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health point of view

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I N F A N T I L E M O R T A L I T Y .

F R O M A P U B L I C H E A L T H

P O I N T O F V I E W .

M. D. 1915.



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INFANT MORTALITY.

The Notification of Births is not to be confused with the registering of the births of the child by the parents; this latter has to be carried out within three weeks of the birth, and most parents do not register till the end of this time. Many children (as will be gathered from the mortality table given in course of the thesis) die during this period and, while many of these deaths are non-preventable, yet it is reasonable to suppose that had others been seen directly after birth, some might have been saved. Again illegitimate infants, on occasions are registered as legitimate, and it is these latter who require the most careful supervision.

The main provisions of the "Notification of Births Act" may be stated shortly thus:-

1. This Act compels the father of the child, if he be actually residing in the house where the birth takes place at the time of its occurrence, and of any persons in attendance upon the mother at the time of, or within six hours after, the birth, to give notice in writing to the Medical Officer of Health within 36 hours.

2. Notice shall be given by posting a prepaid letter/

letter or postcard addressed to the Medical Officer of Health at his office or residence, giving the necessary information of the birth within 36 hours after the birth, or by delivering a written notice of the birth at the office or residence of the Medical Officer within the same time; and the Local Authority shall supply without charge addressed and stamped postcards containing the form of notice to any Medical Practitioner or Midwife residing or practising in their area, who applies for the same.

3. Any person who fails to give notice of a birth in accordance with this section shall be liable on summary conviction to a penalty not exceeding 20 shillings; provided that a person shall not be liable to a penalty under this provision if he satisfies the Court that he had reasonable grounds to believe that notice had been duly given by some other person.

4. The notification shall be in addition to and not in substitution for the requirements of any Act relating to the registration of births.

5. The Act applies to any child born after the expiration of the twenty-eighth week of pregnancy, whether alive or dead.

6. It/

6. It will be the duty of the Local Authority if by resolution the Act be adopted, and after the consent of the Local Government Board has been obtained, to bring the provisions of the Act to the attention of all Medical Practitioners and Midwives practising in their area.

The object of the Act is to try and diminish the infantile death-rate by giving advice and instruction to those who have the charge of infants. The scope of the Act is limited to the notification of births, but the information received will afford the Local Authority opportunity of getting into closer touch with the causes of infant mortality, and to arrange schemes of visitation, which will bring to many mothers who could not otherwise obtain it some counsel regarding the conditions which imperil infant life.

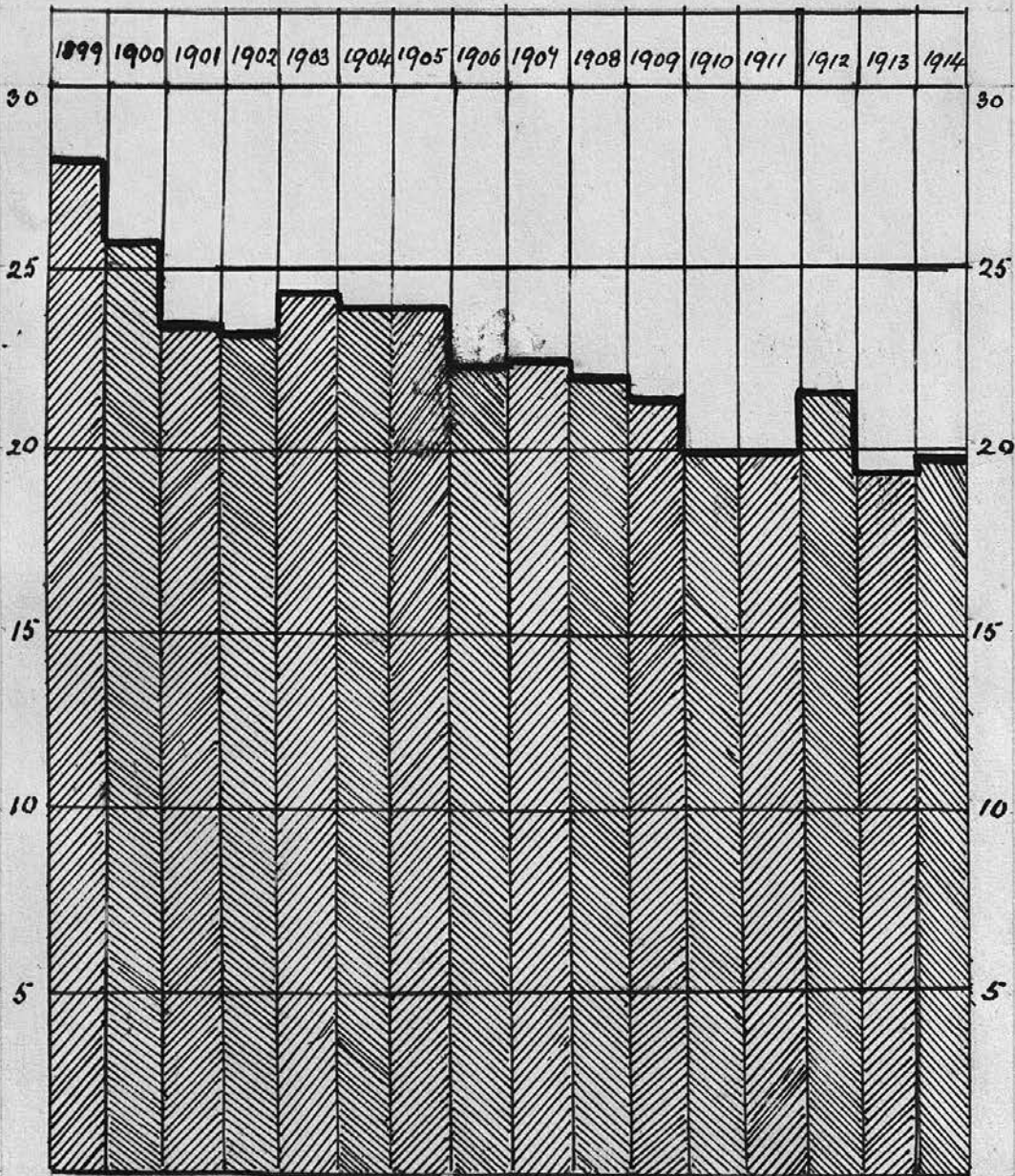
Further, it is to be noted that adoption of the Act does not imply that every birth will be investigated. Rather, it may be said, that every birth which takes place under the charge of the family medical attendant may be excluded from any scheme which it may be deemed desirable to adopt for the purposes of the Act. Thus, in many cases, no instruction or assistance of the mother will be required, while in others the need will be a crying one. Our main efforts will be directed to/

to these cases where no doctor is in attendance.

In Perth, the average number of births during the past 10 years has been about 760, and of these the number medically attended has been about 75 per cent., leaving 25 per cent., to the care of neighbours or Midwives. It is generally found that these Midwives are uncertificated nurses, and I might here remark that Scotland does not come under the provisions of the Midwives Act, and Midwives in Scotland come under no supervision whatever and, as can easily be imagined, their practices vary considerably.

In considering whether much good would result in the city by adopting the Act we must specially take note of our birthrate and of our infant mortality and of the probable causes of that mortality.

CHART SHOWING THE BIRTH RATE PER 1000 OF
POPULATION IN THE CITY DURING THE PAST
16 YEARS.



An examination of the above chart shows the steady decline in the birth-rate in the city during past years, having fallen from 28.1 in 1899 to 19.9 in 1914; the lowest rate of 19.3 being recorded in 1913.

It has been held that a high birth-rate is the natural result of prosperity, and that absence of prosperity is one of the chief causes of a low birth-rate. This probably does operate so to some extent because of the fewer marriages in non-prosperous times, but I am inclined to believe that this cannot be the cause in Perth. One cause for the lessened number of marriages is the inclination of the contracting couples to delay the marriage to a later period in life than was formerly the case, which, though lowering the birth-rate, has this advantage, that the contracting couples enter into the bonds of matrimony at a maturer age and when they have a fuller and truer sense of its responsibilities.

The decline of the birth-rate is neither due to the greater stress of modern life or to increased poverty, but is associated with a general raising of the standard of comfort and is an expression of the determination of the people to secure this greater comfort. The decline in the birth-rate is not a local affair, but is general throughout the kingdom, nay, in all civilised races.

