for Municipal Buildings-Registration of Births, &c., Lunacy and Prison Payment, which are assessed half from owners, half from occupiers, the owners' half being charged on rentals at £4 and upwards, and the occupiers' half on rentals above £4; while the Juvenile Delinquency rate is also levied on rentals above £4, but wholly from occupiers.

(5) A special rate for the cleansing of private streets and courts is levied upon their proprietors.

It is evident from this peculiar local arrangement of the

incidence of taxation that the occupiers of subjects rented at £10 and upwards are, in respect of the cost of Police, Cleansing, and Sanitation generally in Glasgow, burdened by law with a disproportionate share of the outlay created by the lower-rented occupiers, who are notoriously the class who make the heaviest demands on the rates for these purposes. Therefore, supposing everybody paid his or her legal share of this taxation, it would still be true that the householders of such a district as 14 do not contribute, on the basis of rental, an equal share of the cost of these public services which they require so much in excess of the householders of other districts. The case is much the same as would exist if the owners of property in which fire-risks were excessive were required to pay a lower premium for fire insurance than the owners of property in which fire-risks were very slight. Still, if such was the law, and the low premiums and low rates were duly paid, no moral blame would attach to those who held property or occupied houses under such fortunate conditions. But the situation is very different in the case of the police rate. Those who are rated on rentals under £10 and above £4, are conspicuously the worst payers. I find appended to last Annual Financial Statement of the Magistrates and Council of Glasgow (Police) a table showing for a series of years the "number of persons assessed, paid and unpaid." In 1888-89 there were 55,773 occupiers assessed at the full rate, of whom only 963, or 1.7 per cent., did not pay; while there were 75,520 occupiers assessed at the half-rate, of whom 15,453, or 20.46 per cent., did not pay. Under occupiers are included not merely householders, but occupiers of all subjects at the respective rentals; but the defaulters are almost invariably householders, and therefore the percentages give a comparison rather unfavourable than otherwise to the occupants of houses rented at £10 and above £4.

It is evident, therefore, that in Glasgow, beyond all other cities, the high-rated householder and large ratepayer of all denominations have good reasons for looking narrowly into the economics of the low-rated householder. Part of his rateable burden is put upon the broad back of the larger tenant-ratepayer by law, and he seems to do what he can to impose the rest by default. If we take the number of householders alone at £10 and upwards, and reckon every defaulter who occupies a subject at that rental to have been a householder, we find 963 defaulters to 36,212 householders, or 2.6 per cent., as compared with 20.46 per cent., of the lower-rented and half-rated householders.

Poor rates and school rates are levied on £80 per cent. of all rentals, half on owner and half on occupier. The whole amount of the owners' rates is recovered, but again, in the case of the

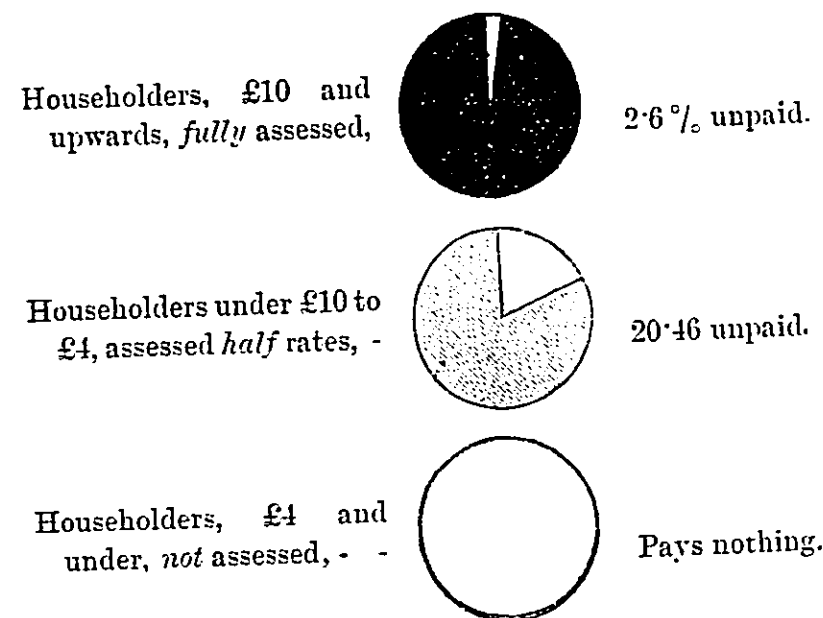


occupiers, a large proportion of the legitimate burden of the lower-rented householder is by default imposed upon the other ratepayers. From the fact that political disfranchisement ensues upon non-payment of poor rates by householders under £10 rental, the Collectors of the several parishes are required

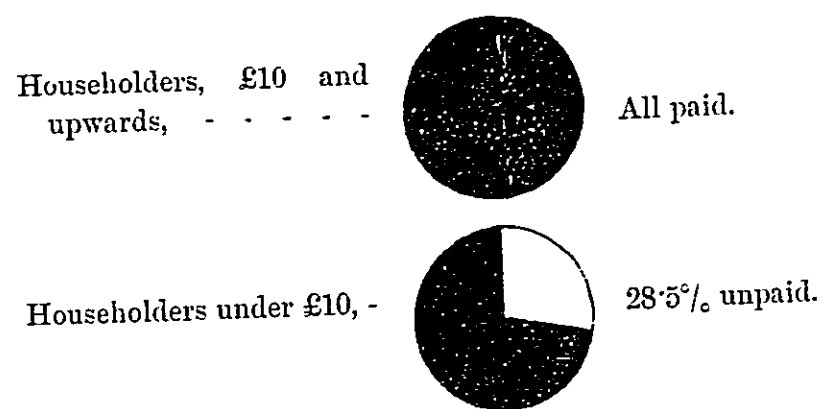
GLASGOW, 1888.

INCIDENCE OF TAXATION AND PAYMENT OF RATES.

I.—POLICE RATES.  
(Graded Assessment.)



II.—POOR AND SCHOOL RATES.  
(Uniform Assessment.)



to report the defaulters annually to the City Assessor. In 1888-89, he informs me, there were 24,627 householders under £10 who were so reported. From the same source I learn that there were 86,491 houses under £10 (including unoccupied), so that at least 28.5 per cent. of the householders under £10 paid no poor rates or school rates.

From the political results of non-payment of poor rates, from the fact that their collection is probably more stringent than that of any other rate, and from the uniformity of their incidence on every rental, I believe we may take the number of householders who pay no poor or school rates as a fair census of those who contribute nothing to the rates of Glasgow. A confirmation of this is obtained by the curious agreement of the figures reached by three distinct paths :—

1. Householders under £10 reported under the Registration Act as having failed to pay Poor Rates, - - - - -	24,627
2. Occupiers under £10 and above £4 who failed to pay Police Rates, - - - - -	15,453
Occupiers £4 and under who pay no Police Rates, - - - - -	8,559
	<hr/>
3. No. of Ticketed Houses in Glasgow, - - - - -	24,012
	<hr/>
	23,288

These figures can leave no doubt on any one's mind that we are practically dealing with the same persons all through, and I think we may safely state the number of householders in Glasgow who put nothing into the public purse, while they take freely out of it, at 24,000; which represents, at the moderate allowance of 3.5 persons per household, 84,000 souls. I find from returns furnished by the Collector of the City Parish that 20 per cent. of those who did not pay in that parish were relieved on account of poverty. A return prepared by the Treasurer of Police in 1884 showed precisely the same percentage of relief extended to poor persons—another coincidence which shows that we have the same persons in both categories. Therefore we may divide our 24,000 into 4800 relieved by the authorities, and 19,200 who relieved themselves; or, to be generous, let us say 5000 honest poor and 19,000 fraudulent householders!

Now, where are we to look for these householders? To get at the facts regarding all the householders in District 14 was a task which I could not ask my willing friends, Mr. Henry, the City Assessor, Mr. Reid, the Collector of Police Rates for the Central District, and Mr. Hall, the Collector for the City Parish, to undertake, though I believe they would not have refused me, so interested were they in my inquiry. What I did was this. I obtained from Mr. Henry a copy of the Valuation Roll of two of the worst localities in the district. I gave it to the two Collectors and asked them to tell me the result of their collection for 1888-89 as regarded the householders. I submit their statement :—

ST. MARGARET'S PLACE BLOCK—the area bounded by the Bridgegate and Jail Square, Saltmarket, and Market Street.

A recent special census showed that 665 persons resided in this block, and in the seven years, 1882-88, the mean general death-rate was 50 per 1000, and the death-rate under one year, per 1000 born, 234. There are four public-houses in this block, the rental of which is £295, and seven shops for the sale of food-stuffs, the rental of which is £136 15s.

1. *Municipal Rates so far as payable by householders.*—Number of householders rated direct, 116. The total amount of assessment due by them was £42 4s. 4d. Of these, 50 paid, the amount recovered being £19 12s. 3d.; 66 did not pay, the amount lost being £22 12s. 1d. That is to say, 57 per cent. paid nothing, and £53 10s. 10d. per cent. of the municipal assessments due by householders was lost.

2. *Poor Rates and School Rates.*—There are 147 householders, including three houses and shops, of whom 82, or 56 per cent., paid nothing. The amount of poor rates due was £18 9s. 6d., the amount paid was £10 17s. 1d. The amount of school rate was £12 4s. 2d., the amount paid was £7 3s. 5½d.

118½ BRIDGEGATE—two tenements which, in January, 1888, were ascertained to have 116 inhabitants. In the seven years, 1882-88, the mean general death-rate was 56 per 1000, and the death-rate under 1 year 379 per 1000 born. This block contains one public-house, the rental of which contributes 28 per cent. of the total rental of occupied premises, according to the Valuation Roll.

1. *Municipal Rates payable by householders.*—Number of householders rated direct, 20; amount of assessment due, £8 0s. 9d., none of which was paid.

2. *Poor Rates and School Rates.*—There are 23 householders (including one house and shop), of whom 15, or 65 per cent., paid nothing. The amount of poor rates due was £2 6s. 2½d.; the amount paid was 18s. 3½d. The amount of school rates due was £1 10s. 6½d.; the amount paid was 10s. 10d.

It is interesting to note how the Gas and Water Trusts cover the risks of doing business with this class of the population. The Gas Trust is protected by having the power to insist upon a deposit as a security before gas is supplied. The consequence is that a considerable proportion of the low-rented tenants, especially those rented at £4 and under, use no gas at all, but are contented with paraffin lamps. The landlord is responsible for all water rates on rentals under £10. The history of the deduction allowed by successive Water Acts tells its own tale. In 1855 the landlord was allowed 10 per cent. all round. On representations of their losses, in 1865 this deduction was raised and graded: on rentals under £10 to £7 the landlord was allowed 15 per cent. off, below £7, 20 per cent. In 1885 the reduction below £7 was further raised to 25 per cent. So that the

people who pay no police or poor rates endeavour so far as they can to obtain water, one of the primary necessities of life, at the cost of the community.

The last bit of information I shall give you regarding District 14 is a return with which the City Assessor has favoured me of the rental of licensed premises as compared with the rental of premises where food alone is sold, within this district:—

1. LICENSED PREMISES.		
No.	Kind of Premises.	Rental.
43	Public-Houses, - - - - -	£5,167 2 0
2. PREMISES WHERE FOOD SUPPLY IS OBTAINED.		
No.	Kind of Premises.	Rental.
43	Unlicensed Grocers, - - - - -	£1,363 12 0
1	Greengrocer, - - - - -	16 0 0
4	Bakers, - - - - -	95 0 0
4	Dairies, - - - - -	86 0 0
11	Confectioners, - - - - -	222 0 0
4	Miscellaneous, - - - - -	44 0 0
20	Restaurants, - - - - -	1,436 10 0
6	Butchers, - - - - -	259 10 0
7	Fishmongers, - - - - -	257 0 0
3	Lodging-Houses (selling food), - - - - -	165 0 0
1	Fish Market, - - - - -	1,000 0 0
Total, - - - - -		£4,944 12 0

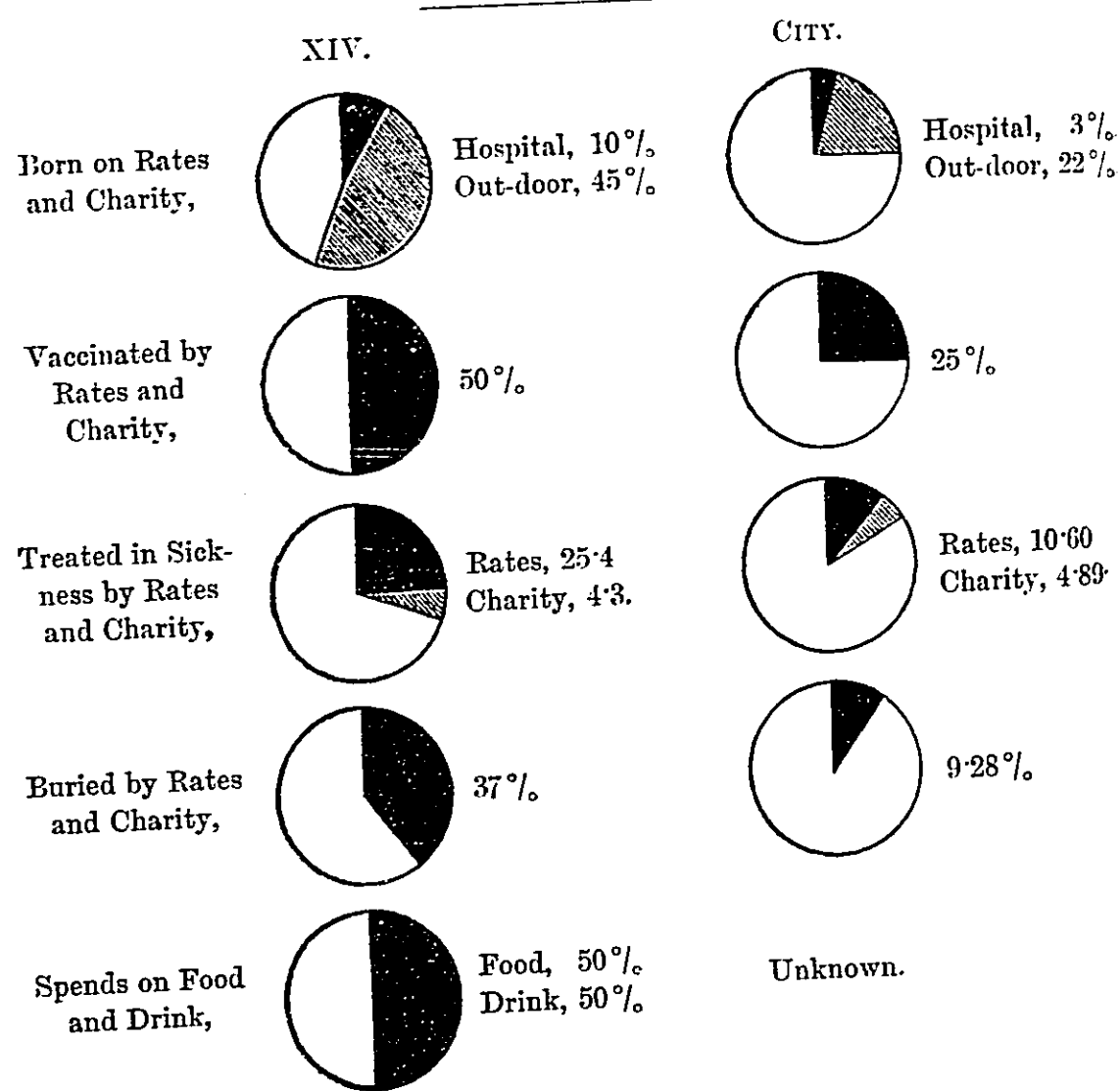
The rental of public-houses in District 14 is £5167, and of premises where food of various kinds is sold without "drink" £4944. It may be said that the whole of the south side of Trongate is included in this district, and that in a great public thoroughfare in the centre of the city the public-houses supply the wants of passengers rather than of the residents. This is true, but it will be observed that £1000 is thrown in on the other side, the valuation of the public Fish Market, which is the centre of the wholesale fish trade, not of the city merely, but of its suburbs. Besides, the temperance restaurants, which are so numerous, and even the unlicensed grocers, share in the business of passengers as well as public-houses. On the whole, therefore, the return must be held to shed useful light on the comparative place of necessary food and the luxury of drink in the life of the locality. District 14 seems to spend as much on the one as the other. I think, as honest business men, apart from all views as to total abstinence or the association of crime, immorality, and disease with excess in the use of alcohol, you will agree with me in thinking that people who do not pay their rates, who throw themselves on the legal and charitable resources of the public in their sickness, their birth, death, and burial, simply take from the pockets of the public every sixpence which they spend upon drink.



