PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

INFANTILE MORTALITY.^a

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IN bidding the students welcome at the commencement of the 187th Session of this Hospital—the oldest in the city—on behalf of the Medical Staff I wish you all a happy and prosperous period of study. The medical student's time is now so taken up with such a number and variety of studies that frequently he is apt to overlook his clinical work at the hospital until his last year, and then, in the short space of one session, he tries to cram into his brain, already overfull with other subjects, the amount of hospital work that can only be learned and digested in four years of patient, constant, and regular attention and observation. And so, to those of you who come to us for the first time, I strongly recommend you to attend regularly the clinics, to get into the habit of taking for yourselves carefully recorded notes, and never lose an opportunity of following closely the cases that are brought under your observation and notice in the wards. Turning to the more advanced students, I would strongly urge on you, in addition to the work you see and do for yourselves in the wards, to spend as much time as possible in the extern department. Fortunately for you our extern department, from the central situation of the hospital, is extremely large and, of course, very varied. In the dispensary you will find all classes and kinds of both medical and surgical affections. Accidents from the most serious to the most trivial, medical cases both urgent and trifling, are constantly being brought to our doors, which are always open night and day to receive them. You will see diseases of all kinds, from the earliest symptoms to the most advanced stages; disorders of

^a An Address introductory to the Session 1905-1906 delivered at Jervis Street Hospital on Tuesday, October 17, 1905.

those who have reached the late period of life, of those in middle life, and of the young. It is about this last group, the infants, that I wish to address you for a brief period. I may state here for the information of the senior students that, in addition to the ordinary facilities for studying diseases of children that you have in the hospital, our staff—recognising the importance of this part of your clinical work—have made arrangements with the staff of the Children's Hospital, Temple Street, so that you can pursue on a larger scale the studies of children's diseases in that institution. As it contains about 100 beds, and has a largely attended dispensary, it is an opportunity of which I hope you will take full advantage.

When we consider the number of children—I refer now more particularly to those up to the age of one year—that come under our observation, both in the wards and dispensary, suffering from different diseases and disorders, we cannot but feel saddened when we know that a great number of these affections are preventable. Is it any wonder then that the death-rate of infants is so high? From the Registrar-General's Report of last year we find that the average death-rate for 76 great towns of England and Wales was 17.2 per 1,000, while the mortality of infants (under one year old) was 160 per 1,000 births, an average of almost one in six—in other words, out of every six children born one child dies before it reaches the age of twelve months. In certain large towns the death-rate was even higher—in Birmingham 197 per 1,000 births, in Preston 218 per 1,000 births; in London the highest borough rate was Bermondsey, which was 172 per 1,000, and the lowest was Marylebone with only 94 per 1,000.

COUNTY BOROUGH.	1903			1904		
	Total No. of Births	Deaths under one year of age		Total No. of Births	Deaths under one year of age	
		Total No.	Number in every 1,000 Births		Total No.	Number in every 1,000 Births
DUBLIN ...	9,243	1,409	152	9,523	1,645	173
BELFAST ...	11,547	1,536	133	11,385	1,761	155
CORK ...	2,093	235	112	2,109	248	118

Through the courtesy of the Registrar-General, Charlemont House, Dr. Ninian Falkiner has kindly supplied me with the foregoing return, which shows:—For the county boroughs of Dublin, Belfast, and Cork for each of the years 1903 and 1904 (1) the number of births, (2) the number of deaths under one year of age, (3) the number of deaths under one to every 1,000 births.