This "gospel of comfort" has been widely adopted and is becoming the practical ethical standard/

standard of a rapidly increasing number of civilised communities. Such being the case, we must look - in the absence of strong moral influences to the contrary - to a decline of child bearing, a lower standard of moral outlook, a lowering of the ideal of married life, and a consequent deterioration of the moral, if not physical, nature of mankind.

This declining birth-rate must be met with a corresponding decrease in the infant mortality, and if we are to keep our place among the nations it becomes incumbent upon us to give those that are born every chance of becoming strong and healthy.

INFANT MORTALITY.

In the natural order of things, mortality is greatest at the two extremes of life - the weakly infant and the worn-out frame, and the main object of this report is to see if it be possible to effect such changes as will better enable the infant to fight with the adverse circumstances incidental to life.

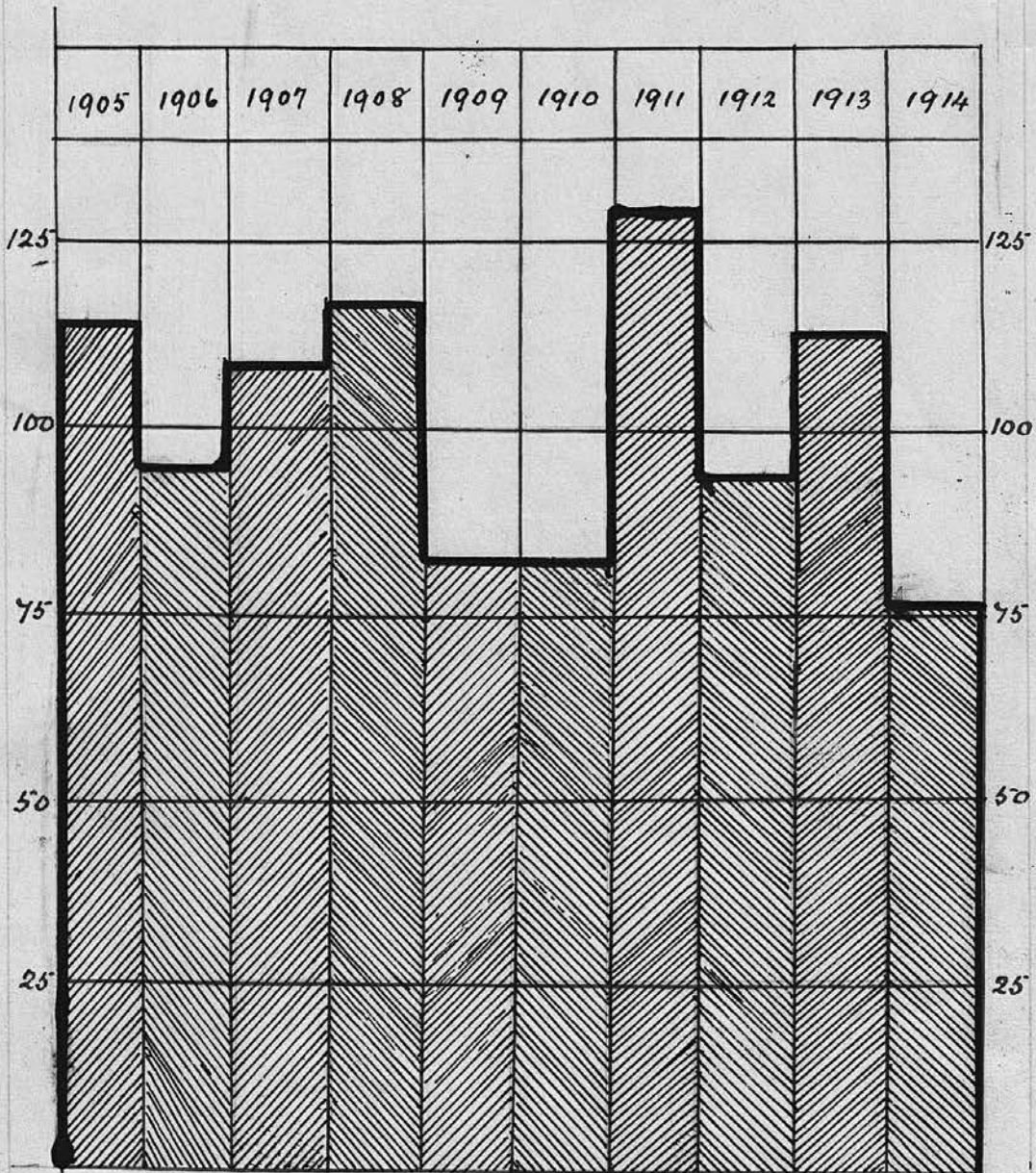
The relationship of infant mortality to the State is such that every means must be taken to keep our numbers up, for on the birth-rate and the proportion of infant mortality to that rate depends the strength of the nation.

During the past ten years, the total number of births in Perth was 7621, including 584 illegitimate; while in the same period, there occurred/

occurred 778 deaths of infants under one year of age. (Included among the latter are those deaths of infants who belonged to the city but died outwith the burgh.) This gives us an annual infantile death-rate (i.e. the number of deaths of infants under one year of age per 1000 births) during the past decade of 102 per 1000 births;

During that period, the rate varied from 129 in 1911 to 77 in 1914. A glance at the accompanying chart will show the fluctuations in the death-rate.

CHART SHOWING THE INFANTILE DEATH RATE PER 1000
BIRTHS DURING THE PAST TEN YEARS.



From the foregoing chart, it will be noticed that since 1905 the infantile death-rate has only once reached as high as the 125 mark, while during the same period on no fewer than five occasions has it been less than 100 per 1000 births.

At a conference held some years ago and attended by the most eminent medical authorities, when this subject was under discussion, it was advocated that measures (of which this Act is one) should be adopted to bring the infantile death-rate to a standard of 100 per 1000 births. Perth has almost reached that limit. In fact, if the last five years only were considered it has reached it. Again, while during the last ten years the average annual rate was 102, yet even during the past sixteen years the rate was only 107. Such a standard is one which many would rejoice to see in our cities.

From such satisfactory figures, that is when compared with most towns, it must appear at first sight as if Perth required to do little or nothing. But I do not accept the standard of 100 for Perth - in fact, the frequency with which Perth has been below the standard leads one to the belief that a considerable lowering of this standard could be effected - and although Perth's record in respect to infantile mortality compares most favourably with many industrial centres, where the infant death-rate reaches/

reaches anything between 200 and 300 yet this is no argument against the adoption of the Act. Perth's favourable position does not entitle us to rest on our oars. The argument is rather otherwise. Let us better our record, and bring the infant death-rate to an "irreducible" minimum. Is it possible for a Local Authority to bring about this better record? The "Causes of Death" by themselves alone can furnish an answer.

Roughly, for the purposes of this article the causes of infantile mortality may be divided into General Causes and Special Causes.

GENERAL CAUSES. - Such as poverty, employment of women, and insanitary housing. Undoubtedly poverty in many quarters is the greatest factor, and the one generally underlying many of the other cases. It leads to poor health, lack of energy, and often forces the mother to go out to work. Employment of women means that the children do not get proper attention, and while work, if not of too strenuous a nature, is helpful rather than harmful if not continued too near the expected child-birth, yet not only does the mother suffer by too early a return to employment but the mother is prevented from breast-feeding her child.

Insanitary houses is a condition which acts adversely on infants, adults, and aged; and infants especially/

especially of a weakly nature respond very unfavourably to unwholesome home environment. It is only too true that there is a class existing in all towns, who are not only pleased to live in a state of dirt, but positively revel in it. To them cleanliness is an unknown and undesirable quality, and any attempt to ameliorate their condition is often met with abuse and derision. It is this class it is most desired to reach, and if these people could only be converted to a due observance of plain simple hygienic laws, much good to themselves and to the little ones would follow.

In religion, education, and municipal supervision lies our main hope of attaining this end. Let the Local Authority hasten this change by appointing a Health Visitor - and I am glad to say that Perth during the past few years has effected many sanitary improvements - and it will be found that their efforts will be willingly seconded by social workers and, if required in our city, much valuable assistance given.

In this thesis it is, however, the SPECIAL CAUSES to which I wish to call attention, causes which are preventable or largely preventable. Of the preventable causes, the main ones are those included in the following table under Diarrhoea, Gastritis, Enteritis, and Convulsions; while those largely preventable are Debility, Malnutrition, and Respiratory Diseases./

CITY OF PERTH INFANTILE MORTALITY FOR THE YEARS 1905-1914.

