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INTRODUCTORY LECTURE
ON THE
CAUSES OF THE EXCESSIVE MORTALITY OF INFANTS
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Toland Medical College, San Francisco,
BY
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THE subject on which I propose to offer a few observations is one which may at first sight appear not to be of much interest to a general audience; but I trust before I have concluded, to bring forward facts which have been observed during the last few years, which will invest it with sufficient importance to render it worthy of the serious consideration of all who take an interest in the welfare and progress of society. In order to show how important is the subject, I propose first, to bring before you some statistical observations showing the fearful mortality that prevails during the first years of childhood, and then to trace it to its causes, at least in so far as the present state of sanitary science will enable us so to do.

To many of you it is probable that the term sanitary science is even a novelty—and yet it is a branch of knowledge that can be readily shown to involve some of the most important interests affecting our race. In alluding to it as a science, however, I would not have you consider that it is a subject only to be studied by the philosopher, or that its consideration belongs more particularly to medical men. This would be a great mistake. In order to be of any practical utility, it must be taught in our schools, it must be learned by our children, by the mothers and fathers of the next generation, as well as by ourselves, and more

particularly by women. It is to them that we must after all, principally look for carrying out the principles of sanitary science. They have constant opportunities of practising its teachings in their households, of inculcating them in their conversation and correspondence, and visiting with messages of mercy places where ignorance of its dictates is most productive of misery and suffering. Legislation can undoubtedly do much towards improving the sanitary state of the community, but there is still a large amount of preventable disease and death which legislation can never reach, and which can only be remedied by those quiet teachings, those silent influences of which woman is so eminently the apostle.

If we now come to consider more particularly the subject of infant mortality, the first startling fact that strikes us is that of all the children born, more than one-fifth of the number, or 22 per cent., die within the first year, and at the end of five years, but little more than one-half of those born remain alive. If we compare this with the death rate of the general population, we shall see the great excess of mortality of infants, for whilst in a thousand individuals living of all ages, the number who die in a year averages about 20; yet in the same number of children under one year of age, 220 would die in the same time, or more than ten times as many. These are facts surely calculated to attract attention, the more so when we consider that a very large proportion of these deaths, arise from preventable causes. We talk a great deal of the loss of human life in war. We are the fools of smoke and noise. Because there are cannon balls, gunpowder, and blue coats, and because it costs a great deal of money, and makes a great deal of noise in the newspapers, we think what a terrible thing war is. And yet there is something going on every day under our own eyes, infinitely more terrible than war, and this is the retribution of outraged nature on those who neglect her laws. A writer on sanitary reform in England has given expression to those ideas in language far more eloquent than I could command. The Rev. Mr. Kingsley observes, "Nature, insidious, inexpensive, silent, sends no roar of cannon, no glitter of arms, to do her work; she gives no warning note of preparation, she has no protocol, nor any diplomatic advances, whereby she warns her enemy that war is coming. Silently, I say, and insidiously, she goes forth; no—she does not even go forth—she does not step out of her path, but quietly, by the very same laws by which she makes alive, she puts to death. By the very same laws by which every blade of grass grows, and every insect springs to life in the sunbeam, she kills, and kills, and kills, and is never tired of killing until she has taught man the terrible lesson he is so slow to learn, that Nature is only to be conquered by obeying her. And bear in mind one thing more, Man has his courtesies of war, and his chivalries of war; he does not strike the unarmed man, he spares the woman and child; but Nature is fierce when she is offended, as she is bounteous and kind when she is obeyed. She has no pity; for some awful but most good reason, she is not allowed to have any pity. Silently she strikes the sleeping child, with as little remorse as she would strike the strong man with the musket or the pick in his hand.