From this it is seen that the average infant death-rate for Dublin for the past two years is slightly above the average for 76 large English towns—162.5 per 1,000 births. It is higher than Belfast with 144 per 1,000 births, and much higher than Cork with 116 per 1,000 births. The average death-rate for Dublin for the same period is about 24 per 1,000, and about 20 for Belfast and Cork. As stated previously, these figures refer exclusively to large towns and cities, and not to rural districts. It is also a recognised fact, although no statistics on the subject are available, that illegitimacy doubles or even trebles the chance of an infant dying before its first birthday. Bailie Anderson, Convener of the Public Health Committee, Glasgow, stated in a paper read before the British Medical Association this year in Leicester that in investigating this matter he communicated with the Consuls of 60 of the leading cities of the world, and he found in such places as Buenos Ayres, Barcelona, Stockholm, and Christiania that the infant mortality was much less than in England or Scotland. It is a remarkable fact, pointed out by Dr. Arthur Newsholme, Medical Officer of Health for Brighton, that whereas for the past half century there has been a marked decline in the general death-rate of the community, about 16 per cent., the infantile mortality has remained stationary. Medical Officers of Health in their annual reports are constantly drawing public attention to this matter, and some of them in very forcible language. For instance, Dr. H. Henwood, Medical Officer of Health for Stoke Newington, stated recently in his annual report that “if the death-rate amongst calves was only one-half of that which prevails amongst infants, the farmer would before very long have to entirely give up the business of rearing cattle.”

This high mortality amongst infants is a question of extreme importance, both from a Public Health point of view and from the physical deterioration aspect—about the latter we are at present hearing a great deal, and deservedly so. We must not forget that while thousands of infants perish annually there are thousands of others who barely survive, and these later on, when

they face the hard struggle for existence, grow up both mentally and physically weak, and it is from this class that our charitable institutions and asylums are being filled, and, indeed, in many cases overcrowded. Tuberculosis in its different forms, and emigration, deprive our island of a great number each year of what may be said to be the flower of our people, but the high death-rate amongst infants, and the weakness and debility contracted during the first year of life, take another large slice off our population. Is it any wonder, therefore, that our population is steadily decreasing? A great move has been made, and we are all pleased to know with some success, to diminish the ravages of tuberculosis by the open-air treatment, isolation, and such like; and just at present efforts are being made to foster home industries, to improve our agricultural products, and in other different ways (we all sincerely hope these efforts will be crowned with success), and so try to prevent the drain of emigration. Although very much has been done in England and Scotland, and in, I may say, every country in Europe and in the United States, not so much has been done as might directly be done in our city to try and remedy this evil of high infant death-rate. As citizens of the metropolis, we trust that Dublin may make a movement in this matter, for we know from experience that our citizens are always first to undertake anything that is philanthropic and charitable.

We may, perhaps, first inquire what are the causes of this enormous infantile mortality, for I have shown that it is prevalent in all large towns. The causes are exceedingly numerous and varied, but it is universally admitted that improper artificial feeding is the most important factor, owing, no doubt, to the unfortunate decline in breast feeding. We have also got overcrowding, insanitary surroundings, tenement dwellings, ill-health of one or other of the parents, and many other like reasons. It is computed that fully three-fourths of the deaths of children under twelve months old occur amongst those who are artificially fed. By artificial feeding I mean any feeding other than the mother's milk. One other recognised fact is that the high death-rate is practically confined to the working and lower classes, the infant death-rate amongst the upper and middle portion of the community is about normal. This great mortality and widespread production of disease can be to some extent prevented by the mothers nursing their babies, and, failing this, by the proper use of pure cow's milk. The former method, we may call nature's

method, is the one to be recommended if at all possible, for the latter method is only a makeshift. In the year 1901 the Council of the Dublin Sanitary Association investigated this matter very carefully, and from their report it is shown that out of a total of 108,398 infants' deaths in the ten years, 1889-1899, no fewer than 62,583 of the deaths, or more than one-half, were due to diseases which in the ordinary course are attributable to the result of improper feeding.