Including deaths without, but belonging to, the Burgh.

C A U S E S	Under 1 day	2 days	3 days	4 days	5 days	6 days	7 days	Total under a week	Under 2 weeks	3 weeks	4 weeks	Total under 1 month	2 months	3 months	4 months	5 months	6 months	7 months	8 months	9 months	10 mths.	11 mths	12 mths	Total	
																									1 month	2 months	3 months	4 months	5 months	6 months	7 months	8 months	9 months	10 mths.	11 mths	12 mths
Premature Birth . . .	83	22	14	7	3	2	4	135	12	9	6	162	9	1	1	..	..	..	..	..	..	..	..	..	173
Malform- Congenital Abnormalities	8	5	4	2	3	2	1	25	4	9	3	41	5	2	4	..	..	..	1	1	..	..	..	..	54
Debility, Malnutrition	2	2	3	1	..	2	..	10	4	6	7	27	15	14	11	10	2	1	1	1	2	1	..	..	85
Convulsions	1	..	..	1	..	..	1	3	2	1	..	6	3	5	4	1	1	1	1	1	1	1	4	..	33
Diarrhoea, Gastritis	..	..	..	..	..	..	..	..	2	6	..	8	10	14	13	15	10	7	4	4	4	1	2	..	92
(Whooping Cough	..	..	..	..	..	..	..	..	..	1	..	1	6	3	2	2	3	3	4	4	5	5	9	4	47
(Measles . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	2	4	1	10
(Diphtheria . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3
(Influenza . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2
Respiratory Diseases	..	..	..	..	..	..	..	..	5	7	4	16	14	13	12	9	5	5	7	4	13	8	3	4	108
Tubercular Diseases	..	..	..	..	..	..	..	..	..	..	..	..	2	3	5	5	7	3	3	4	4	4	3	7	46
Nervous Diseases	..	..	..	..	1	..	..	1	1	..	..	2	2	..	1	3	3	1	2	..	3	..	1	..	18
Syphilis . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	3	..	..	..	..	..	5
Overlain (Suffocation)	..	1	..	..	..	..	..	1	..	1	..	2	2	1	..	2	1	..	..	..	..	..	..	..	8
Burns or Scalds . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
Other Causes . . .	12	1	2	2	2	4	4	27	7	3	8	45	11	7	5	4	3	4	3	3	3	3	1	3	92
TOTAL	106	31	23	13	9	10	10	202	37	42	29	310	81	63	59	55	38	29	27	32	32	32	26	26	778

Infant mortality is at its highest during the first few weeks after birth. Now, a fair proportion of these infants would have died no matter what instructions had been given to the mother at birth (e.g., from Premature Births and Congenital Malformations), and many, of course, had the benefit of medical attendance, though often sought too late, nevertheless there is a large residue of infants which would have survived under proper care and treatment. That this is so is gathered from the fact that deaths of infants among the professional classes are comparatively uncommon. Debility and Malnutrition are frequent causes of death, and these rarely occur among the better classes, and we might well ask ourselves if early visitation of a Health Visitor would not have been the means of saving the infant.

Thus in Perth, during the period under review, 202 deaths or 25 per cent. out of a total 778 occurred during the first week, the chief causes being Prematurity and Congenital Malformations, while within the first month 310 out of the 778 died, Debility, Malnutrition, Gastric troubles, and acute Bronchitis making themselves evident. So great is the havoc, that were it to continue throughout the year there would be no infants left at the end of it. But this number/

number is not the whole measure of the need for early visitation, for many infants who die later succumb as the result of injudicious feeding frequently started immediately after birth.

It may be stated that exceedingly few children are born diseased, and that quite the majority of those in a city such as ours who die before reaching the end of the first year succumb to preventable causes. If this statement is true, then of the 778 infants who die during the last 10 years at least three to four hundred might have been living had they been reared under the most favourable conditions and with the best possible care. The failure to provide these conditions is not often due to lack of affection or anxiety on the part of the mother, although exception may be taken in the case of some mothers of illegitimate children. This maternal feeling is the one which furnishes the best guarantee for the success of any measure which will enable mothers to nurse their babes with fuller knowledge and intelligence.

It will be noted from the foregoing table that a considerable number of the infant deaths occur during the first month - deaths the most of which it is only fair to state could not have been avoided even had a Health Visitor been in attendance immediately after the birth.

In/

In the second month, many of the weaklings who had survived a month succumb at this month. In this month and succeeding months, Debility and Malnutrition continue as a cause of death, while diseases of the digestive system occupy a more prominent place.

A reference to the table shows that during the period under consideration no less than 177 infantile deaths were the result of Debility, Malnutrition, and Gastric troubles. In other words, just on 23 per cent. of the total infantile deaths were due to one or other of these troubles, and it is particularly worthy of note that nearly all of the deaths attributed to these causes occurred before the age of six months.

One cannot but suspect, in fact be sure, that the great majority of these deaths were directly the result of improper feeding or want of proper protection of the milk.

Mother's milk, which is germ free, is the natural food of an infant. In some cases, owing to circumstances, the mother is unable to nurse her child, but in a great number of cases the mother either makes no attempt at securing a supply of breast milk or is indifferent to the fact that there is no equal to the maternal milk. It is a grievous pity that breast feeding is out of fashion. Next to/
to/

to mother's milk comes cow's milk which, properly prepared, makes a fairly good substitute. Unfortunately milk is one of the best mediums for encouraging the growth of the micro-organism which is the cause of so much of our infant mortality in warm weather from Summer Diarrhoea.

But the milk must be pure. In this respect Local Authorities, especially in our towns, have of recent years done much not only in preventing adulterated milk getting on the market, but also in seeing that the conditions under which the milk is gathered are of a high sanitary order, for if cleanliness is required anywhere it is in the cowshed and the dairy. But the milk must be kept pure in the household. It is no exaggeration to say that 95 per cent. of the poorer classes take no precaution to protect the milk from infection. It is generally placed in some stuffy corner and left uncovered, so that it is only a matter of a short time during the summer months for the milk to be contaminated by flies and rendered a virulent poison.

In these days, it does seem strange that many mothers have a hazy idea or rather a wrong idea as to the feeding of infants not breast fed. Milk is a fluid and, being a fluid, they cannot conceive how milk can be a "food," and a nutritious food, nor can they be made to believe that milk which contains
all/

all the elements of an infant's dietary is a complete food. They are obsessed with the thought that what baby requires in order to thrive is something solid. Something "solid" appeals to them and milk, which contains all the essentials, is supplemented by something "solid", which varies according to the number of visits and gratuitous advices from neighbours. These neighbours have themselves had many children, ^{and} are therefore well qualified to give advice. They forget, however, to tell how many of their infants succumbed. The picture is not overdrawn. Anyone with experience among the poorer classes, nay, other classes as well, can bear out what I say. It has been my lot to have seen a child not a month old being fed with potatoes and cabbage, and the mother vainly trying to get the child to swallow it by a plentiful supply of strong tea.

It is little wonder that nature should cry out against such treatment. The wonder is that any of the infants pass through the ordeal, but it is to be borne in mind that it is only the strongest which survive, and even then often with an impaired constitution, rendering them less able to fight the battle of life. We are wrong if we think that the mother knows by instinct what is best for her child, and too often her instructors - her friends and neighbours -/

neighbours - are incapable of imparting the correct teaching.

One word about the nature of the Feeding Bottle. The handy so-called Feeding Bottle, with its long rubber tube, is truly an instrument of torture to infants. It is an impossibility to cleanse such an article, and the whole concern, with its cracks and crevices, forms an admirable medium for the propagation of injurious bacteria. Mothers employ it because the tubing affords an easy means of the child getting "its feed" without the necessity of any supervision.

On the part of some its use may be due to thoughtlessness, but in the case of the majority it is sheer laziness to devote a little time to the infant's feeding.

So certain is its malignant bearing upon the artificially-fed infant that its use should be prohibited by law as is the case in France.

OVERLAYING, as a factor in death returns, might be eliminated if a little more care was exercised. If the child is to occupy its parents' bed, then the attachment of the upper sheet to the clothing of the child under the neck would do much to prevent the bed-clothing from getting over the child's face.

