

TABULATED RESULTS.—AIR ANALYSES.

Samples taken.	Grains per cubic foot.		Hydrochloric Acid.	Sulphuric Acid.	% vol. Carbon Dioxide.	Remarks.
	Ammonia.					
	Free.	Albumenised.				
1. In Garden at Farnworth ..	36.1	85.5	102.2	99.6	0.046	Average 800 obs.
2. In Little Lever ..	25.9	49.4	116.5	102.4	.....	750 "
3. In centre of Farnworth ..	38.6	92.0	87.9	123.3	.....	800 "
4. Near large works, Bolton ..	16.7	4.3	36.4	194.3	.....	800 "
5. In narrow back Street, Bolton ..	29.9	53.6	36.9	169.2	.....	800 "
6. New Public Park, Bolton ..	5.8	26.8	25.2	45.2	.....	750 "
7. National School, "Howarth's" ventilated ..	.....	.....	.....	.....	0.0461	.....
8. Quarter Sessions' Town Hall, Bolton ..	.....	.....	.....	.....	0.0464	.....
9. Bed-room, 18in. from floor ..	.....	.....	.....	.....	0.0614	.....
10. " 18in. from ceiling ..	.....	.....	.....	.....	0.0501	.....
11. " 18in. from floor ..	.....	.....	.....	.....	0.0465	.....
12. " 18in. from ceiling ..	.....	.....	.....	.....	0.0624	.....
13. Public Hall, Southport, unventilated ..	.....	.....	.....	.....	0.0602	.....
14. " " { "Howarth's" ventilated	0.0462

" EDUCATION BY PROVERB IN SANITARY WORK,"

LECTURE TO THE CONGRESS,

BY

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THERE are two points in the study of the causes which shorten human life, which must strike all thinkers upon the subjects of health, of disease, and of death. These points may well form the commencement of my address to the earnest sanitarians who are now assembled in this city of Dublin.

The first of these points is the sacred feeling which attaches to human life, to the spiritual essence by which we live and move, and have active existence, and which feeling is instinctive in the breasts of all who may be assumed to have had the privilege of a spiritual contact with the Supreme Being; this spiritual essence being a something altogether different to that life which belongs to animated nature, exclusive of that attached to humanity.

The second is the carelessness with regard to this same life, the indifference with which its extinction is regarded by barbarians and uncivilised communities, and also by a portion of the civilised world, who ignore the existence of a Supreme and Benevolent Architect of the Universe. The more uncivilised the race, the less is the respect which is paid to the maintenance of human life. There are still nations upon the face of the globe, who, when their parents or relations become old or labour under any distemper which cannot be cured; cut short their days with a violent hand, in order to be relieved from the burden of supporting and tending them: and there are yet some countries in which the children are destroyed when

not wanted, much as we destroy whelps and kittens in our own land. I have even in my own day, in our own native country, heard it represented that it would be an advantage to the State, to the locality in which they live, and even to the poor creatures themselves, if some of the inhabitants of our lunatic asylums, our prisons, and our workhouses, could be put to death in some painless way, by which their sufferings could be shortened here, and the expense which their maintenance entailed upon the community altogether avoided. There are also men who boast themselves as being among the highest of intellectual beings who would deal in a similar manner with the habitual drunkard, by placing within his reach as much as he wished to take of the poison which destroyed his health, with the object of hastening his departure from among us, and so saving the State or his personal friends any further trouble and expense on his account. These individuals are but evidence of the brotherhood which exists between some of the tribes inhabiting the Chinese Empire, or of the interior of America with these same intellectual beings among Queen Victoria's subjects, who like the barbarians referred to, ignore the sacred character of the vital spark, and have no idea of a future state. In this part of the world they call themselves philosophers, and style the subject a study of the Euthanasia.* But the sacred character which attaches to human life is not likely to be extinguished among us, and whilst the instinctive feeling which belongs to humanity, arising from spiritual contact with a higher power, has sway, we are not likely to degenerate to a class of low utilitarians or become the supporters of a principle of a cynical selfishness. A nation or a class encouraging a feeling which diminishes the sacred character attached to human life is a degenerate nation or an uncivilised race. This cannot be said of either the Celt or Saxon as a race, though some among us give utterance to doubtful principles. If there is one thing more than another which is uppermost in men's minds in this our day, and in our own land, it is as to how disease may be impeded, how our children may be preserved to us, and how we may attain to a length of days which statistics have told us should be ours, but is not. It is only within this present century that Society has been made aware of the loss which accrues to the community from the premature deaths of immense numbers of its atoms: personal interest is brought forward in support of humanity, and the welfare of the state is shewn to be also in accord with the sacred feeling which protects the life of its citizens. Although the people generally had not been aware

* Meaning an easy departure and utter annihilation.

of this loss until very recently, it was well known to wise men in all ages, and imputed by them from various motives, either to the anger of the Supreme Being, or of those who in the more degenerate ages of the world represented Him in the public mind. The tenth plague in Egypt, in which the death of a child in every family was the natural result of a disobedience to sanitary law, ultimately led to the promulgation of the first set of sanitary edicts with which we are intimately acquainted, and which were made binding upon the Israelitish people by being engrafted upon their religious performances. It is thus that the wise men of old were enabled to "save some" by means of Proverb or religious dogma, and the sanitary observances inculcated by Moses in the wilderness of Sinai were based upon his acquaintance with the evils of town life, and the disadvantages to the State which a residence in the closely confined cities of Egypt had brought upon the Hebrews. The forty years' wanderings in the air of the desert purified them from the diseases which had debilitated their frames, and which the flesh-pots of the valley of the Nile had assisted to cause. The rules laid down by Moses, whilst they prohibited a continuance of the people in a nomadic life, also prevented those evils from arising which were sure otherwise to follow upon over-crowding and its natural consequences in the confined cities of Palestine. Moses was well acquainted with the selfishness and with the egotistical and mercenary spirit especially belonging to one side of humanity. He took measures, therefore, to inculcate sanitary truths by making them into edicts of the State, unalterable by the whims of the people, and this led them to be observed as long as the Mosaic law was the law of the land. Moses and other wise men of old studied human nature; they recognised the difficulties which were in the way of establishing healthy action, and pointed out to their disciples that health followed upon obedience to certain laws. They knew that self-indulgence, sloth, and the love of money, were stronger moving powers in the minds of the masses than benevolence, than industry, and virtuous abnegation of self. The spirit which led Moses to lay down the laws in the Mosaic precepts, which are the basis of all sanitary codification, led to the popular association of Proverb in sanitary work.

The same moving spirit caused the priests and priestesses of the temples of the gods of the heathens to give utterance to sound sanitary directions, veiled in dark sentences, and accompanied with rites and ceremonies tending to exercise the imagination, and to lead their devotees to carry out their behests in blind obedience, and without thought as to the reasons for their orders, or any reference to the God of Nature in the work to be done. But being myself an earnest believer

in natural law, I understand Nature as being in the words of one of our poets, not only in the material and visible world—

“In the round ocean, and the living air,
And the blue sky (*but also*) in the minds of man,”

and that all actions which take place in the world, all changes of matter, and all the results of such, are caused by laws implanted by the Divine Architect of the Universe, in imponderable as well as in material agencies. I believe that the former, though invisible and unweighable, are infinitely more powerful than the latter. That the material world and its inanimate matter is acted upon by the immaterial and the spiritual world, through animated nature, in various ways, which may be beyond our conception, but which nevertheless are according to general laws, and that it is always in accordance with a law when disease of any kind appears, and life is taken away.

