INFANT MORTALITY

THIRD REPORT

BY

DR. HELEN MacMURCHY

TORONTO

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

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WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO.

INFANT MORTALITY.

To The Hon. W. J. Hanna,
Provincial Secretary.

Sir,—All over the world interest in Infant Mortality has been increasing. In Canada this was marked in 1911. It has been the subject of numerous public addresses. The chief newspapers in Halifax, Montreal, Ottawa, Kingston, Peterborough, London and Berlin have devoted leading articles to this subject. The *Kingston Daily Whig* says: "It is a great problem and the Provincial Government should try and solve it."

The *Montreal Daily Star* emphasizes the duty of the large cities of Canada in regard to Infant Mortality.

The *Ottawa Free Press* says: "Governments in this country spend hundreds of thousands to teach the farmer how to raise colts and calves and pigs. Not a dollar is spent to teach the mother how to rear her young. The light seems to be breaking, however, and it is to be hoped that the Ontario Government will initiate steps to carry out the recommendations of its investigator."

The *Peterborough Examiner* says: "Herein is raised a more important question than reciprocity or tariffs. These have to do with our pockets; but the question of marriage of the fit or unfit has to do with the quality of our homes, the good or bad quality of our population."

No Excuse.

The *Toronto World* says: "There will be no excuse for us until we have a very much better rate. In fact, the death-rate for babies ought to be less than that for adults. Young fathers and mothers ought to take pains to learn the few necessary things which babies need to keep them living and well."

It remarks in another issue, referring to a table in the Second Report showing the relative Infant Mortality of all the cities of Ontario: "Does the City Council wish to get Toronto any lower on this list?"

Enquiries About Infant Feeding.

Interest has been shown further by a number of letters received at the Provincial Secretary's Department. Some of these letters have asked for information as to the feeding of infants, and a few notes on that subject have, therefore, been added to this Report.

Letters from Abroad.

Other letters came from London, Liverpool, Edinburgh, New York, Boston, Philadelphia, Washington, Chicago, Australia, and New Zealand. From the Department of Health in Chicago came a request for 50 copies of the Report for the

use of as many nurses who were employed by the Department under Dr. Caroline Hedger, in the successful effort made by them in 1911, to reduce Infant Mortality. This request was granted by the Hon. W. J. Hanna. The Report is now out of print.

The Work of Two Canadians.

Two important pieces of work were done in Ontario in 1911 on Infant Mortality. One was a thesis presented for the degree of M.A. in the University of Toronto on the Vital Statistics of Ontario and the Registration of Births in Toronto. The other was the work of a graduate in Medicine of the University of Toronto who was appointed Medical Health Officer of Fort William in 1910.

The thesis presented by Mr. R. E. Mills, B.A., Fellow in the Political Science Department, aimed to review and criticise the Vital Statistics of Ontario at present available in such a manner as to provide a statistical basis for future practical campaign work in connection with the improvement of birth and death rates, and especially the infant death-rate; and also to make a plea for better statistics from which to work in future.

Mr. Mills' line of argument is somewhat as follows:

So long as the census figure for net births in Toronto, viz., 20.4 per 1,000 population is obtained by taking the sum of the following—

Number of children living under 1 year of age; number of children living in census year who died under 1 year of age, it cannot be wondered at that we find the birth-rate for Toronto (given in the Report of the Registrar-General for Ontario as 21.8, which Mr. Mills finds to be 25 per cent. too low), still more misleading than the Ontario returns.

In Ontario We Have—

1. The Registrar-General—The Provincial Secretary. 2. Deputy Registrar-General—The Secretary of the Provincial Board. 3. Division Registrars—The Municipal Clerks.

The Division Registrars are paid (59 Vict. Ch. 2, S. 24) 20 cents for each registration. (Cities and towns of more than 10,000 population may limit the aggregate sum to be paid.)

The law provides, R.S.O., 1897, Ch. 44, S. 15:

1. That the birth shall be notified to the Division Registrar—
   (1) Within 30 days.
   (2) By the father or by the mother or by some person standing in his or her place, or by the occupier of the house where the child is born, or by the nurse present at the birth.
2. That the birth shall be notified to the Division Registrar forthwith by the attending physician.
3. That the penalty of non-fulfillment shall be not less than $1.00, and not more than $10.00 and costs.

From the Church Register.

In order to have a basis of facts and figures for this matter Mr Mills transcribed from the register of baptisms in five churches of Toronto the following particulars from January to November, inclusive, 1908:

1. Name of each infant baptized.
2. Date of each infant's birth.

3. Name and address of father and mother. (These five churches were selected with a view to representing all classes of the population, but unfortunately no way presented itself of including the Jewish population of Toronto, which is now stated to be about 20,000.)

The Five Churches.

Name of Church.	No. of Births
St. Paul's (R. C.)	117
Our Lady of Lourdes (R. C.)	23
St. Paul's (C. E.)	45
St. Patrick's (R. C.)	98
St. Anne's (C. E.)	92
	375

TORONTO'S REGISTER OF BIRTHS.

In the office of the City Clerk of Toronto there is kept an alphabetical birth register. Each of these 375 children's names was then searched for in the register and 268, or 71.5 per cent., were found.

As shown by the following table:

	Registered.	Per cent.	Unregistered.	Per cent.	Total.
St. Paul's (R. C.)	80	68.4	37	31.6	117
Our Lady of Lourdes (R. C.)	17	73.9	6	26.1	23
St. Paul's (E. C.)	37	82.2	8	17.8	45
St. Patrick's (R. C.)	57	58.2	41	41.8	98
St. Anne's (C. E.)	77	83.7	15	16.3	92
	268	71.5	107	28.5	375

QUESTIONS.

But how many children were not baptized at all?

What about the illegitimate infants, of whom only three or four were found among the 375?