But/

But the safety of the child is best safe-guarded by having a little cot of its own, even if that cot should consist only of an orange box. Nearly all these deaths are discovered on Sunday morning, and point to drinking on Saturday night, the day when wages are paid.

The number of such deaths in Perth during ten years was 8. Not a large number certainly, representing barely 1 per cent. of the total infantile deaths, yet a number which could and should be prevented.

CONVULSIONS as a cause of death figure somewhat prominently. During the past decade 33, or slightly over 3 annually, occurred; and it is particularly to be noted that just on 70 per cent. occurred under the age of six months and that of these 72 per cent. happened under the third, fourth, and fifth months. None of these cases of convulsions were the initial stage of, or secondary to, any acute illness and it is greatly to be feared that injudicious feeding was an important factor in their causation, although "teething" is often blamed.

Teething is a natural process and rarely calls for surgical interference, and I believe it safe to assert that for one case of convulsions arising from teething, a thousand could be attributed to improper/

improper feeding. It is incredible to believe what some infants are called upon to digest, and that nature should rebel when an infant is made to swallow things its mother would refuse, is no wonder. The wonder is how many survive. Not now, however, the survival of the fittest.

RESPIRATORY DISEASES not only occupy a very prominent position in infant mortality, but in great measure are largely preventable. Sixteen deaths occurred before the child was a month old, and, of a total of 108, no less than 69 took place under the age of six months. Nearly all these deaths were the result of Bronchitis, which it is to be noted were not secondary to measles or whooping cough. They were specially common among the poorer classes of parents and guardians, and point to an unnecessary exposure. An infant must have fresh air to breathe, but there is no need to subject the child to drafts and sudden chills, and a tender infant should never be out after sunset.

With reference to Measles and Whooping Cough which were accountable for 57 deaths under one year it may be remarked that nearly all were the result of Bronchitis. Of all the complications which tend to run these diseases to a fatal termination Bronchitis or Broncho-pneumonia is the commonest. In the absence of such complications, these/

these infectious diseases rarely prove fatal. That such troubles do supervene is, I fear, less seldom due to the primary disease as to the untimely exposure of the tender sufferers to inclement weather. The false belief that suffering patients are likely to get more quickly better by being taken out in all sorts of weather, or made to inhale certain pungent odours is one which cannot be too soon eradicated from the public mind.

The more and more one studies these preventable and largely preventable causes of infantile mortality, the more is one impressed with the need of a Health Visitor as one of the measures absolutely necessary to effect an improvement of a condition of things which has lasted too long.

Primarily, the responsibility for the preservation of the infant may be with the parent, but if this fail the Local Authority must step in and do something to prevent the impaired vitality of those weakly children who survive notwithstanding the wrong habits of the parent, and it is to be remembered that it is much easier to stop such habits at the beginning than later, and it is nearly always more possible to prevent illnesses than cure them.

DISTRIBUTION/

DISTRIBUTION OF DEATHS.

This is an important factor for consideration. Not only do different towns and districts differ in their infantile mortality rate, but different parts of a town vary - one part being quite good while another part is correspondingly bad. The following tables will serve to show how Perth is situated in this respect.

I have prepared all the necessary figures for the past ten years, excepting the year 1909 when owing to an extension of the burgh the wards were rearranged. For the purpose, however, it will suffice to take the last five consecutive years.

NUMBER OF BIRTHS, 1910-1914

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6
1910 ...	156	176	119	100	162	51
1911 ...	146	166	94	136	132	66
1912 ...	166	190	105	128	139	49
1913 ...	145	158	79	130	131	43
1914 ...	<u>129</u>	<u>173</u>	<u>95</u>	<u>122</u>	<u>131</u>	<u>58</u>
TOTAL,	742	863	492	616	695	267

giving a total for the City of 3675 births.

During this same period in the wards the deaths numbered:

Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6
106	67	46	60	61	22

giving a total for the City of 362 deaths.

The next table, which is a better guide, shows the infantile death-rate during the past five years, how it not only varies in the different wards during the same year, but in the same ward in different years.

WARD INFANTILE MORTALITY

Death-rate per 1000 Births.

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6
1910.	77	90	92	100	67	58
1911.	212	78	85	147	128	106
1912.	126	68	104	70	93	61
1913.	151	75	139	84	114	162
1914.	155	75	52	73	37	34

What strikes one most is that with the exception of the year 1910 Ward 1 has always exceeded the 100, and I may remark that in the preceding five years the figures for this ward varied from 111 to 158. But a clearer idea of how ward 1 is in an unsatisfactory position is gained if we take the period of five years as a whole instead of each year separately.

AVERAGE ANNUAL INFANT DEATH-RATE, 1910-1914.

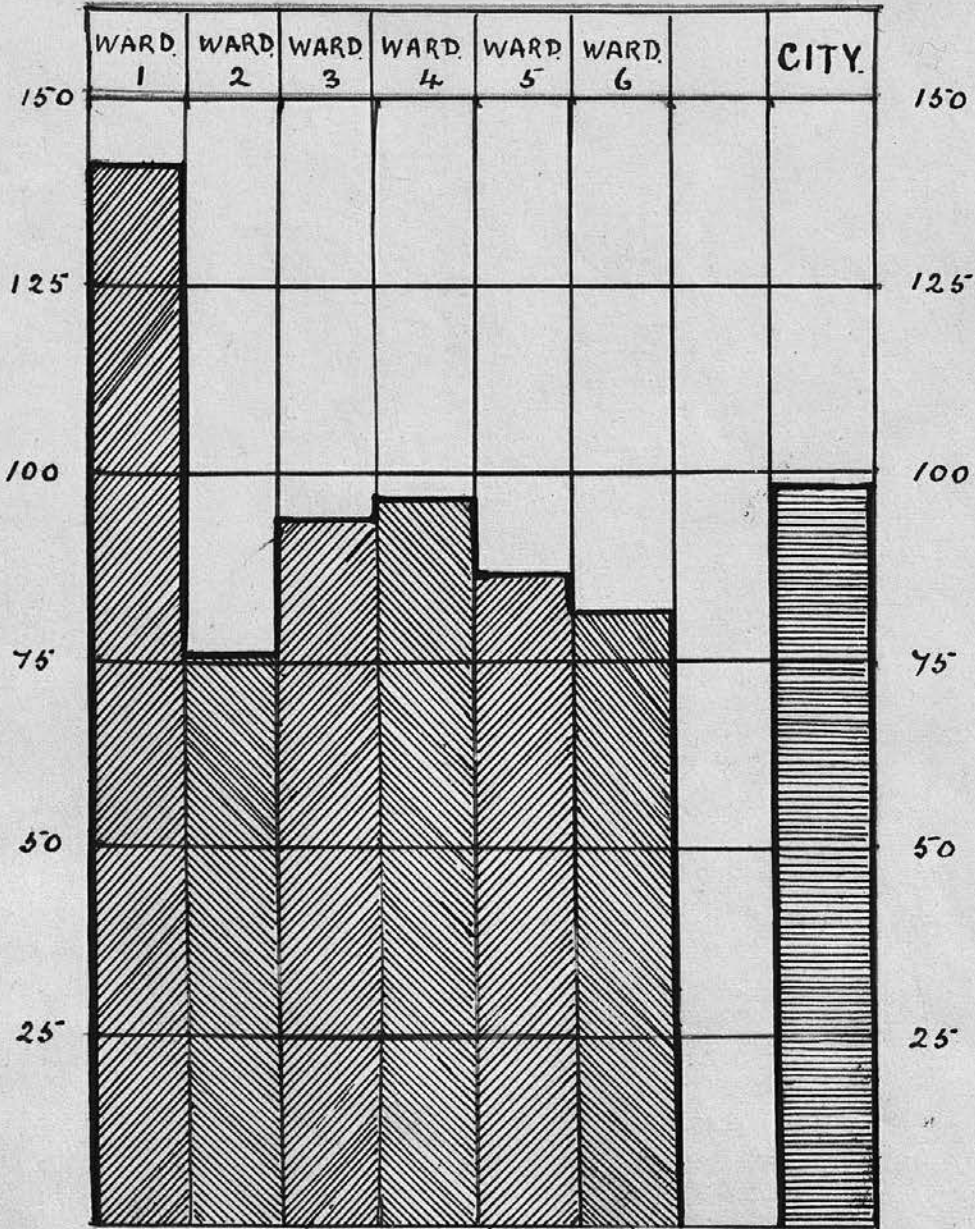
Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6
142	77	93	97	87	82

As already stated, during this period there were 3675 births and 362 infant deaths. This gives an average infant death-rate for the whole of the City during the quinquennium of 98 per 1000 births.