It is the object of the sanitarian to find out the forces, as well as the material agencies, which bring these laws into play, especially as regards those forces which influence the health of the people, by means of which life is prolonged or shortened, and the atoms which go to make up a population increase in number or diminish and vanish away. We ask, and we are sometimes able to find out in answer to our question, why those enormous animals which formerly inhabited the earth; why the megatherium, dinotherium, the mastodon, and the Irish elk have departed from amongst us; and coming nearer to present times, we ask why the Astecks are gone, and the Red Indians are likewise becoming extinct, following in the wake of the elk and the moa, whilst the Celt and the Saxon are spreading all over the world, and showing their superior mental and actively constituted bodily powers in every portion of the earth, and spreading abroad a knowledge of the sacredness which attaches to human life. A belief in natural law, as far as the people generally is concerned, is a belief of modern growth, it is one of the pillars of sanitary work, the other has sprung out of the Christian tenet that we should love our neighbour as ourselves. The term supernatural is still considered as a reality by many, but it is obsolete and altogether out of date to the sanitarian in all things connected with health. If anything arises which is new, or rather which is observed now for the first time, or which is incomprehensible to him, the sanitarian believes it to be the result of some law, the nature of which is at present hidden from his intellectual understanding. If it has reference to the health and well-being of the people, he sets himself to

solve the mystery, and to find out the bearings of that law which has brought about the apparently incomprehensible result; and whilst acknowledging that all things which happen are the sequences of Nature's laws, the sanitarian declines to regard anything as supernatural or beyond the power of man, to influence, sooner or later, for either good or evil, if means are taken to effect the object he has in view.

For instance, an advanced sanitarian declines to look upon disease, or even upon death, as supernatural, and some of us dare to assert that death, when caused by disease, is not a necessary sequence in man's history. I, as a sanitarian, dare to assert that death, as it ordinarily occurs, is a preventable event, and that disease need not be the cause of death; and in effect I support the views held by those who uphold a belief in revealed religion, that disease is the sequence of man's degradation and fall, and that a restoration to right paths will be followed by the removal of its effects, and with its removal the sacred character which attaches to human life will be made still more manifest.

The sanitarian's study is man's mental as well as physical state; he is able to make out the effects which are produced upon his material body by immaterial as well as material agencies. Both have influenced his actions and his affairs from his first appearance on the earth. He finds that the acts of man are governed by natural laws; that they are often the sequences of acts which were performed by generations who existed in ages long past, and which acts are not ordinarily thought of as having been the causes of those results, and no country in the world gives such proof of the truth of this adage as this Ireland of yours, in which population is decreasing and public health at a comparatively low ebb, whilst the sacred character which belongs to human life is not set at so high a rate by some of its inhabitants as it is on the other side of the Channel.

The sanitarian judges by analogy, and knows that the men of the present day will influence their successors hereafter in a similar manner, if corresponding acts are performed by ourselves. He can prove this fact by irresistible evidence, based, it is true, upon analogy, but the sequence of events, like the rising of the sun to-morrow morning, is all but certain. He appeals to you to assist him in taking such measures as shall prevent similar results in the future, when they may possibly produce corresponding evils to man. There is no proverb so well established as that of “Prevention is better than cure,” or, as the old Roman expressed it, “Principiis obsta;” and to it I appeal as one of the bases of my remarks.

The sanitarian shows you that whilst a few years ago the average age at death of all persons who died in a given period of

time in some of our towns was not more than twenty-five years, and that some districts in Dublin at this moment show a similar rate in the length of life of those living in those districts, whilst in others it is thirty-five or forty; and that which is called, in irony, Civilisation or Culture, is partly responsible for the gradual decrease in the length of days of man's life upon earth; for the shortest average lives were in the most crowded, but also the most highly civilised cities. We are able to show you now that the average age of man at death has risen within the last few years to over forty-one (the whole kingdom being considered), whilst in some given districts it rises to sixty; and we assert that this increase in the length of life is due to sanitary work: to a better knowledge of the causes of disease among the people, and the removal of those incidences which belong to a neglected poverty.

We ask, Why should conditions exist in some of the bye-streets of Dublin, of London, and of Liverpool, or Glasgow, by means of which the average age of those who die there is considerably less than thirty, whilst the instances in which life has been prolonged to 100 are numerous even in Ireland itself? The sanitarian asks, If Bidly Sullivan could live till after her ninety-ninth birthday, why should not the same result happen to every other person born in Ireland? Every sound seed produced by a given plant can be cultivated and made to produce another of the same kind if proper measures are taken to bring about the object in view; it is only a barbarian plan which leads to a so-called survival of the fittest. The sanitarian asserts that Bridget Sullivan did not die, in the ordinary sense of the term, from disease. There was no apparent disease in her frame; there was evidence of age, which showed itself in the white hairs, the dim sight, the hardness of hearing, and the want of taste, which came on in the last few months of her life, like changes of colour which take place as a cornfield approaches the time of harvest; but those conditions arose from failure to carry out certain attributes which belonged to the material body. They were not attended by pain, and when life ceased to be, Bidly Sullivan shuffled off the mortal coil, and joined the majority without suffering a pang of any kind. I have in my time watched many and many a death-bed, and in the fact of death itself, as separated from the disease which has brought on the premature ending to mortal life, I am satisfied that pain is not and need not be a part of the process. There is no more pain in dying than in being born into the world; uneasiness connected with spinal actions there may be, but pain is no part of the process. "I am in no pain," has been the answer to my question hours before the end has come: the

departure has taken place, the separation of soul from body has been effected without a pang of any kind. Pain is a consequence of disease. The end of mortal life on earth will come, but disease need not be its precursor, and death therefore need not be regarded as painful if disease is prevented. Bodily pain is the evidence of some abnormal action which is interfering with the ordinary course of nature; it is a danger-signal exhibited by the nervous system to show to the owner that some law has been transgressed, and some change effected in the nerve battery which regulates organic life, which has led to changes not consistent with health and freedom from suffering. Pain is the manifestation of a warning on the part of organic life which should cause the sufferer to alter some course of proceeding tending to set up mischief, or it is the necessary sequence of things in a return to a right and healthy path.

It is the object of the sanitarian to bring about conditions which diminish the frequency of early death, which assist to remove bodily pain from the list of human grievances, and to pave the way for that time when every person born into the world will enjoy his birthright without having it curtailed by the acts of other people. Every child born into the world has a right to live to the natural end of his mortal life, and, whatever is taken away from that 100 years which is his birthright, is so much fraud upon him; and is so much enjoyment upon earth of which he has been robbed. The development which should be the result of that enjoyment has been prevented, and his hopes of a future and a brighter world possibly taken away, or if his sojourn is attended with suffering here, the pain endured is so much of the fire of affliction which helps to purify the spiritual being and prepare it for that brighter world beyond the grave. A just and benevolent Maker will no doubt rectify this in some way beyond our ken, but the fact is there. That length of life which was attainable by Bidly Sullivan, viz., close upon a century, is the birthright of all of us. We do not attain to it because our forefathers did that which was right in their own eyes, without reference to the effect of their actions upon their descendants, as well as upon those around them: or our neighbours, or we ourselves, do acts inconsistent with its continuance. We should not forget that our forefathers were ignorant of the influence their conduct would have upon their descendants.

"Salus Populi suprema lex," is a very old proverb in the cause of sanitation. It was a Roman saying when the Commonwealth was the first thought of the true statesmen of that old Republic, when a few great men cared for their country more than for their own pockets, and preferred

its welfare to that of their own comfort; but the teachings of the proverb have had until quite recently but little force in the larger part of the United Kingdom, and certainly less in Ireland than across the Channel. That proverb in later times, however, has been more often used for purposes of persecution than for the public benefit, and any good effects which it might have had have been much more than counteracted by others which have shortened life and propagated disease, but which, curiously enough, in the abstract are looked upon from very mistaken ideas, as essentials to the Magna Charta of liberty. "A man's own house is his castle," and "Every man has a right to do what he likes with his own." These unpatriotic proverbs, taken in a practical sense, have injured man's constitution and damaged the frame-work upon which man's body has been built, by being applied to his own purposes by the ignorant, the designing, the selfish, the vicious, the miserly, and the indolent. Instead of being applied as protections against evil, they are opposed to true patriotism and the general welfare of the people, they have been used for the manufacture of evil, and the multiplication of foci from which disease has been spread, and life taken away from its owners; they are therefore quite antagonistic to the sacred feeling which ought to belong to human existence. They have shortened man's life, have weakened his intellect, have diminished his muscular power, and have sometimes caused his descendants to throw themselves under the Juggernaut car of an imaginary destiny, as if there was no escape from its consequences, no help for unhappy mortals from the sufferings of disease or the pains of the consequent death. The disciple of sanitary law has a better knowledge, he knows that man's destiny as to disease is to some extent in his own hands, unless his system has been tampered with by acts of his ancestors or the laches of himself or of his neighbour, or neglect of the State, in which cases he is somewhat hampered by mortgages which will have to be paid off by himself and his descendants. Notwithstanding this the sanitarian sees in the dim distance the realization of his hopes, and with the Prophet Isaiah he believes that the days will come when "There shall be no more an infant of days, nor an old man that has not filled his days, for the child shall die a hundred years old." (Chap. 65, v. 20.) But "that the sinner being a hundred years old shall be accursed." Clearly showing that health would come before universal Godliness. He sees an actual felicity in sanitation, as expressed by my predecessor in the address which he gave to the Congress at Glasgow, and which felicity may be looked upon as super-natural by the unlearned. The sanitarian sees the time when the knowledge of