What nationality were the parents?

In order to answer this last question Mr. Mills compiled the following, again comparing with the City Register of Births. Children baptised in St. Patrick's Church (R.C.), arranged according to the birthplace of the father, January to November, 1908:

Fathers born in—	Total number Baptised.	Number registered.	Per cent. unregistered.
Canada	32	11	34.4
Italy	37	12	32.4
Poland	10	7	70.0
Syria	5	4	80.0
Austria	3	3	
Germany	1	0	
China	1	1	
United States	2	2	50.0
England	5	1	
Scotland	1	0	
New Zealand	1	0	
	98	41	41.8

Only 75 Per Cent. of Births are Registered.

The conclusion drawn by Mr. Mills is that 25 per cent. may be taken as a fair estimate of the error in Registration of Births in Toronto.

One-fourth of our births are not registered or numbered at all. This, he points out, would make the number of births in Toronto in 1908, 10,584 instead of 7,938, and the birth-rate per 1,000 population 46.1 instead of 34.6 in Toronto. In Ontario, assuming that an equal error exists, the number of births in 1908 would be 76,207 instead of 57,155, and the birth-rate per thousand population would be 34.1 instead of 25.6.

Births Registered Twice.

Mr. Mills has made the interesting discovery that some births are registered twice. Out of 636 birth registrations in the City Register for Toronto no less than twenty, or over 3 per cent., are found to be registered twice. This may explain in part the discrepancy in the following figures:—

Number of Births in Toronto.

—	City Clerk's Returns.	Registrar General's Returns.
1900	4,530	4,534
1901	4,445	4,445
1902	5,065	5,044
1903	5,040	5,041
1904	5,283	5,286
1905	5,816	5,826
1906	5,985	5,985
1907	6,715	6,680
1908	7,945	7,938

The following tables were prepared by Mr. Mills from the census figures:

Number of children under 5 years of age per 1,000 population of all ages.

Year.	—	Year.	—
1871	144	1891	120
1881	131	1901	103

Number of Children under 5 years of age per 1,000 women of 15 to 45 years of age.

Year.	—	Year.	—
1871	650	1891	477
1881	571	1901	424

Total number of children living under 5 years of age.

Year.	—	Year.	—
1871.....	232,596	1891.....	239,847
1881.....	252,053	1901.....	224,582

WHAT DOES THIS MEAN?

What do these Dominion Census figures mean for Ontario? With a larger population in 1901 we have actually a smaller total number of children under 5 than we had in 1871. Is this true? If it is, it is appalling.

Registration of Births in Ontario.

No one seems to know much about the registration of births in Ontario. The form given below will probably be seen for the first time by many readers of this report. The detachable part is to be filled in by the doctor, but probably if the first ten doctors who pass the City Hall be stopped, shown this form, and asked if they have ever seen it before, it will be found that at least two of them have never seen it. How then, are they going to fill it up, tear it off, send it to the Division Registrar, and give the other part to the father or other responsible person, and tell him or her what to do with it?

Form 3. **PROVINCE OF ONTARIO.**

Municipality of.....County of.....

Official Return of Birth.

Questions to be answered by the Informant of Birth.

No Penalty will be incurred if this Birth is registered within 30 days.

1	What is the full name of child?	Surname. Christian names.
2	When was the child born?	.....day of.....19..... .....Hr.....Min..... M.
3	Where was the child born? St., number or Concession and Lot.	If in Hospital, give its name.
4	Male or Female.	
5	Are the parents married?	
6	Full name of Father?	
7	Occupation of Father?	
8	Full Maiden Name of Mother.	
9	If she has been more than once married give names of former husband or husbands.	
10	Where were the parents married?	
11	When were they married?	
12	If not married, give full name of Mother.	
13	Is she Single, or a Widow? If a Widow, state name, occupation and date of Husband's death.	
14	What is her occupation?	
15	Name of Physician attending.	
16	Your relation to child?	
17	Were you in house at time of birth?	
18	Your signature and address. Date	

Detach along this line and mail in Free Envelope forthwith to Division Registrar.

PROVINCE OF ONTARIO.
Medical Practitioner's Notice of Birth.

I hereby notify of the following Birth in accordance with Section 14 of the Vital Statistics Act, 1908.

When was the child born?	Sex.
Where was the child born? If in a hospital, give its name.	Maiden Name of Mother.
Name of Father.	Address of Parents.
Signature and Address of Medical Practitioner and Date.	State whether Twin, Triplets, Illegitimate or Still Birth.

Why are Births Not Registered?

The reasons for the neglect of birth registration in Ontario are not well ascertained. But the magnificent distances of Canada, the difficulties of the early settlers, and the consequent lack of training of the community as to the importance of vital statistics, as well as the formation of the habit of neglecting registration have probably something to do with it. The Division Registrars have no great security of tenure, and are only paid a maximum of 20 cents for each registration.

Again, we have not the weekly returns of births, marriages and deaths published prominently as important news items in the daily papers. This would help. We are even far behind in the publication of our Provincial Vital Statistics. But the returns for 1909 are published, those for 1910 are prepared, and it is hoped that those for 1911 will be published before the end of 1912. This will mark an advance.

Finally, registration of births really depends on the physician. He should notify the Division Registrar and he should give the other portion of Form 3 to the father or other responsible person and tell him to register the birth. As a matter of fact, the physician often does neither the one nor the other.

Non-Registration of Births.

Mr. Mills studied the Toronto Birth Register Book from Jan. 1 to Feb. 28, 1911, and found 885 births registered, of which 629, or 70 per cent., were never reported by the physician at all. In every case there was a physician in attendance, according to the entry.

On the other hand 130 births were reported by physicians but were not registered, and of these 56 were in January, 1911, and therefore registration was overdue the 30 days allowed by law.