The following chart graphically represents the different degrees of infant mortality in the wards of the City.

COMPARATIVE WARD CHART FOR YEARS 1910-1914.

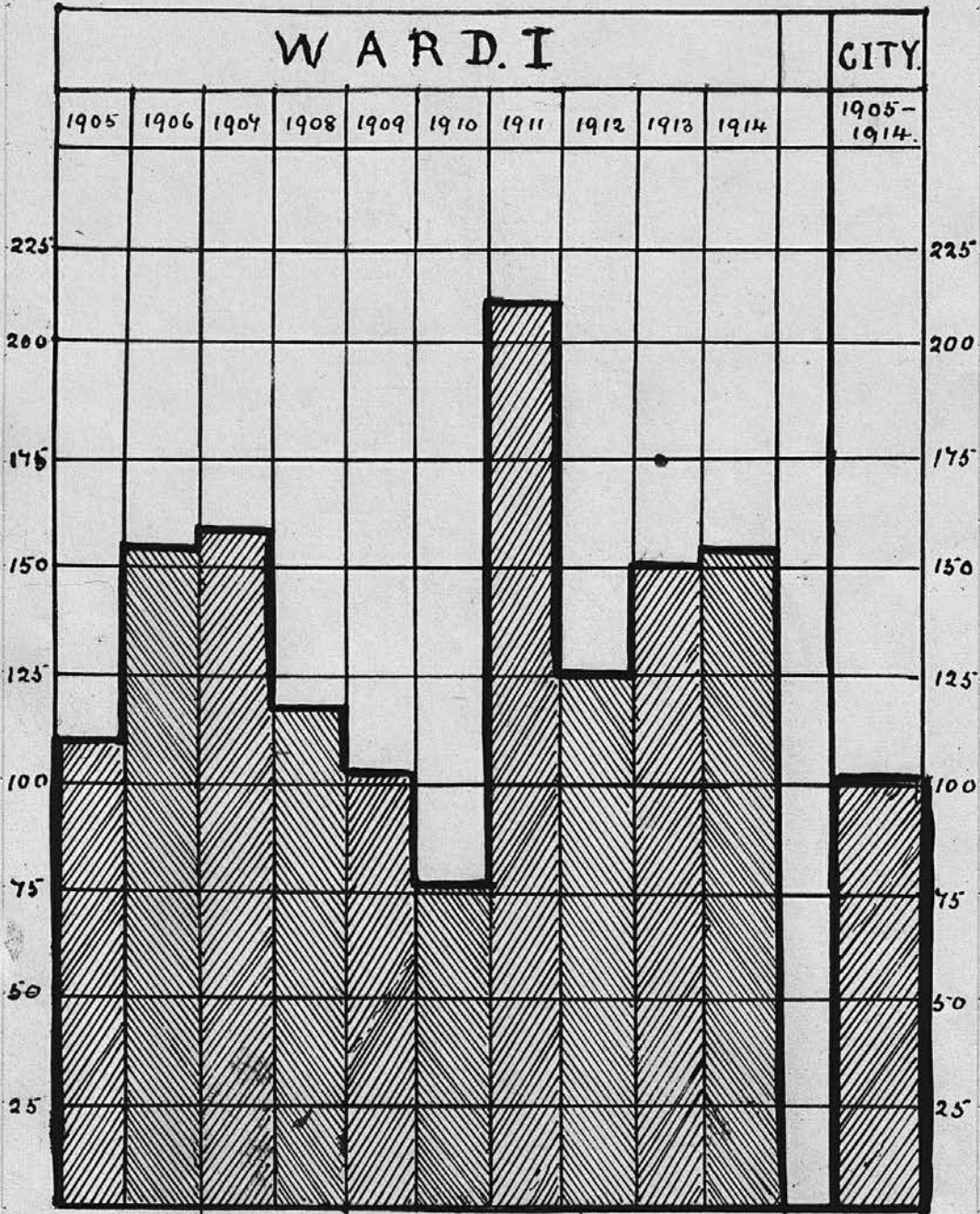
(Infantile Death Rate per 1000 Births)



I have already, early in the report, referred to Perth's favourable position as to infant mortality, how its infantile death-rate was 107 per 1000 during the past sixteen years, a rate of 102 during the past ten years, and now, as borne out by the foregoing chart, a rate of 98 per 1000 for the last five years. But although there is a general decline, the fact remains that in Ward 1 the infantile death-rate is not only higher than the other wards, and considerably higher than even a standard of 100, but it shows no tendency to decline, in fact, rather the reverse.

As no alteration occurred in Ward 1 during the extension of the Burgh, the following table relates to the past ten years instead of five years.

CHART SHOWING THE INFANTILE DEATH RATE PER 1000
IN WARD I DURING THE PAST TEN YEARS.

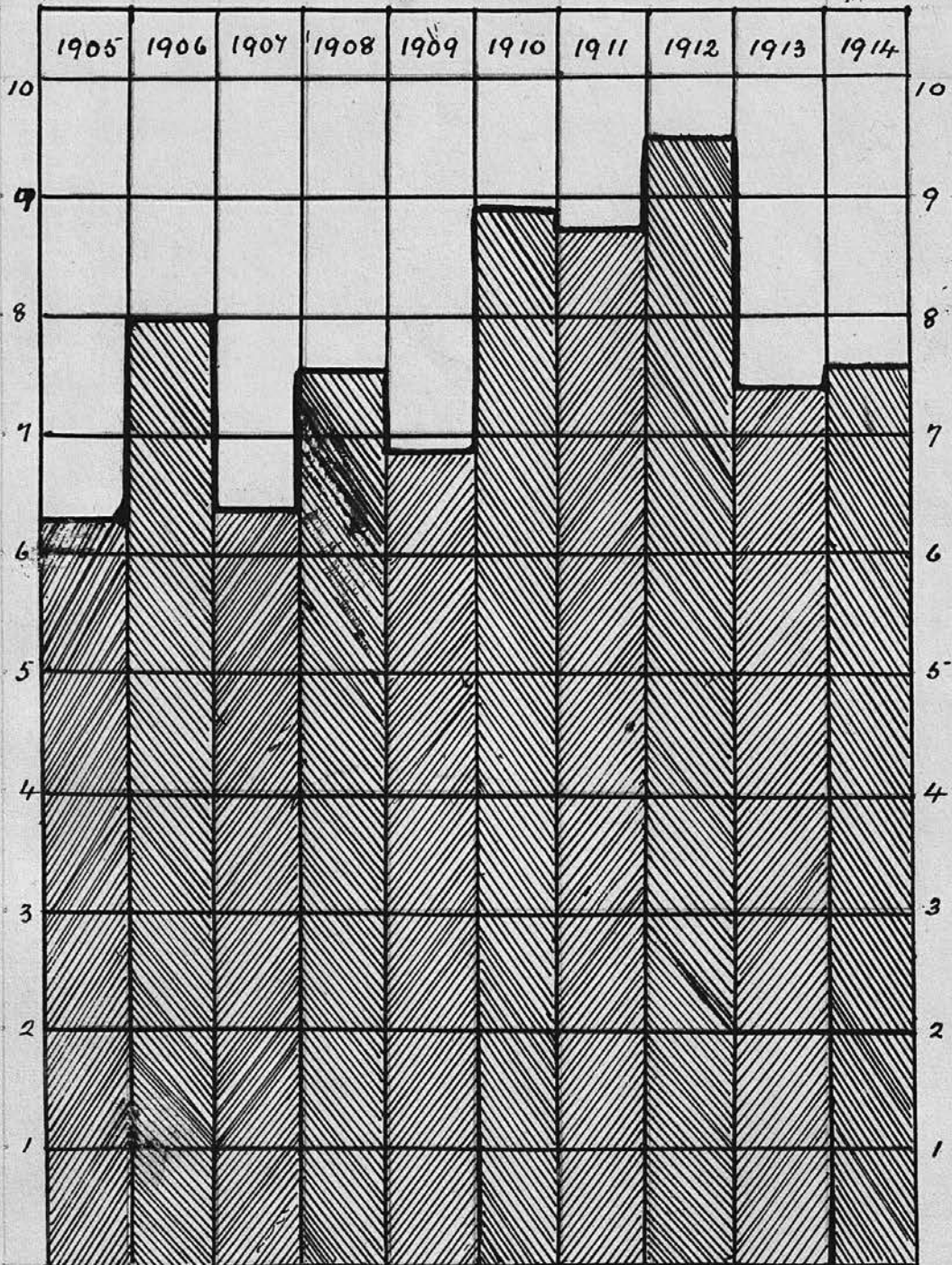


I L L E G I T I M A C Y .