Now, gentlemen, all the facts of the case of District 14 are before you. I told you at the outset that I selected this district for an object-lesson, because there we had in their greatest intensity the same kind of insanitary conditions associated with disease, death, crime, pauperism, neglect of social obligations, as you find in all the unhealthy areas and tenements of the city. Wherever you find those insanitary

GLASGOW, 1888.

COMPARATIVE DEMANDS ON RATES AND CHARITY OF DISTRICT XIV. AND CITY.



conditions you may foretell that a similar investigation will disclose in proportioned degree the same associated social characteristics. There you find a people unhealthy, reckless, spendthrift of their own and the public money, contributing little or nothing to the public purse, tinged more or less with immorality and crime. Guided simply by the abnormal death-rates, I could take you to the districts and tenements in which the main body of those 24,000 householders lives—in High

Street and its closes, in Calton, in Cowcaddens, in Gorbals, and in small colonies chiefly in "back lands" dotted here and there over the city. Supposing you had them all transported in their more or less unwholesome tenements to some distant plain, you would then have a city larger than Greenock, and what a city!—certainly not the "new Jerusalem which cometh down out of heaven." Supposing you were told that you must pay all the rates of this parasitic city, pave and sewer its streets, light it, cleanse it, watch it, build and maintain prisons for its inhabitants, pay for attendance at their birth, build hospitals for them, treat their sick, bury their dead, educate their children—would you not at sight of the multitude, and in view of the solid mass of obligations to be imposed upon you, begin seriously to think what you could do to get rid of them? Would not the vision of that dismal shadow of your city haunt your dreams? Should we not have fierce orators storming through the municipal wards protesting against Communism and Socialism? Yet these people are living all up and down the city, and you are now bearing the full burden of these obligations. You cannot get rid of it while such places and such people exist. No thought among the many which this inquiry has called up in my mind has so deeply been impressed upon me as the various, often circuitous, but always certain, paths by which, as society is now constituted, these people requisition your material resources. They cling to you as the garment steeped in the poisoned blood of Nessus clung to and consumed the living body of Hercules. If you will not pay in the shape of improvement rates for the removal and reconstruction of their unwholesome dwellings, you must not only pay *their* rates but expend *your* rates upon them. If you object to pay for the prevention of their disease, you must pay for the treatment of their sick, and you must at least bury their dead. After their poverty has exhausted the provisions of the law, it seizes hold of the skirts of your benevolence and will not let them go until it receives a dole.

My object throughout this address has been simply to raise in your minds the question—"Does it pay to have such houses and such people in the City?" This seems a sordid question, but after all it is the case that the claims of social morality and the dictates of practical Christianity work themselves out in the civic and national ledger. In view of the facts before you there can be but one answer to the question. The city which imagines it can save money by letting District 14 alone reminds me of a man who has a limb which throbs and aches with some chronic disease, while his body wastes with hectic fever and sleepless nights, yet he refuses to part with the limb.

Observe how nature deals with such districts. As I pointed out to you, District 14 consumes more life than it produces. It is the largest continuous area in the city of which it can be said that the deaths every year outnumber the births; but this is a characteristic of those blocks and isolated tenements which are scattered about the city. All you have to do is to draw a cordon round them, so that no recruits shall join the inhabitants, and year by year their inhabitants would dwindle away and ultimately become extinct. What can we do to prevent the ranks of this class from being recruited? I believe one of the most important steps we can take as a community—a step without which no others will avail—is to get rid of the unwholesome tenements to which they are attracted as iron is to a magnet. I have heard it said we must have such places for such people, but I deny it. The man who says so, who is generally the owner of such property, would shrink from becoming known as the landlord of thieves and loose persons. I noticed this wholesome feeling in a recent discussion of the Town Council with reference to the property held by the Improvement Trust in this very district. To speak of building houses to be let to the inhabitants of insanitary dwellings, is to speak of something which never has been done and never will be done. What is done is to select respectable, steady tenants, and put a caretaker in every block, and if the class of people referred to choose to become such they can get suitable houses at any time. They never will while their present dwellings are allowed to exist as they are. In this district there are shops where the beggars sell the bread and scraps of meat which you give them, that they may procure drink with the proceeds. The inhabitants buy those scraps rather than wholesome food, that *they* may have more money to spend on drink, and they resort to these houses for no other reason. In the main, it is not want of money, so much as want of self-restraint in the use of the money they have, which keeps them there. Nothing shows this so well as the system of sub-letting which prevails in District 14. I have received from the City Assessor a list of houses which are held by 16 persons in this district. They are 116 in number. The total rental paid to the proprietors is £537 8s. The average rent of each house is therefore £4 13s.—some are rented as low as £2 10s. All are sub-let in rooms, or even parts of a room—generally to husbands and wives, frequently with children—at 6d. to 8d. per night. True, they get furniture, bedding, and cooking utensils; but as a rule these are of the most meagre, miserable description. This means £7 16s. to £10 8s. per annum for a fraction of a house. One man in this district leases 36 wretched houses, for which he pays £122 2s., an average of

£3 8s. a year. The sub-tenants pay 6d. to 8d. per night; Sunday does not count, but on each other day this sum must be paid in advance. Nor are these casual tenants; they live there and pay these extravagant rents for months or even years. If you point out to the sub-tenants that they are paying sums which would secure the best one and two-room houses in the city, simply because they never have a month's rent in hand, you generally discover—what other signs sufficiently show—that their position is the same as that of the fast young man who borrows £50 on a £100 bill, and pays 10 per cent. on the full amount of his bill.

These opinions of mine may seem harsh, but they are formed from a study of the facts from the inside; not from a surface view acting on an impulsive, vague philanthropy. I am glad, in conclusion, to refer you to two opinions based on the same method of close internal study which are in entire agreement with those I have now expressed to you. One is that of Miss Octavia Hill, which you will find in a paper published in the *Nineteenth Century* (September, 1889), entitled "A Few Words to Fresh Workers." She points out how frequently one finds unhealthy courts crowded in close proximity to healthy blocks where there are numerous vacant houses. She asks and answers the question—"Why is this? The sympathetic visitor is too apt to jump to the conclusion that in the healthy blocks the rents are too high for the tenants in the court. Will he inquire what the rents are in each? If he does, ten to one he will find the rent, room by room, far cheaper in the healthy blocks than in the court. He will find that in many—I had nearly said most—instances the reasons why the good rooms stand empty and the bad ones are full, are these:—(1) In the court, overcrowding and sub-letting are tolerated. (2) The rent, nominally high, is either only half paid or is reduced by sub-letting and overcrowding. (3) The drunkenness and profane language, violence and destructiveness, tolerated in these courts would not be allowed by any respectable landlord or neighbours. (4) Bad characters are allowed to frequent the courts." For these reasons she is opposed to the application of rates to the provision by public authorities of houses which will compete with an already sufficient number provided by private enterprise, under proper building and sanitary regulations.

My other reference is to a series of recommendations adopted by the Health Committee of Edinburgh, after full consideration of a report by the burgh engineer upon the insanitary condition of St. Giles' Ward in that city. These recommendations are six in number, but I omit the 4th and 6th, as they are only of local importance:—



" 1. That, with the approval of the Magistrates and Council, it should proceed in the work of closing insanitary and uninhabitable houses, as, from inquiries made, the Committee is satisfied that the parties removed from such houses readily find accommodation elsewhere, and it is believed that in most cases they are quite able to provide themselves with better dwellings.

" 2. After consideration of statistics relating to St. Giles' Ward, the Committee is of opinion that the number of licensed houses in the district is largely in excess of its requirements, and that by the temptation thus offered to those with little self-control, the work of the Committee is opposed and many evils caused, some of which are expressed in inferior houses and a high death-rate.

" The Committee therefore recommends that the Town Council should put these opinions before the Magistrates, with a request that they should, as opportunities present themselves, reduce the number of licensed premises in this ward.

" 3. That whenever uninhabitable houses, or other property situated in this densely-populated district, can be acquired at a reasonable figure, such property should be secured by the Town for the purpose of being reserved as open spaces, and for the improvement of the sanitary condition of the locality.

" 5. The subject of water-closet accommodation is one which engages the attention of the Magistrates and Council regularly, and the Committee recommends that, as heretofore, the owners of properties should be required to provide sufficient accommodation wherever necessary."

These recommendations were unanimously adopted by the Town Council of Edinburgh only last month, and I think, on the facts which I have submitted to you, they are equally applicable to District 14 and other portions of the City of Glasgow.

#### PUBLIC HEALTH AND SOCIAL PROBLEMS.<sup>1</sup>

There is in all the world no spot from which we could better study the industrial age than that on which we now stand. The University is indissolubly associated with the name of James Watt—the informing spirit of that age. From this hill we look forth upon a landscape which, as it left the hands of nature, was as fair as eye could see, but which now, when visible at all, discloses a bleared and blackened visage through a veil of smoke.

<sup>1</sup>An Address delivered before the Glasgow University Medico-Chirurgical Society, 4th February, 1898.

The city of Glasgow is itself the most eloquent illustration of the social results of the application of steam to prime movers. So long as the human hand is the motive power, men are not necessarily drawn together in community of labour. With the use of wind and water comes the factory system, but the factories must go where the wind and water are to be had. The hand-loom weaver lives in villages; the power-loom weaver, so long as the power is wind and water, congregates on breezy heights and beside isolated rivers in groups which have their natural limitations. The spinster spins at home. Steam changes all that. The power is brought to the factories in the shape of coal. Manufacturing towns spring up on sites which attract by facility of production and distribution, and grow without natural check or limit. And so with other industrial occupations. If a coalfield is convenient they cluster round it, or a population grows up maintained by getting and shipping or training the coal to seats of industry elsewhere. If ironstone is found in proximity to coal they, in combination, attract the most portentous aggregations of human beings. Thus whole counties become practically urban in character. The country becomes a vast workshop. Ports are required from which to send out the product, where to receive and whence to distribute the merchandise which comes in exchange. It seems fitting that Watt should have been born on the banks of the Clyde—a river which flows through the richest coal and iron fields in the kingdom, and spreads its arms out at its junction with the sea as if to welcome the merchant ships of the world.

The first Government census of the United Kingdom was taken in 1801, which is therefore a datum point to which we must make frequent reference in measuring the growth of the population. The nation was then in the middle of its deadly struggle with France. Mistress of the sea, our trade had flourished. Stimulated by the necessities of our markets, the means of production had been extended by mechanical inventions, the efficiency of which was increased almost beyond estimation by harnessing them to the power of steam. Standing where we now do, a thread of interest in the prosperous life of a citizen of Glasgow becomes clearly visible. The estate of Gilmorehill had been purchased by a West India merchant, on which he erected in 1802 the house round which the University was built. We can imagine Mr. Bogle surveying from this height the distant prospect of the city of 1801. It had a population of between 77,000 and 78,000, about the same as that of the burghs of Govan and Kinning Park at present, all congregated within a short radius of the Cross. He would see the thin smoke of it rising beyond Blythswood Hill. But

little evidence of the age of steam would be visible from Gilmorehill in 1801. The coal pits were chiefly at the east end. The stalk of the first steam-driven cotton mill at Springfield might be seen to the left of Yorkhill. But the city fairly started with the century in the van of industrial development. In 1811 there were over 100,000 people in the city and suburbs. So year by year the population thickened, the central city filled up and overflowed, and even further, like lava over the plains on the skirts of the volcano, spread the stony sea, submerging field and farm, hedgerow and tree, until now within a radius of four miles from the Cross of Glasgow there live a million of people.

I have dwelt upon the industrial aggregation of population in this locality, in its history and causation, with some minuteness in order to give local colour and interest to our thoughts. The circumstances which made this country as a whole into a workshop for all nations, everywhere massed her population into great cities, the like of which had never been seen in the world before, cities made up not of dangles about courts or parasites upon the industry of others, but of men who lived by the sweat of their own brows and the prowess of their own right arm. Just as the coal and ironstone of Lanarkshire overwhelmed the agriculture of the Clyde valley and planted Glasgow on the water-way to the sea, so did the coal fields of Northumberland and Durham, of Lancashire, of Yorkshire, of Staffordshire, and of South Wales. One attracted the cotton trade, another the woollen, one pottery and hardware, another iron smelting and its diverse developments. Wherever there was a convenient estuary or tidal river, shipbuilding and marine engineering were established, harbours sprang up and great mercantile cities.

If you could imagine yourself, from some superior vantage ground, with an omnipresent eye, watching the movements of the denizens of earth as one observes the hurrying to and fro of a colony of ants disturbed by the removal of a stone beneath which they have been dwelling unseen, you would observe that the movements of men are quite as complicated. In the main their motive is the search for a subsistence. Amid the devious wanderings of individuals crossing and doubling on one another's tracks, you would note certain steady lines of travel, all leading from the country into cities. Cities do not grow slowly by the steady surplus of their births over their deaths, but by the rapid influx of adults. With the varying briskness of local trades these great tides of men ebb and flow. Sometimes a steady flow becomes, with the decay of one local industry, a steady ebb, or with the prosperity of another, an overwhelming flood. These are characteristics which, as we

shall see, are fraught with danger to the public health. They also show that the movements of the population of a country as a whole give us no idea of the rapid transferences of population, causing great local trouble which may be going on within.