Ah! would to God that some man had the pictorial eloquence to put before the mothers of England, the mass of preventable suffering, the mass of preventable agony of mind and body which exists in England year after year. And would that some man had the logical eloquence to make them understand that it is in their power, in the power of the mothers and wives of the more educated classes, I will not say to stop it all—God only knows that—but to stop as I believe three-fourths of it.” Such are the words of this eloquent writer, and although his remarks were addressed to a society whose object was the promotion of Sanitary science generally, still they are fully applicable to that limited portion of it which we are now considering.

As I have before stated, the mortality amongst infants attains a large proportion when compared with that of the general population. That out of 100 children born, 22 should die before they have completed the first year of their existence, is a most startling fact, and invests with the greatest interest every enquiry tending to throw light on its causes. Among the young of no other animal except man, the Lord of the Creation, does anything like such a mortality exist. If the shepherd loses five lambs in a hundred during the first year, he is dismissed from his employment, unless he can point out to his employer some satisfactory reason for the loss; and should he feel a proper interest in his flock, he will not rest without at least using every endeavor to find out the cause of such an unusual mortality. And shall we show less solicitude in endeavoring to discover why we lose 22 infants out of every hundred born. Some persons will probably think the comparison I have just made as irreverent, or misapplied. They are very fond of looking upon the loss of children as an *affliction*, or as a *dispensation* of Providence; but the writer whom I have just quoted, and who as a clergyman of the Church of England, is much more entitled to be heard on this point than an anatomist, observes, “I see this, that three persons out of four are utterly unaware of the general causes affecting their own ill health, and of the ill health of their children.” (*And remember this lecture was delivered before an audience composed of the best educated classes in England.*) They talk of their “*afflictions*” and their *misfortunes*, and if they are pious people, they talk of *the will of God*, and of the *visitation of God*. I do not like to touch on these matters, but when I read in my Book and in your Book, that “It is not the will of our Father in heaven that one of these little ones should perish,” it has come to my mind with very great strength, that that may have a physical application as well as a spiritual one, and that the Father in heaven who does not wish the child’s soul to perish, may possibly have created that child’s body, for the purpose of its not dying except in good old age. Not only in the lower classes, but in the middle and upper classes, when one sees an unhealthy family, then in three cases out of four, if one takes time, trouble, and care enough, one can with the help of the doctor who has been attending them, run the evil home to a very different cause than *the will of God*: and that is, to a stupid neglect, a stupid ignorance, or what is just as bad, a stupid indulgence.”

I will now endeavour to point out the causes which can be shown to exert

an influence in causing the increased mortality amongst children. The chief of these are

Overcrowding and vitiated air.

Bad feeding.

Want of exercise in the open air.

Of these causes I believe the first is the most important, even in our comparatively sparsely inhabited city, as it undoubtedly is in the more densely populated districts of the old world. Of all the processes that are concerned in maintaining life, that of respiration is by far the most important, and that by which we are most directly brought into vital contact with the surrounding media. More particularly is this the case with the infant, the rapidity of whose respirations is double that of the adult. Only imagine a human being, and that human being a baby, taking a small dose of poison forty times in a minute, which it is certainly doing whilst breathing a vitiated air. The word poison perhaps may appear too strong an expression, but when I have related the following facts which directly prove the deleterious influence of vitiated air, I think you will be ready to admit that, taken in such repeated doses and for days and weeks together, it must be about as certain a poison as arsenic or strychnine. In the Rotunda Hospital in Dublin, some years since, of 17,650 children born there, 2,944 or 17 per cent. died within the first fortnight after birth, and of these 19 out of every twenty died of convulsions. Dr. Clarke, who was at that time master, entertained a strong opinion that deficient ventilation was the cause of these too familiar nine day fits as they were then called, and accordingly he took efficient means to secure a much more free circulation of air. The result was that of 8,033 children born subsequently to the wards being ventilated, only 419 died being at the rates of 5.20 per cent. or less than one third of the previous mortality. Under additional improvements, the death rate of these infants became reduced to 1.7 per cent., or about one tenth of what it was before; whilst convulsions as a cause of death, were reduced to a still more insignificant figure. Fortunately we have no such well marked examples of wholesale slaughter in the recent records of our foundling hospitals, but the census returns from some parts of Europe, where the returns show the mortality in town and country districts, and also the ages at which death takes place, furnish figures which prove plainly the same fact. In statistics derived from the French Foundling hospitals, it appears that in 52,883 foundlings placed in Establishments in the cities, 72 per cent. or 38,160 died before they reached the age of five years; whilst of 112,110 foundlings placed in institutions in the country, only 6,090 died, or about 11 per cent. Had the 52,883 town foundlings been placed in the country, 32,070 lives would have been saved in five years. In the city districts, the mortality of infants is more than twice as great as in rural districts, and there can be no doubt but that the greater part of the difference is due to the greater purity of the atmosphere in the country. We have the same fact plainly indicated even by the figures furnished by the interments in this city. In the Catholic grave-yard where the greater portion of our Irish citizens are buried, the interments of children