How to Secure a Better Registration.

Prosecutions under the Birth Registration Law in Ontario are almost or quite unknown. Parents generally are entirely unaware of their duty in this matter, and unless and until the people of this Province and especially parents and the medical profession

1. Have their attention aroused and strongly directed to this duty and why they should do it.

2. Are officially informed that the law must be carried out,

no improvement is likely to take place. It is perhaps not unreasonable to think that physicians should be paid for this work.

Frequency of Still Births.

It is not possible to state with what frequency still births occur until the subject is farther investigated, and until the registration of births is more accurate. Two records were published in England in 1911, one by Dr. Foulerton, County M. O. H., East Sussex, and the other by Dr. Lyster, County M. O. H. for Hampshire. It appears that in the latter county an investigation showed that in the practice of certain midwives still births appeared to be much more frequent than in the practice of others. Thus, nine midwives who attended 260 births had

a total of 20 still births, or nearly 8 per cent. In East Sussex from 1906 to 1910 there were 9,012 births attended by midwives, and of these 1.73 per cent. were still births.

On the other hand, among all the births attended in connection with a London maternity charity the percentage of stillbirths was 2.7, while in another London maternity charity it was 4.3 per cent.

Registration of Still Births in Other Countries.

Still births are not registered in England. In France and Belgium children dying before or after birth, if before registration are recorded as still births, but are not included in the general birth statistics. In Italy, Germany and the four Scandinavian countries the term still birth is used in a medico-legal sense, *i.e.*, "a viable infant (having had over 6 months of intrauterine life or being twenty-five centimetres long) which is dead without having breathed" and the statistics are given separately. (From Dr. Newsholme, quoted by Mr. Mills.)

Mr. Mills draws attention to the importance of giving birth and death statistics with still births not included, and also of giving separately the number of still births registered as births and the number of still births registered as deaths, as follows:—

In the report itself still births are included in both birth and death statistics. The impossibility of comparing the rates derived from such figures with those of other countries where the deduction is made is apparent from the following tables. (Mr. Mills.)

—	Ontario, 1907.	Toronto, 1907.
Crude Birth Rate	24.1	29.5
Net "	23.5	29.2
Crude Death Rate	15.0	20.2
Net "	14.3	18.7
Crude Infant Death Rate	150.1	196.6
Net " "	120.4	148.1

Deaths Under 1 Year of Age.

Year.	Crude Figures.	As Corrected by the Registrar General.	Still Births Registered as Deaths.
1899	956	777	179
1900	1,064	880	184
1901	886	711	175
1902	884	713	171
1903	1,024	827	197
1904	1,161	903	258
1905	1,208	935	273
1906	1,195	918	277
1907	1,313	976	337
1908	1,535	1,215	320

BIRTHS.

Year.	Crude Figures.	As corrected by the Registrar General	Still Births as births.	Corrected figures.
1899.....	4,006	3,827	13	3,993
1900.....	4,534	4,350	74	4,460
1901.....	4,445	4,270	91	4,354
1902.....	5,044	4,873	91	4,953
1903.....	5,041	4,844	83	4,958
1904.....	5,286	5,028	104	5,182
1905.....	5,826	5,553	132	5,694
1906.....	5,985	5,708	116	5,869
1907.....	6,680	6,343	89	6,591
1908.....	7,938	7,618	not given.	.....

"Prior to 1908 it has been always possible to correct both birth and death figures by subtracting from each the number of still births registered as such. But such a correction since 1908 is impossible, as, for some unaccountable reason, the Registrar General has omitted to publish the number of still births registered as births. It is to be hoped that this at least will be remedied in subsequent reports of the Department." (Mr. Mills.)

WHAT IS A STILL BIRTH.

It may be pointed out that in Ontario we have no legal definition of still birth. This is needed.

LOCAL VITAL STATISTICS.

From the city and hospital registers and from the Police Census books Mr. Mills has prepared vital statistics for three sections of the city for 1908.

1. The Ward, east of University Ave., west of Yonge St., north of Queen St., south of College St.

2. Eastern District, east of Sherbourne St., west of Don River, north of water front, south of Queen St.

3. Rosedale, east of Yonge St., north of Bloor St.

The statistics are shown in the following tables:

District.	Population (Police Census).	Births (Minus Still Births).	Deaths (Minus Still Births).	Deaths under 1 year of age (Minus Still Births).
1908				
1. The Ward	12,330	327	151	45
2. Eastern District.....	8,378	212	169	53
3. Rosedale	5,694	97	52	11

District.	Births per 1000 Population.	Deaths per 1000 Population.	Deaths under 1 year per 1000 Births.
1. The Ward	26.5	12.2	137.6
2. Eastern District	25.3	20.2	250.0
3. Rosedale	17.0	9.1	113.4
Toronto City	25.9	14.4	155.5

Corrected by 25 per cent. error in Birth Registration.

District.	Births per 1,000 population.	Deaths per 1,000 population.	Deaths under 1 year per 1,000 births.
1. The Ward	35.3	12.2	103.2
2. Eastern District	33.7	20.2	187.5
3. Rosedale	22·7	9.1	75.0
Toronto City	34.5	14.4	116.2

VITAL STATISTICS OF TORONTO, 1908.

Crude figures 1908.				Corrections.	Corrected figures 1908.			
Birth rate per 1000 population.	Marriage rate per 1000 populati'n	Death rate per 1000 popula. tion.	Infant death rate under 1 yr. per 1000 births.		Birth rate per 1000 popula- tion.	Marriage rate per 1000 populat'n.	Death rate per 1000 popula- tion.	Infant death rate. Deaths under 1 year per 1000 births.
34.6	14.9	20.4	193.5	(1) For still births..	34.1	.....	19.0	155.5
				(2) For incomplete registration of births and for still births....	45.5	.....	.....	116.6
				(3) For error in the population census, incomplete registration of births and still births..	34.5	11.3	14.4	.....