Aggregation cannot be discussed with precision as a physical condition until it has been expressed in terms of the area upon which it exists. Here we encounter a difficulty arising from changes in administrative boundaries. Thus the area of the burgh of Glasgow between 1636, when the charter was granted, and last year has been, by successive extensions, very irregular both in occurrence and magnitude, increased from 1768 acres to 12,311 acres. The area of the country as a whole has always been the same, and the most stable sub-divisions are the counties either "civil" or "registration." I therefore take my statistical illustrations from England and Scotland and their counties, beginning with Scotland. Between 1801 and 1891 the population of Scotland increased 150 per cent. but coincidentally the population of Lanarkshire increased 608 per cent. Putting these figures in another way, whereas in 1801 only 9 per cent. of the inhabitants of Scotland lived in Lanarkshire, in 1891 there were 26 per cent. In fact, in 1891 the inhabitants of this county were within half a million of being as numerous as the inhabitants of all Scotland in 1801. When we find that in those same ninety years Renfrewshire added 270 per cent. and Dumbartonshire 356 per cent. to their populations, we realise how the population of Scotland has steadily accumulated in its south-west corner. In England the conditions which foster industry are both more lavishly bestowed and more equally distributed. Consequently illustrations of urban growth are more numerous, and though there has been a withdrawal of the population from the Southern Counties, the aggregation has been distributed over the Midlands and North. Between 1801 and 1891 the population of England and Wales increased 226 per cent. but coincidentally the population of the West Riding of Yorkshire increased 325 per cent. and of Lancashire 479 per cent. Glamorganshire presents the most remarkable illustration in the country of a purely rural county, slumbering, so to speak, over untold mineral wealth, entirely unconscious of its existence, and transformed by its discovery into a sweltering land of coal mines, iron works, copper, tin, and lead-smelting works, its shores lined with docks and bristling with the masts of ships. Such is the wondrous tale, excelling all the marvels of Aladdin's lamp, which is hidden in the dry bones of this bit of statistics, that between 1801 and 1891 the population of Glamorganshire increased 835 per cent.

One more illustration only I shall give of those changes in:



the distribution of population which have such vast social, political, and hygienic importance. In 1801 the now world-famous name of Middlesborough was borne by an unknown village of 412 inhabitants in the West Riding of Yorkshire. They slept over a gold mine. I am disposed to say they were happy in their ignorance. Their dreams were at least pleasant. In 1831 this village still slept. It had only attracted 156 new inhabitants in 30 years. Then came the deluge. On an average in each of the next 10 years it added to its population more than the total accumulation of all its previous existence. Thus "it grew and it grew and it grew," like the vegetation of a nursery tale, until it became necessary for registration purposes to form it into a separate district, which in 1871 had a population of 61,000, and in 1891 of 121,000 persons.

The undeviating tendency of these internal movements is to transfer a greater proportion, as every census proves, from the conditions of rural or village life to those of urban life. The growing proportion of the population of England which lives in London, and of that of Scotland which lives in Glasgow and its suburbs, gives a fair index of this social phenomenon. In 1801 London contained 11 per cent. of the inhabitants of England; in 1891 between 19 and 20 per cent. In 1801 Glasgow and suburbs contained barely 5 per cent. of the inhabitants of Scotland; in 1891 20 per cent. We have therefore to contemplate not merely an increase in the population of the country as a whole, but its concentration more and more into dense masses, in other words, the bringing together of men within confined spaces. We may take it as an axiom that in a manufacturing country such as ours, which produces only a small proportion of the food which it eats, and gets it chiefly from other countries in exchange for the produce of its factories and workshops, the population will increasingly accumulate in the towns. Still further, if the population of such a country is found to be increasing rapidly with each successive census, this means, not the increase of the rural population, but the increase of the urban. As a matter of fact, 73 per cent. of the population of Scotland and 72 per cent. of the population of England and Wales were living under urban conditions in 1891.

As I look at these percentages creeping up from decade to decade, they become not merely sanitarially but socially and politically eloquent. They mark the emancipation of the people from obscurity.

"Not kings and Lords, but nations,  
Not thrones and crowns, but men."

It is difficult for an agricultural population to realise its strength. But in cities the numerical superiority of those who

are employed over those who employ cannot be hid, and must suggest thoughts. Physical aggregation promotes moral association. Following Watt's discovery, there comes a period of English history which the historian demarcates as "The Conflict with Democracy, 1789-1827." We are not here and now concerned with politics, but multitudes have a profound, even a pathetic, interest to the sanitarian, and, as I consider them from my point of view, I cannot shut my eyes to their fortunes and misfortunes, their virtues and their vices. I see them wakened up by the Revolution in France, then becoming definitely visible through the "hurricane eclipse" of the Napoleonic wars; fighting for their country as vigorously in the factory and workshop, with the help of steam, as their brothers under arms in the Peninsula or afloat with Nelson; starving when the peace they had helped to win left the Continent free to compete with them in the arts of peace; in the blindness of despair, burning mills, clamouring for the suffrage, rioting, ridden down by the cavalry at Peterloo; gradually gaining the protection of the Factory Acts and emancipation from the new slavery of the apprenticeship system; secured from starvation by the abolition of the Corn Laws and the adoption of Free Trade; finally, struggling through Chartist riots towards political enfranchisement and the Ballot Act. There, masters of their own destinies, we may leave the Democracy.

I ask you to note how closely this history is connected with aggregation. The dire necessities which create the aims for which the people strive and which persistently urge and stimulate the strife, the vigour and manifest strength which conduce to success are all essentially connected with aggregation. Here is the point of contact between public health and social problems. By contiguity and co-operation man is much advantaged every way, but he poisons his environment, and, if this tendency is forgotten, in certain circumstances of aggregation the whole fabric of his social organisation may be broken up and communities blotted out. Examples abound. We find them in the plagues and pestilences of history, in the fevers and sicknesses of camps and gaols, in the diseases which follow overcrowding in the "warrens of the poor," in the fact that, if the registration districts of a country are grouped after the most careful adjustment so as to reduce them to a parity as to every other condition (age-distribution, sex, &c.) according to their death-rate over a period of, say, ten years, it will be found that, *pari passu*, as we rise from the lowest to the highest death-rate, we rise from the lowest to the highest density.

What are the condition of life underlying density in industrial

towns? Here one has not to go far in search of an illustration. It is remarkable with what unanimity in the seventeenth and well on into the eighteenth century travellers extol the amenities of Glasgow. From travellers in the seventeenth century I could multiply quotations into a chorus of praise. I shall only quote a single reference from the fastidious and candid Samuel Pepys, who, under date 19th May, 1682, wrote to a friend from Berwick, whither he had gone in the retinue of the Duke of York, that, among other places, he had visited Glasgow, "a very extraordinary town indeed for beauty and trade, much superior to any in Scotland." Even in 1803 Mayne wrote in his poem "Glasgow":—

"Look thro' the town, the houses here  
Like noble palaces appear;  
A' things the face o' gladness wear—  
The markets thrang.  
Bis'ness is brisk, and a's asteer  
The streets along!"

But I am afraid things were seen at that date through a poet's eye. After the fashion of mankind, Glasgow was even then dancing gaily along in the primrose path of the new era. "Bis'ness was brisk." Cotton factories were being started as fast as the firm of Boulton and Watt could supply the engines. The merchants, manufacturers, and shopkeepers were building themselves houses in streets and squares on the hills to the west. The working people were pouring in from the country to occupy the houses in Saltmarket, the High Street, and the various wynds and vennels extending therefrom. In that age the hygienic standard even of a Glasgow bailie or a tobacco lord was not high; and when every room in the house which they vacated was occupied by a family from the Highlands or Ireland it was depreciated to nothing. Typhus fever soon found this out. But all went merry as a marriage bell while "bis'ness was brisk" and wages good. A fast life may be an unhealthy one, but, so long as the "riotous living" can be kept up, there will be no grumbling. The overthrow of Napoleon brought bad trade. "The smouldering fire of fever" burst into a flame, and the wynds and vennels of Glasgow sprang into notoriety. The records of the first half of the nineteenth century tell a very different tale of Glasgow from those of the seventeenth and eighteenth. Its squalor, its filth, its overcrowding, its crime, its disease, like its density, were unexampled in extent and intensity. Royal Commissioners, after going the round of all the manufacturing towns in the island, were compelled to say that, though the condition of all was very bad, the condition of none was so bad as that of Glasgow.

From all this we learn what density is as we have hitherto known it, and as it tends and will always tend to be. In the search for subsistence men rush together. The cast-off houses of the better-off pass, like their cast-off clothes, into the possession of the labouring classes; where new houses are built, they are run up in strait lanes and sunless, airless courts; there is no space for the necessary apparatus, still less for the conveniences, of civilised life; no space for the children; no space for the sick; no space for the dead. Factory is added to factory, workshop to workshop, warehouse to warehouse, and still the city spreads and devours the country. The earth seems to grow chimney stalks; the highways become streets; the burns become loathsome and are buried out of sight in sewers; the rivers lose their sparkle and are expressionless as the eye of the dead; they stink like the river of Egypt; the fish die in them; the wells become poisonous; the air thickens; the sun is blotted out; the trees die; what we, with pleasing melancholy, call grass is mostly weeds. Well might the Corn Law Rhymer sing:—

"All unlovely as an eyeless skull  
Is man's black workshop in the streeted waste."

Such, and much more is bracketed together in the conception of density as a standard of health. It is essentially a perversion or subversion of nature. Its evils may be redressed. We may live in society and yet not the sooner die. This I conceive to be the function of public health. The modern industrial revolution brought people together with disastrous results. To sanitation belongs the task of showing how men may live in cities and be healthy. Hygeia is the handmaid of Industry.

When I told you of the increase in the population of Scotland, of England and Wales, and of certain counties between 1801 and 1891, since the area on which the population lives has always been the same, the percentage of increase in population represents the percentage of increase in density. We have not got an authentic record of the vital statistics of the nation throughout those ninety years. A system of national registration was commenced in England in 1837, in Scotland not until 1855. The first decade which rests fairly on the basis of an ascertained population at both ends is 1841-50 in England, and 1861-70 in Scotland. During those ninety years, therefore, of increasing density, we can note the death-rate which prevailed only during the last five decennia in England and the last three in Scotland. The mere fact that those Registration Acts were passed indicates an awakening interest in the health of the people. They made sure that the facts, at any rate, should be known. There was, however,



hardly any steady administrative effort put forth in the promotion of public health until 1850, after certain general Acts began to be applied which were passed within the preceding five years. As to the state of things prevailing in the years preceding the Registration Acts, no one questions the existence of an amount of disease and death in excess of anything recorded when records began to be made. In 1775 a contemporary statistician tells us that in England in "great towns" the annual mortality ranged from 43 to 53; in "moderate towns" from 36 to 42; and in "country parishes and villages" from 20 to 25. This was before the acute condition of the industrial epoch had been reached; before typhus had become epidemic; before cholera had reached our shores, although smallpox was still working its deadly will unrestrained by vaccination. The laws of nature and the constitution of man have always been the same. The physical conditions of our towns and their results upon health have been seen, described, and recorded by men who are still alive; they projected within the period of national statistics. We can conceive, then, the task which lay before sanitation. You may have watched a strong man launch his boat into a swift-flowing river, and observed how he is swept away at first, how he gets out his oars and brings the bow round to the current, how his first strokes merely lessen the speed with which he drifts, how after a bit he ceases to drift and becomes stationary, and then, after an interval of doubt as to the result, he begins to move steadily up stream. Let us carry this simile into the interpretation of the following figures, with this difference, that the stream against public health always ran more rapidly—density increased as the years rolled by. It increased in a way which cannot be expressed merely by the proportion of the whole population per unit of the whole area of the country. A larger and larger proportion of the people became aggregated in towns, and these clustered more and more in certain counties.

In Scotland, in the three successive decades between 1861 and 1891, the general death-rates were 22.1, 21.7, and 19.2; the death-rates under five years were 61, 58, and 51 per 1000; the infantile death-rates<sup>1</sup> were 121, 123, and 119.

In Lanarkshire, in the same decades, the general death-rates were 27.3, 26.6, and 22.1; the death-rates under five years were 87, 83, and 68; the infantile death-rates were 149, 145, and 136.

In Renfrewshire, in the same decades, the general death-rates were 26.1, 24.6, and 21.2; the death-rates under five years were 81, 71, and 63; the infantile death-rates were 141, 134, and 125.

<sup>1</sup>The deaths under one year of age calculated per 1000 births.

In England and Wales, in the five successive decades between 1841 and 1891, the general death-rates were 22.3, 22.2, 22.4, 21.3, and 19.1; the death-rates under five years were 66, 68, 68, 63, and 57; the infantile death-rates were 153, 154, 154, 149, and 142.

In Lancashire, in the same decades, the general death-rates were 28, 26, 27, 25.2, and 22.4; the death-rates under five years were 97, 91, 91, 82, and 73; the infantile death-rates were 192, 186, 183, 172, and 166.

In the West Riding of Yorkshire, in the same decades, the general death-rates were 23, 24, 25, 23, and 20; the death-rates under five years were 72, 78, 81, 75, and 63; the infantile death-rates were 163, 170, 178, 166, and 156.

In Glamorganshire, the aggregation of population has been more recent and more rapid than in these counties, and is still going on. Our imaginary rower has, in the case of Glamorganshire, barely asserted his supremacy over the opposing current. In the five decades between 1841 and 1891, the general death-rates were 23, 24, 23, 22, and 20; the death-rates under five years were 69, 77, 70, 59, and 62; the infantile death-rates were 146, 154, 137, 144, and 152.

I might have quoted the much more striking death-rates of the large cities, some of which are the vital centres of these counties. These would show decreases of from 20 to 30 per cent. during the last thirty years. I venture to predict that, when the decade which is now near its close is completed, the reinforcement of the efforts of the towns by the labours of the recently reconstituted health authorities of the counties will exhibit a greatly accelerated rate of improvement.

It comes to this, then, that while the country as a whole is becoming more densely populated, while every year a larger proportion of the total population is found living in cities, the death-rate of the country, as a whole, has gone down, and the decline is most marked in the largest cities. Not only is there less loss of life among the strangers who are within their gates, but the children who are born there are being reared to maturity in larger numbers. Nor is this a random effect; it is as precisely related to the methods of sanitary administration as the defeat of the French was to the strategy of Moltke. The evils of density which I specified are being redressed, and how simple and natural are the principles followed, though they are worked out through an infinity of detail—fresh air, sunlight, pure water, space, cleanliness within the house and without, in the factory and in the workshop. Much has been done, but more remains to do. When Dr. Farr pointed out the relation of density to health he reduced it to the exactness of a formula. He said on the evidence of four years, 1838-41,

that "the mortality of districts increased as the sixth root of their densities." Thirty years later he said it was as the twelfth root. He expressed the law quite dogmatically in these striking words, "The greater the proximity of man to man, the greater is the mortality." It is obvious that there is a range outside of which the proximity of man is indifferent. In other words, density only becomes effective when a certain proximity is overpassed. In so far as the influences of density upon health are physical, they are avoidable. As the vital statistics of each successive decade are made up, we find that people are living nearer to each other and yet living longer. The average lifetime of every child born between 1838 and 1852 in England was 40.88 years; of every child born between 1871 and 1880, 42.98 years; and of every child born between 1881 and 1890, 45.42 years. I see nothing in the nature of things to prevent towns being made as healthy as the country. I am certain it can only be done by what Charles Kingsley called "a complete interpenetration of city and country." There is an intensification of moral as well as of physical evil which dogs the aggregation of men. It may be that this—the elements of selfishness, of drunkenness, of laziness, of uncleanness of life, of dishonesty, of ignorance—will always exist in sufficient quantity to keep the death-rate of cities above that of rural districts; but I repeat that I know of nothing in the physical laws of the world to render it hopeless to aim at making the town as healthy as the country. On the contrary, I see in the progress which has been already recorded ample evidence that it is hopeful. Already the "town districts" of England and Wales have reached in certain years a death-rate which thirty or forty years ago was regarded as a healthy district-rate, viz. 17 per 1000 living.