the sequence of God's laws shall be spread broadcast throughout the world, so that the consequences of a man's acts shall be as visible to himself and his friends as they are even now to the pathologist and the physician; and seeing the effect of those acts upon the frames of other men, he shall be careful to avoid corresponding effects by not committing the mistakes which may have led to their production in himself, in his descendants, or in his neighbours: for heredity in disease, or a deficiency in muscular and mental power is as certain to accrue to men as it is found to among the lower animals of creation as regards form and other attributes. It may be in the early future, it will be some day, that persons will become ashamed of having to acknowledge themselves to be the subject of diseases, which instead of, as now, exciting sympathy and condolence will be looked upon as blots upon the family scutcheon, and as such to be got rid of or hidden out of sight, and certainly not to be flaunted in the face of a more discerning world than is the present in matters of health. Men will then look out for their life-long companions from among those who are possessed of rude health, who belong to stocks enjoying long life, and from among the intellectually superior, from those with a pure blood and free from hereditary taint, such possessions being of more value than money or position, or even an evanescent beauty, a highly-strung temperament, or an hysterical sensitiveness, which is but too often the evidence of an inheritance from a gourmand, a drunkard, or a vicious man. We ought to look forward with pardonable desire to the time when defects in bodily health will be remedied, not as a man with one leg naturally remedies his defect by taking to a wooden one, but by using measures which shall remove the defect itself, and education of the young will then be on developmental principles. We find, in my own profession, a number of practitioners who fail to see this necessity, when they provide substitutes for a defective faculty in the young and growing youth, instead of rightly cultivating that defective faculty and bringing out its hitherto dormant powers. Spectacles to growing children, straps of all kinds in dress, high-heeled boots, and tightly-fitting corsets, will be sent to limbo, and foolish young people not allowed to go on in wrong lines.

I have used the term destiny with a motive. It is a term which has influenced millions who have surrendered themselves to its sway, and allowed themselves to be unresistingly carried on by the ever moving stream of time. They have been ignorant of the fact, or they have forgotten that the laws which govern matter can be directed by the will of man, and that the order of those laws can be changed by the power of that will. It has

been forgotten that the will of man is in his own power so long as he holds the reins, but that if he surrenders those reins to others or throws them away because the exertion of that power is a trouble to him, because it is easier to go with the stream "as one sheep follows another," and "one fool makes many," he becomes the slave of a myth, and helps to add to the evil which is in the world, instead of resisting that evil and doing good to his own generation. This is especially the type of the hysterical development of the present day, and which is sadly on the increase, being the inheritance which comes to us from the wine bibbers of former times. If a man has a stone in his hand he can throw it, or not throw it, at some object as he pleases, but, having thrown it, the matter obeys the immutable laws which belong to matter, directed, it may be, by the will of man to some object, but, having left his guiding power, is no longer under his control, and may be deflected from the path which he intended it to take, and ricochet from the straight line, and strike a friend, or even like the boomerang return and injure him who threw it. And as we read in the *Talisman*—

"A rusted nail placed near the faithful compass
Will swing it from the truth, and wreck the argosy."

The sanitarian believes that he can, by using right means—

"Turn the stream of Destiny,"

and

"Break the chain of strong necessity,"

(which, as Spencer expresses it)—

"Fast is tied to Jove's eternal seat."—(*Fairy Queen*.)

The sanitarian does not believe in the permanence of hereditary evils.

It is not my intention to stay long in the distant past, or wander away in the cloudlands of psychological study, but I want you to bear with me whilst I glance at the time when knowledge belonged to the few, when the tendency of the human race in civilised life was to become depreciated in value by ease and luxurious habit, by gluttony and other kinds of self indulgence, scarcely counteracted by the survival of the fittest; when writing was not general, and tradition was the principal mode of transmitting knowledge from one generation to another. Perfect man had become a transgressor, and had let evil influences affect his frame. Those men who were more completely developed, and were wiser than their fellows, marked the effect of the unknown and worked upon the fears of the weaker sort, and imputed the sequences of nature's laws to the

supernatural, as if caused by the anger of the gods. They assumed a power to intercede for the offenders, and even to turn aside "the bolt of Jupiter." Knowledge regarding the true nature of the Supreme Being was limited to few, and those few often used their knowledge for their own benefit. The fears of the people were used for the purpose of turning that knowledge to profit. As a semi-civilization again became established and a theology developed, the oracles of the gods became powerful agencies for the dispersion of dogma both true and false. Sometimes dogma was used for the promulgation of beneficial principles. This was the case when despotic power was in the hands of benevolent men, but, too often, despotism was simply a means whereby the masters of the place held power over the people, and it was only when a truly wise and good man like Solon or Moses was in the seat of power that advantage accrued to the people themselves instead of being used for the benefit of the few. Sometimes it happened that wise men studied the weaknesses of the people, and used those weaknesses for the purpose of inculcating right principles, a custom not uncommon among statesmen in our own days. Faith in the supernatural among the masses enabled them to do this by means of proverb. The promulgation of edicts took the form of religious dogma, and their authors worked upon either the fears or the faith of the people. These attempts to influence them were often made in times when pestilence was at work, and men's minds upset by the dread of an unknown future. Learned and benevolent men wished to bring them back to be influenced by those physical laws, the effects of which were altogether unknown to the masses. Dangerous and rapidly fatal diseases tended to strengthen the power of superstition among them. There was a good side in the means taken, but it had an evil tendency, and it was to that which Buckle refers in his *History of Civilization*, where he says "The real mischief was that it engendered in the mind, associations which made the imagination predominate over the understanding, which infused into the people a spirit of reverence instead of a spirit of enquiry, and which encouraged a disposition to neglect the investigation of natural causes, and ascribe events to the operation of supernatural ones." (*Hist. of Civiliz. Vol. I, fol. 115*).

The effect of this mischief is well expressed by the Israelitish proverb referred to by the prophet Ezekiel, "The fathers have eaten sour grapes, and the children's teeth are set on edge" (chap. 18, v. 2). In this proverb we have a distinct reference to hereditary tendencies, and to results which require much hard work to reverse; it applies to ourselves as well as to the antient inhabitants of Palestine, and hereditary tendencies are some of

the most difficult problems which the sanatarian has to deal with. I want to impress this fact upon the minds of my hearers, and to point out that whilst cholera and fever, smallpox and scarlatina, diphtheria and erysipelas are undoubtedly immediately preventable diseases, yet prevention is not limited to those classes, but that insanity, tuberculous diseases such as consumption and serofula, cancer, hysteria, and deformity of body and even of mind, as shown by passionate and vicious conduct, are also equally preventable, if we did but know how to proceed in order to stay their incidence. It was about this time that the real father of physic, and, I may say also of preventive medicine, made his appearance in the world, though it is only in recent years that we have realised how much was understood by Moses in this direction. Hippocrates owed his knowledge of physic in a great measure to reading the tablets which were put up in the temples of the gods. These tablets contained accounts of diseases from the effects of which certain individuals had recovered, and also an account of the means whereby the recovery had been promoted. Hippocrates lived about 500 years before the Christian Era, he is said to have died in his 100th year. He was a grand writer. The chapter upon the diet of healthy people may almost be taken as a string of proverbs, and, as such, was committed to memory and observed by his disciples; whilst the aphorisms which he formulated as to the conduct and treatment of diseases are considered to be, in many instances, distinctly true, even at the present day.