These results are of great interest and will repay careful study.

INFANT MORTALITY REDUCED AT FORT WILLIAM.

Fort William is one of the most progressive cities in Canada. Its increase in population from 1901 to 1911 was 354 per cent.—greater than the percentage increase of any other city in Ontario, though Port Arthur shows in the same period an increase of 249 per cent. and North Bay 205 per cent.

Woodstock has a birth rate of 12.9 per 1,000 population and Chatham a birth rate of 21.1 per 1,000 population and Toronto a birth rate of 32.0 per 1,000 population.

Fort William again heads the cities of Ontario with a birth rate of 98.1 per 1,000 population. But it did not keep them all. Dr. Wodehouse, appointed Medical Health Officer in 1910, found that in the months of July and August, 63 infants under one year of age died. He found himself without any assistance in the Department of Health, except one nurse, who was Superintendent of the Isolation Hospital, and in the hot days of July and August a baby was being buried every day in Fort William, all of them from summer diarrhœa.

The Health Officer Visits the Mothers.

Dr. Wodehouse made a list of the names and addresses of all the dead babies, and for his own satisfaction, went himself to see the mothers and talk to them.

Why the Baby Died.

He found that one baby (3 months old) had been given half a soda biscuit with each feeding, one had been fed on sour milk all day except the first feeding in the morning, and two had had green uncooked fruit to eat. *But not one of these 63 babies, who had died in Fort William in July and August, 1910, had been nursed by the mother.*

The Plan.

With this information the Doctor went to work. He asked for a laboratory for examination of milk and water. He also secured:

1. A Milk By-law.
2. A Compulsory Sewer By-law.
3. The appointment of a Sanitary Inspector.
4. The appointment of a District Health Visiting Nurse.

The Plan Succeeds—Sixty-six Per Cent. Saved.

By this plan of campaign carried out at once, Dr. Wodehouse was able to carry Fort William through the hot weather of July and August in 1911 with only 21 deaths of infants under one year old. This is all that is necessary. Personal supervision, personal interest, personal teaching by an expert (a doctor or a nurse), given the sewer and the pure milk supply, then the death rate under one year old goes down. 21 is only 33 1-3 per cent. of 63.

Who Helped.

The newspapers were a great help in the campaign to Save the Baby. Mayor Young, of Fort William, helped. He gave a banquet on June 7th, 1911, "to all those who are actively associated with infants." Dr. Wodehouse says this is the "most interesting and satisfactory work I ever undertook."

OTTAWA.

Dr. Shirreff, Medical Officer of Health in Ottawa, with the assistance of the members of the Local Council of Women and others, began, in 1911, a campaign to reduce infant mortality. The investigation carried on by the Department of Health showed that of 157 infants under one year of age, who had died of diarrhœal disease, only 21 were breast fed. A nurse was engaged to help in the work and certified milk was procured from a dairy near the city, the milk being delivered in Ottawa about three or four hours after milking. It was bottled at once, and in some cases was modified by the addition of 16 per cent. cream, lime water, or barley water and milk sugar, according to the prescription of a physician or of the Health Department. Every effort was made to encourage nursing by the mother.

A Good Result.

Though carried on for a few months only, the result of this effort was gratifying. It saved lives. Of the babies under the care of the nurse, from June 20th to September 1, 1911, a much smaller number died than would formerly have died. The percentages are for those under the care of the nurses, 1.6 per cent. of the breast-fed infants died, 2.5 per cent. of the babies fed on modified milk supplied by the Department of Health died.

HAMILTON.

Another city which has adopted measures to reduce infant mortality is Hamilton. Dr. W. F. Langrill, when he was Medical Officer of Health encouraged the movement, though it was not until 1909 that the work was really begun.

The First Effort.

A number of medical men, among whom is Dr. Heurner Mullin, brought the matter to the attention of the Board of Health, but, as usual, "all the appropriations had been made for the year." The Victorian Order Committee then came forward and guaranteed the needed funds, so that the work was actually started in July, 1909. Two depots were opened, one at the City Hospital, and one at the market. A farm was found about three miles from Hamilton, where the herd was tuberculin-tested. The milk was sterilized and bottled at the farm, formulæ were agreed on by the doctors, a nurse was put in charge at the farm and another at the market depot, while the doctor and nurse in charge of the Out Patient Department of the Hospital took charge of the Hospital Clean Milk depot.

A great deal of work, most of it uphill, must be done by somebody in connection with a movement such as this.

The Babies Milk Dispensary Guild.

It was felt that while much had been done, the more modern methods of visiting the mothers and babies in the homes would produce better results. The Victorian Order not being prepared to carry on the work permanently, it was resolved to form a Babies' Milk Dispensary Guild, which has, during the present year, cared

for 140 babies and had only 12 deaths out of that number, 7 of these babies having been on the list for one week or less, and the whole 12 for less than two weeks. An excellent account of this work in Hamilton, including the Visiting Nurse's work, was given by Dr. Mullin before the Ontario Medical Association in 1911.

DO PEOPLE KNOW?

How many of the citizens of Ontario know that we buried nineteen babies under one year old every day in Ontario in 1909, or 6,932, nearly 7,000 in that one year?

The cost of burying a baby is about $50.00. It cost the people of the Province of Ontario about $350,000.00 to bury these dead babies. It would have cost much less than that to keep them alive, and half of them could easily have been kept alive. Dr. Wodehouse, the Medical Health Officer of Fort William, saved 42 babies for $194.98, including medicines for the poor, nurse's salary and car tickets. This is less than $5.00 each. But babies' funerals cost $50.00 each. And then Fort William has the 42 babies. Ontario has them too.