What is the fulness of the meaning of a lowered death-rate? How can I bring it home to you? Marshal all the physical facts which constitute the scientific conception of summer and winter, and how much nearer are you to knowing what they are? A few hours more or less of sunlight, a few degrees more or less of heat, a few inches more or less of rain; a mile or two of velocity, a pound or two of pressure more or less of the wind, and a point of change in the direction from which it comes, that is all the difference, and yet summer is life and laughter, winter is death and tears. It is much the same with the statistical expression of the movements of public health—a unit or two or only a decimal fraction of a unit more or less, that is all, whether we adhere to the simplicity of a death-rate or resort to the intricacies of a life-table. Yet the social and economic difference would require pages of disquisition to follow out and picture forth. A quotation from

Farr will at once put our thoughts in order regarding the economic aspects of death and disease. He says,<sup>1</sup> "The labour of the parents, and the expense of attendance, nurture, clothing, lodging, education, apprenticeship, practice, are investments of capital, at risk extending over many years; and the return appears in the form of the wages, salaries or incomes, of the survivors, commencing at various ages. . . . The outgo increases from infancy up to a certain age; the earnings then commence and ere long equal the outgo; they are subsequently in excess throughout manhood, and at advanced age decrease, until they are extinguished amidst the feebleness and infirmities of old age. The present value of the person's probable future earnings, minus the necessary outgo in realising those earnings, is the present value of that person's services. Like capital invested in the soil, in the vintage, or in a commercial adventure, the capital invested in the life of man returns, in happy natures, profit of a hundred-fold; in other cases fifty, twenty, ten-fold; in others it is barely returned; in some it is entirely lost, either by death, sickness, vice, idleness, or misfortune."

This means that every year in the expectation of life which you find in a life-table opposite each age from 1 year to 100 has its money value, which is the balance between the outgo and income of the anticipated future of a person at that precise age. The death of a child entails an actual loss in proportion to the years of its unproductive life. The death of an adult just beginning work entails the loss of the whole capital invested in the life. The death of the aged differs from that of the child in that, while the child cannot possibly be anything but a consumer, there is scarcely any age at which the old person may not still be a producer. If we fix our attention upon death we are apt to forget disease. The fact that the popular standard of health is the comparative prevalence of death leads us to this limitation of thought. We drop into the fallacious habit of dissociating death from disease, of forgetting the living while tabulating the dead, a mistake which is at the bottom of much of the criticism tending to *laissez faire* to which sanitation has been subjected. Death, in the main, is to the individual the final event which emerges from causes prejudicial to health which act upon the community. The effect is not uniform. It is graded in intensity from the black of extinction, through the grey of impairment, into the vanishing shade of a transitory indisposition. If, therefore, the death-rate is lowered, you have not merely fewer death-beds, but you have fewer sick-beds, not merely fewer funerals, but less expenditure for the care of the sick.

<sup>1</sup> *Vital Statistics*, a memorial volume of Selections from his Reports, etc., p. 532



There are various aspects in which these connoted results of a diminished mortality may be viewed. They show how much more deeply, and widely the prevention of disease touches social problems than the curing of it. A sick man made well is not merely restored to the number of producers—he is taken from the number of those who must be maintained. How much better is it to keep him among the producers, not to allow him to become even a temporary burden to his family or to society. A sick child made well is not made less of a dependent and a consumer, but it may be restored to a maimed and impaired life; and, therefore, to a more prolonged, or even a lasting, dependency. In short, of the children born into the conditions of a high mortality, not merely do a larger number die, but those who survive are weighted in the race of life. The dead have no influence on posterity, but the living may propagate their taint. The number of recruits or conscripts rejected on account of physical defects is greatest where the death-rate is highest. I cannot follow Lombroso in his physical theory of morality, which seems to assert that you can discover a criminal by dissection; but I do maintain that it is among the cracked vessels you are more likely to find those which are made unto dishonour. Not only the insane, the imbecile, the idiotic, but the criminal will be produced in greater abundance in the unhealthy than in the healthy population. This much the congenital and pathological abnormalities which Lombroso proves to exist in undue proportion among criminals undoubtedly warrant us in maintaining. It follows, then, that as the "expectation of life" is lengthened, the *quality* of the life is improved. The physical basis of life is sounder, and there is less loss of working time in repairs. This means lighter social burdens, diminished poor-rates, less charitable outlay for the treatment of the sick, lower rates or more liberal dividends for life insurance and friendly societies. In short, a healthy city will be found to be a cheaper city to live in than an unhealthy.

I have intentionally shunned the quantitative method of presenting the economic effects of death and disease. The late Sir Edwin Chadwick gave great prominence to such calculations. They always remind me of the favourite device of people who wish to raise money, say, £1000. It is obvious that if 1000 persons give one pound a-piece, you have your £1000; but if 2000 persons give 10s., or 4000 5s., or 8000 half-a-crown, you would obtain the same admirable result. So you have got a certain population at working age, and if one can produce authority for saying how many persons are continually sick for every person who dies, a simple calculation will give the number of workers who are ill all the year round,

who, so far as social economics are concerned, might as well be on strike, or in prison, or insane, or otherwise conspicuously and avowedly thrown as a burden on the community. It depends upon the figure we take for their average wage how many thousands or millions will represent the direct loss in wages. Such calculations are not necessary to establish the general principle that death and sickness mean at least money-loss, that the deaths may be reduced and a large proportion of the disease prevented, so that we virtually have in sanitation a gold mine at our door—at the door not merely of the nation, the city, or the ratepayer, but of every man, woman, and child, for all have a share in the prolongation of life and the redemption of days from sickness. No one can say of *this* distribution of capital that it enriches the rich and impoverishes the poor. It enriches the poor and gives only a little to the rich.

Two quantitative illustrations of this principle may vivify its apprehension. In the army we have men got together for a definite purpose, and every fact as to their health is systematically recorded; so that we could not have a more precise or accurate example of the economic importance of sickness. In 1895 each man in a force of 99,795 stationed in the United Kingdom was unfit for duty from sickness, on an average, 15.24 days; in other words, 4167 men were always non-effective, and the fighting strength of the army on home duty was reduced by that number. Even at 1s. per day that means more than £76,000 per annum paid to men who gave no return in service. Not only so, but to minister to these men, doctors, nurses, and others had to be paid, and material outlay incurred. The greater proportion of this sickness was preventable. My other illustration is drawn from the experience of the Manchester Unity of Oddfellows that in each year their members lose on an average 9 working days from sickness. If we apply this to the population living, aged between 15 and 65 in 1891 in Great Britain, we find that it is equivalent to the burden of maintaining 572,000 adult persons in constant idleness. At 10s. per week this represents a direct wage-loss of £14,886,000 per annum. Such an improvement in health as would take only one day off the average sickness would reduce the number constantly sick by 63,600, and the loss by £1,654,000. It would be a mere matter of the application of similar data to such diseases as are notoriously preventable, for example, to phthisis and the diseases popularly known as infectious, to show that millions a year are lost directly and indirectly through their prevalence.

So much for what may be called the ponderable relations of public health to social problems, but we cannot bring all the

results of the environment of a man into the pages of a ledger, and work his life out into the simplicity of a balance sheet. "The life is more than meat and the body is more than raiment." Consider what is likely to be the product in character and temperament of the healthy and the unhealthy city. Do not be vague in your thinking. Call up before you the conditions of unhealth which I described, and which are bracketed in the conception of density. Are they lovely though deadly, are they pleasant though poisonous? If they kill the body, do they ennoble the spirit and sanctify the soul? Is death in the wynds a euthanasia? Is disease made comely there by some drapery of dreams and hallucinations? If when we enter these precincts with dainty feet, stepping warily, with garments carefully drawn closer to our shrinking limbs, our every sense is outraged, and strange thoughts stir in our minds, and the world seems more unintelligible than ever; if, when we regain the open street, we feel as if we had escaped from Hades and stood once more amid the fields of Enna; if all this be so, what of the people who *live* there? What of the children who are *born* and *grow up* there? What sort of citizens are they likely to turn out under the perpetual influence of conditions which have, in a few minutes, so disturbed the placid currents of our lives? What sort of a man is he likely to be who stumbles up and down through the twilight of those stairs night and morning, where sickness is never absent, where death is frequent, where the ambulance driver carrying the fever patient, or the undertaker's men piloting the coffin down the strait passage to the street, are familiar obstacles! What sort of a woman is she likely to be who has to lie helpless in her sickness in full sight of her neglected children, with all her domestic responsibilities hanging like a millstone about her neck; whose life is a never-ending struggle with penury, and her housekeeping a sad debate between food for the healthy and medical advice and medicine for the sick, in the expenditure of the last coin held in the hesitating hand? And the children of such parents, the rickety and enfeebled survivors of the great troop of infants who have found their way into the world by that stair—how can love of home, city, or of country grow up in such circumstances? Is it not more likely that their hearts will be filled with bitterness and class hatred, and harbour a sense of injustice and of wrong suffered at the hands of some one, of any one, of every one?

Gentlemen, this is not the material on which to build a stable state. Is it conceivable that people so circumstanced will believe that they live in the best of all possible worlds and be sticklers for the existing order of things? On the contrary, all my observation of the present, and all my reading of the past,

tells me that the natural growth of such a soil is discontent. In truth, it would be sad if it were otherwise. If all free men were healthy and well fed, they would be happy and content. Dissatisfaction with present conditions leads to projects for securing better. Misery begets social unrest, and the heart of misery is ill-health. *Les misérables* are always foremost in revolutionary projects. You may have philosophers and philanthropists dealing with the social fabric as with a box of bricks which they tumble out on the floor of their study and build up into a structure to please their fancy or their theory. But even this is seldom a mere academic exercise. It is prompted by dissatisfaction with the existing state of things. In any case, the masses are never led into revolution by their intellects. It is by appeal to the physical discomforts of life—to their own misery or to the misery of their fellow-men. Whatever they may inscribe on their banners, it is misery which is behind. The six points of the people's charter were coveted, not for themselves, but as means to an end. But for wheat at 70s. a quarter and the horrible conditions of life of the working classes in our large towns, there would have been no charter.

If we survey the ideal commonwealths which have been constructed, from Plato's "Republic" down to William Morris' "News from Nowhere," we observe there is a remarkable difference between the ancient and the modern ideals; a difference not merely such as is imposed by differences in the manners and customs, the political and social constitution of the times. Between such ideal commonwealths as Plato's "Republic," Bacon's "New Atlantis," Harrington's "Oceana," Hobbes' "Leviathan" and the New Boston of Bellamy's "Looking Backward," the New London of Morris' "News from Nowhere" and Blatchford's "Merrie England," there is an essential difference which goes deeper than the age and the country which produced them. The former are the works of men of philosophic intellect impressed with the illogical scheme of the polity under which they live, and the blundering way in which events fall out rather than follow with the sequence of a syllogism. They are the produce of the academy. They show the accomplishments of the forum rather than the knowledge of men and things which is to be found in the market-place. The French Revolution changed all that. Utopia and Oceana are as interesting to read about as Brobdingnag and Laputa, but we take neither the one nor the other seriously. In the age of oligarchy nothing better could be thought of for the regeneration of society than a rigid mechanical system into which human beings should be fitted like the planets in an orrery. That being done, all that was wanted was some one to turn



the handle. That age is gone in this country, gone, we had almost said, from Europe, but we remember that it is still "made in Germany." The New Boston, the New London, Merrie England are all possible places. The authors consider the modern conditions of democratic life. Their theories are to be worked out by the people themselves, not imposed upon them by any superior power. Their object is to secure a larger, fuller, more wholesome, happier life for the whole nation. We cannot but accept and heartily pray for the accomplishment of their aims. It is not necessary for sanitarians to become Socialists in order to promote the aims of the Socialist. This is where public health touches, or, more correctly speaking, works in the van of those who are labouring for the solution of social problems.

In that triune conception of an ideal social state, "Liberty, Equality, Fraternity," how much of the negation of equality among men depends upon the health of the individual, upon the physical condition of his body. What avail civil equality, political equality, equality of possessions, as between a man who is in robust health and another who is laid down with a fever, as between a man who has all his limbs and one who has lost a limb from tuberculosis of a joint; who is sound in wind and one who is pigeon-breasted; who has all his faculties and one who has an intellect blunted by a meningitis in infancy; who has all his senses and one who has been made deaf by scarlet fever or blind by smallpox? What equivalence of opportunity can a man have who lives his family life crushed by the physical conditions of a slum—his personal vitality depreciated, his years shortened, his substance drained away by sickness and death among his dependents—yet who can question that, as compared with any other form of equality, equality in health is not a hopeless dream but a reasonable and attainable aim? Nay, more, who can say how much of those other forms of equality would be attained or made easier of attainment by equality or less inequality in the opportunity of health? Disease may make out of any one of us a Dr. Jekyll and a Mr. Hyde. An appeal to Philip eupeptic is as necessary as to Philip sober. The most brilliant in intellect sometimes finds himself temporarily in possession of a brain which, if it were a permanent inheritance or acquisition, would not maintain him above the level of a swine-herd. The casual in such a person may be the usual in masses of men and from equally preventable or remediable causes.

I have read largely in Socialist literature—systematic treatises, propagandist tracts, novels, poetry, popular song books, serial publications. Time would fail me utterly to satisfy you by references and quotations that such literature is

saturated, both in its justification from things as they exist and in its promise of the reformation which will ensue upon the adoption of their special theory of society, with questions of public health; questions which have been dealt with, which are being dealt with, and which can be dealt with quite irrespective of the constitution of society. In fact, Socialist literature always reminds me of Charles Lamb's "Dissertation upon Roast-pig." Hoti's son Bobo, by accident, burned down his father's cottage and his pig-stye, and thus discovered the virtues of roast-pig. Forthwith, incendiarism became popular for the sake of enjoying roast-pig. It is not stated that any one ever discovered that it was not necessary to burn down houses in order to get roast-pig, so we do not know how Hoti would have taken the statement. We have, however, in the preface to a translation of Engel's book, "The Condition of the Working Class in England in 1844," evidence that this writer had discovered that between 1845, the date of his book, and 1892, the date of his preface, sanitation had swept away the facts on which he had originally based his attack on capital. He takes the discovery very badly. The passage is worth quoting:—  
"The repeated visitations of cholera, typhus, smallpox, and other epidemics have shown the British bourgeois the urgent necessity of sanitation in his towns and cities, if he wishes to save himself and family from falling victims to such diseases. Accordingly, the most crying abuses described in this book have either disappeared or have been made less conspicuous. Drainage has been introduced or improved, wide avenues have been opened out athwart many of the worst 'slums' I had to describe. 'Little Ireland' has disappeared, and the 'Seven Dials' are next on the list for sweeping away. But what of that? Whole districts, which in 1844 I could describe as almost idyllic, have now, with the growth of the towns, fallen into the same state of dilapidation, discomfort, and misery. Only the pigs and the heaps of refuse are no longer tolerated. The bourgeoisie have made further progress in the art of hiding the distress of the working class. But that, in regard to their dwellings, no substantial improvement has taken place is amply proved by the report of the Royal Commission on the Housing of the Poor, 1885. And this is the case, too, in other respects. Police regulations have been plentiful as blackberries; but they can only hedge in the distress of the workers, they cannot remove it" (p. iv.). Observe the magnitude of this last assertion, and how adroitly Engel transfers his attack from the capitalist to the middle classes. His original book was founded on the reports of the Royal Commission on the Health of Towns, appointed in 1843. He now retires upon the report of the Royal Commission of 1885. If he lives to

write another preface for another edition of his book in 1902, he will find that the facts of 1885 have followed those of 1843 into extinction. Those academic spinners of social theories habitually use the facts stored up in our blue books for the very purpose of being practically dealt with; and it is their fate to find that, while they have been spinning, others have been working, and lo! when they look at their distaff, they find that their material is not wool, but mist.