The aphorisms have been called a collection of oracles, and no doubt they did much to enable physicians to recognize the nature, and to prognosticate the result in a variety of diseases, and to keep alive some medical information through the dark ages which succeeded the dispersion of the Jews.

He begins by stating that "life is short, that art is long, opportunity fleeting, experience uncertain, and judgment difficult." He says also that a physician must cultivate philosophy if he is to succeed in his work, and he concludes that a physician who is a philosopher is equal to a god.

If we look into the oracular utterances which came from Delphi and other acknowledged fountains of supposed wisdom, we catch glimpses of these truths. Men did things which they were ordered to do by the oracles for the purpose of having themselves or their relations cured of their diseases—things which they would not have done if they had been advised to do them by their local physicians. The order to go and wash seven times in Jordan was, and is, usually too simple an instruction, unless it is accompanied by some mysterious utterances or some cabalistic performances which have an action upon the minds

of those who are subjected to the effects. Simplicity was not believed and was not understood, and the most ancient proverbs or edicts with which we are acquainted were those which were made into religious observances. Those edicts which relate to sanitary law, and which were promulgated by Moses, are wonderful evidences of his clear insight into the causes of disease; the method by which infectious complaints were to be eradicated cannot be much improved upon by the arrangements recommended even by the intelligence of the present day, for they consisted of ventilation, of washing, of disinfection, and cremation. By making those performances into articles of faith, he was using a power to obtain his object, which was more likely to be effectual than any other then possible plan.

The travels of the Children of Israel in the wilderness furnish several instances of sanitary operations which have not been always put in their true light. We read that the Israelites could not drink the waters of Marah because they were bitter. Those waters were sweetened by the use of the branch of a tree growing in the neighbourhood. This action, which foreshadowed the custom of tea-drinking, is rightly made into a miracle in these later days. It pointed out a way by which water may be purified from its noxious qualities by infusing certain ingredients into it. It is a consolation to the tea-drinker of the present day that he not only takes for his usual diet "the cup which cheers and not inebriates," but he also takes into his internal economy a water which in all probability has been deprived of all noxious ingredients of the organic variety which it might contain when delivered to the housewife. Tea-drinking is a great preservative against cholera and fever. All the classes of disease which is spread by living germs or microbes in potable water, are removed: boiling it and then pouring it upon a material containing tannin is pretty certain to remove all evil from it which can set up infectious disease—for what the boiling does not effect the tannin will, and our tea-drinking friends need not be frightened by the onslaught of any who may happen to be put forward by a certain trading interest, and who at this present day are loudly crying out, "Great is Diana of the Ephesians."

Another custom which had its origin in Arabia and Egypt, and which was instituted by Moses as an edict to be religiously observed, was the burning of incense. They offered to God a part of that which they held to be most precious, and at the same time fumigated the wearing apparel of the worshippers, and to some extent the air itself, and by so doing diminished the chances of the evil likely to arise from the crowded assemblies, which were then held at stated times, for the purposes of religious worship. Plutarch mentions that the

Egyptians offered incense to the sun; resin in the morning, myrrh at noon, and a compound called kypi at sunset. Moses, probably knowing the beneficial results which followed this ceremony, and having observed that illness resulted when it was not performed, when he resided in Egypt, made it a part of Hebrew worship, and thus secured its performance whenever religious ceremonies were undertaken. Its continuance in the middle ages by the Christian churches was a necessity of the times, and assisted to produce a certain amount of ozonised atmosphere which diminished the chance of the spread of infection among the assembled worshippers. This was done in a pleasant manner; it covered up a noisome smell by one more agreeable. The old proverb hath it "that the smell of garlic takes away the smell of dunghills," so in the end assisted to promote the ventilation of stinking apartments, by which all kinds of mischief were lessened in amount, and the epidemics of the middle ages diminished in frequency and in intensity. A great evil was lessened by a simple plan, which, as a religious ceremony was sure to be performed, but which as a sanitary precaution would have had no chance of observance when infectious disease was not present. Yet the time to prevent disease is before it is grown up in intensity. The destruction of the first germ or seed is of the greatest possible importance, and incensing therefore was, in the middle ages, a necessary precaution for the safety of the priests even more than for that of the people. There is a proverb well known to the gardener, which especially applies to sanitary work of this kind, viz., "One year's seeding, seven years' weeding." This proverb is a true expression of the evils of allowing a single case of infectious disease to grow up among the people. Illustrating great things by a reference to small ones, I would point out to all here the great importance of early intimation being afforded of the presence of infectious disease in the homes of the poor, so that incensing may be performed at the right time, and by the right people. A single case attacked with vigour, by incenses and other agencies, which ought to be immediately available among the people, may be the means of preventing the spread of a serious epidemic, just as a single weed rooted up by the gardener, before seed time, saves him work of the same kind for seven years to come.

Incensing may, or may not, be carried on in our sacred services, but it must be done immediately in all cases of infectious disease by the local authority, and I urge the people of Dublin, therefore, to see that it be carried out. By incensing you will quite understand that I mean disinfecting the air and apparel by a judicious use of proper disinfectants.

You have an organisation in Dublin which is capable of good work in this direction. The Dublin Sanitary Association, with scarcely 200 members, although it is in a city of 250,000 people, has for the past twelve years been at work in trying to popularise sanitary truths, with a moderate amount of support: let me urge upon you to help it and all similar societies. Shakespeare says truly—

"The web of our life is of a mingled yarn,
Good and ill together."

—(*All's Well that Ends Well*, Act iv., Sc. 3.)

No one here present knows how soon he may be stricken down by mischief from one of the bye courts of Dublin which that Society might have prevented, if all those able to do it had joined its ranks, and given support to its organisation. You may have confidence in its working; with but small means it has already done much good. Help it by assisting to create a true public opinion upon sanitary matters in general, and thereby to save many lives and increase the welfare of the community.

Perhaps the most remarkable of all ancient proverbs are those which refer to strong drink. Moses forbade its use when the priests went into the House of God, and he states, when charging the Israelites before he left them, that they had not tasted wine or strong drink for forty years; and he commends them for their abstinence; though it is quite clear from other parts of the context that he did not regard the use of wine as a sin, for those who wished to indulge in the luxury. He did not prohibit it altogether, except to certain persons and at certain times. The Rechabites were commended, in the days of the Prophet Isaiah, more because they had kept their father's commandment, than simply for their abstinence. The wise are warned against its use in the Book of Proverbs, and its effects are very clearly put before the readers of that wonderful string of reflections and sage counsels, by one who evidently knew all about its effects.

It is, however, not until the days of Mahomet that we meet with a general acceptance of abstinence from wine and strong drink by great masses of people. I have very little doubt myself but that Mahomet's wonderful career was much influenced by his temperance maxims. By making abstinence from wine and strong drink a part of his religious tenets he was giving a proof of his intellectual superiority over those around him, and laying the foundation for his future greatness.

He had observed the helplessness of men when in their cups, and the weakness of their mental power the day after a debauch. He determined to strike a blow at such mental degradation by

making the condition an impossible one among his lieutenants and devotees. In consequence of the dogma of abstinence, he and his followers became the superiors of the hordes of Arabia and eventually a terror to the more civilized but less temperate nations of the "Τοῦ οὐρανοῦ," or Roman world. Mahomet, with his faith in one God, whom he regarded as a Being supreme, benevolent, and just, and having the dogma of total abstinence on his shield, was able to change the face of the moral world, and do much to purify it from the degradation into which it had fallen in the sixth and seventh centuries, in consequence of the luxury, the vice, and the intemperance, of a so-called civilisation. If he had abjured the use of the sword, if he had stuck to his articles of faith, and not done evil in order that good might come, and had not forced his views upon the people by the pouring out of human blood, if he had insisted upon the sacredness of human life under all circumstances, Mahomedanism might have been one of the greatest blessings the world had ever possessed, and it would have prepared the way for Christianity in a most effectual manner. Cleanliness was a part of the Prophet's creed, and to this day it is observed, in a way, by the sons of Islam, though unfortunately it is not associated with a belief in infection. The habit of cleanliness is said even by Christians to be next to Godliness, though dreadfully forgotten even in Christian Schools and among Christian Communities; but we may be certain that no creed, no dogma, either religious or political, which does not inculcate the sacredness of human life, can long continue in the future to hold the mastery over the minds of men.