Take the case of an infant, so-called artificially fed, aged, say, four months, which we see so frequently in our outdoor department, and what do we find? Shortly after birth, three or four weeks, the mother finds she is unable to nurse the infant; she never for a moment thinks of seeking medical advice; she weans the baby, substituting the bottle. The child is fed at irregular hours and in varying quantities with milk diluted sometimes more for one meal than for another; the bottle, most likely with a long tube, is anything but clean, and there is no attempt made at home to preserve the milk from souring. In addition to this, the child is given crusts of bread, potatoes, and such like, or, as the mother aptly describes its dietary, "it gets the run of the house in addition to the bottle," the result follows that the child is starved. If we consider that small and delicate organ, the infant's stomach, we can only conclude that the child is being starved for want of suitable food, and is, as one would expect, very weak and ill. Then it is doctored at home by doses of castor oil, chalk mixtures, &c., and, as a last resource, it is brought to one of our city hospitals with the fond hope that it will be made well by a bottle of medicine. Some medicine, of course, is given, but what is more important, the mother gets instructions, either printed or typed, about the proper feeding and care for the age of the child: result, child is given the medicine, but the directions about the dietary are overlooked, or, if commenced, are not carried on for a sufficient length of time. In other instances—and this occurs more frequently in large manufacturing towns than here—the mother has to go out to work after convalescence, and is obliged to leave the infant to people who do not take either the trouble or care of properly looking after it. It must also be remembered that the mothers, in this class of the community, prior to their marriage, had no opportunity of learning the house-keeping for their position in life, still less of learning how to care the baby. We all recognise the importance of mothers nursing

their infants, and they should be encouraged to do so, as is the practice in some of the departments of France, where prizes are awarded to those who breast-feed. But all mothers cannot do this, some from ill-health, some from following different occupations, or working in factories, and the like.

Human milk is by far the best food for infants. It is Nature's food, an unique and wonderful food, for which the science of man has up to the present been unable to manufacture even a secondary substitute. As Dr. Mc'Cleary, Medical Officer of Health for Battersea, scientifically puts it—"Although physically the child is separated from the mother at birth, physiologically separation only takes place at weaning, and so from a physiological standpoint the artificial-fed baby is a premature child, and anything but maternal nursing is foreign to its digestion." Besides, it is found that the blood of a breast-fed infant has a greater bactericidal action than that of the hand-fed, and it is our clinical experience that suckling infants have a marked immunity from infectious disease. Dr. Hope found that in Liverpool the deaths from diarrhœa "amongst children under three months old, either wholly or partially fed on artificial food, are 15 times as great as they are amongst an equal number of infants fed on the breast." Undoubtedly, as regards infant feeding, nature is, for so far, superior to art. The point therefore is, as far as we can, to take nature for our guide.

The mother who is unable to breast-feed her infant has to make a choice of what she would substitute for human milk, and she finds that she has three classes of food to select from :—

- (a) Preparatory foods, in great variety.
- (b) Condensed milk.
- (c) Cow's milk, more or less modified.

It is at this period that the medical practitioner can do a great deal if consulted ; but, unfortunately, his advice is seldom or never sought for until the baby becomes seriously ill, and that treatment becomes necessary. If only parents and people generally could be got to understand, as Dr. Chaplin points out, "that anything aside from breast milk that is put into an infant's stomach is a foreign substance," they would see that it is necessary to obtain a substitute as closely akin to human milk as possible.

Of the three substitutes just mentioned, both the concensus of public opinion and clinical experience, as has been demonstrated in the working of infant milk *dépôts*, goes to show that cow's milk

properly cared and modified is the nearest approach we have at present to human milk. I have said properly cared, and by that I mean the care milk receives from the time when it leaves the cow's udder until it reaches the child's stomach. You will agree with me that during this period milk is subjected to contamination. Take, for instance, the ordinary process that goes on, say at this season of the year, amongst a large proportion of dairy cattle. The cows are at grass; they are never groomed; their udders are dirty; the milker may possibly not have washed his hands before commencing, or may have a septic cut or wound about his fingers; he goes from one cow to another, and so carries with him dirty epithelium, dust, germs, bacteria—and, as Dr. Leslie Mackenzie, Medical Member of the Scottish Local Government Board, describes it—"the various dirt of the civilised human are at every hand reinforced by the inevitable dirt of the domesticated cow." How can the milk escape being contaminated? And then it has to be conveyed to the city dairies, and delivered in the ordinary way, and during this time probably further contamination takes place. Municipal authorities prevent milk being diluted, and we all trust, I am sure, that they will have the power to inspect every dairy farm that sends milk into cities. Professor Sidwick pithily described the milk supply to Boston, some years ago, thus—"Public milk supplies may not be legally watered, but they may be stale, or polluted, or infected."