I take up a Fabian tract entitled "Facts for Socialists," and I find in succession the facts assorted under those heads, "The Nation's Income," "Who produces it," "Who the Workers are," "How the Idle Rich live," "The Rent of Land," "The Interest of Capital," "Profits and Salaries," "The Classes and the Masses," "The Two Nations," "The Class War." Now, observe, I am not discussing Socialism on its merits, although the argument of these titles is pretty obvious. But if all men are healthy and happy, what does the argument matter? and I confess nothing in these bundles of facts touches me until I come to the next, "Some Victims of the Struggle," where I find infantile death-rates, the average age at death of the nobility and gentry and of the artisan class, the insanitary condition of the slums, the number of paupers, the number of deaths in hospitals, and so on. Then comes the last chapter, "The Evil and the Remedy," and my criticism is that I see the evil, but the remedy is too heroic. At any rate, we can get roast-pig without burning the house down.

In the last chapter of "Looking Backward" I find the most pathetic descriptions of slum life in the Boston of to-day, some passages of the purest Christian sympathy in language which touches one even to tears; but still I am not convinced that Boston cannot abolish those slums until "the age of individualism" has given place to that of "concert" or collectivism, even though it is, as we are told in so many words, "well characterised by the fact that in the 19th century, when it rained, the people of Boston put up 300,000 umbrellas over as many heads, and in the 20th century they put up one umbrella over all the heads." Besides, I note that even in that wondrous age they had an "invalid corps" with a distinctive uniform, the members of which are provided with a light class of tasks fitted to their strength. "All our sick in mind or body, all our deaf and dumb, and lame and blind, and crippled, and even our insane belong to this invalid corps, and bear its insignia."

The polity of New London is, we are told, "pure communism." When we finish the idyllic story of "News from Nowhere" we feel that we have been in the society of the most heavenly and proper set of children, with the years and stature of grown-ups. It is the Earthly Paradise over again. All the

sensuous adjectives are exhausted in describing the beauty of the women, and all the heroic in describing the stalwart proportions of the men. Every cheek is ruddy as a rose. Every limb is modelled after the Venus of Milo or the Apollo Belvidere. Centenarians abound. The health of the people is, in fact, gross and apoplectic. The city is ruralised. All the old places are there—Trafalgar Square, Charing Cross, Long Acre, Holborn, Oxford Street—but everywhere there are trees and flowers, and the density of London is less than that of a country village. All the slums are gone, and the memory of them alone is kept alive by an annual festival. It is a centenarian who speaks, "Once a year, on May-day, we hold a solemn feast in those easterly communes of London to commemorate the Clearing of Misery, as it is called. On that day we have music and dancing and merry games and happy feasting on the site of some of the worst of the old slums, the traditional memory of which we have kept. On that occasion the custom is for the prettiest girls to sing some of the old revolutionary songs, and those which were the groans of the discontent, once so hopeless, on the very spots where those terrible crimes of class murder were committed day by day for so many years. To a man like me, who has studied the past so diligently, it is a curious and touching sight to see some beautiful girl, daintily clad and crowned with flowers from the neighbouring meadows, standing amongst the happy people, on some mound where of old time stood the wretched apology for a house, a den in which men and women lived packed amongst the filth like pilchards in a cask; lived in such a way that they could only have endured it, as I said just now, by being degraded out of humanity—to hear the terrible words of threatening and lamentation coming from her sweet and beautiful lips and she unconscious of their real meaning; to hear her, for instance, singing Hood's 'Song of the Shirt,' and to think that all the time she does not understand what it is all about, a tragedy grown inconceivable to her and her listeners. Think of that, if you can, and of how glorious life is grown" (p. 72).

Yes, Mr. Morris, this is all very pretty and very worthy of your aesthetic imagination, but, while you are persuading men that in order to get roast-pig their houses must be burned down, there can be no objection to a more direct and speedy way of getting it. While Bellamy dreams and Morris sees idyllic visions, the Board of Health of Boston and the County Council of London are steadily prosecuting their "Clearing of Misery," and even bringing into the dark places of the city the brightness and sweetness of open spaces with trees and flowers.

"Merrie England" is the most popular, the most widely



known, and the ablest of recent expositions of Socialism. I admire the cleverness, the literary art, and controversial adroitness of the author. The reading of it is an intellectual stimulus. Again I warn you that I do not discuss Socialism; I simply wish to show you that the chief arguments for and the chief benefits held out by Socialism are well within the recognised domain of public health. This is apparent from the opening chapters, in which we are told that the bodily needs of man are two, "health and sustenance," the mental needs three, "knowledge, pleasure, intercourse." The argument is that Socialism only will secure those needs for every one. Then we have a chapter, "Town *v.* Country," in which the "factory system" is denounced for four reasons, "(1) because it is ugly, disagreeable, and mechanical; (2) because it is injurious to the public health; (3) because it is unnecessary; (4) because it is a danger to the national existence." The soul and substance of this indictment is count number two, "injurious to the public health." This is made apparent in the elaboration of the indictment in subsequent chapters. We have two maps of the British Isles submitted, one a health map, shaded so as to show the death-rate, another a map shaded to show the density of the industrial and commercial population. Attention is directed to the local coincidence of high death-rate and great density. The ugliness and disagreeableness alleged against the factory system are simply another aspect of the physical causes of the injury to health. We are told that the "invariable accompaniments of the factory system" are "foul air, foul water, adulterated foods, dirt, long hours of sedentary labour, and continual anxiety as to wages and employment in the present, added to a terrible uncertainty as to existence in the future. Look through any great industrial town, in the colliery, the iron, the silk, the cotton or the woollen industries, and you will find hard work, unhealthy work, vile air, overcrowding, disease, ugliness, drunkenness, and a high death-rate." Time fails me to prove to you by quotation that, as Mr. Blatchford begins so he continues, and so he ends his book, by harping on this one string—public health. In chapter v., "The Life of the Worker," the first three of twelve "facts which no man attempts to deny" regarding Britain under the existing social system are—"(1) Large numbers of honest and industrious people are badly fed, badly clothed, and badly housed; (2) many thousands of people die every year from preventable diseases; (3) the average duration of life amongst the population is unnaturally short." One of the oddest ways in which the self-assertion of public health in the mind of the Socialist manifests itself is in the allotment of the leisure which the redistribution of

production would give to the people. The proposition is—"If one-third produce enough for all by working nine hours a day, then three-thirds will produce enough for all by working three hours a day." Then Mr. Blatchford proceeds to count his chickens. "So we shall have plenty of leisure. What are we to do with it? One use for it is the acquirement of knowledge. I will give you two very striking examples of the kind of work that needs doing." I doubt if you could guess what these are! The first is "the germ theory of disease," the second is "agricultural chemistry." Surely, gentlemen, the essential conditions of the millennium will exist when every man will not only be his own shoemaker, but his own bacteriologist. One of the last chapters is devoted to the proof of the proposition, "the vices of the poor are due to their surroundings, instead of the surroundings being due to their vices." Those surroundings, we find, are chiefly "slums," "foul air," "polluted rivers," "unhealthy trades," and so on through the familiar catalogue of the physical elements of industrial ill-health. On either theory of vice, the practice of public health would be the same, though its relation to this particular social problem will differ. If the environment causes the vice, its improvement will directly eliminate the vice. If the vice causes the environment, then, having reformed the environment, the law may make it impossible to be vicious and live. The sanitarian well knows that the truth lies between these two propositions.

One more reference to "Merrie England," to chapter xxiv. In the language of Socialism, every one who does not work for his living is "a loafer"—"a loafer may be an idle tramp without a shirt to his back, or he may be an idle peer with a rent-roll of half a million a year." In short, the word loafer "means one who loafs or sponges upon the earnings of other people." We note that in the catalogue of loafers Mr. Blatchford not only enumerates "idle peers," but "paupers, beggars, tramps, criminals, as well as a large army of unemployed workers." In his opinion all these live upon "the labour of the working poor"; and we are told that "under Socialism we should oblige the loafer to work or perish." Now, here an important principle is admitted, that, whatever the constitution of society, provision must be made for the existence of a certain proportion of individuals who, being free agents and having the opportunity of acting otherwise, choose to set themselves in antagonism to the interests of society, and that for such the law is "do this or perish." It is to this law we appealed in referring to the relation of environment to vice. If a man spends his earnings on drink and then seeks to live on garbage, to sleep on stairs, or live in violation of health and decency in a slum, then everything should be done to bring him to this

alternative—be sober or perish. To this alternative the methods of public health tend, *e.g.* the closing of uninhabitable houses, building regulations, the prevention of overcrowding, the enforcement of cleanliness, the Adulteration of Foods Act, &c.

But, although we leave to Mr. Blatchford every regiment in his noble army of "loafers," we must, *ex definitione*, add a brigade of our own which will vastly outnumber all the peers, paupers, prisoners, and other nondescripts who do not work and live on the labour of those who do—I mean those who are unable to work by reason of sickness. A prominent wing of his army is that of the "unemployed." Although he claims for all unemployed that "they exist in enforced idleness," it is well known that many, at times the great majority, of the "unemployed" are so voluntarily. No one can ever say that of the sick. Mr. Blatchford's regimen for loafers admits the existence of something in man that may resist amelioration even by the favourable climate of Socialism. The old-fashioned way of describing that something was "original sin." You may call it "inherent cussedness" if you prefer it. My trouble is that, if you admit "original sin" into this paradise, how are you to limit its influence to loafers? Where may this sand cast among the mechanism of your social organisation not turn up? We know there is an irreducible minimum of disease and death of which no modification of environment will relieve mankind. I maintain that the same quality in man which Mr. Blatchford admits will produce the loafer, will in the individual and in society, in the man himself, and among those who in any manner depend upon or in any degree are influenced by him, always tend to an excess of disease and death over that which is the penalty of humanity. This tendency will be strongest where the results will be most disastrous, *viz.*, among aggregations of men in cities. All that is in man goes with him into society. All social problems are complicated with this untoward element in man himself, and all social reformers have to reckon with it. I have already said that, although there are no physical reasons why the city should not be as healthy as the country, there may be moral. Let me close by pointing out that, as regards public health in its relation to social problems, the difference between all those social architects and the sanitarian is this, the sanitarian is like the lifeboat or the lifebelt to the drowning man—"a very present help." The theorist is like a lecturer on the art of swimming,—any good he may do is in the future. He certainly will not help the drowning man.

THE CHILDREN OF THE CITY: WHAT CAN WE DO FOR THEM?<sup>1</sup>

Ladies and Gentlemen,—It is now more than a century since a distinguished citizen of this city wrote a book entitled, "Sketches of the History of Man," in which there is a chapter, "A Great City considered in Physical, Moral, and Political Views." He began the chapter with this sentence:—"In all ages an opinion has been prevalent, that a great city is a great evil; and that a capital may be too great for the state, as a head may be for the body." The latter part of this sentence suggests that probably "political" more than either "physical" or "moral views" were at the bottom of the alarm and anxiety inspired into the hearts of kings by the growth of cities. Despots naturally must regard it with jealousy. Cities have in all ages been the birth-places of movements in favour of popular rights and nurseries of political freedom. Still the physical necessities begotten by the aggregation of men have always formed the chief element in the difficulties of their government. The cry for bread was heard as often as the strains of the *Marsellaise*, in the opening scenes of the French Revolution.

In the case of Paris and of London, attempts were made, at a very early date, by the sovereigns of France and England, to check their growth by direct prohibition. I cannot open up the main purpose of my lecture better than by giving you the reasons assigned for this mistaken and futile endeavour. I need not tell you that Paris and London paid as little heed to those imperial edicts as the advancing waves to the behests of Canute. But the most important of the features of city life which troubled the minds of kings still exist, and nowhere more strongly marked and clamant for reform than in this country and in our day. Now the responsibility has passed with political power from the throne to the people. The difficulties and national dangers inherent in the physical circumstances of cities cannot be better expressed than they were in the language of kings centuries ago, but the centuries have passed and the difficulties and dangers remain. It rests with the sovereign people, in the first place, to grasp as clearly, but in the next place to attempt with more success to solve the problem. The object of my humble endeavour to-night is to help you to the accomplishment of both objects.

The attempt to limit the growth of Paris by prohibiting the erection of new buildings beyond certain bounds was begun in

<sup>1</sup>No. 6 in the Seventh Series of "Health Lectures for the People," delivered under the auspices of the Edinburgh Health Society, 1886.



1549, and renewed from time to time down to 1672, when Louis XIV. justified his edict by the following reasons:— (1) That by enlarging the city, the air would be rendered unwholesome. (2) That cleaning the streets would prove a great additional labour. (3) That adding to the number of inhabitants would raise the price of provisions, of labour, and of manufactures. (4) That ground would be covered with buildings instead of corn, which might hazard a scarcity. (5) *That the country would be depopulated by the desire that people have to resort to the capital.* (6) That the difficulty of governing such numbers would be an encouragement to robbery and murder.”

Queen Elizabeth prefaced her proclamation issued in 1602, prohibiting the erection of new buildings within three miles of London, with the following preamble:—“That foreseeing the great and manifold inconveniences and mischiefs which daily grow, and are likely to increase, in the city and suburbs of London, by confluence of people to inhabit the same; not only by reason that such multitudes can hardly be governed, to serve God and obey Her Majesty, without constituting an addition of new officers, and enlarging their authority; but also can hardly be provided of food and other necessaries at a reasonable price; and finally, that as such multitudes of people, many of them poor, who must live by begging or worse means, *are heaped up together, and in a sort smothered with many children and servants in one house or small tenement*; it must needs follow, if any plague or other universal sickness come among them, that it would presently spread through the whole city and confines, and also into all parts of the realm.”

Such were the dangers and disadvantages of large cities as they appeared to the rulers of those distant centuries. Some of them, and notably those of government and food supply, have in the interval been fairly met or even overcome by improved local administration, the repeal of the corn-laws, and greater facilities in transport and distribution. The standard of health of cities has also been enormously advanced, but it is still true that the rural districts are being depopulated to maintain the towns, that the inhabitants of towns are, in the words of Queen Elizabeth, “*heaped up together, and in a sort smothered with many children*” in small tenements, and that towns are, though much improved, unwholesome as compared with the rural districts from which their active, reproductive population is drafted.

Let me now try to put before you as concisely and simply as may be some information as to the growth of towns in Great Britain, as to the manner of this growth and the vital characteristics of a town as compared with a country population.