under three years of age, generally equals nearly the half of the whole number of interments, whilst in the Protestant Cemetery the proportion of children's interments generally averages about one-fourth of the whole number. There can be no doubt but that a large proportion of the excess of deaths amongst the children of our Irish population is caused by their breathing a vitiated atmosphere. In using the term a vitiated atmosphere, or at least as applying to a degree of vitiation capable of injuring the health of an infant, I would not be understood as meaning, an atmosphere which is so far impure as to be cognizable to our senses. Unfortunately the human olfactories are incapable of detecting the slighter shades of deterioration in the air we breathe; and still more unfortunately, habit will at length deaden them, even to odours which are very far indeed from that of Otto of roses. But it can easily be shown, that even a comparatively moderate amount of vitiation of the atmosphere to a degree which is not at all cognizable to our senses does exert a most deleterious influence on the human frame, even in adults, in strong and apparently healthy men.

"Dr. Guy investigated with great care the circumstances attending certain derangements of health in 320 of the journeyman printers of London. He found that he could, after careful inquiry, divide them into three classes nearly equal in numbers. In the first class, the men were habitually breathing in their workshops an atmosphere of less than 500 cubic feet of air per man; in the second class, the quantity was between 500 and 600 cubic feet; in the third class, it was more than 600 cubic feet. Now, taking as his guides, two of the leading symptoms of consumption, which could easily be detected by questions, he found the difference between the first and the last of these classes of workmen was as follows: Of the *first* or *worst-off* class (as respects air) 12½ per cent. had spat up blood, and a like proportion had been subject to catarrh; while of the *third* or *best-off* class only four per cent. had suffered from spitting blood, and only two per cent. from catarrh. The medium class of workmen occupied also a precisely intermediate position with respect to both these unfavorable symptoms."—*Gairdner, Public Health in relation to Air and Water.*

Dr. Cotton, physician to the Hospital for Consumption at Brompton, England, has drawn up a table showing the relative frequency of consumption, in persons of various occupations. The occupations are placed in two lists, the one containing those pursuits which are conducted principally indoors, as Tailors, Shoe-makers &c., the other containing those which are conducted principally out of doors, as Bricklayers; Cabmen &c. In a thousand cases of phthisis 841 were furnished by those who had been engaged in indoor occupation, and only 159 from amongst those whose occupations were principally in the open air. Nothing can more plainly prove the ill effects of breathing a vitiated atmosphere than the above figures, and it must be remembered that these tables only include adults, on whom the influence of disease—producing causes, act with far less intensity than on infants. It has been proved by comparing the death rates of adults and infants in the healthy and unhealthy districts in England, that whilst the most unhygienic conditions in which any portion of the population exists, increases the yearly

general mortality but fifteen in a thousand, yet amongst children under six years of age a difference of 90 deaths in a thousand, and in children under 1 year of age a difference of 200 deaths in 1,000 is found to exist between the healthy and unhealthy districts; so that the same amount of bad air and bad food that will take off during the course of a year 15 in 1,000 adults, would kill 200 infants under one year, or in other words, that the power of unhygienic conditions, is more than twelve times as great on infants as on adults. And yet in the face of such facts as these, how often do we see children shut up during the day in ill ventilated school-rooms, and during the night in still worse ventilated bed-rooms. Surely it is time that the teaching of Sanitary science were made available in the education of those, who are to be the fathers and mothers of the next generation. *

