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LECTURE

ON

SANITARY REFORM.

BY

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OF BANCHORY.

Read on 4th November, 1859, before a Meeting of the "ABERDEEN LADIES' AUXILIARY SANITARY ASSOCIATION," and published by request and for behoof of the Association.

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1860.

LECTURE

SANITARY REFORM

ALEXANDER THOMSON

OF DUNDEE

LECTURE DELIVERED AT THE ROYAL COLLEGE OF SURGEONS, DUNDEE, ON THE 11th OF FEBRUARY 1847.

ROBERT & ROBERTSON

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1847.

SANITARY REFORM.

I HAVE been asked to address you this evening on the subject of Sanitary Reform—and I have much pleasure in doing so, especially as this meeting is in connection with the Aberdeen Ladies' Auxiliary Association—a recent addition to the many valuable social institutions existing amongst you, and from which I anticipate the most valuable results. It is especially work for female hands to do—many of its details are familiar to them though profoundly mysterious to us men—they are at home and at ease with matters, the practical details of which we cannot easily comprehend, though we are thoroughly aware of their importance, and can perfectly appreciate their results.

I am to deliver the *first* of a series of Lectures, and therefore it seems to me that I should endeavour this evening to speak mostly of general principles—knowing that others more able than myself will follow with ampler details, but not altogether avoiding them when they come naturally in my way.

My difficulty is not the want of subjects on which to speak, but because there are so many, and so distinct, which fall legitimately under the description of Sanitary Reform, that it is not easy to know how to make a selection.

Sanitary Reform embraces all measures by which the life and health of man can be preserved and prolonged—whether by great public undertakings, enforced by Acts of Parliament, and carried out by public Boards, or petty daily actions within our own homes, all having one object in view, the good sanitary condition of the community—and you must at

once see that this is a matter in which we are all equally dependent on each other. The rich and the poor, by ignorance or inattention to sanitary measures, may inflict the most grievous injuries on each other, all are alike interested, and all have a duty to discharge to themselves and to their neighbours.

It has been often asserted that the perfection of human happiness consists in possessing "*a sound mind in a sound body,*" and if the words be correctly understood, if we mean by them a mind at perfect peace with God, occupying a body free from pain and weakness, then the assertion is perfectly correct; but, unfortunately for us, the person who truly fulfils both conditions, who is thus equally sound in body and in mind, is not to be found; its full realization is only to be looked for in a higher and holier state of being; but it may be attained, even in this world, to a much greater extent than at present exists among us.

This expression of "*a sound mind in a sound body,*" takes for granted that body and mind act and react upon each other; and this is a truth of vital importance in all discussions on sanitary questions, and one which must never be forgotten.

Let the *mind* be in the soundest possible state, if the body be suffering, the *man* must be in discomfort until the cause of that suffering be removed; and, in like manner, if the mind be in an unsound, unhealthy condition, above all, if there be not a felt sense of reconciliation with God through a Redeemer, no amount of health and vigour will make up a sound man. Body and mind must be equally sound before man can know all the happiness of which his complex nature is capable.

There is one great general principle on which all Sanitary Reform must be based, and it is—that soundness of mind and soundness of body are both to be derived from strict compliance with God's laws.

For our minds (meaning, by that word, all that portion of our nature which is invisible and spiritual), He has given us His laws in the Holy Scriptures.

For our bodies He has given us equally inviolable laws

in all those qualities and properties which he has imprinted on the whole visible matter which He has created, and not one of which man can ever violate with impunity.

As there is no happiness worth the name which that man can enjoy who lives in the violation of God's moral laws—no safety for the soul of him who neglects the salvation offered in the Gospel—so there is no safety for the body of him who lives in the violation of God's physical laws.

As, in the moral world, man can never with impunity transgress God's law, so in the physical world God's physical laws can never be transgressed with safety ; in either case the punishment—the necessary consequence—may be delayed, but is not the less sure.

Let it ever be remembered that the first step in true Sanitary Reform is to see to it that our hearts be at peace with God, through our Redeemer. Without this all else will avail us comparatively little, and that peace is freely offered to all, without money and without price.

But my business this evening is with the material or physical branch of our subject.

In sanitary matters we at once find that the highest researches of science, and the most trivial actions of daily life come into constant immediate contact with each other.

The whole of physical science is occupied by investigating the laws and properties which the Creator has impressed on the matter which He brought into existence, and not a few of its various departments have to do with sanitary studies. The researches of men into the properties of matter have been pursued from the earliest periods of history ; and, in recent times, most wonderful discoveries have been made—all tending to the happiness, the health, and the comfort of mankind.

In regard to sanitary matters, there are three different classes of students to whom we are specially indebted.

1. The *Chemist*, who studies the properties of matter, and specially the action of one kind of matter upon another ; who explains to us how and why bad air, bad water, bad food, act injuriously upon the human frame.

2. The *Medical Man*, who studies the diseases which afflict the human frame, and traces their causes, their history, and their progress; whether they be contagious or infectious, epidemic or local.

3. The *Statistician*, who collects every sort of information on every subject, and accumulates, in long rows of figures, facts of the greatest value. His tables may look very alarming to the uninitiated, but they are of incalculable practical value in regulating not only the laws of the nation, but also in modifying the habits of society, down even to the most trivial acts of every-day life.

Sanitary science depends on the labours of these three classes of students; and, year by year, their work is becoming of greater practical utility.

The result already is to teach us most forcibly that we do well to study accurately the physical laws by which all matter around us is governed and controlled, lest in ignorance we should be living in habitual violation of them, and thereby incurring unfailing penalties; and, also, that we shall do well to consult those statistical returns, which are, in fact, nothing but the practical proof of the consequences of conformity to or neglect of the ascertained laws of matter.

But you may be ready to say, we have not the time to spare, nor the knowledge requisite to make such investigation. Most true; but that is no good reason for your not availing yourselves of the knowledge which others have, with much pain and labour, sought out for the common good of mankind, and which experience would soon prove to you to be true.

We are all obliged to take most of our knowledge at second or third hand for the affairs of daily life. We cannot investigate every thing for ourselves; we must trust to others, and our wisdom lies in trusting to those who have most carefully studied the subject in hand, and whom we find by experience to be the most trustworthy guides.

There are three great elements or agents in Sanitary Reforms, and these are Air, Water, and Light.

Let us briefly consider each of these.