Assets and Liabilities.

A dead baby is a liability till its funeral is paid. But a living baby is an asset and liable to grow into a good Canadian—

What is a Canadian Worth?

And what sum is a good Canadian worth to the country? What was Sir John MacDonald worth? Or Alexander Mackenzie? Or Laura Secord? Or Lord Strathcona? And it is not only the dead babies. Such a death is merciful compared with the life of the poor victims of various ills that our ignorance and carelessness condemn our children to!

What sort of Canadians will live in Canada from 1932 to 1982? Those that are now cradled in their mothers' arms—if they are not clutched from that kind embrace by disease or by death?

Social Incompetence.

Our industries are improving, our commerce is enlarging, our wealth accumulates. But what of the art of living itself. Modern industrial methods have changed all the habits and the surroundings of by far the majority of our people. But though this happened two generations ago, at least in Canada, we have never yet emancipated ourselves from that social ignorance and social incompetence which either cannot see these changes or will not do anything about them. Yet social action is the only possible action. Individual action cannot deal with such a situation. National action, Government action, collective action, municipal action, not individual action can save the baby.

Provincial and Municipal Action.

The Province and city must secure a clean water supply, and a clean milk supply. One father and mother cannot establish a modern system of quick, sanitary and satisfactory garbage disposal. The city must do that. One citizen cannot pay

for paving the street with asphalt. The city can do that and he can pay his share. One citizen cannot compel the careless or covetous landlord to abolish the abominable outside privy and avail himself of the cheap water-carriage lavatory that the excellent system of sewers and water supply in Toronto and most of the other cities renders available.

ONTARIO.

Institution Mortality.

In the House of Commons at Ottawa and almost everywhere else in the Province, the question of infant mortality is beginning to be debated in Ontario, and people are beginning to take thought about it.

Dr. J. B. Black, M.P. for Hants, in Nova Scotia, said from his place on the floor of the House: "I have some figures here which will probably astonish some of us. In the city of Ottawa there were born last year, to the 31st of October, 1910, 2,100 children. Ninety per cent. of these should have lived. Of those born 626 died, or nearly 32 per cent. of all the children born in Ottawa up to that date died." —*Hansard* report.

Institution mortality plays a not inconsiderable part in the high infant death rate of Ottawa. In one institution alone 91 deaths of infants are acknowledged to have taken place from Oct. 1, 1910, to Sept. 30, 1911. Only 65 of these appear on the register kept by the City. Why? And was the 91 the real sum total?

It is to be remembered that the Statutes of Ontario place the responsibility of inspecting institutions on the Medical Health Officer of the municipality where the institution is located.

The Ontario Government during the past year took steps to forbid expressly the separation of any infant from its mother before such infant is of the age of nine months at least.

An Act to Regulate Maternity Boarding Houses and for the Protection of Infant Children.

It is hoped that the revision of this act, now proceeding, may do something to lessen infant mortality. Certain advertisements now appearing in our newspapers should be disallowed. To attract those in a desperate position by advertising that infants are received for adoption often means, it is greatly to be feared, that these same helpless infants are condemned to a slow and cruel death by starvation. Starved because the wretched places often do not know how to keep a child alive, even if they want to, not to mention their ignorance of the well-known rules of child hygiene now being observed all over the world.

District Health Officers.

While all these efforts in different cities and by various organizations help to reduce Infant Mortality. it must be evident that nothing but energetic action on the part of the Provincial authorities will be adequate to cope with such an important provincial matter. The proposal to divide the Province into Sanitary Districts, each to be placed under a Medical Health Officer who would rank high and would have general charge and oversight of the whole District, would be of the greatest

service in this connection. With these Provincial District Health Officers, in direct communication with the Chief Health Officer of Ontario and with the Chief Health Officer as the Central Executive Authority, a campaign could be organized for the Study and Prevention of Infant Mortality in Ontario, the results of which might be expected to lift us from the low and unworthy position we now occupy, tried by the supreme test of sanitary rank, namely, Infant Mortality.

Birth Registration in Manitoba.

Some of the Provinces of the Dominion are beginning to turn their attention to the problem of birth registration. In the following statement, taken from the Official Report of the Registrar General of the Province of Manitoba for 1910, this is shown: "Use every effort in your power to secure the complete birth registration of your district. This is very important, as infant mortality is computed by the ratio of deaths of infants under one year of age to the 1,000 living births. If your birth registration is not complete, you will have a large infant mortality and a misleading statement will be the result.

"The Department will give you every assistance you may require to achieve this end.

"The remuneration received by municipal clerks for the time and trouble they take in securing correct statistics is indeed very scanty, and the public should not lose sight of the fact of the importance of this service. It certainly is deserving of greater consideration, as the work of collecting the records of births, marriages and deaths is one that will be valuable to posterity in a degree proportionate to their correctness."

PRINCE EDWARD ISLAND.

For the year ending May 31, 1910, number of births registered, 1,372; number of deaths registered, 954; number of deaths under 3 years, 142.

NEW BRUNSWICK.

The Deputy Provincial Secretary of the Province of New Brunswick writes:

"In reply I beg to state that our returns are very informal and are not in any way at all complete. In some cases some of the counties of the Province have been left out altogether, but I now give you the number as received by me for that year: Births, 5,794; deaths, 3,409."

NOVA SCOTIA.

The report of Arthur S. Barnstead, Deputy Registrar General, to the Hon. G. H. Murray, Registrar General, for the year ending September 30, 1910, was published in Halifax on March 31, 1911. It shows the infant mortality to be 111 per 1,000.