There can be no doubt but that this excessive mortality amongst infants placed in unfavourable sanitary conditions, is a complicated fact, that it does not depend entirely on the contamination of the atmosphere. Other causes have to be taken into consideration, such as bad nourishment, want of care, and neglect of other laws of health; but still it is an important element and as it admits of being remedied perhaps more easily than any other, it is deserving of our serious attention. That infants should suffer more than adults from breathing a bad atmosphere would be rendered probable on physiological grounds, even had not experience proved that such was the case, for from the rapidity of the respirations in infancy as compared with that of adults, any poisonous element existing in the air they breathe, would be taken in much more frequent doses by the infant. Respiration in the infant at birth takes place 44 times in a minute, and at the age of five years the respirations are still 26 in a minute, whilst in the adult they are but 16 in the same time, so that the infant takes in 44 doses of the poison, whilst the adult takes but 16. True it is we are not able to detect the poisonous element in this vitiated air; it is something more than a little excess of carbonic acid or ammo-

* As regards ventilation it is difficult to say how much crowding will vitiate the air. In the prisons in England one thousand cubic feet of space, or a space ten feet long, ten feet broad, and ten feet high, is considered the proper allowance for each prisoner. It is probable that in a healthy individual with a good constitution the conservative power of the body would suffice to resist any vitiation that would be caused with such a supply, but in a person with any innate cause of disease in his system, either accidental or constitutional, what an advantage would this limited supply of air give it in undermining the vital powers. In consumption, for instance, where shall we say that vitiation begins? Give the patient a thousand feet and he will die. Give him two thousand—ten thousand—and still the result will be the same. But send him out to live in the open air, away from the crowded town, up in the mountains, where the purest, the most uncontaminated of the atmosphere is to be found, and then and then only will the disease be cured and health permanently restored. Had you witnessed cases of advanced pulmonary consumption, such as have come under my observation, cured by this out-of-door treatment, you would have a living faith in the sanitary influence of pure air—an influence which in this disease far surpasses that of any or all of the drugs in the pharmacopœia.

nia, something that our reagents cannot discover ; but the same is the case with other morbid poisons. The poison of small-pox, of measles, of scarlet-fever, even in their most concentrated form, totally escape our most searching means of chemical analysis, and like the poison of a vitiated atmosphere, only reveal their existence by the diseases they produce.

As I trust the above facts will suffice to prove to you the importance of bad air as a cause of infant mortality, we will now proceed to consider the cause that takes the second rank in the slaughter of the innocents that is going on in our midst. As I have before stated, this is bad and improper nourishment. In a former part of this lecture, we had to quote the statistics furnished by the French Foundling Hospitals, to show the great difference of infant mortality in these institutions according as they were situated in the town or in the country, and it is from the records furnished from the same source, that we shall draw the most striking facts, showing the effect of diet on the mortality of infants. In the foundling institutions at Lyons and Parthenay where the children are suckled at the breast, the mortality is 33 and 35 per cent. during the first year, whilst at Paris, Rheims, and X—where artificial feeding is either entirely or very generally employed, the mortality rises to 50, 63 and 80 per cent., so that in this last institution designated by X—, out of 244 children received, 197 died before they were a year old. *