Without Air a man must die. Put a strong healthy man into a coffin, screw down the lid, and in a few minutes he is dead. This is an extreme case ; it rarely happens that even in accidents a man is totally deprived of air : but if air be absolutely necessary to life, pure air, and plenty of it, are equally necessary to health and comfort.

The chemist will tell us how this is. The air we breath, as most of you know, is composed of two kinds of air, or gas, mixed together. Every 100 parts of common air contains 79 parts of a gas called nitrogen, and 21 of another called oxygen.

A man in health breathes, or inhales and exhales, air about 12 times in a minute, and each time he draws in and breaths out about 24 cubic inches of air, or about 150 or 160 cubic feet in an hour.

During the few seconds that the air remains in the lungs, a great change is effected. The greater part of the oxygen disappears, and in place of it the air breathed out is now found to contain a quantity of another air—carbonic acid gas—the same with the choke damp of coal mines.

The oxygen is the life-sustaining part of common air—by passing through the lungs a portion of it is consumed, and the air which comes out is no longer fitted to maintain life. In ordinary circumstances it is, however, largely mixed at once with the surrounding common air ; and, therefore, though damaged and deteriorated, is not, at first, absolutely unfit for being again inhaled, but the oftener the process of breathing is repeated in a tolerably close apartment the worse the air becomes.

It is thus that animals, accidentally shut up in air-tight vessels, soon die. Popularly they are said to be suffocated—it would be more correct to say they are *starved*, for they are deprived of a substance which is, if possible, more necessary to life than food or drink.

Now, this includes the whole theory of ventilation or the supply of air in a pure state to the human lungs.

Many persons spend a considerable part of every twenty-four hours in circumstances which bear far too close a resemblance to being inside an air-tight vessel.

The *Box-beds*, once so common in this part of the country, and not yet altogether unknown, are far too like such a vessel, and were they only exactly constructed would be speedily fatal to the inmates. A canary bird, hung up in its cage, inside one of these beds, occupied by two or three persons, has been found dead in the morning. Can what kills a bird be good for men and women?

A room without a chimney, and with well-fitted doors and windows, all carefully closed, is not very much better; but, happily, there are, in general, abundance of chinks and cracks and openings through which fresh air enters, an unbidden but most salutary guest.

But, though few persons actually die from this cause, very many suffer most severely from it; their lungs, not supplied with the food they require cannot furnish the rest of the body with its necessary nourishment. Disease, in many various forms, attacks the weakened frame, and premature death, or a life-long want of health and vigour is the necessary result.

The greater the number of persons collected together in a given space, the more necessary is attention to this matter. Every pair of lungs is incessantly at work vitiating the air, and rendering it unfit for respiration. Unless means be taken to remove the foul air, and furnish a supply of fresh air, each person is obliged to take in air, a portion of which has already been in the lungs of another, and from which more or less of the nutritious portion has been extracted while a similar quantity of noxious air has been added.

I can appeal to your own experience in this matter. If a numerous meeting continue long, the air becomes more and more unwholesome, even in a spacious hall or church, unless the place be thoroughly ventilated. Some persons become faint—all feel exhausted and uncomfortable, and all are glad when the meeting, however interesting or important, draws to a close, and they get out to the pure air, and have their lungs filled with wholesome nourishment.

Those who have been in the meeting from its commencement feel uncomfortable, but they are not fully aware of the

state of the air they are breathing. Let a man come in from the street and he is fully sensible of its foul condition.

It is the very same, on a smaller scale, with our own sleeping apartments. When the doors and windows are all closely shut for the night, all feels right and comfortable, but before morning comes, the air is thoroughly polluted and unfit for healthful respiration.

This subject has of late been very carefully studied. Many experiments have been tried, and some of them very costly, especially in ventilating the new Houses of Parliament. The expense has been great, but it is not to be grudged, for both the failures at first, and the success at last have given us invaluable knowledge.

The general principle of all ventilation is, that the foul air being heated is made lighter, and rises to the top of the apartment which contains it, and endeavours to escape, while fresh air is constantly seeking admission from below to supply its place.

In large public buildings this is now managed by very numerous small openings in the floor, or lower part of the walls, to admit the fresh air, and by larger openings in the ceiling to allow the heated air to escape, and in them the current is often increased by artificial means, such as the burning of gas. The adjoining Music Hall promises to be a most successful application of these principles.

Private dwellings, and especially sleeping rooms, must be treated on the same principles, though not admitting of the application of the same details, and the smaller any room is, in proportion to the number of its inmates, the greater care must be employed for its ventilation.

There is one kind of dwellings which no wit of man can ventilate, and that is a cellar underground, and surrounded by solid earth on all sides—no temptation should induce any family to dwell in such a place—and yet, in the great commercial city of Liverpool, a few years ago, many thousands, mostly Irish immigrants, dwelt in cellars. Their state of health became fearfully dangerous to themselves and to the neighbour-

hood, and at length the Legislature was obliged to interfere, and put a complete end to the system in that town.

Any room above ground, and having walls and windows to the open air, may be tolerably ventilated by a little trouble, provided always the air outside be not polluted.

We are all greatly afraid of draughts of cold air, and they are bad no doubt; they are proofs of bad ventilation. By them fresh air is conveyed to a particular spot in too great a quantity, and too suddenly, but they are not so bad as the opposite fault, and in general they soon cure themselves by bringing about an equilibrium betwixt the cool and the heated air.

Any one who goes from the fresh morning air into a small room, *not ventilated*, where several persons in health have spent the night, finds the atmosphere of it intolerably offensive, incapable of supplying his lungs with what they need, in other words *unwholesome*. This is a practical fact with which all have to do.

Every sleeping or working room ought to have openings of some kind or other, at or near the ceiling, to permit of the immediate escape of the hot half consumed air; the higher up the better, and in sleeping rooms, at all events above the level of the beds.

A chimney, with an open fire place and a brisk fire in it, is an excellent ventilator.

When the walls of a room are lathed and plastered, then a small opening cut into the space betwixt the wall and the plaster, any where near the ceiling, is most effectual, and easily done. When there is no lath and plaster, as is too common in English towns, then a perforated brick may be inserted in the outer wall—opening, of course, into the room.

Failing these self-acting appliances, the window sash may be drawn a little way down before going to sleep, and kept down all night with perfect impunity if the door be tolerably well fitted. A gentle stream of cold air will flow steadily in, and the heated air will flow out with equal steadiness and without any perceptible draft, when once experience has taught to

adjust the two openings to each other. This depends on the size of the room and the number of its inmates.