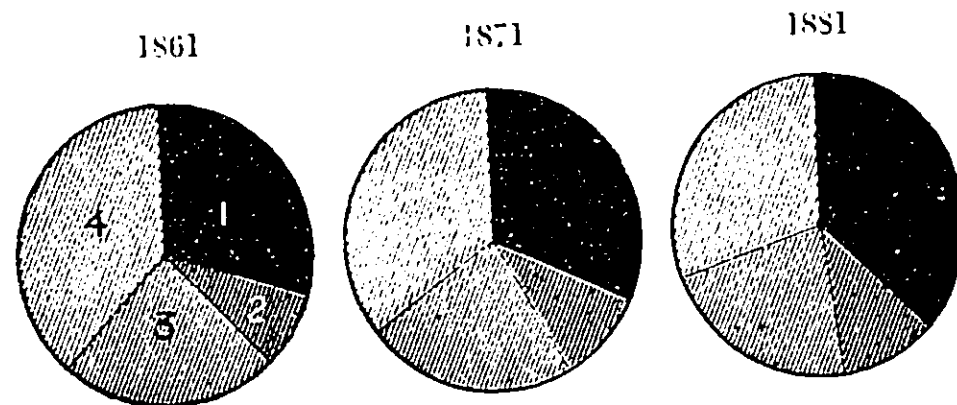
In doing so I shall state nothing which is not capable of proof by actual statistics, but remembering how difficult it is to make figures popular, I shall use them as sparingly as possible.

In this country, Government, to use a commercial phrase, takes stock every ten years. In England the whole country is divided into Sanitary Districts, which are classified as Urban or Rural according as, from the density of the inhabitants, they require more or less stringent sanitary provisions. In 1861 it was found that 63 per cent. of the entire population of England lived under Urban conditions, in 1871 this proportion had risen to 66, in 1881 to 68, and in 1891<sup>1</sup> to 72 per cent. In other words, in 1861 there were 172 dwellers in towns to 100 dwellers in rural districts; but in 1871 the number had risen to 192, in 1881 to 212, and in 1891 to 254. The growth of London has been so extraordinary, we may say portentous, that it deserves a special reference. In 1801 it was found that out of every 100 of the entire population of England eleven were inhabitants of London, and this proportion has advanced steadily with every census until in 1891 between 19 and 20 in every hundred were aggregated in “Greater London.”

In Scotland we have no such sub-division of the country into districts on the basis of their sanitary requirements; but the Registrar-General classifies the population according as they live in principal, large or small towns, or in mainland-rural or insular-rural districts. This will equally well serve our purpose. In 1861 we find that 61 per cent. of the entire population of Scotland lived in towns; in 1871 the proportion had risen to 65, in 1881 to 69, and in 1891 to 73 per cent. You will observe that the absorption of the rural population into towns is advancing more rapidly in Scotland than in England; and the fact assumes more importance than is at first apparent, when we remark that it is into the eight principal towns that the population is flowing. While the proportion of the people found at each census in the smaller towns and villages was falling off, the proportion found in the chief towns was rising from 29 per cent. in 1861 to 32 in 1871, 38 in 1881, and 39 in 1891. Glasgow is devouring the population of Scotland even more rapidly than London that of England. At the census of 1871 we find in Glasgow and its suburbs no less than 17 per cent. of the inhabitants of all Scotland; in 1881 this proportion had risen to 18, and in 1891 to 20 per cent., so that the western metropolis of Scotland has collected about her a greater proportion of the inhabitants of that kingdom than London has of the inhabitants of England.

<sup>1</sup>This and subsequent references to the 1891 Census were added to the original paper as they became known.—[Ed.]

## DISTRIBUTION OF POPULATION OF SCOTLAND IN TOWN AND RURAL DISTRICTS.



(1) Principal, (2) Large, (3) Small, Towns. (4) Rural Districts.

If we look more closely at a town as compared with a rural population, we discover various characteristic features which it is of interest and importance for us to note. There is always in towns a much greater proportion of adults of both sexes, persons at the prime of life. The marriageable females are greatly in excess of the males of the same age. As a natural consequence, early marriages are much more frequent in the towns than in the rural districts, the birth-rate is higher, and the proportion of children under five years of age is in excess. But between five and fifteen years of age the proportion is reversed. Though the town population is more productive, it is less conservative of child-life than the rural population. Another equally sinister characteristic of a town population is that, while above forty-five in country districts, the proportion of persons still living in the married state is maintained, even to extreme old age; in the towns it falls off in comparison, and is replaced by a large excess of widows and widowers.

If we inquire where towns-people were born, we discover that a very large number, amounting in the larger towns to one-half, are not natives of the town. They hail from agricultural districts and villages. Their speech shows every variety of provincial dialect. In manufacturing towns, and among the unskilled labourers everywhere, we recognize a strong Irish element. If we single out the adults, the persons who are engaged in the workshops, factories, warehouses, who are bustling about the streets in the full vigour of life, we find that a very small proportion, perhaps a third only, belongs to the town, while among the children and the adolescents the relation is reversed, a third being strangers, which still, however, indicates a large admixture of outlandish blood.

Such is a general statement of the comparative composition of a town and a country population, if we contrast them at any one period of time. These differences are the final outcome of all the vital movements which are progressing from

day to day and from year to year—migrations of families and individuals, guided by every variety of motive, from town to country and from country to town, over the face of the land, and of the balance of births and deaths within the towns and rural districts. It will both interest you, and expose more clearly to your apprehension the nature and extent of those vital movements, if we take a rapid glance over broad Scotland in the interval of ten years between 1881 and 1891, and endeavour to illustrate the process which throughout the kingdom is resulting in the gradual absorption of the population within the limits of towns.

There are only two ways of exit from the ranks of the inhabitants of a district, whether it be urban or rural—by death or by *e*-migration. There are only two ways of entrance—by birth or by *im*-migration. If, therefore, we find that the population living within any fixed boundary has *increased* by more than the surplus of births over deaths, or in spite of an excess of deaths over births, then there must have been *im*-migration within that boundary from the outside. If, on the other hand, we find that the population has *diminished* by more than the excess of deaths over births, or in spite of a surplus of births, then there must have been *e*-migration outside the boundary from within. The universal experience is, that towns are growing in excess of their surplus births, and that rural districts are diminishing in spite of an enormous surplus of births. Therefore, we are shut up to the conclusion that there is a continual migration from the latter to the former. Take further into consideration this fact—that both the death-rate and the birth-rate of towns are much higher than the death-rate and birth-rate of the rural districts, and I ask you, is it pronouncing a harsh judgment upon the towns to say that they devour their own children and fill their empty places with the children of the rural districts?

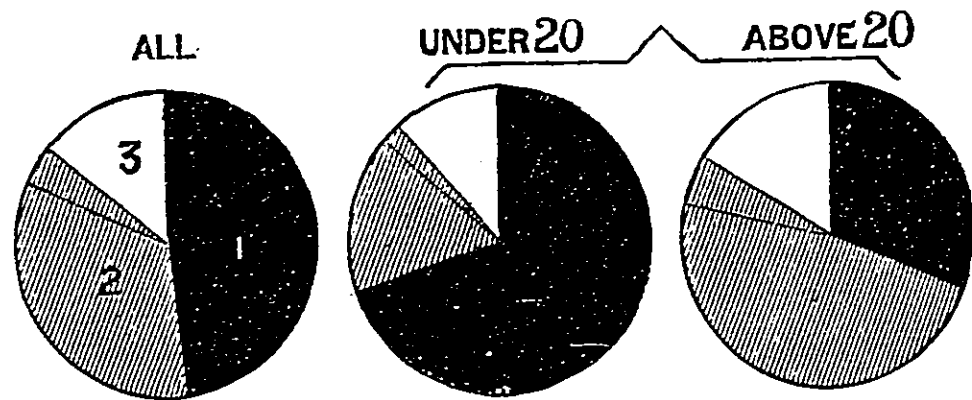
But I am departing from my proposed illustration from the case of Scotland. I shall take the average results of the ten years, 1881 to 1891. The eight *principal towns*, all having above 25,000 inhabitants, had an annual excess of births over deaths of 18,744, but they increased by 21,760 souls every year, so that they absorbed every year 8420 *im*-migrants. Their average birth-rate was 33 and their death-rate 23 per 1000 inhabitants. The *large towns*, all having from 10,000 to 25,000 inhabitants, had an annual excess of births over deaths of 6240, but they increased by 11,871 souls every year, so that they absorbed every year 5631 *im*-migrants. Their average birth-rate was 33.5 and their death-rate 19 per 1000 inhabitants. The *small towns*, all having from 2000 to 10,000 inhabitants, had an annual excess of births over deaths of 11,643, but they



only increased by 6185 souls, so that they sent out an annual surplus of 5458 persons. Their average birth-rate was 33, and their death-rate only 18.4 per 1000 inhabitants. The *rural districts* had an annual excess of births over deaths of no less than 14,207, but they actually *decreased* in population at the rate of 6220 per annum, so that they sent out a surplus population of 20,427 persons every year. Their average birth-rate was 28.4 and their death-rate 16 per 1000 inhabitants.

Although these figures seem very simple, they, in reality, represent the final result of very complex social movements, which, if followed out, would lead us into nothing less than a statistical analysis of the population of the habitable globe, including even the Scotchman, who is said to be sitting on the top of the North Pole! When we strike the balance of births and deaths over all Scotland, and compare the absolute increase of the population of all Scotland in those ten years, we find that over 218,274 persons must have left the country altogether; joined the great army of Scotch invaders of England, or emigrated to the Colonies or elsewhere. Then we have also to remember the steady influx from Ireland. Nor are the movements between town and country all one way. There are counter-currents from the town to the country, which become specially active in times of commercial depression. But we need not complicate our thoughts with these phenomena. They are all subordinate to the general law, which is the transference of an increasing proportion of the whole population, from the conditions of life in the country to the vastly different conditions of life in the town. I wish you to have a clear understanding of the final result of all this interchange of people, of birth and death and migration, upon what may be called the statical condition of a town. This gives us

PROPORTION OF NATIVES AND IMMIGRANTS IN EDINBURGH—1881.



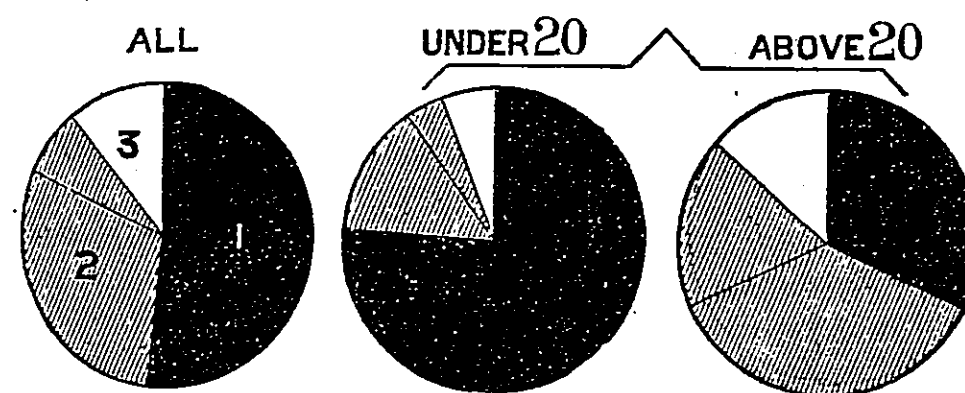
(1) Natives. (2) Rural Districts, the Irish element indicated by small segment.  
(3) Born in seven towns and elsewhere.

the practical result, which will form the text of the remainder of my lecture; and, for this purpose, if I may venture to trouble you with a few more figures, we may take Edinburgh

and Glasgow. What was the composition as to birth-place of the inhabitants of those cities as they were in 1891, after all the complex movements of the past centuries had passed over them?

The growth of Edinburgh during the ten years preceding last census was supplemented by an annual draft from external sources of 152 persons, over and above her own birth-product. In 1891, out of every 100 of her inhabitants, only 51 were natives; 32 had been born in the counties of Scotland, exclusive of the seven principal towns; 7 had migrated from their birth-place in those towns; 5 had come from across the Border; and only 3 were of Irish origin; leaving a balance of 2 contributed from outlandish sources. If we divide the inhabitants of Edinburgh into two classes, one consisting of persons under twenty years of age, and the other of persons aged twenty years and upwards, and then contrast the birth origin of these two classes, we get the following interesting and instructive result. We shall call the younger class the *adolescents* and the older the *adults*. Of the Adolescents 72 out of every 100 were natives of Edinburgh, of the adults only 35½; of the adolescents only 16½ hailed from the counties of Scotland outside the seven principal towns, of the adults 44; of the adolescents 6 had migrated from those towns, 3 were of English origin, and only 1 of Irish, as compared with 8, 6½, and 4 respectively among the adults, leaving a balance of 1½ adolescents and 2 adults derived from outlandish sources.

PROPORTION OF NATIVES AND IMMIGRANTS IN GLASGOW—1881.



(1) Natives. (2) Rural Districts, the Irish element indicated by small segment.  
(3) Born in seven towns and elsewhere.

In the case of Glasgow it is necessary to include the suburbs to get a true measure of the indebtedness of the entire community to external sources for the increase of its population. We then find that her own birth-product was supplemented by an annual draft of 1041 persons. In the decade preceding it was 2340. The materials for an analysis of the inhabitants of Glasgow and suburbs as to their place of birth are not accessible to me. I must therefore take so much of this great

community as is included in Glasgow as extended in November, 1891. In 1891, out of every 100 of the population of this "Glasgow," only 53 were natives, 27 came from the counties of Scotland outside the seven principal towns, 10 were natives of Ireland, 5 came from the other chief towns, 4 were of southern origin, leaving 1 to represent the foreign element. As in the case of Edinburgh, if we separate the inhabitants of "Glasgow" into "adolescents" and "adults," we find that out of every 100 of each class among the adolescents there were 73 Glasgoweians, among the adults only 37; among the adolescents only 18 hailed from the Scotch counties, exclusive of the principal towns, among the adults 35; among the adolescents only 2½ were of Irish origin, among the adults, 16; while of the former class 3 were natives of the chief towns, and 1½ were from over the Border, as compared with 6 and 5 respectively of the latter class, leaving in each case a balance of 1 foreigner to complete the 100.

These are fair samples of the results of the family management of towns. If we turn up their register of births from year to year, we find them overflowing; but when we call upon them at the census we find that half of the family are changelings. In that chapter of his quoted at the outset of this lecture, Lord Kames remarks, contemplating the comparatively modest requirements of London a century ago:—"The annual supply amounts probably to a greater number than were needed annually for recruiting our armies and navies in the late war with France. If so, London is a greater enemy to population than a bloody war would be, supposing it even to be perpetual. What an enormous tax is Great Britain thus subjected to for supporting her capital! The rearing and educating yearly for London 7000 or 8000 persons requires an immense sum." In 1865 Dr. Morgan, in a paper on "The Deterioration of Race in Large Cities," estimated that in order to maintain the growth of London "the whole available resources of a vast country nursery, peopled by nearly two millions, must be called into requisition."