No other country or people, except Mahomedan races, have taken abstinence as one of their tenets until the days of Father Mathew. If either Celt or Saxon, or both, had done it, if the colonising power which belongs to both, had been strengthened by Mahomet's tenet of sobriety, what a different world we should have around us! The bitter cries which go up from the banks of the Thames, the Clyde and the Liffey, and from a greater part of this beautiful island, as well as from all parts of the world to which the trade of the United Kingdom extends, would have been shorn of much of their bitterness and intensity. Father Mathew's work was defective, and therefore evanescent, for it was misunderstood. He clearly enough put before the people that it was the drink which led men to do wrong, it was the drink which led men to starve their families, and ruin their health, and pour out their blood upon the earth; but it was not the detestation of their crimes which caused men to be abstainers, but because it led men to miss their mark, as was said when a total abstinence lecturer was asking an Irish audience as to the

evils which the drink had done. "It led men," said the lecturer, "to shoot at their landlords," and, said a voice in the crowd, "to miss 'em;" it was not the disgust for the degradation caused by drink which led to Father Mathew's temporary success, but it was a desire to save money, which was used for other and unsatisfactory purposes, and as a consequence the movement has not been permanent. Is it not time to resuscitate Father Mathew's noble work upon a firmer basis, viz., one connected with the sacred character of human life? and to prevent that reflection, disgraceful to him who wrote it, which appeared the other day in the *London Times*, "That people generally would think it better that an Irishman should be addicted to whisky even in excess than that he should be skilful and successful in taking aim at a landlord from behind a hedge."

There is another sanitary work intimately connected with religious tenet, which I cannot pass by without referring to, viz., that of "fasting." Those were clear-headed observant men who instituted a fish dinner on Friday. The daily use of meat has its disadvantages, and sets up evils of a serious kind connected with gluttony, which the fathers of the Roman Catholic Church turned to good account when they made abstinence from meat on Friday a part of their religious duty. Fresh fish contains much of that material which renovates nerve matter, and assists to prevent its decay, whilst an interval of rest from strong meat enables the brain to become clearer for its Sunday work by giving time to the blood to be purified from excess of nitrogenous food. All honour to those men who used their knowledge to such good and such unselfish purposes. If all dogma had such foundations it would have been much better for the interests of the human race. But, at the present day (as well as in former times), it is too often used for selfish purposes, and for personal aggrandisement. Sanitary knowledge, however, is forcing itself upon the attention of all parties in the state, politicians are ready to take hold of it and use its arguments in their favour, if it will secure them a few votes at a given election; but as soon as the candidate obtains a seat in the House of Commons, or in any other elected body, the majority of sanitary reformers forget their pledges, and allow the evils which they promised to eradicate to go on eating into the vitals of the people.

Can we not do something to change this plan? Is it not time for politicians to shake hands over the measures which are called for, by sanitarians because they influence the health of the people? Why should not such measures be taken out of the range of politics, and put before the House and our town councils as non-political measures, to be judged upon their

merits? Why should not Sanitary Bills be backed by the names of men on both sides of the House, although they are Government measures? Departmental Bills of this kind ought not to be impeded, blocked, or thrown out, simply because they have been introduced by a Liberal or a Conservative Secretary of State, as the case may be. The unpatriotic conduct of political men is much to be deplored, for it appears to those who watch the game from an unpolitical standpoint that place is of more importance than progress, and measures which are good in themselves must be opposed because they are brought in by the Government of the day. Ireland has suffered more for this action than has either of the sister countries, and the effrontery with which both political parties have been bidding in past years for the Irish vote, by pretending to be benevolent, has been most marked in offering to do something for Ireland, when they ought to have insisted upon the work, if it was necessary, being done by Ireland herself. This conduct has assisted to breed up a pauperised class, just as it has always done on the other side of the water, in those towns which have been cursed by a mistaken benevolence, which has so reduced a portion of the population as to lead them to be unable to assist themselves. Benevolence misapplied, as all political benevolence is sure to be, ruins the independence of a people, and tends to destroy that self-respect which can alone raise a nation to her proper place in the universe. Can we hope for much improvement in the health and morals of the people, either here or across the Channel, whilst such a plan is in the ascendant?

I am not arguing in favour of compulsion in sanitary work, I mean of governmental compulsion. I do not believe in the use of force for such purposes by a paternal government; but I would urge that whilst regarding "every man's house as his castle," in which he may do as he likes with himself, he has no right to crowd it up with inmates in excess of its capacity. There are limits in the power of so many cubic feet of air to sustain life in good health. When a man asserts his right to cram his house with too many occupants, the local authority, that is, your representatives on your local council, should be able and willing to set the proverb aside, and say to that man, you may smother yourself if you like, but you shall not smother your wife and family; you shall not decoy your neighbour in as a lodger, and deprive him of his health, and his country of his value as an operative! Overcrowding is at work in Dublin as well as elsewhere, and the great mortality which arises from this cause is produced by the desire to get rich at the expense of the life blood of the nation. No one can read the report of our President and his colleague regarding the sewerage and drainage of Dublin

without being satisfied of its truth. "There is more money got by ill means than by good acts;" but the heaping together of money by men who crowd their hovels or their acres with more of their fellow creatures than the area can fairly accommodate, is one of the most debasing and brutal kinds of money getting, which should be put down by the strong arm of the law, put in force by public opinion. The municipal council chamber should vie with Imperial authority in crushing this canker, which strikes at the vitals of the commonwealth; and it becomes the duty of the State to see that the houses provided for the poor are not overcrowded, and are not imperfectly ventilated, that they can be kept clean and are well provided with that important necessary of life, pure water, and that waste and impurity can be rapidly removed from among the occupants. By its being the duty of the State, I mean the duty of the local authority armed with power conferred by the Imperial Government. Is Dublin doing her duty in this respect, are the inhabitants of this great city alive to the fact that the expenditure of money by the local authority will be repaid to them tenfold in the better health of her people? "There is that scattereth and yet increaseth, and there is that withholdeth more than is meet, but it tendeth to poverty." (Prov. XI., v. 24). I have gladly learnt since I have been in Dublin that she is awakening to her responsibilities in this direction.

I wish I could have this proverb written in letters of gold in every council chamber in the kingdom, it ought to be before every man aspiring to be an alderman or councillor in every corporation, and as much in Dublin as anywhere else. With a death rate of 28 or 29 in the 1,000 it is evident to every sanitary reformer that someone is responsible "for withholding more than is meet" in this place.

The working men of Dublin are a power, here they can elect a majority of the representatives in the Council. Do they know what is meant by a death-rate? The town I reside in used to have a death-rate of 26 in the 1,000, it is now 16. That is, the lives of ten persons out of every 1,000 are preserved to their relatives who would, but for sanitary expenditure by the local authority and by private persons, be numbered with the majority every year. Let us suppose that the death-rate of Dublin were reduced from 28 to 16, it would mean that the funerals in the course of the year would be diminished by more than 3,000, a serious matter for the undertakers, still a trifle worth preventing. But it would also mean much more than this, for every death there are twenty cases of sickness, and if there are 3,000 fewer deaths, there would also be 60,000 fewer

cases of sickness among the people every year. Let me ask the members of the benefit societies who happen to be present whether they can realise this fact, whether they can understand that for every death prevented there are twenty cases of sickness also prevented. Let us suppose that 20,000 of the working men of Dublin belong to benefit societies. They have to pay in weekly or monthly payments sufficient to provide for a sick fund; the greater the sickness, the more they have to provide from their earnings to meet it. If sickness is permanently reduced they will be able to permanently reduce their payments on this account. The 20,000 members will at present death-rates average at least ten days illness for each member in every year. If you diminish the death-rate you will also diminish the sick pay, (which has to be provided) and reduce it to an average of six days per year. If you bring it down to be equal to that of the town in which I reside, your 20,000 members will be saved from having to provide for 80,000 sick days' pay in each year. They will also have in their pockets the wages which they will have been able to earn in work, instead of the half-pay which sick-pay provides, and they will not have had to contribute so many levies for the extra funerals which the higher death-rate has levied upon them. I have quoted figures which vary in different years and at different seasons, and the deductions drawn from these figures will vary, but it is the principle I wish to inculcate and not to be mathematically correct. I am told also that benefit societies do not exist to any extent in Dublin. I can only say I am sorry for it.