A man who sleeps in a well aired room rises in the morning fresh and vigorous, ready for his work, when he who has spent the hours of repose in a close foul atmosphere gets up weak and languid, and disinclined to exertion, and, if not restrained by prudence or by principle, is very apt to fly to a morning dram, for that stimulus for which he feels a craving produced by the want of a supply of pure air to his system.

If a room be occupied by *too many persons*, be it a work-room, a bed-room, or a school-room, no ordinary means of ventilation can keep that room pure and healthful.

On this subject much information has been obtained from experience in the construction of cells of prisons, dormitories of poors' houses, wards in hospitals, and barrack rooms for troops.

The result is that to keep a healthy man in perfect vigour, he ought to have a room about 10 feet long, by 6 wide, and 8 or 10 high. Such a room contains from 400 to 500 cubic feet of air, and the dimensions ought to increase in proportion for each additional inmate.

The ventilation ought to be so managed as to cause the removal and renewal of the contents about once an hour, and this process ought to be in ceaseless action so as to be altogether imperceptible except in its results.

This statement and calculation can be easily applied to rooms of any size and form. Let it be deeply impressed on our minds that nothing can compensate to us for the want of a sufficient supply of fresh air in our rooms, and if the same room be used for every purpose, for work and for sleep, by day and by night, then it becomes doubly important.

The next great Sanitary element is *Pure Water*, and it is very little less necessary to the human frame than pure air.

Pure cold water has long been dreaded by many persons as an unpleasant, if not dangerous, application. We are become

wiser in this respect than our forefathers, and it is now justly admitted by a large proportion of the population that there is nothing so salutary, so refreshing, so invigorating as pure cold water, whether applied externally or internally.

In large towns, the introduction of water for general use must be accomplished by the public; it is beyond the power of private individuals; it must be done either by Companies or by the Municipal Authorities; but the inhabitants are entitled to see that it be brought in one way or another, both of good quality and in ample quantity.

It cannot be thus brought without great outlay, and, in one form or other, that must be paid for; but if effectually done, the cost to be paid is a good bargain—the advantage is well worth the outlay.

In the present day no town-house ought to be tolerated without water on every floor, and accessible to every inhabitant.

I know no greater boon which the Municipal Authorities of a City could bestow on the inhabitants than to defray, from the common good, or in any other way, the expence of introducing water so that every inhabitant had an unlimited supply without the payment of any *special* rate for the purpose. They would reap a rich reward in the health and comfort of the citizens. It would be a first-rate Sanitary Reform.

I need not dwell to you on the uses of clean water in every household; and it is your duty and your right, as citizens, to see that you have it.

Recent enquiries have brought to light blunders almost incredible in this respect.

It has been found, in not a few cases, that the public wells of towns have been polluted by the contents of badly constructed drains and even of church-yards, and this horrible infusion of all that is most revolting has been furnished as drink to the inhabitants. In other cases water from an adjoining river is pumped up by costly machines, and a heavy tax levied in consequence, and that water taken up *below* the town, and containing a solution of all the filth of the drains. No wonder if fatal diseases prevailed in towns so supplied.

The old Romans were possessed of a wonderful amount of common sense, and they gave one strong proof of it in the matter of supplying their towns with water.

Rome stands on a very unhealthy site, but its rulers brought in vast supplies of water at great cost, and thus made it comparatively healthy and habitable. When, during the wars of the decline and fall of the Empire, the aqueducts were gradually destroyed, the city became more and more unhealthy, and the population was reduced to a few thousands. Water was again introduced, and Rome began again to prosper, and at this moment no town in Europe is so abundantly supplied; but for this, I believe, Rome would ere now have been as desolate as Babylon or Nineveh.

In this country, though not exposed to the heats and malaria which make the neighbourhood of Rome so unhealthy, yet the great accumulation of human beings, on a small space in our towns, brings about a somewhat similar state of things, and makes a proper supply of water a matter not only of prudence, but of necessity.

Aberdeen, in this respect, is very favourably situated, for either of the two large rivers which flow on its northern and southern boundaries can supply it in any quantity and at such a level as to raise it to the top of every house. The water of the DEE has been proved by the most careful investigators to be freer from impurity than that of any other stream in Britain.

The introduction of water into the town from the Dee by steam power, twenty-five or thirty years ago, proved a great boon to the inhabitants, but the quantity which can be raised by the engines is not now adequate to supply the greatly increased population, nor does it seem desirable that a large city should ever be dependent for its supply on machines which may possibly break down. It ought, in every practicable case, to be introduced on the self-acting Gravitation Principle. Glasgow has lately set a splendid example of what ought to be done. Let Aberdeen, as soon as possible, follow in the same path.

LIGHT.—The third Sanitary Agent I named is *Light*.

Light, as a sanitary agent, has scarcely received all the attention which in truth it deserves. Both directly and indirectly, it is most important; and the highest medical authorities tell us that there are certain diseases which are produced by want of light, and which can only be cured by means of light.

But, independent of these special cases, abundance of clear daylight is absolutely necessary for the human frame. It cannot thrive without it. We all know the result of endeavouring to grow plants in the dark, or even in obscurity; how weak and feeble they are.

We see, too, the effect produced on hardy men constrained to pass many hours a day in mines, even if no choke damp or fire damp exist in them. A badly-lighted room bears no small resemblance to a mine or pit. Its aspect is most unpleasant—no person and no thing looks well in it—nothing about it looks healthy or thriving.

The recent abolition of the window tax was an admirable sanitary movement; but, unfortunately, it is not always easy to cure the effects of the tax on old buildings.

The indirect effects of want of light are not less mischievous. Light in a room is the great enemy of dirt and disorder, while darkness encourages and conceals both.

When dust and filth are not seen, there is little inducement to take the trouble of removing them, and there is a strong temptation to let them alone, from the certain knowledge that the room just looks about as well when dirty as when clean.

The light of heaven, like the air we breathe, is the gift of God to all mankind, and it ought to be freely admitted into every dwelling. In choosing a house, choose always, other things being equal, the one which is best lighted.

Some recently built manufactories, for various purposes, have fully carried out this, and are almost as light as the open air—alike to the advantage of the work and of the workers; and, now that glass has been so much reduced in price, we cannot doubt that the employment of it in buildings of every description will be greatly extended.

Regarding air, water, and light as our three great sanitary agents, we may fairly sum up the rightful employment of them all in one homely word—viz., *Cleanliness*. Without a plentiful supply of all three this cannot exist, either in our houses or in our streets.