It is impossible in considering the question of infantile mortality to leave out this subject.

In Perth the number of illegitimate children born in the past sixteen years was 896, an average of 56 annually. For the past ten years the average was 58, and for the last five years 61. But these figures by themselves would not be a fair basis of coming to a conclusion that the illegitimate rate showed a tendency to increase (e.g., increase of population). The number of births for the corresponding periods must be taken account of, and the relative proportion of legitimate to illegitimate ascertained.

PERCENTAGE OF ILLEGITIMATE BIRTHS, 1905-1914.



During the last sixteen years, the number of births in Perth was 12,451 of which 896 were illegitimate, giving an illegitimate rate for that period of 7.19 say 7.2 per cent. During that time the rate fluctuated considerably, being at its lowest in 1902 with 5 per cent. and recording its highest in 1912 with a percentage of 9.5. If periods of five years be taken, we find that the percentage of illegitimate births was as follows:-

1900-1904	=	6.4
1905-1909	=	7.
1910-1914	=	8.2

The conclusion thus is that there has been during past years a true increase in the illegitimacy rate. It is not the province of this thesis to discuss the causes of this illegitimacy or the reason of its increase during later years, but when cognisance is taken of the respective death-rates among legitimate and illegitimate children as shown by the following charts one can only be impressed with the thought that the Local Authority are only doing their duty in sparing no effort to prevent the wastage of infant life among this unfortunate class of babes.

TABLE/

TABLE SHOWING THE NUMBER OF BIRTHS AND DEATHS
OF LEGITIMATES AND ILLEGITIMATES, WITH
PERCENTAGE OF DEATH DURING YEARS 1905-1914.

Year	Legitimate			Illegitimate		
	Births	Deaths	Percentage of deaths	Births	Deaths	Percentage of Deaths
1905.	768	87	11.3	52	7	13.4
1906.	709	62	8.7	62	14	22.5
1907.	738	75	10.1	51	11	21.5
1908.	717	75	10.4	59	16	27.1
1909.	735	44	7.3	55	12	21.8
1910.	703	58	8.2	61	6	9.8
1911.	675	74	10.9	65	22	33.8
1912.	703	55	7.8	74	17	22.9
1913.	635	65	10.2	51	13	25.4
1914.	654	42	6.4	54	13	24.0

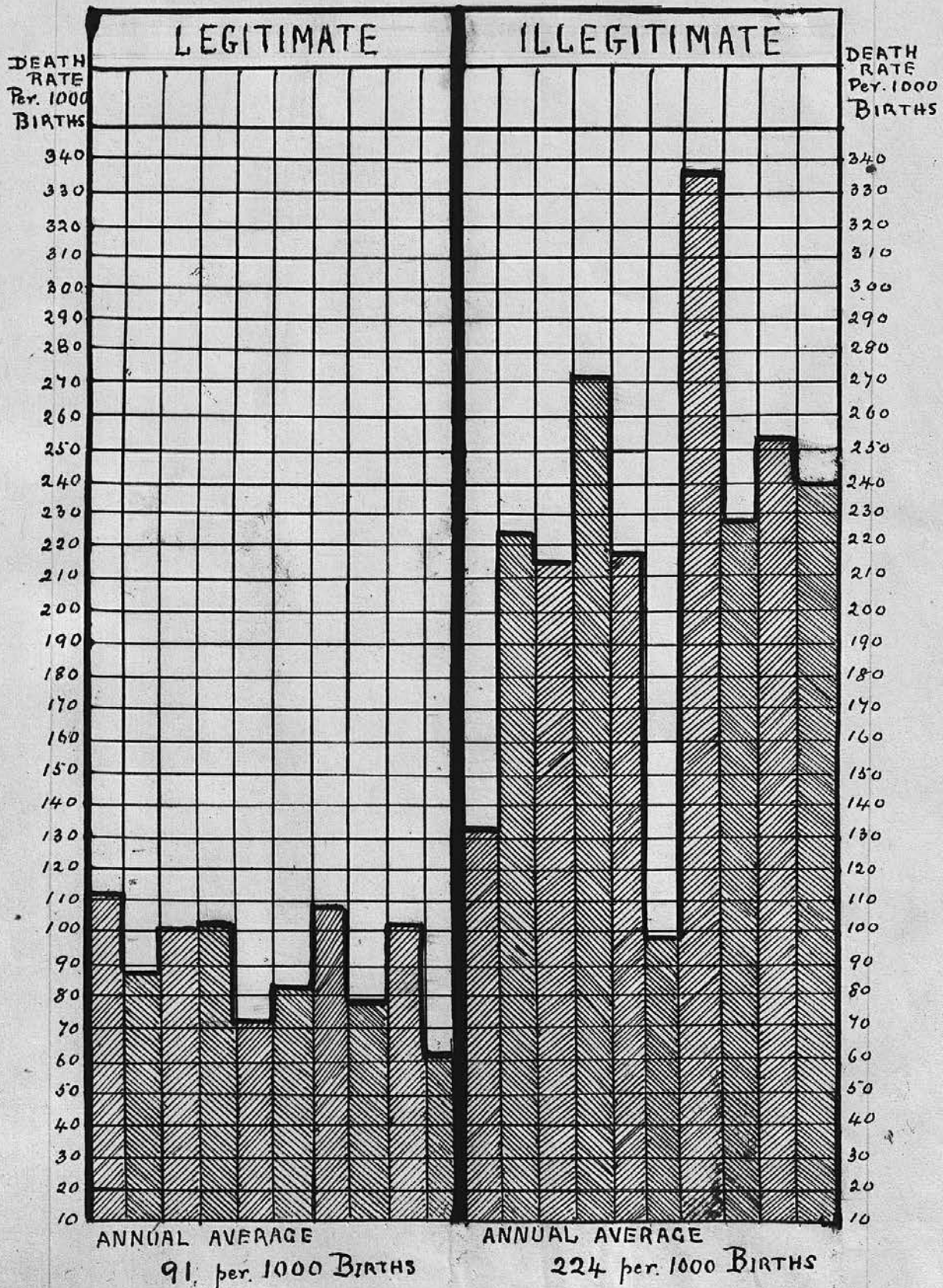
The Table may be summarized thus:-

	Legitimate	Illegitimate
Births	7035	584
Deaths	647	131
Percentage of Deaths ...	9.1	22.4

In other words, one death occurs in every eleventh case among the legitimates as compared with close on one death in every fourth case of the illegitimates.

The following chart will perhaps make the marked difference between the case of the legitimate and illegitimate class more apparent.

CHART SHOWING THE DEATH RATE AMONG THE LEGITIMATE
AND ILLEGITIMATE FOR THE PAST TEN YEARS.



Why is it, then, that there should be such a disparity between the mortality of legitimate and illegitimate infants, more particularly when we recognise that illegitimate children at birth, taken as a whole, are as healthy as legitimate ones ?

Many are boarded out. The mother may dispose of her child either by boarding out for a lump sum and getting rid of the infant entirely or she may pay a weekly charge. The former led to many bad practices, not the least of these was the interest that the "baby farmer" had in having an early disposal of the child with consequent greater profit. The latter method is the more common, yet also renders itself to many abuses of the infant, such as want of care, uncleanness, bad feeding, exposure, and general neglect.

These children are not worthless and the best chance lies, where possible, in keeping the child and mother together for some time after the birth or putting it under conditions where it can obtain the attention of motherly care. It is pleasing to know that the Children's Act, 1908, has been instrumental in largely diminishing the wholesale traffic and dealings among babies of this class. In Perth, the number of children boarded out by the Parish Council was 37, while in addition, in accordance with the Children's Act, there were 55 on the register on 15th May of this year. The former are boarded out at 4/-, and the latter at sums varying up to 5/-.
Yet/

Yet much remains to be done. The higher mortality among these illegitimates varies according to the care bestowed, especially during the first few weeks, and the deplorable leakage which is going on could be largely prevented by the visitations of a tactful, experienced Health Visitor.