Let me ask the working men now present if the proverb I have quoted is not one specially intended for their benefit, and that for their own sakes, as well as for that of their wives and families, they should take care to send men into the municipal council who will not be afraid of expenditure which is likely to be of the kind "that scattereth and yet increaseth."

That they should consider these local questions as of far greater importance than those political questions which but too often lead men to elect representatives because they belong to a particular political party, instead of being wise and thoughtful sanitary reformers. Party politics ought not to enter into the consideration of our local representatives, and any council elected on such lines will not be the best council for sanitary work.

Ask those who wish to represent you if they will take measures to prevent overcrowding among you; if they will take care that every house is provided with a supply of pure water at the lowest possible cost, or at the cost of the owner, and that there are houses which are fit for the poor to live in; if they

will take care that waste and refuse be removed from your midst before it has time to set up mischiefs, similar to those which are now making themselves felt in the stinking towns of Southern France and Italy; ask them to insist upon the Liffey being restored to its pristine character, and not leave it any longer to be a "*cloaca maxima*," a great sewer, and as such a disgrace to the fairest city in the kingdom. It is curious to my mind to see how carefully some of our public men—local as well as imperial—seem to be wise in their own eyes, and yet fail to see that they are like the foolish virgins of Scripture, though the inference will force itself upon the mind of the thoughtful man that they only represent the public ideas. We are sending all over the world for phosphates and artificial manures, we are paying almost famine prices for meat and milk, whilst the very materials which should be turned into those articles are sent into the sea as food for fishes (which we don't catch, or, if they are caught, are not consumed), or are used for impeding the navigation into the docks and harbours of our great cities, or poisoning the inhabitants of our inland towns, or are destroyed as valueless. This observation applies to Glasgow, to Belfast, and to London as well as to Dublin. The town in which I reside does differently; the sewage is not sent into the sea, but it is returned to the land, as all sewage ought to be; it benefits the nation by growing green crops. Every acre under sewage cultivation can grow five times as much herbage as it did before it was so cultivated. There is five times as much meat and milk raised on that land as formerly used to be the case, and by so much has the tendency to meat famine been reduced.

If all the sewage of London had been treated in a similar way, sixty thousand head of cattle might have been raised and fed each year in addition to our usual home stock. This addition would have made us by so much the less dependent upon foreigners for our meat supply, and have made a larger market for the young stock of the sister country. The inhabitants of London prefer to throw their refuse into the river Thames, to poison their neighbours lower down the stream, to damage their harbour, and so prepare for the time when the shipping trade of London will become impossible. The question is raised by narrow utilitarians as to whether sewage utilisation will pay. Patentees and company mongers join the cry, and prevent the progress of this great work.

I have so often urged that it is not a question as to the payment for this or that particular year, or this or that particular outlay, but that in the end a national benefit results which will pay ten times over more handsomely than it is possible for the river Thames or the Liffey to do by being

transformed into an immense sewer. Sewage irrigation has outlived the outcry made against it that it was a sanitary danger; it has been shown most conclusively that it is perfectly free from such evil. It has been shown that the produce from it can vie with any produce as to its goodness and commercial value, and that wherever there are people to produce sewage, there is a market for that produce. More than 100,000,000 gallons of water are daily abstracted from the collecting grounds of the Upper Thames; they are used in washing the people and flushing away their refuse into the drains of London, and are then, with the collected mass of filth, sent down to Crossness and Barking to poison the lower reaches of the river, and gradually produce a state of things which will make the future sanitary history of that river somewhat similar to that which now belongs to the Pontine Marshes or the Deltas of the great rivers of India, whilst the bed of the Thames above the metropolis is being deprived of its proper water from the deep springs which ought to supply it.

It is now a question of money, but in the end it will be a question of vital importance to London. It is one which has no political significance like a Turkish or an Egyptian loan, and there is no palm oil belonging to its promotion. The 100,000,000 gallons of water fouled by the filth of London ought to be returned to the land from whence the water came, and ought to be again filtered through the Chalk Hills, the Woking and other sand beds, or the barren acres of Surrey, Hants, Berks, and Oxfordshire, by which tens of thousands of cattle might be nourished, and millions of gallons of milk provided for the teeming population of the great metropolis of the Empire, and so render them less liable to the incidence of that meat famine which will come whenever the foreign markets are closed to our merchants and shippers. Those acres are not now worth 5s. per annum. If they were supplied with the sewage of London, they would be agriculturally worth at least £5 per annum, but an "Englishman's house is his castle;" his country may want meat and milk, but it must not grow these articles near to his broad acres, though it contains his countrymen's diet, and may be the means of saving them from the chances of starvation in some future time. The ideal damage which such a use is supposed to produce is enough to stop a national benefit, and prevent the carrying out of those works which would transfer the barren ranges of hills to the north-west and south-west of London into fruitful fields, and fill the river Thames in the driest season with a healthy flood of waters. The sanitarian has a duty to perform in addition to the saving of life; he must take care to prevent his

work from bringing about a result which will come if an increasing people be not properly fed. He is able to show you that Lord Palmerston's saying is perfectly true, viz., that "filth is but matter in the wrong place, and that if it be transferred in a proper form, and in a proper manner, to its proper place, it will provide food for the people." Yet we allow it to go to waste or we promote measures to render it valueless, and so misuse our noiseless highways in a way which must render them in the early future as noisome as the Tiber became to the inhabitants of ancient Rome.

I would urge upon the inhabitants of this beautiful city that they rest not until the sewage is taken out of the Liffey, and sent to its proper destination, viz., to the land which wants it; that they rest not until the inhabitants in their close quarters have more breathing space among them. That water should be available for every boy and girl, as well as every man and woman wanting it, without stint, and that the pure air from your native hills shall not be fouled with noisome impurities as soon as it reaches the precincts of your city. You will then have paved the way by which health may be secured, and a happy and long life be yours, for "national health is national wealth." Recollect, however, that "cleansing a blot with blotted fingers maketh a greater." The first principle of sanitary work must be carried out in the individual house. The householder must desire a healthy home, and to have it he must purify the governing body from the presence of those who prefer an unhealthy people.

CLOSING GENERAL MEETING AND BANQUET.

The closing General Meeting of the Congress was held on Friday afternoon, October 3rd, after the close of the sectional meetings. The President, Sir Robert Rawlinson, C.B., in the chair, supported by the Lord Mayor and the Chairman of Council of the Institute.

Among the subjects brought before the Congress may be noted the Inaugural Address by Sir Robert Rawlinson, which dwelt largely upon the question of cholera, and generally upon the water supply and drainage of towns and houses, and question of sewage disposal. The address to Section I., by Dr. T. W. Grimshaw, on Statistical Measures of the Health of Communities, contains a number of valuable tables of death-rate and population, with remarks upon their value and modes of application.

The overcrowding and insanitary state of small Irish towns were described in a paper by Surgeon-Major J. Wycliffe Jones, and in a long paper by Mr. Edward Spencer, on the Homes of the Working Classes in Dublin, in which he gives a descriptive account of the principal provisions of all the Acts relating to the Dwellings of the Working Classes in Ireland, the way in which this problem had been dealt with in Dublin. Cholera, besides being mentioned in Sir Robert Rawlinson's address, was also brought forward in a paper by Surgeon-General A. C. C. De Renzy, and led to considerable discussion.

Ambulance work and Hospital construction also received consideration in papers by Mr. V. B. Barrington Kennett in Section 1, and Mr. Howard Pentland in Section II.

The President's address, by Mr. C. P. Cotton, dealt principally with the question of loans for Sanitary purposes, and the general question of Water Supply and Sewerage; the question of Water Supply in Ireland was further amplified in a paper by Dr. C. A. Cameron (Section III.), and in a paper by Dr. F. F. MacCabe (Section II.) and Professor Hull (Section III.).

Public Cleansing and the Collection of House Refuse were dealt with in papers by Mr. W. Eassie and Mr. James Young, and also in a paper on Blood-drying (Section III.).