CLEANLINESS.—There is an old proverb which tells us that “Cleanliness is next to Godliness;” and, truly, its importance can scarcely be over-estimated, either in its moral or its sanitary results.

As a sanitary matter, it must be regarded in two aspects—the one *private*, the other *public*—the one having to do with the care of the person and the interior of the house, the other being occupied with the necessary regulation of the public drains, and sewers, and streets, and courts of towns, and the immediate vicinity of houses and farm buildings in the country. The former are the personal concern of each individual; the latter, at least in towns, are more or less under the control of Acts of Parliament and public Boards.

Personal cleanliness, in all ranks of society, is admired and praised, but few persons, comparatively, are aware of its importance to health.

Every portion of the skin of the human body is full of openings visible only to the microscope. Through these openings, or pores, as they are called, a perpetual process of purification of the whole frame ought to be going on; but, if the pores be clogged, or obstructed by a coating of filth, the process is checked, and the system more or less deranged. It will give you some idea of the importance of this when I state that, in a square inch of the palm of the hand, there are 3,500 of these pores, and, on an average, about 2,800 over every inch of the body—being about 7,000,000 in number on the whole body of a person of average size.

These, in fact, are so many self-acting chimnies, constantly, but imperceptibly, at work, carrying off what must be removed from the human frame, and the quantity thrown off by the skin of a full-grown man, by means of this insensible perspiration,

is somewhat more than two lbs. weight in the twenty-four hours. If this action be impeded injury must follow. Happily the best of all applications is within the reach of almost all—cold water and a hard towel daily applied, will keep the outer man in sound order. Unhappily there are many, both rich and poor, who dread cold water, and regard it as a most unpleasant if not a dangerous application. A little experience would soon persuade them that there is nothing so healthful, so strengthening, so comforting to the human frame, as pure cold water; and happily this opinion is fast gaining ground among all ranks of society.

The cleanliness of the dwelling is of nearly as much consequence as that of the person.

If a floor be covered with dust, every footstep raises a portion of it, and the smaller particles find their way through the mouth and nose to the stomach and wind-pipe, and the action of these organs is obstructed and injured by their presence—they are to them unbidden and unwelcome guests.

Many think they do well if they clean up their rooms once a-day, or, perhaps, once a-week. This will never make a nice comfortable dwelling; and, moreover, it gives much more and much harder work to do, than keeping the house always right by constant little attentions to sweeping and tidying, especially after any work which necessarily makes a mess. There are few things which a woman can do at home which add more to her husband's comfort, and thereby secure the continuance of his affections than his finding a clean comfortable room always waiting his return; and it is a work which even young children soon learn not only to do, but to delight in doing.

Every description of useless rubbish, whatever it be, ought to be removed from the dwelling at once, and if this be restrained by Police regulations in towns, to certain hours of the day, none should be allowed to accumulate within the house beyond the appointed time. All such accumulations pollute the air of the dwelling and tend to render it unfit for admission into the lungs.

In towns, however, cleanliness cannot be effectually insured for sanitary purposes by any amount of care of the person or of the interior of individual dwellings.

Great care must be bestowed on the scavenging, drainage, and sewerage of every street, and court, and corner, otherwise no amount of personal care will make a healthy town.

This is not the work of individuals but of the public, and it is one in which the whole population, rich and poor, are equally interested; and it is their mutual duty to see that it be effectually done. The expense is considerable, and the necessary rates are often much complained of; if the work be inefficiently done, the complaint is most just, but if it be thoroughly executed, the necessary rate ought to be counted an excellent bargain—for a smart attack of preventable cholera or fever, in a crowded locality, levies a far worse rate than any collector, and listens to no pleas of poverty, waits for no appeals.

It is only in modern times that the removal of noxious matters from the streets of our Scottish towns has received public attention, and become a source of municipal revenue.

It is stated, I believe correctly, that at the beginning of last century, an enterprising landed proprietor near Edinburgh was paid 4d. per cart load for each load of street refuse he was so good as to remove. The bargain continued for a number of years to the great satisfaction of the magistrates and inhabitants of our capital; and the benefits to the estate in question are apparent to this day. Towns in the present day do not treat their country neighbours so liberally. They exact a good price for the sweepings of their streets, but it is cheerfully paid, for the material is as valuable to the country as it is injurious to the town. ★

There is one source of disease and danger in towns which requires to be very strictly looked after—viz., the accumulation of masses of putrefying animal and vegetable matter in out-of-the-way corners. They are always offensive, and atmospheric changes, a sudden rise of temperature, or a shower of rain, may, in a few hours, change what is simply unpleasant, into what is highly dangerous.

The temptation to accumulate such matters is considerable, for they cannot be removed without trouble; but any one who becomes aware of their existence near his dwelling ought at

once to complain and insist on their removal. No man is entitled to make profit at the risk of his neighbour's life or health—and many a deadly fever has originated from a fermenting ash-pit or a filthy pig-sty. We acknowledge a man's right to protect his house against intrusion, but we cannot admit of his availing himself of that privilege in order to convert any part of his house or out-buildings into a poison manufactory. The public has an undeniable right to interfere and prevent him.

These remarks apply to the removal of the solid refuse of the streets. The removal of the liquid sewerage is, if possible, still more important; and for this plain reason that the waste and soil pipes of every house being connected with and opening into the public sewers, unless these be well-constructed and in good working order, the noxious gases accumulated in them must come up into the houses and apartments of the inhabitants.

The first step here is to have the public sewers properly planned and constructed, and here, again, Aberdeen is most fortunately placed—there is no part of it which cannot be thoroughly drained.

The second, is to have an ample supply of clean water constantly passing through these drains—diluting, dissolving, and carrying off their contents.

The third question, and a very important one, is, what to do with the contents. The whole liquid sewerage of our large towns is, with some small exceptions, allowed to go to waste, or, what is far worse, to pollute the rivers and streams in the near neighbourhood of our towns; and in some cases, especially London, this is so managed as to make the water of the river wholly unfit for domestic use, and for a period of the year most dangerous to all residing within its influence.

Much has been written and spoken on this subject of late years, and there is diversity of opinion as to the pecuniary value of liquid sewerage, and as to the best modes of turning it to account; but there is no doubt as to the necessity of so arranging that it shall not be destructive to the health of the inhabitants of our towns.

One of the latest publications on the subject, by the very eminent German chemist, Liebig, goes so far as to assert that,

by the careful preservation and preparation of the contents of drains of towns, the fertility of the country might be increased to an indefinite extent; at the same time, providing for the complete and constant cleansing of the towns, equally to the profit of both the town and the country populations.