The report says: "Surely something can be done to mitigate this waste of infant life," and the following table is presented:

In Halifax.....	1	infant under 1 year	died for every	6 born
Dartmouth...	1	"	"	7
Glace Bay...	1	"	"	5
Sydney.....	1	"	"	6
North Sydney	1	"	"	4
Sidney Mines	1	"	"	9
Inverness	1	"	"	5
Pictou	1	"	"	5
Westville....	1	"	"	11
New Glasgow	1	"	"	9
Stellarton ...	1	"	"	7
Windsor	1	"	"	7
Amherst.....	1	"	"	6
Springhill ...	1	"	"	7
Truro.....	1	"	"	9
Yarmouth ...	1	"	"	5

QUEBEC.

Out of every 1,000 children born in Montreal in 1909, 290 perished in the first year. In the report of Mr. J. W. Bonnier, Recorder of Vital Statistics for the Province of Quebec, the following tables appear:

"I thought it would be interesting to reproduce two lists hereunder which will give to the reader an idea of our infantile mortality, which becomes more considerable each year. It would be very easy, and without many costs to reduce this number of deaths. We pride ourselves of our high birth rate, but of what use, if we lose nearly 50 per cent. of our little ones? Surely on this point our reputation will not be envied by the foreign countries."

Infantile death rate from 0 to 1 year, compared to the total of deaths. (Still born excluded.) — Province of Quebec.

Years. (a)	Total of Deaths.		Out of 100 deaths at all ages, how many from gastro-enteritis from 0 to 2 years.
	At all ages.	0 to 5 years.	
1895.....	31,695	15,237	49.9
1896.....	30,219	14,272	47.2
1897.....	33,268	17,820	53.5
1898.....	30,810	14,132	45.8
1899.....	32,800	15,199	46.3
1900.....	32,778	14,480	44.1
1901.....	30,552	13,335	43.3
1902.....	27,408	10,934	39.8
1903.....	30,876	11,799	38.2
1904.....	30,549	10,526	34.1
1906.....	29,969	11,597	38.6
1908.....	34,247	16,334	47.7
Total.....	317,853	165,685	44.1

PROVINCE OF QUEBEC.

Years. (a)	Total of deaths at all ages.	Deaths from Diarrhœa and Enteritis.		Out of 1000 deaths at all ages, how many from gastro-enteritis from 0 to 2 years.
		More than 2 years.	Less than 2 years.	
1895	31,696	301	3,767	11.8
1896	31,004	115	3,349	10.8
1897	34,287	174	4,221	12.3
1898	31,871	210	4,302	13.1
1899	32,800	215	4,123	12.5
1900	32,778	258	4,359	13.2
1901	30,552	300	4,220	13.8
1902	27,408	206	3,384	12.3
1903	30,876	235	3,758	12.1
1904	30,549	253	4,213	13.7
1906	29,969	210	5,215	17.4
1908	34,247	216	5,716	16.6
Total	378,037	2,693	50,627	13.3

THE SANITARY DISTRICTS IN QUEBEC.

The Government of Quebec has been pleased to give its assent to a proposal, submitted to it by the Provincial Board of Health, to divide the Province into ten sanitary districts, each district to be in charge of a trained sanitarian, to be known as Assistant Inspector, who will represent the Provincial Board of Health and will give his whole time to the Province.

This is a great step in advance, and as the Government has further announced its intention of making these appointments in July, 1912, we may look forward to satisfactory progress in sanitary matters, and especially the reduction of infant mortality in Quebec.

MANITOBA.

For the year ending December 31, 1910, the infant mortality of Manitoba is 149 deaths to 1,000 births. It is however, the opinion of Mr. Rowland Dixon, the Clerk of Statistics, "that in a country like ours where a large number of the districts are sparsely settled and where as yet communication is only partially established the registration of births does not receive the attention which its importance warrants; again in the more populous districts owing to laxity in the administration of this Statute a large number of the Foreign element entirely neglect registration of births and it is only this year that special efforts have been put forth with a view of educating our population as to their duty in this respect, the result is that many children several years of age are being registered and a more complete registration of infants has obtained. The infant mortality rate for this year will, I am confident, be nearly half of what is shown in 1910, and more in accordance with existing conditions."

It will thus be seen that the educational method of reducing infant mortality is being promoted in Manitoba, and no doubt will have the speedy and satisfactory result predicted by Mr. Rowland Dixon. The report continues:

City.	Total Births.	Total Deaths under 1 year.	Infant Mortality	Percentage.
Winnipeg	3,772	627	166.2	34.7
Brandon	330	89	269.6	29.3
St. Boniface	252	61	242.0	15.6
Portage la Prairie	158	18	114.0	17.1
Rural	6,970	909	131.5	35.2

In general, one death out of every three that occurred during 1910 was that of an infant under one year of age, and nearly one out of every two was that of a child under five years. The foregoing table shows that relative to the total mortality, the number of deaths occurring at those ages is indeed very large and indicates what proportion of the total mortality can be prevented by measures aimed at the prevention of children's diseases.

A consideration of the deaths at the early years of life is of special importance not only because of the large number of deaths that occur during these years, but also because the number of deaths that are entirely preventable is probably greater proportionally for this period than for any other period of life and the causes that produce them can now be easily and successfully combatted. Great progress has been made in the reduction of infant mortality in England and other countries, and this Province, in face of the existing conditions, cannot afford to remain apathetic, but should direct special efforts towards the prevention of infant mortality. It is extremely desirable for such an important purpose that reliable statistics of infant mortality should be available.

The correct statement of "infant mortality," which term denotes the number of deaths of infants under one year of age, per thousand living births, depends on the accurate registration of births. This, it has been shown conclusively, under the heading of births, unfortunately is not being done at the present time in Manitoba.

This report for 1910 was presented to J. J. Golden, Inspector of Vital Statistics on March 6, 1911, and by him transmitted to the Hon. R. P. Roblin, Minister of Agriculture and Immigration, on the same day.

SASKATCHEWAN.