The important subjects of Sewage Disposal, the Ventilation of Sewers, and Sewerage and House Drainage generally, occupied the attention of a large part of the Section and many valuable papers were read, followed by important discussions. The Sanitary Advantages of Electric Light were considered in a paper by J. Angelo Fabie.

Dr. Cameron's address to Section III. gave a comprehensive

description of Parasites and Bacteria in animals and substances used for food, and the diseases that are produced by their organisms.

The influence of food on health, Rainfall, and Geology, were brought under the notice of the Section, and the meeting concluded with a paper on Ventilation.

The lecture to the Congress on Thursday evening, by Dr. A. Carpenter, included a very wide range of subjects treated in a rather popular way, as the lecture was intended partly for the working classes, a large number of whom were present.

The Banquet held on Thursday will always be memorable, as illustrating how entirely the work of the Institute interests the whole community, and can be considered apart from any party or political distinction; His Excellency the Lord Lieutenant and the Lord Mayor both being present, to express their interest in the work, and to lend their encouragement to aid in furthering the objects of the Institute.

The PRESIDENT, in proposing "The health of her Majesty the Queen," said—I have the honour to propose a toast honoured wherever the English tongue is spoken—that of her gracious Majesty the Queen. It is a toast which needs no eulogy on my part, as her Majesty has made herself beloved by all who have had the pleasure of hearing her name mentioned. I now, therefore, propose "The health of her Majesty the Queen of Great Britain and Ireland."

The toast was drunk with very great enthusiasm and cheering.

The PRESIDENT next, gave "The health of his Excellency the Lord Lieutenant, and Prosperity to Ireland." He said—I have the honour to propose the health of his Excellency the Lord Lieutenant, who has been pleased to grace with his presence this Sanitary Congress of Great Britain. I have had the privilege of knowing his Excellency for some years. I know him to be a profound sanitarian. He has shown this by the house drainage and sewerage works which he has caused to be executed. I know he takes a deep interest in the object that this Congress is formed to promote. He has carried out to perfection the best sanitary works he could devise in his own residence, Spencer House, St. James's, and he has also set splendid examples on his own estate in Northamptonshire, on his farms, and in his villages, and we are very proud indeed to be honoured by his presence on this occasion. On behalf of the association, I can only wish his Excellency health, long life, and prosperity.

The toast was drunk amidst continued cheering.

The LORD LIEUTENANT.—I thank you extremely for the very cordial way in which you have received this toast. My old friend

Sir Robert Rawlinson has been too flattering in his observations with regard to what I have done for sanitary science; but I assure you that I feel a very deep and great interest in the work which you have in hand: and I was exceedingly glad to be able to accept your hospitality here to-night to show the interest which I take in your society, and especially in your visit to Dublin. We are living in an age when all kinds of new sciences have been, if I may use the word, invented. Learned men have been laying down principles, and drawing up into a code the observations and experiences which they have of matters which occur in our busy towns and in our daily life; but I will venture to say that no more useful science has been found for the people of the United Kingdom than the hygienic or sanitary science which your association represents so worthily to-night. No one, I think, can have visited that very popular place in London—I mean the Health Exhibition—without seeing how very wide indeed is the range which your society covers. It is almost impossible to find any subject omitted if you go round that interesting and valuable exhibition. You find food and drinks which are good for health; you find models of houses, their drainage, and the best hints for their fitting up; and if you go farther you may see the highest works of art, for mental influences as well as physical influences have to do with health. You may see also not only such matters as those to which I refer, but the extravagances which the vanities of men and women have devised in dress. You may see the sad results of the endeavour to get a very slight waist. You may see what will attend the efforts of men to wear extremely narrow pointed boots. There is nothing in fact which a sanitary exhibition may not embrace within its doors. But I shall not attempt to define your work. That would be almost too difficult for so experienced and wise a man as my friend on the left (Sir Robert Rawlinson). I know this—that it has a most useful and beneficial effect on all grades of society, from the richest to the poorest, and that it has admirable influence in promoting the health and also the wealth of the people. I would notice, however, some things which are striking us every day. No one can have failed to observe within the last few months the terrible devastations which the epidemic of cholera has caused in various parts of the South of Europe. Every day we have read with deep interest and concern the progress of that terrible malady. We have seen it in France; we have seen it in Italy; and we know that when that terrible disease breaks out the doctors' and physicians' skill cannot effectually keep down the enormous death-rate. It is to prevention,—to sanitary science that we have more especially to look for the prevention of the spread of that terrible scourge. Wherever there are most victims, you will be sure to find one of three things. Either there is overcrowding in the dwellings, bad drainage, or an insufficient and impure water supply. It is to sanitary science we have to look to ward off and keep away from our shores and our dwellings this disease. We have not had it yet in England or in Ireland. I trust it may be kept away, but I think we ought to take a lesson and a warning from what has occurred,

and adopt those measures which, if the disease should unfortunately come amongst us another year, would remove those circumstances which so enormously accelerate the death-rate when the disease breaks out in a populous city. We all know that in every city there are great difficulties to contend with in regard to sanitary arrangements. London has its Thames, and I think no one will deny that Dublin has its Liffey. When I first came to reside in this country nearly fourteen years ago, the question of the purification of the Liffey was prominent. It is so still. It is a very difficult subject; but if the Corporation and those who have the charge of the sanitary measures of this city, are enabled—and I hope they may be some day—to carry out this great but difficult work, and with it the improvements of the dwellings of the poor, which is very greatly needed in this city, we may hope that if that terrible scourge comes it may not find many victims among the poor here. Dublin has some great advantages; it is blessed with fine open spaces—some of them dedicated to the public by the munificence of some of your citizens—large open places close to the very centre of the densest population. You have the Phoenix Park also, which is a splendid place for the recreation and health of the people. In these respects you are very fortunate; and in one most important respect you are probably more fortunate than London and many other large towns. I allude to the admirable water supply. I believe that no greater blessing has been conferred on the people of Dublin than the establishment of the Vartry works, and the plentiful supply of that water to all parts of Dublin. These works are always associated with the name of Sir John Gray. Sir John Gray was a gentleman who had no mean success in politics, but I will venture to say that there will be no nobler work or greater honour attached to his name than that of securing for the people of Dublin the benefit of the purest and most plentiful supply of water. We who have to do with politics cannot help thinking of the influence which legislative measures must have on the work with which your Association is connected. I am happy to say that within the last ten or twelve years improvements have been made with regard to legislation on local matters. I remember the time when it was almost impossible, not only on account of expense, but also on account of delays, to get any great work, such as a gas or water bill, carried through Parliament. It was a very costly affair and a very tardy one. Now, I am happy to say that by means of legislation and provisional orders these matters may be dealt with comparatively cheaply and quickly. I sincerely wish we could get through certain matters more promptly that still have to go before Parliament. I almost despair, however, of anything of the sort. Last year I was rash enough to try to carry a bill to enable the Corporation of Dublin to obtain the means of enlarging their own powers and getting important considerations settled, and I was also rash enough to express a hope that we might carry the measure through Parliament that year; but such was the pressure of business in the House of Commons that it was impossible to introduce the bill, and I regret it most deeply, and sincerely hope