During the various attacks of cholera in Britain, some extraordinary facts, in regard to the sanitary state of towns, were brought to light.

Pigs were discovered in the upper floors of lofty dwelling-houses, as well as in cellars. Ash-pits—in a high state of fermentation, giving out most noxious miasmata—were found in courts so closely surrounded by buildings that the putrid air must of necessity pass into and through every apartment. Liquid sewerage was conveyed to a short distance in pipes or drains, and then allowed to spread out in pools and poison the air around.

Now, all these things must be regulated by acts of Parliament, and carried out by municipal authorities; but it is the right of the people and their duty to give no rest to the Legislature, or to the local authorities, until they be put on a sound sanitary footing. The progress of science is daily informing us more and more correctly how it is to be done, and the gigantic works now in progress in London must, whether they fail or succeed, give, at all events, most valuable information to the country.

But unless both the public and the household arrangements in a town be such as to promote, even to enforce cleanliness, then the three great Sanitary agents, air, water, and light, can have no fair play—in other words, they cannot do their work.

I have thus endeavoured to explain to you, in familiar and general language, the principles by which sanitary measures must be guided, I must next lay before you some of the results which have been proved to arise from attention to, or neglect of these principles.

These are to be obtained from medical and statistical reports—now prepared every year with great care by public officers employed for the purpose, and which are likely to prove of incalculable value in promoting the public health.

Up to this time they must be principally taken from English tables—where the study of the subject was pursued before it was attended to in Scotland. Now, however, similar tables are prepared both north and south of the Tweed, and both English and Scotch tell one tale—that neglect of sanitary precautions, in any locality, shortens the average duration of life, and diminishes the average amount of vigorous health and strength; and to change this is the aim and object of all Sanitary Reforms.

I have no intention of inflicting upon you long arrays of figures, or intricate calculations, to prove the results of sanitary observations, but I shall select a few prominent well-established facts which cannot be misunderstood, and the application of which is obvious to all.

Soon after the practice of requiring accurate returns of births and deaths had been enforced in England, it became evident that the proportions of deaths varied greatly in different districts. To present the results in a uniform shape, tables are prepared so as to show the number of deaths which occur annually in 1,000 of a population of all ages, and also distinguishing those who die of diseases which are more or less *preventable*; that is of such diseases as are made fatal by gross violations of those Sanitary Laws which God has established, and which would, in all probability, not have been fatal had these Sanitary Laws been obeyed. In other words, had the simple elements of pure air, water, and light been abundantly employed by means of ventilation and sewerage these deaths would not have occurred.

In the healthiest country districts of England, the yearly number of deaths, per 1,000, is found to be 16; and even of these, 5 are from preventable causes, and only 11 from non-preventable. Over all England and Wales the annual deaths, per 1,000, are 23, of which 12 are from preventable causes.

In London they are 27, of which 16 are preventable. In four of the largest towns in England they are as follows:—

	Total.	Preventable	Non-Preventable
Birmingham,.....	26	15	11
Leeds,.....	31	20	11
Manchester,.....	34	22	12
Liverpcol,.....	37	25	12

The proportion, therefore, of preventable deaths to the whole deaths is thus from one-half to two-thirds. This is a very bad state of matters, and the great end of all sanitary improvements is to reduce these preventable deaths to the lowest possible number.

Were the needful sanitary reforms once in full operation, those who have devoted much attention to the subject, are persuaded that the average age at death in Great Britain would be the full Scriptural age of three score and ten, while not a few by reason of more strength would attain to four score. It appears from the returns that about one hundred thousand die every year in Great Britain prematurely—one hundred thousand preventable deaths!

This is a vast public loss; and, I need hardly say, it is a cause of great private suffering and sorrow. Many of them are men and women in the prime of life; heads of families, who are dependent on them for support; and the preventable death of one individual often plunges a whole family into irretrievable poverty, to say nothing of the sorrow of the desolate hearts left to mourn and to struggle.

There is another branch of the subject, if possible, still more distressing, and that is the number of children who die at a very early age.

The returns from which I am quoting prove that, out of 100 children born in Great Britain, about 30 die under five years, and the greater part of them from preventable causes.

Children come into the world quite as well prepared to grow up to maturity as the young of any of the lower animals. Of the latter very few die, unless by violence; while in Britain, with all its boasted civilization, nearly one-third of the children born die under five, and of these a very large proportion belong to the working classes.

This does not arise from any want of affection—the poor woman loves and cherishes her offspring as dearly as the richest, perhaps more so, for they may be her only treasures—but she often takes a wrong way to show her kindness, and sacrifices her child to erroneous endeavours to promote its welfare.

Perhaps to gain a small amount of wages, greatly needed for the family, she is induced to go out to work all day long, it may be returning to meals, sometimes absent from morning to night. The industry of such a mother is commendable; her desire to add somewhat to the scanty income of the family deserves our sympathy, but she earns her wages at far too dear a rate. No amount of gain a young mother can earn will ever repay her for quitting her home during the whole or the greater part of the day. The gain is immediate, and felt every day—the penalty is paid in after years, when sickly, ill-trained, disobedient, and unattached children become the torment of their parents at the very age when they ought to be their stay and support.

Much evil to infants arises from a mother being tempted to sell to another that nourishment which belongs to her own offspring. Here the temptation is very great, but it ought to be resisted. The wealthy mother has it in her power, if need be, to have her child brought up artificially in tolerable health, but the poor woman cannot, her child is sure to suffer. This is a subject on which the highest medical authorities now speak out very strongly, as one great cause of infant mortality wherever milk-nursing prevails.

Another practice which cannot be too strongly condemned, is that of giving opiates to children. It may be kindly intended. It procures rest, but not refreshing rest, to the child; it makes a quiet room to the father when he returns from his work; it procures, what is most valuable, unbroken sleep to the parents, so that they may rise refreshed in the morning—prepared for the labours of a new day. But this also is purchased at too high a price. A child's frame is very tender and easily damaged. Nothing more injurious than opiates can be administered—the effects are often speedily fatal by disordering the functions of nature, and if not, they never fail to undermine the constitution, and lay the foundation for a life of feebleness and discomfort.

It is very true that the father and mother of a numerous family among the working-classes have a most arduous task to accomplish in striving to bring them up in health and vigour,

but they ought not to seek to escape or shun, and still less to yield, to the difficulties of their position—on the contrary, they ought to face them resolutely and overcome them. They will soon discover that the greater part, and the worst of them, are not necessary, but of man's own making. That, therefore, they are preventable, and that the temporary hardships they have to bear in contending against them will be amply repaid in after life, by seeing all their little ones growing up in health and vigour around them, instead of following one after another to an early tomb.