GOVERNMENT GRANT.

The Local Government Board recognise that the efforts which many Local Authorities and voluntary agencies have made have undoubtedly helped to secure improved conditions for children, and has played an important part in the campaign for the reduction of infantile mortality, and that of very great importance is the work of home visitation by a Health Visitor or Visitors. So much is this the case that the Board are willing to consider applications for grants which will be made in aid of expenditure in respect of clinics, dispensaries, and other institutions primarily concerned with the provision of medical and surgical advice and treatment as well as in respect of the salaries of Health Visitors. The grant will normally amount to one-half the approved expenditure on any of these purposes but may be less if the Board decide.

In order to gain some idea as to how other places were tackling this serious problem of infantile mortality, I communicated with several towns in Scotland/

Scotland and England. The answers to the queries submitted form an appendix at the end of the article, but the following summary may prove serviceable.

The populations given are only approximate.

SCOTLAND.- Sixteen towns were communicated with, the population varying from over a million in Glasgow to 21,850 in Stirling.

The infantile death-rates of the various towns are only for the year 1914 and, being for one year only, are of no comparative value. Had it been possible, I would have liked to have furnished the rates for a period of ten years. The rate varied from 140 in Stirling and 135 in Dundee to 78 in Dumbarton and 98 in Falkirk. Perth's rate for the same year was 77.

In all of them the "Notification of Births" Act is in force and twelve are of opinion that the Act has had an appreciable effect in decreasing the infantile mortality. Edinburgh remarks the movement has been an unqualified success, Dundee says it is impossible to estimate the result of any particular agency, while the Medical Officer of Aberdeen says it is difficult to say although it has greatly assisted in obtaining early information of births, and therefore of the cases requiring to be visited by our Health Visitors. Wishaw is not yet in a position to give a definite answer. Dumbarton answers no.

As/

As regards Day Nurseries, Glasgow and Dundee have 6; Edinburgh 4; Aberdeen, Paisley, Leith, and Greenock 1; while the other towns have none. There is one in Perth. None of these nurseries are under the control of the Local Authority, but the Corporation of Dundee gives a grant of £130; Aberdeen £25; and Glasgow £50, the latter city having at present under consideration the question of granting an increase. All the towns have one or more trained Health Visitors under their control excepting Motherwell. Glasgow and Aberdeen have 10 and 3 respectively, while Dundee, Paisley, Leith, and Greenock have 2. The salaries vary from £65 to £120. In Motherwell the work is done by the District Nursing Association, towards which the Corporation gives a donation of £100.

ENGLAND. - Twenty-one towns replied to my communication, their infantile death-rate for 1914 varying from 139 in Doncaster to 58 in Bedford. In all of them, excepting Maidstone and Torquay, the Act is in force, while the latter town has agreed to do so but regulations are not in force yet, With reference to the query as to whether or not the Act has had any appreciable effect in decreasing the infantile mortality all answered yes, excepting Barnsley and Bedford, the former replying "not as yet", and the latter "no, any effect must be gradual".

With/

With reference to Day Nurseries, only six of the towns have such institutions, Birmingham has several; Poole, 3; Brighton, 2; and Carlisle, Ramsgate, and Macclesfield, 1. None are under the control of the Corporations. On the other hand, nearly all the towns provide Health Visitors—Birmingham has 30; Bradford, 20; and Brighton, Bath, Bury, Macclesfield, and Mansfield have 2. With the exception of Maidstone and Rochester, which have no Health Visitor; and Torquay, which has not one as yet, all the others have 1. The salaries of the Health Visitors range from £75 to £120.

C O N C L U S I O N S .

1. That in Perth, as elsewhere, the birth-rate is on the decline, and it is incumbent upon us to give those that are born every chance of surviving and becoming strong and healthy.
2. That Perth, as compared with the principal towns of Scotland, occupies in respect to infant mortality, a most favourable position.
3. That, notwithstanding, there is room for improvement.
4. That the infant mortality is highest in Ward I, and it is particularly to this quarter that attention must be devoted.
5. That deaths among illegitimate infants are much more numerous than among legitimate infants.

6. That a large proportion of deaths of infants result from preventable causes, e.g., injudicious feeding, exposure, and want of care.

7. That Perth is the only one of all the towns communicated with in Scotland which has not adopted the Act, and which has not a Health Visitor.

8. That it is of little use adopting the Act unless it be followed by the appointment of a Health Visitor.

As already explained, the causes of the excessive infantile mortality are various, many remediable by the people themselves, while with others the responsibility of removal must be shared by landlords and Local Authorities. The public conscience has been awakened and, though much has been done, more remains to do and can be done. Many agencies are at work and, of all the means we have of reducing infant mortality, the work done by Health Visitors is perhaps the most useful.

A Health Visitor - one who is thoroughly experienced in the management of infants and endowed with a fair share of tact and common sense - can do much to counteract the evils so often arising from ignorance, carelessness or indifference. Such a Health Visitor, too, could by her influence do much to improve unwholesome habitations and, where insanitary conditions were due to no fault of the household, could/

could report to the Medical Officer.

But, while the saving of infant life will form the primary object of the visitation, it will be found impossible to deal ^{with} it as a detached factor, and the personal influence of an educated and sympathetic woman brought into intimate contact with her poorer sisters cannot fail to operate for good in directions beyond the original object of her visit. It may really, indeed, afford one of the most powerful influences for social reform yet attempted.

The fact that Perth as a whole is favourably situated as regards its infantile mortality must not supply any ground for slackening of effort. Rather it furnishes a stimulus to fresh effort. In the words of Mrs Arnoldi:-

"The saving of babies - the preservation of infant health, can be accomplished in only one way, and that is to awaken the active interest of everybody in the problem on behalf of the little ones and then join the hands of the mother, the family physician, the infant specialist, and the trained nurse, in the one grand effort to reduce infant mortality. The purpose is so high, so imperative, so humane, that it appeals to the common-sense of everyone,"

Queries	Glasgow	Edinburgh	Dundee	Aberdeen	Faisley	Leith
Estimated Population for 1914.	1,055,930	328,700	176,584	164,800	86,593	80,241
1. Infantile Death Rate for 1914.	131	110	135	121	133	99
2. Is the Notification of Births Act in force? (a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality? ...	Yes Little difference in the mortality returns.	Yes Yes. The movement has been unqualified success.	Yes Impossible to estimate the result of any particular agency.	Yes Difficult to say, but obtain early information, and therefore early Visitation of Health Visitors.	Yes Yes	Yes By indirect means it will.
3. Day Nurseries. (a) How many are in City? (b) Are they under the control of, or financially supported by, your Local Authority? ...	6 A donation of £50 granted by the Corporation, but increased financial assistance at present under consideration.	4 No.	6 No; but a Grant of £130 per annum is given from Common Good.	1 No; but Health Visitors give active assistance. Town Council votes £25 a year to the clubs.	1 No.	1 No.

Queries	Glasgow	Edinburgh	Dundee	Aberdeen	Faisley	Leith.
Estimated Population for 1914.	1,055,930	3 28,700	176,584	164,800	86,593	80,241
4. Trained Health Visitors (a) How many have been appointed? (b) Salary	10 £85 to £120	1 £120	2 £88:8/- with £8 per annum for uniform.	3 32/- to 46/- weekly with uniform.	Two for Infantile Work. Commencing £25/- per week.	2 £70 to £110 £5 for uniform.
(c) Are the duties confined to the welfare of infants?	Yes	Yes	not altogether They visit the poorer quarters	Practically	Yes	One nurse's duties are.
5. Maternity Clinic. Is such provided, and if so -						
(a) How many?	14 Consultations.	-	2	No special Maternity Clinics, but mothers attend some five clubs.	A certain number Mothers with babies attend the Tubercu-osis Clinic cases of malnutrition diarrhoea, etc.	1 Children's Clinic.
(b) Capital Cost	These consultations, except that at the Sanitary Chambers, are rendered at 2/6 per week.	-	Managed by the Social Union. Have only been in existence since last June.			Only recent-ly estab-lished.
(c) Annual cost of maintenance						
(d) Average weekly number attending	81	-				14.