that next year we may be more successful. There have, however, been many other measures passed which have contributed a great deal to remove the difficulties with regard to the improvement of the sanitary condition of the country. I believe that in Dublin the Corporation (though it has not been able to drain the Liffey), has done a great deal, by providing baths, by relieving the densely crowded parts of the city, by promoting the building of better houses for the poor, through the Artizans' Dwellings Act, and in many other marked ways. In other parts of the country much has also been effected. Of course in a country which is much poorer than the sister country you cannot expect that local bodies will take up so widely large operations, which cost a great deal of money; but since the Sanitary Acts were passed (1874 and 1878) nearly £1,200,000 has been borrowed and expended by local bodies for the improvement of drainage and water supply, and in the rural districts during the last two years £50,000 has been expended in various sanitary improvements. Wells have been sunk, and proper water supply provided in various places. I must not forget to mention one important Act passed last year, which was an Act on a principle never adopted in England—the Labourers' Act. That Act has already been in operation, but only for about a year. Still, during that time the Local Government Board have been applied to for sixty-nine provisional orders, and already the building of over 3,000 houses has been sanctioned under it. When we consider how very bad the houses and cottages of the poor in various parts of Ireland are, I think we may look forward to a very great change in the moral character of the people as well as in their social and sanitary condition, if this Act continues to operate throughout the country. Last year a committee sat to inquire how the Act was working, and I hope, from what I hear, that various amendments may, on the recommendation of that committee, still further help its operation. I have to thank you exceedingly for the kind attention that you have paid to my few remarks. But before I sit down I have to propose an important toast. It is that of the Sanitary Congress, coupled with the name of its president, Sir Robert Rawlinson. I need not dwell at greater length than I have on the useful operations which your society carries out, and I am quite certain that the importance of its work cannot be exaggerated. Your excellent president is an old friend of my own. He has been good enough to refer to public works which we have done together. I have official acquaintance with Sir Robert Rawlinson from having had measures under my care connected with his department. I know how able he is, and with what judgment and with what energy he approaches difficult subjects with which he has to deal. I think I can allude here to the admirable way in which he presided over and carried through the work of a commission which came here in 1879. I believe that he carried it through with the greatest possible satisfaction to all who were concerned. I have the greatest possible pleasure, therefore, in proposing to you the "Sanitary Congress," coupled with the name of its president, Sir Robert Rawlinson.

The PRESIDENT (Sir Robert Rawlinson), in reply thanked his Excellency for the kind manner in which he had proposed the toast, and the company for the way in which they had received it. He himself was but a very humble servant in the cause of sanitary reform. It was true that he was one of the first inspectors appointed under the first Public Health Act in 1848, which was carried by a former Lord Lieutenant of Ireland, then Lord Morpeth. He made the first inspection and wrote the first report under that Act—and now he stood the solitary and sole inspector serving under the Government connected with that Act, which first introduced sanitary measures, as they were now prosecuted in this country. He had striven to the uttermost of his power to be useful in his day and generation. His occupations had been very various. He had been sent out by her Majesty's Government to aid their suffering army in the Crimea, and he had been subsequently sent to do what he could to find labour for the distressed men during the cotton famine in Lancashire. His Excellency had told them that in 1879, he (Sir Robert) was sent to make inquiries as to the sanitary condition of Dublin and the purification of the Liffey. He now stood before them as President of the Sanitary Congress, and he thanked them most sincerely for the honour they had done him.

THE PRESIDENT next proposed the toast of the "Lord Mayor." The Sanitary Institute of Great Britain had great cause to thank his Lordship for the kind attention which he had shown them during this week in Dublin. His Lordship had evinced the interest he felt in the work of the Institute since it came to Dublin, and he (the President) knew the company would join him in drinking to the health, prosperity, and long life of the Lord Mayor of Dublin.

The toast was cordially drunk.

The LORD MAYOR, in responding, said that as head of the municipality he felt very great pleasure, indeed, in promoting, so far as in him lay, the objects which had brought the Sanitary Institute of Great Britain to Dublin. The Municipal Council of Dublin had very many difficulties to contend with. In reference to the purification of the Liffey, it would be in the recollection of Sir Robert Rawlinson that the Corporation was most anxious to accomplish that work, but found that the tenders sent in ranged from £500,000 up to nearly a million, and, as prudent men, the Council did not feel warranted in incurring so large an expenditure, particularly as there were other municipalities which would be equal participators in its benefits, but would bear no portion of its cost. He thought the particular circumstances of Dublin would warrant the Government in taking up this question and passing a bill to amalgamate the townships with the city. So anxious was the Corporation for carrying out the purification of the Liffey, that the question had again been taken up, and the Chief Engineer and the Chief Officer of Health had been instructed to report upon the most satisfactory method of accomplishing it.

The LORD MAYOR proposed "The Sanitary Institute of Great Britain," coupled with the name of Dr. Carpenter, who responded.

Dr. ALFRED CARPENTER said that the Institute was trying to remove two very important difficulties which stood in the way of success. The first difficulty was one that arose from the gross ignorance of the people as to what was true sanitary science. Now, one great object of the Institute in going from place to place was to teach the people what was true sanitary work, and for that purpose the exhibition was organised. Another object was the instruction of official workers, so that local authorities would be enabled to appoint inspectors of nuisances and surveyors who having obtained the certificate of the Examiners of the Sanitary Institute, were men who were proved to have a thorough knowledge of the first principles of sanitary science, and were not merely appointed because they were friends of town commissioners or boards of guardians. The Institute aimed at popularising the truths of sanitary science. He thanked his Excellency on behalf of the Institute for his attendance, and he also took that opportunity of thanking the Lord Mayor for the trouble he had taken to remove difficulties that had existed, and bring the Congress to a very satisfactory issue, and which but for that assistance would have jeopardised the Congress.

Dr. GRIMSHAW (the Registrar-General) proposed the toast of "The Judges," and said he thought he was right in stating that the Health Exhibition at Ball's Bridge was the largest ever held under the auspices of the Sanitary Institute.

Professor CORFIELD responded, and said that the object of the awards was that they should be a real guide as to what was valuable in sanitary science. No awards were given without the exhibits being practically tested, and no reliance was placed on models so far as the granting of prizes was concerned.

Dr. CARPENTER proposed "The Local Committees," to which Mr. Maguire responded, and acknowledged the valuable help received from the members of the medical profession. Without the aid of Mr. Edward Spencer, the Assistant Secretary, they could not have had so great success.

Dr. CARPENTER said he had been directed by the President to say that the arrangements connected with the banquet had been carried out by Dr. Duffey. The President had requested him to say that he as well as the Council tendered to that gentleman their grateful thanks for all that he had done to promote their enjoyment, and to give them the very pleasant and enjoyable evening that they had had the privilege of spending.

Dr. DUFFEY's health was then drunk with much cordiality, and that gentleman briefly acknowledged the compliment.

SUPPLEMENTARY REPORT OF THE JUDGES ON THE EXHIBITS DEFERRED FOR FURTHER PRACTICAL TRIAL.

GLASGOW, 1883.

Out of the forty-four exhibits deferred for further practical trial, as mentioned in the Report, the following were submitted by the exhibitors:—

WOOLLAMS, W., & Co., *London*, Pigments and Paper Hangings.
BOROUGH LEATHER WAREHOUSE COMPANY, *London*, Crocodile Hide Leather.
GARDNER, A., & SON, *Glasgow*, Preserved Timber.
HILDESHEIM, J., *Glasgow*, Dicks' L'Extincteur.
BOULNOIS, H. P., *Portsmouth*, Acme Sewer Pipes.
HARRISSON, T. HARNETT, *Liverpool*, Improved Collar-joint.
EMPTAGE, D., *Margate*, Round Pipe Traps.
BACON, J. L., & Co., *London*, Hot Water Apparatus.
SINCLAIR, G., *Leith*, Mechanical Stoker.
BRADBURY & Co., *Oldham*, Sewing Machines.
SINGER MANUFACTURING COMPANY, *London*, Sewing Machines.
GROSVENOR, F., *Glasgow*, Filters.
HENDERSON, O., *Glasgow*, Silicated Carbon Filters.
*MAGNEX, P. A., *London*, Anti-Calcareous Powders.
BEVERIDGE & Co., *Glasgow*, Pickles, Sauces, and Essence of Coffee.
CONDENSED MILK Co., *Limerick*, Condensed Milk.
IRVINE & Co., *Gateshead-on-Tyne*, Mustard.
INDIAN TEA Co., *Glasgow*, Indian Tea.
SCOTT, A. & R., *Glasgow*, Oat-flour.
CALVERT, F. C., & Co., *Manchester*, 50% Carbolic Disinfecting Powder.
RIMMEL, EUGENE, *London*, Aromatic Ozonizer.
WHEELER, J., *Ilfracombe*, Pixene.

We recommend that Medals and Special Certificate be awarded to the undermentioned exhibitors:—

BOULNOIS, H., PERCY, *Portsmouth*, for "Acme" Sewer Pipes.
SINCLAIR, G., *Leith*, for Mechanical Stoker.
SINGER MANUFACTURING COMPANY, *London*, for Friction Driving Attachment for Sewing Machines.

* See note at end of Report on next page.