A most remarkable proof of the fatal effects of neglecting ordinary sanitary measures in the rearing of children, was furnished in the metropolis about 100 years ago. The pauper children of London were then received into workhouses, brought up amid impure air, and general unwholesome treatment, and what was the result?—24 out of 25 died within the year, and only one survived!—or of 2800 received, 2690 died within the year, and only 110 survived—wholesale murder, from simple ignorance and carelessness. The fearful facts became known, an Act of Parliament compelled the parish officers to send the children to the country, and the annual mortality was at once reduced from 2690 to 450—still, doubtless, a very large number, but a great improvement on the previous state. Fresh air, their mother's milk, and plenty of pure water applied externally are the natural requirements of children—and on them only will they thrive.

I may give you another instance of the fatal effects of neglecting ordinary sanitary measures:—

In the Crimean war, we learn from the Blue Books, 20,800 British soldiers and sailors died. Of these, 5000 were killed or mortally wounded in action; the other 15,800 died from preventable causes—in other words, want of ordinary foresight—red tape and routine killed three times as many as the bullets of the enemy.

Great and just was the indignation of the country when this state of things gradually became known—but it seems to have been quite beyond the power of official authorities to apply a remedy. That was accomplished by a delicate, high-born lady. Florence Nightingale, an honour to her country and he

sex, left country and friends, and like a true-hearted Christian woman, devoted herself to the seemingly hopeless task. Her genius, guided by the highest principle and by common sense, soon discovered the causes of the evil, and applied the needed remedies, and thus, single-handed, she accomplished what boards of naval and military officers, and of medical officers too, had proved themselves unable to do.

Great and important, however, as Miss Nightingale's labours in the Crimea were, they have proved of still greater service at home—for they have drawn public attention forcibly to the whole question of Sanitary Reform. The national feeling has been fairly roused, and we may trust will never be allowed to subside until right principles are fully carried out all over the country. They are equally applicable in a Crimean hospital, in the crowded streets of a city, in a manufactory, a poor's-house, or a solitary country cottage—and they all consist in nothing more than the introduction of abundance of fresh air, pure water, and clear daylight.

The premature deaths, however, are far from representing the whole evil produced by preventable causes.

There is still more widely spread suffering produced by preventable *diseases*, which do not end in death, but cause long feebleness and inability to work, prolonged it may be for many an year.

Sickness in the families of the wealthy causes much expense, but this matters little, while, in the working classes the effects are often ruinous. The necessary outlay is very great, even with all the benevolent appliances for sickness of Infirmaries, Dispensaries, and the like, which happily we have among us. If the father of a young family be laid on a sick bed, the whole source of supply for the daily wants of the household is at once cut off. Many a family can date their loss of temporal prosperity from the day when "Father took the Fever."

This subject has only of late attracted the necessary attention, and returns are now being made which will bring out the facts distinctly. In the meantime, we believe we are safe to say, that the amount of preventable sickness is nine or ten times greater than that of preventable deaths—probably not less than a million cases in a year in Great Britain. It has been stated

that the annual waste of life and sacrifice of health in England and Wales—reduced to equivalents in pounds, shillings, and pence—is represented by the enormous sum of £13,873,931, under the heads of funerals, sickness, and labour lost. Of this sum London furnishes £2,000,000, and Lancashire £4,000,000.

Those diseases which might be prevented are chiefly of three classes—Cholera in its various modifications; Fevers of all kinds; and Rheumatism. The two first are naturally the objects of universal dread from the violence and rapidity of their action. The third class, Rheumatic affections, are less dreaded, because rarely at once destructive of life, but they most completely destroy its comfort, and diminish the power of active exertion.

The ablest and most experienced physicians assure us that these are, to a great extent, preventable diseases, and if God has in mercy put this in our power, surely we are greatly to be blamed if we neglect, either as a nation or as individuals, the means known to be effectual preventatives.

The visitations of Cholera are very appalling. Its origin is very mysterious; but this we know, that, when pursuing its deadly march from one country to another—from one city to another, it invariably seizes *first* upon those who live in habitual disregard of sanitary principles—the drunkard, the dirty in home and person, the dwellers in impure air, are its earliest victims. But it does not confine itself to them—once established in a locality, it spreads all around, striking down rich and poor—temperate and dissolute. The same is true of Typhus and other Fevers of the worst type.

Now all these diseases seem to be produced by certain modifications of the state of the atmosphere acting upon certain material substances, and if these latter do not exist, cholera or fever cannot *originate*; they may be propagated in other modes, but they will not *commence* spontaneously; and even if imported, they will soon cease to ravage.

The great support of these diseases is to be found in masses of putrifying matter, and the gases evolved by them, and especially those which come up from badly constructed drains and sink pipes in our houses and gully holes in our streets.

We all know that when we smell gas in our rooms, it is prudent to send at once for the plumber to find out the leak and get it mended, lest the house be blown up, and so whenever we find an offensive smell in our houses, it is wise to set to work and find out the cause and get it remedied, lest fever break out. It is the warning given by Providence that danger is at hand, and it is at our own risk if we neglect it.

I will give you two instances. Some years ago a wealthy family in the west-end of London are stated, in a "Blue Book," to have wished, in order to save trouble to the servants, to construct a sink with pipe from the children's apartments down to the drains below. The work was immediately executed. The children had previously been perfectly healthy, and the rooms fresh and well-aired. Presently the children became ill. The doctor pronounced the disease to be typhus—but whence could it have come? At last the new sink and pipe were mentioned and examined—and what proved to be the fact? Either in ignorance or carelessness the pipe had no *trap* at the bottom, and thus it acted as a poison pipe, drawing up and delivering in the children's rooms the putrid emanations from the great street sewer below.

The necessary remedy was at once applied, and the fever soon ceased and never returned. Here was wealth employed in introducing unintentionally the most dangerous poison to the very spot from which it would have most desired to exclude it at any cost.

Again, in the town of Windsor, fevers and choleraic diseases have of late been very prevalent. The drainage was found to be as badly arranged as possible—the obvious cause of the disease. But the Castle had a separate system of drainage of its own, all in good order, and there no case of disease appeared. All at once fever broke out in two of its dependencies—immediate examination took place—it was found that the drainage of this portion of the Castle was turned into the common sewers of the town, and did not form part of the Castle drainage.