In these hospitals so far as can be ascertained, the general management was much the same, with the exception of the feeding, so that it would seem even comparing the most favourable examples Lyons and Paris, the mere substitution of artificial food for breast milk was the cause of death to 17 children in every 100, during the first year of their existence. In private life the effect of artificial feeding is undoubtedly far less fatal, but still tends greatly to increase infant mortality, even under the most favourable circumstances. There are cases, however, in which artificial feeding must necessarily be employed, and it but too often happens that under such circumstances a great deal of mischief is done by giving food which even a slight knowledge of the peculiarities of an infant's stomach, would at once point out as improper. Pap and farinaceous substances generally are an abomination to the stomach of a young infant, as they are with great difficulty digested by them, and even if digested they do not furnish the elements of nutrition that the infant requires. Arrow-root and farina form occasionally useful additions to cow's milk, but with very young infants they should always be avoided if possible. Even where infants get their natural nourishment, a great deal of mischief is often done by improper nursing; either the child is nursed too frequently that its food has not time to digest, or else too long an interval is allowed to elapse so that its stomach becomes weakened, and then being overloaded, indigestion is produced and as its consequence, diarrhoea. In most well conducted households, the greatest regularity is observed as to the meal

* In face of this sad mortality, it is not surprising that the person who drew up these statistics hesitated in exposing the name of the institution so fatally celebrated as an example of mismanagement.

times of the older members of the family; but it too often happens that a prolonged visit, or an evening at the theatre or at a party, is allowed to interfere with the regularity of the meals of the infant, although its delicate stomach is much more easily upset by such neglect than that of the adult. In young infants particularly the stomach is small, and digestion going on rapidly, they require to be fed every two or three hours. When too long an interval elapses between the times of feeding, the infant overloads its stomach, infant dyspepsia is the result—a disease much more easily established than cured. I am confident a large proportion of the children who die of what is called summer complaint in the Atlantic States, are killed by injudicious nursing. When the hot weather sets in, the stomach of the infant as well as that of the adult feels its influence, a certain amount of dyspepsia is produced, which in the adult leads to a lighter diet; the infant feels uncomfortable and cries, the remedy is to nurse it more frequently, it gets feverish and thirsty, it is put still oftener to the breast, and thus its stomach soon becomes entirely incapable of digesting its food; diarrhoea is the result naturally not curable by drugs, as long as the cause which first started it still keeps it up, and the child soon dies the victim of mistaken kindness, in fact poisoned by its own mother's milk. No sane woman would give her husband beefsteaks to relieve the pain of a dyspeptic stomach, or propose rich soup to quench his thirst when feverish, yet the absurdity of so feeding her infant when it is sick never strikes her.

Another cause of disease amongst children is improper clothing, although elder children are greater sufferers from the absurdities of fashion in this respect than infants, nevertheless, a great deal of disease is produced even amongst infants by the irrational manner in which they are dressed. Physiology plainly shows us that there are many peculiarities in the organization of an infant which render it much more susceptible to the influence of cold than the adult. There is, for instance, in the child a much larger surface exposed, in comparison with its bulk than in the adult, and this surface is defended by a much thinner skin, so that the blood-vessels and nerves are more directly affected by cold; thus the blood is readily driven from the surface, giving rise to internal congestions and inflammations. Besides this, all young animals possess the power of generating heat less rapidly than adults, so that they react against cold less readily. And yet, notwithstanding these facts, which are plain and undeniable, infants are made to wear low-necked dresses and short sleeves, whilst their mothers are clothed well up to the neck and down to the wrists. Hartwig, in his Treatise on the Physical Education of Children, observes: "The absurd custom of allowing young children to be about with short stockings, bare knees, thin drawers, short frocks, and uncovered necks and arms, has been the first cause of many a consumption, croup and early death; and can in no case be of advantage, for weakening and impeding the functions of an important organ (the skin) is surely not the proper way to harden the constitution." Another evil indirectly resulting from this irrational way of clothing infants is, that in order to keep them warm, the room in which they live has to be kept at a higher