This class of milk is, unfortunately, the kind mothers frequently get for their babies. Is it any wonder, then, that in a short time the delicate stomach of the infant becomes upset? In this picture I have drawn I do not especially refer to Dublin—for we know there are quite a number of dairy farmers, and I believe this number is increasing, who are most careful about milking, the proper cleansing of vessels, carriage of milk, &c.—I speak of large cities generally, both in this country, the Continent, and America.

- I. A pure city milk supply is, therefore, one essential in proper infant feeding which will tend towards the decrease of infant mortality.
- II. Any improvements made for the health of the community living in tenements and congested districts also tends to diminish the ordinary death-rate, and, as a matter of course, that of infants.

Dublin can boast of having done a great deal in this direction.

Through the munificence of Lord Ardilaun, Lord Iveagh, and Mr. James Talbot Power, D.L., as we are all aware, whole areas of insanitary dwellings have been torn down, and parks, open spaces, and substantial buildings substituted. The Corporation has also done a great deal in this way, and are still extending their work. Private enterprises, such as the Company for the Housing of the Very Poor, the Dublin Artisans' Dwelling Company, have also, each in their own line, accomplished much in this direction, and are still carrying on their good work.

III. It is found that when the temperature of the earth, four feet below the surface, reaches 56 degrees Fahrenheit, diarrhœal disease commences, and it is this which is so prevalent and so fatal in the months of July, August, and September. Through the initiative of Sir John Moore, M.D., Trinity College keeps a daily record of the temperature, and the Municipal and Urban Councils have taken action in this matter. It is to be hoped this move will have some influence in diminishing the high diarrhœal death-rate during these three months.

IV. Our lying-in-hospitals, some dispensaries, general hospitals, and private practitioners have printed instructions how to care the baby. These instructions are given to suitable cases, and in this way some good is done.

Suffering humanity owes a great deal to the initiative of the French medical profession, and it was in France, in the year 1890, that Professor Hergott first instituted an establishment for the supply of sterilised milk for those infants for whom breast-feeding was impracticable, so as to try to reduce the excessive death-rate, as this question was of national importance on account of the unusually low birth-rate. Other institutions with a similar object, but on a slightly different basis, followed, and, in 1892, Dr. Variot opened the first Goutte de Lait in Paris. Two years later Dr. Leon Dufour established at Fécamp the first Provincial Goutte de Lait. These Gouttes de Lait in France correspond to what in England and Scotland are called "Infants' Milk *Dépôts*." These are simply dispensaries from which milk is distributed, modified to suit the age of the baby, to those mothers who are not able to breast-feed their infants, and who are in such circumstances and surroundings that they cannot afford out of their meagre livelihood any additional burden for the feeding

of the baby. In some institutions those who take these advantages are divided into three classes :—

1. The gratuitous—for the very poor.
2. Half-payment section—for those who are able to contribute something.
3. Paying section—for those who can afford to pay the full price, which includes cost of milk and cost of preparation.

Of course it is understood that these three sections receive the same quality of milk, or modified milk, as the case may be.

The following is the routine of the infant milk *depôts* in England :—

1. The milk is got from a reliable source, and in most cases those who supply the milk are subjected to certain stringent regulations about the grooming of the cows, cleanliness in the milking process, cooling, properly prepared vessels to receive the milk, and rapid transport.
2. The milk on arrival at the *depôt* is strained and filtered to prevent any mechanical pollution.
3. It is then modified by the addition of water, cream, and sugar, so as to suit the age of the infant.
4. After this process it is bottled, and the quantity in each bottle is likewise arranged for the age of the infant. The bottles, being closed with stoppers, are placed in the sterilising chamber for a period varying from 15 to 30 minutes. When taken out the bottles are rapidly cooled in a cooling tank, and are then ready to be placed in wire baskets, which hold from six to nine each, and contain a 24 hours' supply for the infant. This is handed out or delivered, and next day the basket of empty bottles is returned and a fresh supply is obtained. In France each baby is required to be brought to the *depôt* at least once a week, when it is medically examined, weighed, &c. In this country, while this is strongly recommended, it cannot, as on the Continent, be enforced.