This case, so instructive, is given at full length in the Privy Council Report on Public Health for last year. In the town of Windsor the drainage matters were so arranged that the foul

air of the sewers was delivered into the rooms in the higher part of the town—no wonder if it proved unhealthy.

Chemical science has been at work on this subject. Quantities of putrifying matter from the streets have been subjected to certain processes, and the *essence* extracted, in the form of a disgusting looking viscous fluid. Now, this may be termed, “essence of putrid fever,” for if a minute portion of it be inserted into the veins of any animal, or if the vapour of it be inhaled by the nostrils, that animal soon dies, with all the symptoms of the worst fever.

This poison may also be obtained from the air of fever wards, or of crowded lodging-houses, or in the country from marshy bogs, where a large quantity of vegetable matter is rotting in the sun.

Now, this chemical process is merely doing in the laboratory what is daily going on, with more or less intensity, wherever masses of putrifying matter are allowed to accumulate.

Dr. Southwood Smith, one of the very highest authorities on the subject, writes,—“By varying the intensity and dose of the poison thus obtained, it is possible to produce fever of any type, endowed with almost any degree of mortal power.”

The whole subject of “Fever Poisons” has been admirably discussed, in four tracts, by Dr. Robert Pairman of Biggar, and these I would earnestly recommend to your perusal. A few copies are placed in the hands of the Ladies’ Committee for distribution.

Medical men have invented a new name for the fevers produced in this manner. It is not a pleasant name, but it is very expressive; they call them *Filth Fevers*, and they tell us that they cause 18,000 preventable deaths in Britain every year.

There is a time when Sanitary Reforms are most popular. When cholera has broken out, or is seen to be approaching, when pestilential fevers are raging in our crowded streets, then every voice is raised in favour of the most vigorous measures; but it is often too late, and the very cleansings which are effected of cess pools and dung pits prove fatal to those employed in the work, or to those who are exposed to their effluvia.

True Sanitary Reform consists not in sudden spasmodic fits of cleansing, but in constant daily operations, so that there

never shall be any need for great works, and this is the point to which we should strive to attain.

All classes are equally interested in it. Fever may be generated in an obscure close, or a dirty lane, and its inhabitants may be the first victims, but it does not confine itself to such localities; it may originate there, but the poison spreads, and the rich become its victims as well as the poor. They have acted together in defiance of immutable laws, and they are necessarily punished together. The right object of all sanitary legislation is to oblige all the members of the community to do what is needful for the common safety.

It is a mistake to suppose that the homes of the poor are the only depositories of filth in our towns. When sanitary measures were enforced in Edinburgh, on the first approach of cholera, it was asserted, and I believe truly, that the worst accumulations were found, not in the closes of the High Street, the Canongate, and the Cowgate, but in the lower regions of some of the first-class houses of the new town. Whatever sanitary regulations we may have, they must be equally applied to all classes. It is not fair to search into the recesses of the poor man's house, and leave his richer neighbour's house alone. No man, be he rich or poor, has any right to convert a portion of his dwelling into a manufactory of fever poisons, any more than he has to keep half-a-dozen casks of gunpowder round his kitchen fire; doubtless, he runs the greatest risk himself, but his neighbours' risk is not much less; and, if men will be so wrong-headed as to despise their own and their neighbour's safety, the public has a right to interfere, and cause them to act with due regard to both.

It may, however, be said, How can a working man's family attend to all these things? the houses occupied by them are such as to make it impossible.

Practically, I regard this as the essence of the whole question. The houses of the working classes are too often not what they ought to be—either in town or country.

Who is to blame for this? and how is it to be remedied?

Various interests, and these apparently conflicting and rival interests are involved.

It is the natural desire of the house proprietor, whether in town or country, to draw the most rent he can for the smallest amount of accommodation, and it is equally the natural wish of the prudent working man to pay as little as possible for the necessary accommodation of his family, and these two combined have brought down the dwellings of the industrious classes to their present low level.

Many schemes have been proposed to remedy this, but hitherto with only very small, or rather, very limited success.

Model Lodging Houses have been built, and they have done great good—showing what accommodation for working men ought to be—but, in general, they have not been remunerative to the builders.

Improved Lodging-Houses also have been formed out of old dwellings, and this has proved a better money speculation, but the lodgings themselves are very inferior to new erections.

Attempts also have been made to erect dwellings—half on charity, half for a return—good houses, to be let at a rent below what would be a fair return for the outlay. This is very kindly meant, but it can never be so extended as to supply the general wants of the country; and, even if it could, I doubt much if the manly spirit of our working men would not repudiate the idea of being partly indebted to charity for their dwellings.

The real difficulty lies in the want of a right understanding between the wealthy and the working classes.

There is abundance of capital in the country to erect good accommodation for our working classes, as proved by the hundreds of millions of pounds invested in railway works in the last thirty years, in the hope of procuring a high return. But capital is a very timid thing, unless under the excitement of some mania, and, unfortunately for the working people, no mania for erecting dwellings for them has yet prevailed.

The vast capital spent in railways is stated to produce, on the whole, less than 4 per cent. per annum.

Now, if the working men can satisfy the rich men that they will get a better return than this, on as good security, by building houses, then assuredly capital will be thus employed.

It is looking for investments—it cares not what they are, provided the return be good and sure. Working men ought very seriously to consider the question of House Rent. The dearest house a family can occupy is an unhealthy insufficient dwelling, however low the rent may be. The cost of a few weeks of illness of the father, or of the sickness and death of a child, might often be spared by renting a better house.

Nor can parents be too careful in making every exertion to have a sufficient number of separate rooms for themselves and for their children. It is impossible for them to bring up children aright, unless the sexes be separated from an early age; it is equally impossible to carry out sanitary arrangements effectively, especially in cases of sickness, unless a *family* have several separate rooms.

One great sanitary evil in all our large towns is the piling of one floor on the top of another to the number of six, or eight, or even more, and even some newly erected model lodgings err in this direction. It is almost impossible to have such great masses of buildings filled with human beings without collecting an impure, unwholesome atmosphere within and around them.

The immediate cause is the *cost* of building ground within our cities, and the obvious remedy is for people to seek for their dwellings farther from the great centres of business and work. This has its disadvantages, but they seem to be greatly exaggerated, and that the benefits would be unspeakable. The wealthier, and even the middling classes, in all our towns, are acting largely upon the plan of residing at a considerable distance from their places of business, and I can see no reason why the working population should not follow their example.