Observe I do not find fault with the towns for attracting "young rusticity," or young rusticity for being attracted. There are natural and insuperable limits to the number of people who can live upon the soil which they cultivate. In all ages a time has come sooner or later when, those limits having been reached, the surplus population has, in the search for subsistence, forced its way into "fresh fields and pastures new." The boy,

"When first he leaves his father's field,  
And at night along the dusky highway near and nearer drawn,  
Sees in heaven the light of London flaring like a dreary dawn,  
And his spirit leaps within him to be gone before him then,  
Underneath the light he looks at, in among the throngs of men;"

this boy is but a drop in the great tide of men, which flows peacefully to many shores under the same impulse which hurled the surplus hordes of the crowded north in a raging sea down upon the Roman Empire and overwhelmed it. I do not complain of the continued operation of this natural law. It is futile to oppose it, as those sovereigns tried to do by edicts and ordinances. What I do protest against as a great national injury is that the towns do not rear their own children into healthy and vigorous citizens, competent to supply some larger proportion of their wants. They receive those selected lives, reared by the parental care of rural districts, aided by favouring physical conditions, and they subject them to physical conditions which are fatal to child-life, and slowly sap the vigorous rustic constitutions of the parents. Look at those circles exhibiting at each successive census the proportions of the whole population of Scotland living under the conditions of town and country life, where black in three shades represents the towns in their three grades of size, and green stands appropriately for the country.<sup>1</sup> Observe how the black is steadily spreading and the green retiring before the inroads of the black. Remember that the birth-rate is much higher in the towns than in the rural districts, and that consequently the proportion of the total birth-crop of the nation, which is exposed to the adverse influences of towns, is larger than the black represents, and the proportion springing up under the benign conditions of rural districts less than the green represents. Now endeavour to estimate the gravity of this ever-advancing revolution in the vital constitution of the nation by its results on child-life. Speaking of Scotland as represented in those diagrams, as the black extends you have a condition of things extending, in which, of every 1000 children born, 130 die before they have reached their first birth-day. As the green diminishes, you have a condition of things diminishing, under which only 87 are thus prematurely cut off. But the deepest shade of black, the largest towns, is steadily absorbing a larger proportion of the dark area, and this means the extension of conditions under which 140 out of every 1000 children born perish within a year of birth. Glasgow is extending most rapidly of all, and she makes away with 147 per 1000 of her children before she has had them a year in her fatal arms. Scotland is but a small item in the United Kingdom. Her whole population is less than that of London, and only constitutes between one-ninth and one-tenth of the United Kingdom. A much larger proportion of the English than of the Scotch people live in large towns, and the large towns of

<sup>1</sup> See page 304, where the diagram referred to is reproduced, with shading instead of colouring.



England are much more deadly to child-life than those of Scotland. Within a year of birth they destroy on an average 162 of every 1000 born. If we take individual towns, the sacrifice is still more dreadful. For example, in Liverpool it is 183 out of every 1000 born, in Leicester it is 202, and in Preston it is 222, that is to say, one out of every four or five of the unhappy babies of Preston is buried within twelve months of its birth.

You know that in war when you read that so many were killed, you always read further that so many were wounded. You do not need to be told that of the wounded many more will die, and that the majority of those who ultimately survive will be more or less maimed and crippled, and a large proportion will be invalided and found unfit for further service. So it is with those troops of children. If 130, or 147, or 162, or 222, in four several troops of 1000 each, have died within one year of their entrance upon the campaign of life, then a proportion keeping pace with the rising fatality will be wounded. Of these many more will die as the campaign progresses, and the survivors will be invalided and found unfit for further service. Still further, if only 87 have died in another troop, you need not be told that the physique of those who survive must on the whole be more vigorous and serviceable than the physique of the survivors of those other thousands. I reason thus to lead you to the conviction, without appealing to the comparative statistics of stature, rate of growth, weight, chest-girth, and all those facts of anthropometry or man-measurement, that it cannot but be that the physique of town born and bred men and women is inferior to that of men and women born and bred in the country. This being admitted, if the proportion of all the children of a nation who are town born is increasing from year to year, then the physique of the whole country must be deteriorating in quality. The rural districts furnish the only resistance to our progress down the inclined plane, and just as the towns absorb the inhabitants of the rural districts, this resistance will become less, and the national descent more rapid.

Now, you know what I mean by "The Children of the City," and you can estimate the importance of my question:—"What can we do for them?"

I must endeavour to work out for my remarks some limiting lines derived from the characteristics of the child as contrasted with the man, otherwise I shall be led into a general disquisition upon health and the whole round of sanitation. I confine myself mainly to the physical aspects of childhood. The child has to grow the machine which as an adult it will use. In the first year of life, the child adds more to its bulk than in any

subsequent year. It trebles its weight, and adds  $7\frac{3}{4}$  inches or 41 per cent. to its height. In the second year it gains nearly 4 inches more, and so by gradually diminishing increments attains "the full stature of the perfect man." It follows from these facts that every element of health which influences the adult tells much more upon the child either for good or ill. The adult is in a position of stability, and has mainly to strive to keep what he has got, to resist deterioration. The child has not merely to resist but to store up. It must move on or it will die. The child is physically, even more than morally, the father of the man. It may change morally, but it cannot get rid of ricketty bones, or impaired organs, or a tainted constitution. If it gets insufficient or improper food to eat, foul air to breathe, impure water to drink; if it is cramped in space and cradled in dirt, it cannot help itself. It must succumb or grow up through sickly and unhappy adolescence into weak and stunted manhood. This helplessness is one of the pathetic features of childhood, which should touch the heart of society on its behalf. No moral blame attaches to it for the circumstances and surroundings into which it is born. The child's sufferings are vicarious—if for sins and shortcomings, they are not its own. The element of discipline which enters so largely into the physical conditions of the adult life, and makes the thoughtful philanthropist hesitate in his work of relief and amelioration, has no place in our dealings with childhood. As regards pure air, pure water, cleanliness in all its details, nothing more need be said than that the child enjoys the largest share of the blessings which descend upon the community which is well cared for in these respects. The general sanitary improvement of our towns tells first and chiefly upon the children. So also with everything affecting the morals of the adult population. Vice and drunkenness strike at the child through the physical deterioration of the home, and the destruction of that self-denying and scrupulously conscientious discharge of parental responsibility upon which the weak and helpless child is so utterly dependent. The city quickens every element, the bad as well as the good, in human nature. So if we find there more culture, more moral earnestness and elevation, more intense religious life, more philanthropy, more political fervour than in the country, we also find there more vice, more crime, more self-indulgence, more modern heathenism, more political and social quackery. At the root of a high infantile death-rate, there are always elements of moral delinquency in the parents, and drunkenness is unquestionably the most potent for evil of all the moral factors. It devours the material necessaries of child-life by diverting the money which should provide food, clothing, education, air-space in the

house, to the tills of the publican. It transforms the kindly, self-denying father into a selfish, heartless brute. It impairs the constitution of the child before it has entered the world. It taints the mother's milk after the child is born, and deprives it of all the tender nurture which instinct secures for the offspring of even the inferior animals. This is all I intend to say of the morals of this complicated question of child-life in cities. I feel bound to say so much simply to show that I am alive to their existence and importance. It is a favourite method of landlords and others, whose material interests are affected by the arguments of those who advocate the improvement of the physical conditions of life in cities, to divert attention from one of the many causes at work which happens specially to touch their pockets, to another cause which somehow or other always has this feature to commend it—that it shifts the burden from their shoulders. It is also a failing of one-eyed though zealous social reformers to magnify their particular fad, and so aid and abet, it may be unwittingly, the numerous class of interested obstructives. They join heartily in any cry of "lo! here," "lo! there," as the most likely way to secure that nothing at all will be done, and so their interest will be conserved.

Let us assume, then, that a city child has parents who are sober, industrious, honestly desirous to do their best in the circumstances in which they are placed, to rear it. Let us also assume that it has been born in a city which has a good water-supply, which is well-drained and sewered, and, on the whole, as cities now-a-days are, fairly well looked after as to general sanitation. If I were asked to express in one word what it is that the city child still lacks which the country child possesses, and what it is that the child as a child, wherever it may live, most requires, I should reply, "Space," or the Anglo-Saxon equivalent, "Room." So soon as men cease to use that portion of the surface of the earth on which they reside for the production of their food, they are relieved from the necessity of distributing themselves over the surface. Instead of farms and crofts and cottars' houses, with intervening fields and roads, we have villages, towns, and cities with only so much bare space left in them as is necessary for inter-communication by narrow lanes and streets. The relation of space to people is regulated not by agricultural necessities, but by competition for living and working-room upon it. The larger the city the hotter grows this competition. It is hottest in the heart of it, where house is piled upon house, and tenement crushed in upon tenement, and ever the less becomes the proportion of space per inhabitant, and the scantier the access of the air and the sunlight. The fields fly further and further away from

the advancing Medusa of the city, whose look turns them into stone.

This element of space comprehends all the physical conditions of health so completely that, under the name "density," it is recognised by vital statisticians as the best standard of measurement of those conditions in different districts for comparative purposes. It may be variously expressed. The population divided by the superficial area in acres upon which they live, gives the number of persons per acre—which is 56 in Glasgow, and may be any fraction of a person in a rural district. The opposite calculation gives the fraction of space per person—which is the fifty-sixth part of an acre, or about 86 square yards in Glasgow, and may be many acres in a rural district. Another interesting expression of the same facts is got by supposing each man, woman, and child to stand in the middle of his or her own plot. How near would they be to one another? This is called the "proximity," and in Glasgow the distance would be 10 yards, while in a rural district it might be ten or twenty times as far. But it is the house-space which is of most importance to the child, and most of all in a city where the space outside the house is so restricted. It does not matter much to the country child whether it resides in a mansion or in a sheiling with a "but and a ben," or even in a "but" without the "ben." Outside there is boundless space. The cottar's wife can carry her baby over the threshold with the certainty of seeing the sun, and giving it a bath of pure air. The cottar's three-year-old can toddle over the grass and fill its hands with daisies, and the school-boy can run and leap for miles. But the town child finds no such compensation outside the one-room house. Therefore this aspect of density is the most serious of all from our present point of view. Again turning to Glasgow for illustration, we find that the average size of the Glasgow house is only between two and three rooms, and that every room is occupied by an average of about two people. Of every hundred persons living in Glasgow,<sup>1</sup> eighteen reside in a one-room house. There it is found that the smaller the house, reckoning size by rooms, the more people occupy it in proportion to the cubic air-space within. In large houses, therefore, space is a luxury. It is in excess of the requirements of health. In the small houses, on the other hand, it is pinched and reduced below those requirements. It is like insufficient food or clothing, a manifestation of straitened circumstances, or of thoughtlessly distributed expenditure.

It is necessary for scientific purposes to be able to express

<sup>1</sup>That is in "Old Glasgow." The previous figures refer to "Greater Glasgow" as extended in 1891. As the extension took effect *after* the census it was not possible to obtain data so detailed regarding the new as regarding the old city.



the facts of density, so far as measureable, by such figures; but while I feel that it is not necessary to tell you that there is only a fraction of a person per acre in a rural district to enable you to understand the healthy conditions which there prevail, I am painfully aware that to tell you of the average fifty-six persons per acre in a city makes you little the wiser. Even when I add that eighteen per cent. of these persons live in a one-room house, there is still something wanted to give you some conception of the disadvantages of child-life in such conditions. Let me try to help you to fill in a few corners of the picture, for I make no reference to the disease, the moral contamination which spring from these conditions, but only to some special uses of space which are indispensable to childhood.

Some of you may have read a clever little book called "Ginx's Baby, his birth, and his other misfortunes," and if so, you cannot have forgot the circumstances of space in which this baby, the twelfth of its name, found itself. "The dimensions of the bed were 4 feet 6 inches by 6 feet. When Ginx, who was a stout navy, and Mrs. Ginx, who was, you may conceive, a matronly woman, were in it, there was little vacant space about them. Yet as they were forced to find resting-places for all the children, it not seldom happened that at least one infant was perilously wedged between the parental bodies; and latterly they had been so pressed for room in the household that two younglings were nestled at the foot of the bed. . . . The family sleeping-room measured 13 feet 6 inches by 14 feet. Opening out of this was their kitchen and sitting-room; it was not quite so large as the other. This room contained a press, an old chest of drawers, a wooden box once used for navy's tools, three chairs, a stool, and some cooking utensils. When, therefore, one little Ginx had curled himself up under a blanket on the box, and three more had slipped beneath a tattered piece of carpet under the table, there still remained five little bodies to be bedded. For them an old straw mattress, limp enough to be rolled up and thrust under the bed, was at night extended on the floor. With this and a patchwork quilt, the five were left to pack themselves together as best they could. So that, if Ginx, in some vision of the night happened to be angered, and struck out his legs in navy fashion, it sometimes came to pass that a couple of children tumbled upon the mass of infantile humanity below."

The only detail of this graphic picture which is not true to nature is that all those twelve children survived. In real life, at least half of them would have been laid to rest in the churchyard, for there is nothing more striking in one's experiences of visiting such localities than the uniform tale of large

families and high mortality—ten, twelve, fourteen, or more children, and only two or three alive. Mr. Ginx was a labourer, earning 18s. to 20s. per week, and living in London. In Glasgow he would have occupied a one or two apartment house in a back land, up several flights of stairs, at the end of a dark lobby. There young Ginx would lie, his first breath, like every subsequent one, filling his lungs with the foul air of a crowded and not very clean house. By and bye he would get an airing, in the shape of a promenade in the arms of his little sister, through the back court, a sunless pit, full of the smoke of washing-houses and the smells of ashpits. As soon as she got tired or felt anxious for a little independent diversion she would deposit him on the steps of some convenient stair, or on the shivery asphalt. At other times Mrs. Ginx would take him out shopping, having first carefully locked the others in, generally on the Saturday nights, in all weathers, and perhaps from certain difficulties in the way of getting Mr. Ginx home, returning very late. The nearest place where she could find a sunlit space with trees and grass and some approach to fresh air is a public park a mile or two off, but Mrs. Ginx cannot leave the others, and she is unable to carry or pilot them through crowded streets so far, even if she has not lost all notion of the use of such a trouble, which is very likely. The outcome of the whole situation is that baby is scarcely ever out of that stuffy room. When he begins to creep about, he is constantly in the way, and is either put up on the bed to keep him out of the risk of being scalded or burned or trodden upon, or is sent out with his little nursemaid sister to look at the shop windows, or be planted down in his familiar back court, where he may be seen, like that other child seen by Aurora Leigh on the "uneven pavement" of St. Margaret's Court—

"Whose wasted right hand gambled 'gainst his left,  
With an old brass button in a blot of sun."

Those restless movements of the tiny hands and feet which are so troublesome in the small house and must be restrained, are the first manifestations of that instinctive craving for exercise which characterizes all young animals. They are essential for the proper development of the body, and ought to be encouraged. As intelligence grows and as the child obtains more and more command over its body, this instinct expands into the desire to play. Then begin, for all the tribe of Ginx, troubles which thicken the further they advance into boyhood and girlhood. If you wish to understand the position of play in the physical, mental, and moral development of the child, you must read a little book, admirable alike for its wisdom and gentleness—"What is Play?" by Dr. Strachan, published in

this city some years ago. Play he defines as "All voluntary exercise in the young, prompted by natural inclination and producing pleasure." He points out that the desire to play is an instinct implanted in the child as in other young animals. "to secure in the young the exercise required for development, just as the appetite for food is intended to secure proper nourishment." In short, play is essential for the health and duly proportioned growth of the child. It is that which makes the man and woman, who no longer desire to play, but are impelled by the exigencies of life to maintain by useful work the physique of which the foundations were laid in play.