These infant milk *depôts* are of two kinds—those under municipal control and those worked by private or philanthropic enterprise. In the year 1893 the Hon. Nathan Straus, a well-known philanthropist of New York City, established in a comparatively small way an “Institution to place milk suited for infant nutriment within reach of the poor.” This has now become one of the largest, best-managed, and best known establishments in the world. In 1898, under the guidance of

Dr. F. Drew Harris, Medical Officer of Health, the St. Helen's Corporation, after a deputation had gone to France, visited several Gouttes de Lait, and were satisfied of the worth of these institutions, opened the first infant milk *depôt* in this country. *Depôts* were then rapidly opened, all under municipal enterprise, in Liverpool, Ashton-under-Lyne, Battersea, Bradford, Leith, Glasgow, &c. The first private *depôt* in this country was established in 1903 in York, and in Finsbury in 1904. I have myself visited the infant milk *depôt* in York. The greatest trouble and care were taken to show me the working of the institution, and I was very pleased with what I saw. It is situated in a poor district of the city, called Billygate, which would correspond to Cork Street and its neighbourhood in Dublin.

You may ask what have been the results of the establishing of these infant milk *depôts*. The Hon. N. Straus, in an exceedingly interesting paper on the work of his institution in New York City, at the meeting of the British Medical Association this year, says "that in 1892, the year before I began the systematic prosecution of my work, the infant death-rate for the summer quarter reached the appalling figure of 136.1 per 1,000 of the population under 5 years of age. Last year the number was reduced to 74.5 per 1,000. In other words, had the infant mortality of the same quarter been reproduced relatively to the population in 1904, the number of deaths would have been 8,725 instead of 4,805. I do not think it is a hasty induction from the facts to claim that the most important element in the saving of these 3,920 infant lives has been the improvement of the character of the milk supplied to the children of the New York poor." The French physicians claim that there is a very great reduction in the infant mortality since the institutions were established. Dr. Drew Harris, of St. Helen's, states that in the year 1902 the death-rate of infants amongst the children receiving milk from the *depôt* was 82 per 1,000 births, whilst the general borough death-rate was 167 per 1,000. Dr. Hope, Medical Officer of Health for Liverpool, in his annual report for 1903, states that the death-rate amongst the *depôt*-fed children was 78 per 1,000. Dr. McCleary, Medical Officer of Health for Battersea, in his report for 1902 has the same pleasant statement to make.

The practical point is this, that if such institutions are carried out successfully, and are doing good work in France, Spain, Belgium, the United States, England, and Scotland, could not such

an institution be established in Dublin? There are two well-known facts in our favour—(1) No mother is so fond of, and devoted to, her baby as an Irish mother. (2) No people in the world are so charitable as the Dublin people. With these two data I fail to see why something in the way of starting an infants' milk *depôt* in the city should not be done. As matters are at present, our death-rate among infants under one year is enormous, almost one in six. In other countries and large cities an effort has been successfully made to diminish that death-rate. Nothing, so far, has been done in Dublin in this direction. Are we, who have such a name for charitable citizens, going to do anything?

CHRONIC BACILLUS-TYPHOSUS-BEARERS.

DR. LENTZ, of Idar-on-the-Nahe, contributes to the fourteenth volume of the *Klinisches Jahrbuch* (Jena: Gustav Fischer, 1905) an instructive and suggestive paper under the above title. The object of the paper is to show that convalescents from enteric fever carry about with them the germs of the malady perhaps for many months after they have themselves quite recovered from their illness. These facts have been established by bacteriological investigation. Since 1904 certain suggestions made by him for dealing with these chronic infection-bearers have been put in practice in the principality of Birkenfeld. These suggestions are as follows:—(1) An abundant supply of disinfectants, for the disinfection of all excreta from the infection-bearers, provided at the public expense; (2) disinfection of the latrines in the houses inhabited by such persons by means of chlorinated lime—if possible every three months, at all events immediately before the latrines are emptied—the cost of this to be borne likewise by the public funds; (3) police notification; (4) continued control through the institute for bacteriological investigations; (5) strict exclusion of chronic infection-bearers from the milk industry generally, the milk from farms where such persons are employed to be debarred from the dairies.—*Brit. Med. Journ.*, October 21, 1905.