Many gentlemen engaged in business in towns, now reside with their families, 20, or 30, or even 40 miles away from the din and dust of the cities; and it costs them less time to travel by rail to their places of business every day than it did before, by omnibus or on foot, while they more than pay for their travelling expenses by their lower house rent, and have the benefit of fresh air for more than half the day.

Now, in a smaller way, working-men may do the same. If

beyond a walking distance, the various lines of railway, entering every town, will carry them at a small expenditure of time and money—and they would save enough in ground rent alone to meet the expense, to say nothing of health and comfort, and many moral benefits to their children.

This is one of the advantages to be yet derived from the more full developement of the railway system.

There is an article upon this subject in the last *Aberdeen Herald* well worth your attentive perusal, founded on a paper, lately read in London, by the able Member for this City, Colonel Sykes.

I must not enter fully into this subject, my time is nearly exhausted; but it is one of the greatest importance—which has long engaged my attention—as lying at the very foundation of the prosperity of our country—for if the masses be badly *lodged*, innumerable daily evils must ensue, which no laws, no appliances, can cure.

I would earnestly press on the men and women of the working-classes what additional comforts they could procure in the shape of *homes* if they would only abandon for ever the use of strong drink, which can do them no good, and may destroy them soul and body. The outlay for drink, of even a *moderate* drinker, would pay the rent and rates of an excellent house. Besides, rich men will readily invest capital to be paid for by sober men, but they will not trust the drinking man if they can possibly help it; and this, the uncertain payment of rent, is after all the real reason why working-men find so few good houses built for their use. Put it to yourselves—Would any of you who had saved £100 by hard industry, willingly invest it in purchasing a house, and then let it to a man on whose payment of rent you could not depend? This is the true reason why money is not spent by the wealthy in erecting houses for the working-classes.

If all things were as they ought to be, then every family of the working classes would inhabit a detached dwelling, and, if in the country, surrounded by a garden, with no neighbours above or below, and fresh air flowing freely around. With the present rapid advance of discoveries, all tending in this direction,

there seems no reason why another generation should pass away before a large proportion of them are so accommodated. Capital would find in it a sure investment, and Christian Philanthropy would have abundant cause to rejoice in the removal of some of the greatest obstacles to the progress of religion in our land.

I am not able to do more than allude very briefly to the sanitary results of the drinking habits of our country. This would have required for itself a whole lecture, or more than one, and it will be furnished, I doubt not, by some of those who are to follow me.

No facts are more thoroughly established by science than the absolutely deleterious effects of alcoholic liquids on the human frame, except in cases of disease, and even then to be administered with great caution. Some poisons are termed by medical men *cumulative*, because they and their effects gradually accumulate in the human frame, until at last the application of a multitude of small doses produces an effect, different it may be, but as fatal as a large quantity taken at once. So with the habitual use of intoxicating liquors—the whole framework of the body is gradually changed—and it becomes the very food on which cholera and fever delight to riot. Remember that this is just another example of the unfailing penalty incurred by violating the laws impressed by our Creator upon our mortal frames. The strictest temperance must be the foundation of all Sanitary Reform.

We are promised two or three Parliamentary Reform Bills next session of Parliament. I hope, from amongst them, a satisfactory measure may be passed; but I would much rather have a thorough good Sanitary Reform Bill, one which would procure for every family pure air, pure water, and plenty of them, and comfortable cheerful houses to dwell in. Such a reform would indeed be a radical reform. It would injure none, it would benefit all; and it is one which all parties in the State may cordially combine to procure.

The remarks this evening have been confined to the physical and material aspects of the subject of Sanitary Reform—but

this part of the work, though most important in itself, must not be *overvalued*.

However useful in its place, it is not the *one thing needful*. Attention to sanitary precautions will, by God's blessing, save many bodies from sickness and from temporal death, but they can save no souls from eternal death.

Nothing on this earth will prosper which is not based on true vital religion, and this is as true of our present subject as of any other. No community can be in a good sanitary state where this is wanting.

Had time permitted, it would have been profitable to have enlarged somewhat on this.

True heartfelt religion ever appears in the life and conduct. No converted man is a drunkard or licentious, or neglectful of his wife and children, and, specially, his religion will appear in his denying self for the good of others. Self-denial is an impracticable lesson to the unconverted man, but it is one of the first and most enduring fruits of the Holy Spirit after conversion, and it is the grace which is most required and most exercised in the family, and there it produces its most precious fruits, and these soon appear in what are commonly counted trifles, though in truth they are not so.

Real Christianity influences every portion of the daily conduct down to the most minute.

Can you imagine such a thing as a *dirty* Christian woman? Is it not a contradiction in terms? The Christian woman feels that her body is God's creation, and that she is bound to glorify God in her body and in her soul, both of which are his. Look around you, and you will soon remember instance after instance where the entrance of God's Spirit into a heart was followed by the instant reformation of all that was disorderly in the house and the person.

It is matter of hearty congratulation to us all that the ladies of Aberdeen have now formed themselves into an Auxiliary Sanitary Association, and we owe our special thanks to her—a stranger, who came here attracted by the late meeting of the British Association, and laid the foundation of this new Society.

We have very many valuable institutions in Aberdeen; and, perhaps, we are apt to pride ourselves *a very little* upon them; but, certainly, the want of a Ladies' Sanitary Association was a great defect.

I doubt not the same energy which enables the Aberdeen ladies to manage other institutions so successfully will be applied by them to this also.

It is an eminently practical work. The ladies will be able to carry their own knowledge and their own home experience to the houses of their hard-working neighbours, and teach them many a precious lesson in the management of themselves, their houses, and their children.

This will produce and foster that kindly feeling betwixt the various classes of society, on which our happiness as a people so greatly depends. When the rich come to know the poor, they learn not to despise them; and when the poor come to know the rich, they learn not to envy them. Both discover that God in His Providence has made much less difference in regard to earthly happiness betwixt one rank and another than is generally supposed.

Above all, I am confident the ladies will not leave their Christianity at home when they go out on this work. If Christian principle go not with them, their work cannot prosper—with it, it cannot fail.

The richest cannot purchase eternal life, they must receive it as God's free, unmerited gift, through our Redeemer; and the poorest may well rejoice to know that the Water of Life is offered to them without money and without price.

I regard the Sanitary Association as simply a new, additional and much needed branch of home mission work; and I trust that God will guide and bless all concerned in carrying it out, and greatly prosper them in their work.