The infant mortality for the Province of Saskatchewan in 1910 was 129.49 to 1,000 births.

The Vital Statistics Report is part of the Report of the Hon. Minister of Agriculture.

ALBERTA.

Total number of birth registrations in 1909 is 6,897.

Total number of death registrations in 1909 is 2,662.

No information *re* the age at death is published, so that the infant mortality cannot be computed from the information supplied.

BRITISH COLUMBIA.

For the year ended December 31, 1910, number of registrations of births, 5,005; number of registrations of deaths, 3,221. This number of deaths includes all ages. (Persons who are Indians are not included.)

GREAT BRITAIN AND IRELAND.

The following tables, which are part of Dr. Arthur Newsholme's Report to the Local Government Board, show that the first ten years of the twentieth century the general death rate declined 20 per cent. but the infant death rate declined 30 per cent.

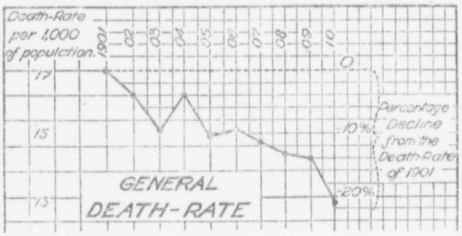


FIG. 1.

*Annual Death-rate in England and Wales, 1901-10.**

Fig. 2 sets out the course of infant mortality during the last ten years. It was 30 per cent. lower in 1910 than in 1901:

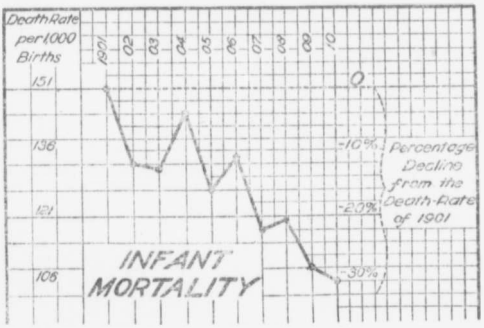


FIG. 2.

*Annual Infant Mortality per 1,000 Births in England and Wales, 1901-10.**

"There has been a remarkable fall in the infantile death-rate; and, even after full allowance has been made for the series of years during which climatic conditions have been favorable to infant life, there can be no reasonable doubt that much of the reduction already secured has been caused by that "concentration" on the mother and child which has been a striking feature of the last few years. The amount of saving of life may be illustrated by a comparison of the average experience of 1896-1900 with that of 1910. In the latter year 897,100 births, and 94,828 deaths of infants under one year were registered in England and Wales. Had the experience of 1896-1900 held good, there would have been 45,120 more deaths of infants in 1910 than actually occurred.

"In a supplement to the annual report of your Medical Officer for 1909-10 his special report on Infant and Child Mortality was published (Cd. 5263); and in his annual report a more general review of the subject was given. In these reports the subject was dealt with on the basis of the statistics of the administrative counties of England and Wales. In a report, supplementary to this volume, which will be prepared as soon as practicable, the infant mortality in the large towns of England and Wales will be analysed. It will be convenient, therefore, to defer further remarks on infant mortality until the issue of the special report just mentioned."

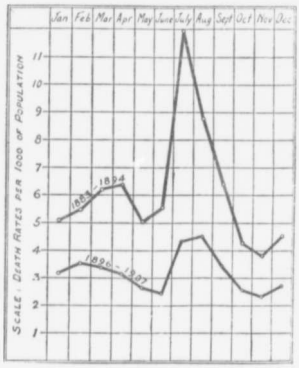


FIG. 3.

Average Monthly Death Rates of the two periods, Children under One Year of Age.

IRELAND.

The Women's National Health Association of Ireland, under the presidency of the Countess of Aberdeen, devotes much attention to the problem of infant mortality, especially in Dublin, where, for the weeks ending July 22, July 29, and August 5th, the number of infants who died was 31, 46 and 53 respectively. The city is divided into eight Sanitary Districts and the Association has placed a nurse in each district to visit the mothers and assist them in every way under the direction of the dispensary physician. While the rate of infant mortality in Ire-

land, as a whole, is lower than in England and Wales, and lower than in Scotland, the rate in the Irish towns is greater. The rate in Dublin was 142 per 1,000 births, and in Belfast 143 per 1,000 births.

The rate of infant mortality in the three countries for 1909 stands as follows:
Scotland 121 per 1,000 births.
England and Wales, 109 per 1,000 births
Ireland 92 per 1,000 births.

(The Registrar-General for Ireland in the *Lancet.*)

Greater Birmingham.

Greater Birmingham, which now has an area of 68 square miles, and a population of about 895,000 can point to a reduction in the infant mortality during the last 20 years. It has dropped from 182 per 1,000 to 130 per 1,000 and it is hoped that the work of women as Sanitary Inspectors will reduce it still farther.

Climate Conditions.

It is very well known that a hot and dry summer is much more fatal to little babies than a cool, wet summer. The summer of the Coronation year in England was a very remarkable one. The rainfall was about 3½ inches below the average. The sunshine was 284 hours in excess, and the temperature, every day but three, from the last week in June to the middle of September reached 70 degrees or more in the shade. And again the infant mortality rate proved itself a "sensitive index."

Deaths from Infant Diarrhoea in England and Wales.

1910—July, 58; August, 239; September, 342.
1911—July, 276; August, 2,666; September, 1,369.

Infant Mortality in London.

Mr. Harris, the Medical Health Officer of Islington, addressed to the Health Committee a special report on infant mortality, pointing out that the infant death rate for Islington was over 20 per cent.—407 deaths under one year old out of 1989 births, and that in Barnsbury it reached about 30 per cent., 297 deaths under one year to 1,000 deaths.

The Mother Did Not Know.