temperature, thus interfering with ventilation, whereas, were they properly clothed, they could breathe a less vitiated atmosphere. In these remarks on the prejudicial influence of cold on infants, I would not be understood as including the washing of the body with cold water, the effect of which is the very reverse of the prolonged application of cold from insufficient clothing, for whilst the latter gradually lowers the vitality of the skin, the momentary application of cold water to the surface, is, in a healthy infant, always followed by a speedy reaction which raises its vitality. I cannot conclude this part of the subject without calling your attention to the manner in which gradual deformity of the infant's foot is produced from the time it begins to wear shoes, and which is the source of much suffering in after life, under the form of corns, bunions, and all sorts of misplaced toes. The foundation for these deformities is generally laid in infancy, being carefully developed as the child grows up, and bitterly paid for in later years. They are owing entirely to the faulty construction of the shoes, but as more rational views on this subject are being brought to bear on the shoe manufacturers in Europe and I believe in the Eastern States, it is to be hoped that this absurdity will soon be remedied.*

Another fertile source of disease and mortality in children is the indiscriminate drugging to which they are too frequently subject at the advice of every old woman or nurse who chooses to pretend that she "*knows a great deal about babies,*" although in the whole circle of her ignorance it is probably the subject on which she knows the least. For my own part, even after many years of study and experience, I never approach the cot of a sick infant without feeling that I have a more than usually difficult problem to solve—the derangements of the finest and most delicate of living mechanisms to investigate and set right. With as much reason would you give a delicate Geneva watch to be mended by a village blacksmith, as to drug an infant on the advice of an ignorant nurse.

But the hour informs me that I must bring my remarks to a close, although I have not exhausted the catalogue of morbid influences that hover around the cot of the infant. I have, however, endeavored to point out those which I believe to be the most powerful for evil, and at the same time the most capable of being alleviated. Amongst the twenty-two deaths that take place in every hundred infants during the first year of life, I believe that fully one-half might be prevented by the diffusion amongst the people of a few of the common sense dictates of sanitary knowledge. There are two methods by which this can be effected—through the organization of local sanitary associations by the ladies, for the direct diffusion of sanitary knowledge amongst their neighbors; and secondly, by some radical improvement in the present system of public and private education,

* A sensible little pamphlet on the subject, entitled, "*Why the Shoe Pinches,*" by Meyer, a celebrated German anatomist, has been translated into English, and after running through several editions in England, has been republished by Trull & Co., New York. It can, I believe, be found at the Book Stores in this city.

by which the rising generation shall not be left in entire ignorance of those principles of sanitary knowledge, which will be of far more importance to their happiness as future fathers and mothers, than any other branch of knowledge that can be taught.

We cannot have a more striking proof of the good to be effected by organization than by the result of the efforts that have been recently made in our midst, to alleviate the suffering of our wounded soldiers; and a tithe of the energy and a hundredth part of the expense that has been devoted by the ladies of the community to this noble object, would, if employed in the diffusion of useful knowledge amongst the poor and ignorant in our midst, be rewarded by a still richer harvest in lives saved and suffering alleviated. It is, however, to the general diffusion of the teachings of sanitary science by a more rational system of education, that we must look for the radical cure of that ignorance which at present consigns so many infants to a premature grave. But this can only be accomplished when the fathers and mothers of to-day shall have so far modified their views of education, as to feel that it is a more useful accomplishment for their daughters to be able to interpret the cry of a sick infant, than to translate the pages of a French novel, and that of the knowledge of the changes in that cry which would reveal whether the seat of its suffering is in the head, or its chest, or its stomach, is more valuable than that which would serve to detect a false note in an operatic air. This, however, is not the place to enter on the subject of education, but the following remarks from Spencer's work on Education contain so much common sense that I cannot avoid quoting them:

"If by some strange chance not a vestige of us descended to the remote future save a pile of our school-books or some college examination papers, we may imagine how puzzled an antiquary of the period would be on finding in them no sign that the learners were ever likely to be parents. 'This must have been the *curriculum* for their celibates,' we fancy him concluding. 'I perceive here an elaborate preparation for many things; especially for reading the books of extinct nations and of co-existing nations (from which indeed it seems clear that these people had very little worth reading in their own tongue); but I find no reference whatever to the bringing up of children. They could not have been so absurd as to omit all training for this gravest of responsibilities. Evidently, then, this was the school-course of one of their monastic orders.'