In this aspect of play consider the position of our city children. They are impelled by a restless, ceaseless instinct, and not by the Devil, as the landlords and the police seem to think. Pent up in common stairs and in back courts, without a bit of space which they can call their own, their play inevitably becomes in great part mischief. What can a poor boy do but pull bricks out of the walls of the ashpit to build houses with, or climb upon its roof and tear the slates off to make traps for the city sparrows? If they fly kites the policeman cuts the string: if they dig holes in the court to play at marbles, the factor denounces them to the police: if they play ball against the wall, the policeman grabs the ball: if they make slides on the pavement, he puts salt upon them: if they try to swim in the river, they are almost poisoned by the sewage, and when they come out it is to find the man in blue waiting for them beside their clothes: if they pitch a wicket on an empty building site, the birl of the well-known whistle stops the game before they have completed their innings. The girls are no better off. As you feel your way along the dark lobbies, blinded by the light you have just left behind you, you stumble over them playing at houses. As you ascend the stairs you have to pick your way through their assortment of broken dishes and odds and ends with which they are reproducing their meagre experiences of house-keeping and shopping.

A philosophic induction made by Dr. Strachan is well illustrated in the city child. He says:—"In all cases the prevailing characteristics of play correspond with the peculiarities of manners, habits, occupations, and pursuits which characterize the adult population." How often do we see the city child playing at being drunk, or at policemen and thieves, or fighting as their elders do. In short, I know of nothing more pitiful among all the pitiful results of want of space upon city life than this compulsory perversion of a natural instinct into unwholesome ways. It has a positive and a negative aspect. In so far as the instinct is gratified it results in the acquisition of destructive habits, and in moral and physical

contamination. In so far as it is repressed it robs the child of the proper fruits of a God-given instinct—the development of healthy bodies, predisposed for useful work; a sprightly, manly disposition and an active mind. As the child passes into the youth, what can we expect from such a childhood but a breed of "loafers" and "muffs"! When the child becomes the half-timer and the apprentice, and play assumes the higher form of recreation or renewal and restoration of body and mind by the substitution of sport for daily toil, the city affords no more facility. Their poor pence cannot afford the lease of a field for cricket or football. What can a poor lad do but stand at the close mouth, with his hands in his pockets, smoking or chewing tobacco, talking obscenity, and ready for the dram-shop and the singing-saloon? Need we be surprised that when they become men, they think the best way to enjoy a holiday is to start for a sail or a run by train to some seaside resort or country place, each with a bottle of whiskey in his pocket; or that the arrival of an "excursion" from the city is looked upon with alarm by the inhabitants of our villas and marine palaces?

"What can we do for them?" First, let me say, you can do much for yourselves. Every facility for locomotion—the tram, the suburban train—makes it less a sacrifice of personal convenience for the toiling fathers to choose a house as far afield as possible. I advise working-men to live as far from the heart of the city as they can, but I wish specially to speak of what can be done by public effort after you have done your best to help yourselves. Here the philanthropist is met by his familiar bewildering difficulty. Life is fleeting. There are human beings *now* undergoing hardships, suffering from abuses. Can nothing be done to ameliorate on the one hand, while on the other the radical cure is being patiently worked out? This question must be put with peculiar urgency in reference to everything which affects the welfare of children. Their childhood is passing rapidly away. Every year it ends for some of them. But there are some things which can be done at once. We can in various ways bring the children to the country, and do some little bits of good work in the town. The larger task of bringing the country in such measure as is possible into the town involves the revolutionizing of the prevailing principles of laying out and building cities, and the carrying out of improvements in the course of years.

In suggesting ways of bettering the physical conditions of the children of the city, I shall trust very much to that quick perception of the practical necessities of the case which a good cause never fails to secure in a Christian community. I believe that the best way to promote the cure of a social disease is to take pains to convince the public that the disease exists, and



to exhibit its precise nature, rather than to attempt to elaborate a detailed plan of treatment. There are already many good souls in all large cities who are in various ways doing their best to bring a little of the sunshine and beauty of God's earth into contact with the lives of the children of the city. I shall not, therefore, pretend to exhaust the resources of benevolence.

I first warmly commend a system of "Holiday Colonies," which, originating in Switzerland ten years ago, has since spread over many of the towns of Germany, Austria, Italy, and has reached even Russia. Those desirous of fuller information will find it in a paper contained in the eleventh volume of the "Literature of the London Health Exhibition of 1884." A local committee is formed, and funds are collected during the winter and spring. The head teachers of the primary schools are requested to furnish lists of the deserving, really poor, weakly but not actually sick children, between seven and fourteen years of age. These are medically examined, and as many selected as the funds admit. They are then assorted, sometimes in large colonies of thirty or forty each under two or three teachers, but more usually in small bands of ten to fifteen under single teachers. Their clothing is supervised by the ladies, and supplemented by gifts where necessary, but only after getting as much out of the parents as possible. Then farm-houses, school-houses, or even small inns are chosen in the open country. The month which constitutes the school holiday is thus spent. Careful observation by weighing and measuring has shown that the improvement in health effected by these outings is not temporary. The selected children continue to gain in height and weight beyond their fellows. Increased quickness of intellect and great moral improvement are also conspicuous. As to the cost, including a honorarium to the teachers in charge, it only amounts to an average of scarcely two shillings per day for each child. I need not remark that any body who can afford it may engage unostentatiously in this good work, by giving a holiday to one or two city children. Indeed it may be said generally that as regards children the limited individual effort has special place and opportunity. They come into the world in families, and the more of the family we preserve in all we do for them the better.<sup>1</sup>

In America, there are in every city numerous organizations under various names, such as the "St. John's Guild" and "Tribune Fresh-Air Fund" in New York, "The Poor Children's Excursions" in Boston, "The Children's Country Week" in Philadelphia, all of which take the children out for longer or shorter periods to the country. In many Transatlantic towns,

<sup>1</sup> The Fresh-Air Fortnight Holiday Scheme in Glasgow began in 1885.—[Ed.]

arrangements exist for giving young children sails on sea or lake during those hot months of summer which blast the infant lives of their population like the hot breath of the Sirocco. Tickets for these sails are usually distributed through the Health Department or the Police, and the mothers accompany the children.

I mention also the "National Physical Recreation Society for the promotion of Physical Recreation among the Working Classes." Its scope is very wide, embracing facilities for physical exercise both in winter and summer. This society has started a magazine—"The Gymnasium News," in which you will find an ample explanation of its machinery and method of work. I commend it as deserving of hearty support.

I merely refer to the establishment of "Day-nurseries" for the care of infants whose mothers must work for a livelihood, to Kyrle societies, to the utilization of board-school playgrounds, to the throwing open in summer of private gardens and parks, as has been done by the Inns of Court in London, where, under supervision, children are admitted in the evenings; to the hiring of playrooms in poor districts, with toys and material for games, where shelter and amusement may be found in the dreary winter. These notes will serve as hints to the philanthropic, anxious for the opportunity of doing an immediate and lasting bit of good in their day and generation. Every large city should have a society such as the "Metropolitan Public Gardens Association," over which Lord Brabazon presides, to promote and systematise this work in the locality.

The second part of my answer to the question:—"What can we do?" refers to the making of cities more like places where children form part of the population, and are intended to be reared, rather than places which seem to have been laid out by some Board of Bachelors, or Malthusians, or Herods. "It is a pity," says Mr. Kellogg, of New York, "that in the administration of great cities the interests of half their population are so little accounted of. They are managed for adults, for trade, for property-holders. Why should provision not be made for the sports of childhood? Let spaces for fresh air be reclaimed by throwing down the walls of abandoned graveyards and legally obnoxious tenement houses; let them be preserved from the rapacity of commerce and landlords; let them be reserved until they exist in every ward of the town. In them should be malls for children's games, over which policemen should keep guard, not to repress the children's sport, but to warn off querulous and sordid age. Let the children know that they are a recognised constituent of civic life. Respect them that they may respect themselves." It is not easy to reconcile this feature of cities, either with our reason or our humanity. Just

think of the pains expended by breeders of stock of every description, from fowls to race-horses, upon special arrangements for the young. The city notion is to pack the adults as closely as possible, and then shake the children down into the chinks. There are paddocks for the young horses and court-yards to the dog-kennels, but the children must run among the feet of the passengers on the pavement or the horses on the street. There is no space they can call their own. They are in the way both inside the house and outside. One cannot but agree with Herbert Spencer when he says:—"Had Gulliver narrated of the Laputans that the men vied with each other in learning how best to rear the offspring of other creatures, and were careless of learning how best to rear their own offspring, he would have paralleled any of the other absurdities he ascribes to them." How is this? Have we not all been children? Are our Members of Parliament and Town Councillors some strange order of beings who sprang like Minerva, full-grown, into life, and had no experience of nurseries, or play-grounds, or cricket fields? It is often argued by the ladies that the unfairness to their sex, which they allege marks many laws passed or tolerated by Parliament, exists because women have no vote, and cannot influence the representation. I am disposed to believe that if women had had a voice in legislation and administration, children would not have been forgotten. But why do the fathers not look to their interests? Did any of you ever ask a municipal candidate, "Will you support a proposal to provide play-grounds for children in this ward?" Have you ever heard the smoke question raised on such an occasion? Do any of your political associations, after scrutinising the votes of your member on the Irish question or Disestablishment, ever think of inquiring why, in Committee on some Police Bill, he voted for the reduction of the free space to be left behind tenements, or of the breadth of new streets? I am in the habit of carefully scanning reports of the "heckling" of candidates at ward meetings and in Parliamentary elections, and I have found questions on every imaginable and unimaginable subject, but not one touching the health of the people. Yet those questions which I have suggested go to the roots of the improvement of cities as nurseries. Wherever the element of space is involved in any proposal for local or national legislation, support that which will give you the most space about your houses. You will always find the landlords and land-owners and speculative builders on the other side. The opposition does not come from the general body of well-to-do ratepayers who have space enough for themselves and their families. Don't allow yourselves to be frightened by the cry of increased taxation. Those

who have *pro indiviso* pleasure-grounds and pay enormous feu-duties for them are quite ready to share with you every expense attendant upon the provision of open spaces for your children. Why should you object to contribute your pence or shillings along with their pounds? You will save it in doctors' bills. The cost of burying one child would pay the tax for years. Many who live in large houses and have private grounds would not do so but for the sake of their families. They believe that the best legacy they can leave to their children is not money saved at the expense of house-room, but money invested in their ruddy cheeks, firmly knit limbs, and sound constitution.

One word of warning I venture to utter as to the situation and use of open spaces for city populations. Speaking of a working-man's wife in New York, the writer I have quoted says:—"Had she time she might carry the little one to the open squares of the city; but these are gradually disappearing, and the taxes for public pleasure-grounds and health-giving spaces are consumed upon the vast, distant Park accessible chiefly to those who have leisure or wealth." My warning is that you working men should remember that for you the most useful open spaces are those which are close to your dwellings. Observe I do not object to those distant parks in themselves, but solely as substitutes for the occasional simple playground in the heart of the city. Both together form a complete provision for your young children whenever they can venture out during a sunny hour, as well as for yourselves on Saturday afternoons and holidays when you can go to the park with your families. I fear corporations have hitherto as a rule spent all their rates for open spaces upon these parks, and have chiefly benefited suburban communities of wealthy people who have congregated around them beyond the area of taxation. I praise and commend for imitation by other cities the wisdom of the Corporation of Edinburgh in not only providing parks, but also clearing and paving small areas here and there in the dense portions of the city. There your youngest children can sprawl about in the sunshine, and your older ones enjoy their games. See to it also that even in the distant pleasure-grounds the flower-beds do not usurp all the space, but that vacant areas are left for cricket and football. There your lads, who cannot afford to lease fields like the golden youth of the wealthy, will have the same scope for wholesome recreation. Parks should not be places for merely dawdling along looking at flowers or admiring grass through iron railings.

I suppose many of you have read "Oceana, or England and her Colonies," by James Anthony Froude. You will remember how Mr. Froude uses the facts regarding the progressive absorption of our home population in large cities, and the



physical degeneracy consequent upon city life, upon which I have based this lecture. He makes them the foundation of his eloquent denunciation of a policy of separation from, and advocacy of a corporate union with our colonies. He says:—"It is simply impossible that the English men and women of the future generations can equal or approach the famous race that has overspread the globe, if they are to be bred in towns such as Birmingham and Glasgow now are, and to rear their families under the conditions which now prevail in those places. Morally and physically they must and will decline." In the first and last chapters of this book Mr. Froude repeats again and again, with all the vigour and variety of expression of which he is a master, his opinion that our cities can no longer rear men, that our only hope as a nation is in our colonies. "England would pour out among them, year after year, those poor children of hers, now choking in fetid alleys, and relieved of the strain, breathe again fresh air into her own smoke-encrusted lungs." Again he uses a metaphor which, though not true to nature, yet clearly expresses his notion of the function of the colonies in the future life of the nation:—"By and bye, like the spreading branches of the forest tree, they would return the sap which they were gathering into the heart." To avert national extinction, and secure the colonies as the nurseries of the men who are to fight our battles, and preserve our supremacy among the nations, he appeals to the democracy.

He says:—"If the colonies are to remain integral parts of Oceana, it will be through the will of the people. To the question, What value are they? the answer is that they enable the British people to increase and multiply." Thus, and thus only, says Mr. Froude, England will remain "Queen among the nations, from without invulnerable, and at peace, and at health within."

Ladies and gentlemen, I also appeal to the democracy, but my appeal is to this effect:—"Do not abandon our cities to this black future. How can England ever be "Queen among the nations, from without invulnerable, and at peace and at health within," if the old heart of the nation beats slower from year to year in an island which is being gradually petrified into cities in which children die or grow up into "Dead-sea apes?" By all means incorporate the colonies, but not as healthy limbs to a decaying body. That will not preserve to us our sovereignty. Never will it be truer that the voice of the people is the voice of God than when that voice says—"Let there be light" in those "fetid alleys," where Mr. Froude says, and says truly, "with no sight of a green field, with no knowledge of flowers or forest, the blue heavens themselves dirtied with soot,—amid objects all mean and hideous, with no entertain-

ment but the music hall, no pleasure but in the drink shop,—hundreds of thousands of English children are now growing up into men and women." Only say the word, and the light will come. Long before the advent of household suffrage Carlyle told you so. Let his words, repeated now, wake you up to a sense of your power. "Every toiling Manchester, its smoke and soot all burned, ought it not, among so many world-wide conquests, to have a hundred acres or so of free greenfield, with trees on it, conquered, for its little children to disport in: for its all-conquering workers to take a breath of twilight air in? *You* would say so! A willing Legislature *could* say so with effect. A willing Legislature could say very many things! And to whatever 'vested interest,' or such like, stood up, gain-saying merely, 'I shall lose profits,' the willing Legislature would answer, 'Yes, but my sons and daughters will gain health, and life, and a soul.'"