Queries	Greenock	Motherwell	Hamilton	Kirkcaldy	Ayr	Falkirk.
Estimated Population for 1914.	80,000	41,300	41,000	40,658	33,471	34,066
1. Infantile Death Rate for 1914.	108	101	118	106	131	98
2. Is the Notification of Births Act in force	Yes	Yes	Yes	Yes	Yes	Yes
(a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality?	Yes	Yes; rate has declined from an average of 135 for years 1899-1908 to 101 at present date.	Yes	Yes	Yes	Yes
3. Day Nurseries.	1	None	None	None	1	None
(a) How many are in City?	1					
(b) Are they under the control of, or financially supported by, your Local Authority?	No; under voluntary control.				No	

Queries	Greenock	Motherwell	Hamilton	Kirkcaldy	AYT	Falkirk
Estimated Population for 1914	80,000	41,300	41,000	40,658	33,471	34,066
4. Trained Health Visitors (a) How many have been appointed? (b) Salary ... (c) Are the duties confined to the welfare of infants? ...	2 £75, with Uniform Yes	Motherwell & District Nursing Association. Donation of £100 a year; also Tuberculosis supervision.	1 £80 per annum Yes	1 £30; also as Tuberculosis Nurse at £35	1 £80 to £120 Yes	1 £70, £5 for uniform.
5. Maternity Clinic. Is such provided, and if so - (a) How many? ... (b) Capital cost ... (c) Annual cost of maintenance.	No; but the District Nurses from time to time hold classes for expectant mothers	None	None	None	None	None
(d) Average weekly number attending.						

Queries	Dumbarton	Wishaw	Stirling	Inverness	Birmingham	Bradford
Estimated Population for 1914.	21,989	25,420	21,850	22,216	850,947	291,500
1. Infantile Death Rate for 1914.	78	119	140	-	122	121
2. Is the Notification of Births Act in force. (a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality?	Yes No(?)	Yes Too soon to say.	Yes The mortality of infants over four weeks and under 1 year of age has been appreciably lowered.	Yes Yes	Yes Yes	Yes Yes
3. Day Nurseries. (a) How many are in City (b) Are they under the control of, or financially supported by, your Local Authority?	None	None	None	None	Several	None; Creches a present consideration -

Queries	Dumbarton	Wishaw	Stirling	Inverness	Birmingham	Bradford
Estimated Population for 1914.	21,989	25,420	21,850	22,216	850,947	291,500
4. Trained Health Visitors.	1	1	1	1	30	20
(a) How many have been appointed? ...		£85	£90 per annum	£80 and £20 from Parish Council for boarded-out children. Also visits certain tuberculous cases.	30/- rising to 40/- on approved service.	£95 to commence.
(b) Salary ...	£80					
(c) Are the duties confined to the welfare of Infants? ...	Yes	Also advice to prospective mothers.	No		Mainly, but also certain work in regard to young children.	Principally
5. Maternity Clinic. Is such provided, and if so how many? ...	No	No	No	No		Yes
(a) How many? ...						1. With Hospital.
(b) Capital cost ...	-	-	-			About £2000
(c) Annual cost of maintenance ...	-	-	-	Health Visitor conducts classes.		About £1000
(d) Average weekly number attending ...	-	-	-			Only recently opened.

-ishing for the new centres is about £200 each. Annual cost, £400 to £500.

Queries	Brighton	Bath	Barnsley	Exeter	Bury	Carlisle
Estimated Population for 1914.	131,237	70,292	50,263	59,190	59,213	52,530
1. Infantile Death Rate for 1914.	-	59	-	84	Not yet obtainable.	122.4
2. Is the Notification of Births Act in force? ...	Yes	Feb. 10, 1907.	Yes	Yes	Yes	Yes
(a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality?	It allows the early visitation of infants, and in the poorer families this is frequently desirable.	Yes	Not as yet	Yes; reduced from 149 (average for 10 years, 1897-1906) before to 84.	Yes	Has had the effect of decreasing infant mortality.
3. Day Nurseries.	2	None now				1
(a) How many are in City?						
(b) Are they under the control of, or financially supported by, your Local Authority? ...	No; but 2 infant welfare centres are entirely financed by the Council.	-	None	None	None	No

Queries	Brighton	Bath	Barnsley	Exeter	Bury	Carlisle
Estimated Population for 1914.	131,237	70,292	50,263	59,190	59,213	52,530
4. Trained Health Visitors.	2	2	1. acts as Inspector of Midwives. £85	1	2	1
(a) How many have been appointed? ...						
(b) Salary ...	£100 and uniform.	£90 to £100				
(c) Are the duties confined to the welfare of infants? ...	Also visit phthisis patients.	Yes, 1; Second visitor for children over 1 year.	Yes	No; includes tuberculosis	No; also visiting tuberculosis cases, measles, chickenpox etc.	Yes
5. Maternity Clinic. Is such provided, and if so -	Not by the Corporation; The Women's Hospital serves this purpose.		No	1; started by voluntary effort Council subscribes £75 per year towards cost.		No
(a) How many? ...						
(b) Capital Cost ...						
(c) Annual cost of maintenance ...						
(d) Average weekly number attending.						

Queries	Mansfield	Chatham	Maldstone	Poole	Bedford	Chesterfield
Estimated Population for 1914.	42,261	42,250	35,475	41,880	40,596	40,465
1. Infantile Death Rate for 1914.	109	97	88	77	58	103
2. Is the Notification of Births Act in force?	Yes	Yes	No	Yes	Yes	Yes
(a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality? ...	Yes	Yes	-	Yes; certainly	No; any effect must be gradual	Yes; considerable difference in the mortality returns.
3. Day Nurseries.				3		
(a) How many are in City?						
(b) Are they under the control of, or financially supported by, your Local Authority? ...	None	None	None	No	None	None

Queries	Mansfield	Chatham	Maidstone	Poole	Bedford	Chesterfield
Estimated Population for 1914.	42,261	42,250	35,475	41,880	40,596	40,465
4. Trained Health Visitors.						
(a) How many have been appointed? ...	2	1		1	1	1
(b) Salary ...	1 £80-£100; 2 £80.	£70	None	£100	£90 rising to £100	£90
(c) Are the duties confined to the welfare of Infants?	No	No; she assists the school nurse		Yes	No; acts as school nurse also.	Yes
5. Maternity Clinic. Is such provided, and if so -	The Town Council have authorised the M.O.H. to provide skilled attendance during labour and confinement when necessary since the outbreak of war, and also treatment of all-ments during pregnancy.	None	No	Not yet	No	Four infan-consultatic centres - one in each ward-average attendance 20 at each.
(a) How many? ...						
(b) Capital cost ...						
(c) Annual cost of maintenance ...						
(d) Average weekly number attending ...						

Queries	Chester	Torquay	Colchester	Rochester	Ramsgate	Doncaster
Estimated Population for 1914.	39,700	39,200	43,452	31,652	30,241	31,039
1. Infantile Death Rate for 1914.	85	83	82	79	98	139
2. Is the Notification of Births Act in force	Yes	The Council have agreed to it.	Yes	Yes	Yes	Yes
(a) If in force, has it in your opinion had any appreciable effect in decreasing the Infantile Mortality?	Markedly	-	Decidedly so	We think so	Yes	Yes
3. Day Nurseries.	None; baby clinic.	-	None	None	1	None
(a) How many are in City?	-	-	-	-	-	-
(b) Are they under the control of, or financially supported by, your Local Authority?	-	-	-	-	General supervision by Medical Officer of Health.	-

Queries	Chester	Torquay	Colchester	Rochester	Ramsgate	Doncaster
Estimated Population for 1914.	39,700	39,200	43,452	31,652	30,241	31,039
4. Trained Health Visitors.						
(a) How many have been appointed? ...	1	None yet	1	None	1	1
(b) Salary ...	£100-£120	-	£80		£80	£120
(c) Are the duties confined to the welfare of infants? ...	Also some visiting in connection with tuberculosis.	-	Also tuberculosis nurse.		No; visiting of notified cases of tuberculosis etc.	Also school nurse.
5. Maternity Clinic. Is such provided, and if so -						
(a) How many? ...	No; just starting "Talks to Mothers"	Only being started by voluntary effort.	No	No	Mothercraft Club - 1 M.O.H., Hon. Adviser.	No; owing to increase of population two other nurses to be appointed.
(b) Capital Cost ...	"Anti-natal Visiting" and supervision of children up to school age.					
(c) Annual cost of maintenance ...						
(d) Average weekly number attending...						