"Seriously, is it not an astonishing fact, that though on the treatment of offspring depend their lives or deaths, and their moral welfare or ruin, yet not one word of instruction on the treatment of offspring is ever given to those who will by and by be parents? Is it not monstrous that the fate of a new generation should be left to the chances of unreasoning custom, impulse, fancy—joined with the suggestions of ignorant nurses and the prejudiced counsel of grandmothers? If a merchant commenced business without any knowledge of arithmetic and bookkeeping, we should exclaim at his folly, and look for disastrous consequences. Or if, before studying anatomy, a man set up as a

surgical operator, we should wonder at his audacity and pity his patients. But that parents should begin the difficult task of rearing children, without ever having given a thought to the principles—physical, moral, or intellectual—which ought to guide them, excites neither surprise at the actors nor pity for their victims.

“To tens of thousands that are killed, add hundreds of thousands that survive with feeble constitutions, and millions that grow up with constitutions not so strong as they should be; and you will have some idea of the curse inflicted on their offspring by parents ignorant of the laws of life. Do but consider for a moment that the regimen to which children are subject, is hourly telling upon them to their life-long injury or benefit; and that there are twenty ways of going wrong to one way of going right; and you will get some idea of the enormous mischief that is almost everywhere inflicted by the thoughtless, hap-hazard system in common use. Is it decided that a boy shall be clothed in some flimsey, short dress, and be allowed to go playing about with limbs reddened by the cold? The decision will tell on his whole future existence—either in illnesses; or in stunted growth; or in deficient energy; or in a maturity less vigorous than it ought to have been, and in consequent hindrances to success and happiness. Are children doomed to a monotonous dietary, or a dietary that is deficient in nutritiveness? Their ultimate physical power and their efficiency as men and women will inevitably be more or less diminished by it. Are they forbidden vociferous play, or (being too ill-clothed to bear exposure), are they kept in doors in cold weather? They are certain to fall below that measure of health to which they would else have attained. When sons and daughters grow up sickly and feeble, parents commonly regard the event as a misfortune—as a visitation of Providence. Thinking after the prevalent chaotic fashion, they assume that these evils come without causes; or that the causes are supernatural. Nothing of the kind. In some cases the causes are doubtless inherited; but in most cases foolish regulations are the causes. Very generally parents themselves are responsible for all this pain, this debility, this depression, this misery. They have undertaken to control the lives of their offspring from hour to hour; with cruel carelessness they have neglected to learn anything about these vital processes which they are unceasingly affecting by their commands and prohibitions; in utter ignorance of the simplest physiologic laws, they have been year to year undermining the constitutions of their children; and have so inflicted disease and premature death, not only on them but on their descendants.”

In conclusion, I have to apologise for the very imperfect manner in which, owing to restricted time, I have been able to treat the subject of Infant Mortality, and also for having detained you so long in bringing before you facts which, judging from the manner in which they are neglected are not of a nature to please the intellectual tastes of the present generation. It is possible at some future period, when our race shall more completely have thrown off its intellectual gorillaisms, and shall more firmly have secured its position as being composed of rational beings, that as much attention will

be given to saving the lives of one-half of our children, as is now devoted to teaching those that survive to spin in unmeaning gyrations over the floor of a ball-room, and that even the charitable instincts of our species will find as agreeable and useful an employment in saving the lives of half the infants that perish, as in feeding and clothing a few orphans amongst the survivors.