A special investigation was made of 201 deaths under one year. It was found again that the baby nursed at the mother's breast was almost safe. 182 of the 201 babies were fed in some other way, only 19 of the dead babies were nursed by the mother. Only 45 of the 201 mothers worked away from home, and 154 of them were strong and well. These 201 mothers, as Mr. Harris says, are the ones to be reached by instruction. Probably, nay almost certainly, all of the 182 could nurse the baby and they would if they knew it meant the baby's life, as it did for these 182 babies.

He Asked for Bread and They Gave Him a Stone.

Mr. Harris asked for an appropriation for Health Visitors, and the Health Committee of the Borough Council gave him an appropriation to print leaflets on the dangers of artificial feeding of infants. He asked for bread and they gave him a stone.

Sanitation.

Is infant mortality really dependent on sanitation and food supply?

If any one ever doubted it, we now have a proof thrust into our hands which no man may gainsay. No city in the world has a better or more modern and economical sanitary service than Liverpool. Take the disposal of refuse. There is a great municipal destructor on Charles St., where there is a wharf. Six hundred tons of refuse are brought here every day. This refuse is so well managed that instead of being worthless or a nuisance, it brings in an income of about $15,000.00 per year, or say $45.00 a day, by dint of sorting, *e.g.*, oyster shells are sorted out and ground up for hens to make new egg shells of. Scraps of metal are compressed into bales of 100 pounds each and easily sold. Clinkers are ground, mixed with cement and made into artificial flag stones, the best on the market, at the rate of 200 yards of paving stone per day for the clinkers of Liverpool, and the destructor supplies heat for four boilers, which supply power for the electricity needed in the city.

The Effect of the Strike.

All this ended when the strike was declared. The city not only lost the benefit of all these activities, lost in cash $45.00 per day, but as only 100 tons instead of 600 tons reached the destructor, then refuse, garbage and filth of all sorts accumulated in the streets and lanes of Liverpool at the rate of 500 tons every 24 hours.

From 1906 to 1910, the average number of deaths from infant diarrhœa for the four weeks of August were respectively:

August.		1911.
1st week.....	23	81
2nd "	34	132
3rd "	52	159
4th "	63	140

The intensely hot weather did make the situation worse, but the evil of the strike was worse still. Even the work of Sanitary Inspectors was stopped and the work of the lady Inspectors, so valuable, was also stopped completely by the strike.

Dr. E. W. Hope, the Medical Health Officer of Liverpool, who is known all over the world as a Sanitary Reformer, has prepared a special report on this subject, from which the above is taken.

A Great Improvement.

Terrible as the increase in infant mortality caused by a hot and dry summer is, we yet can see that this increase is not as great as it would formerly have been.

Dr. Symons, M. O. H. of Bath, points out that in Bath infant mortality was as follows for July, August and September only, from 1896 to 1911:

1896—1900	141
1901—1905	91
1906—1911	86

A great improvement in spite of the unfavorable season.

The Government Letter.

During the summer of 1911 a step of much significance was taken by the Local Government Board. On August 18th, 1911, a letter intimating the concern with which the Government was watching the daily rise in infant mortality, was sent from Whitehall to every sanitary authority in England and Wales, through the Town Clerk or the clerk to the District Council. The subject of the letter was

Prevalence of Epidemic Diarrhoea Amongst Children.

"Firstly, it is important that exact advice should be given as to the feeding and management of children, and more generally as to preventing the exposure of their food to contamination from decomposing organic matter. The distribution of clearly worded leaflets is useful in this connection; but even more important are personal visits and the offer of practical advice to the mothers of babies born within the last twelve months. Exact and simple instructions are most likely to be followed if given during a period of special danger. In districts and towns in which the Notification of Births Act has been adopted, the records obtained under that Act will give valuable information in selecting the homes to which visits are now most urgently required.

Secondly, the full value of the personal instructions indicated above cannot be realised unless vigorous efforts are made to prevent the accumulation in or in the vicinity of the house of decomposing animal and vegetable matter. It is not necessary to do more than mention the importance of efficient scavenging, of frequent and, if practicable, daily removal of house and stable refuse, of domestic cleanliness, and of keeping all food properly protected. The Council may consider it advisable during the next few weeks to divert the sanitary inspectors from less urgent work, and to instruct them to make rapid visits with a view to securing efficient sanitation, especially in and about the houses of the working classes.

Thirdly, it is important that the Council should promptly ascertain in which parts of their district diarrhœa is especially prevalent, and should devote close attention to street and court scavenging and to the removal of stable and domestic refuse in these areas. Without waiting for the weekly death returns, efforts should be made to obtain information of cases of diarrhœa from health visitors and others who make domestic visits; and to impress upon parents the importance of immediate treatment of infantile diarrhœa. Apart from the medical notification of cases of epidemic diarrhœa in children, the visits of health visitors can be utilised for impressing upon parents the seriousness of diarrhœa amongst young children and the desirability of information being given to the Medical Officer of Health should a case of diarrhœa occur.

"The Board will be glad if the Medical Officer of Health, in his annual report dealing with the current year, will set out the course of action adopted in the district to prevent diarrhœa and child mortality generally, in the special circumstances of the present year."

Good Business.

This is what is popularly called "good business," and the prevailing feeling among us (perhaps not entirely without foundation) that our business methods are somewhat more modern and adaptable than those followed in England could not find a better justification than a swift application of modern business sanitary methods to cut our infant mortality rate (of four babies every day in Toronto, for example) in two and then cut that rate in two again. Two babies a day is enough for Toronto to bury, and when we bury only two a day then we shall feel one baby a day is all we can afford to bury.

THE DOMINION OF NEW ZEALAND AND THE COMMONWEALTH OF AUSTRALIA.

Our sister Dominions beyond the seas lead the world in low infant mortality. In New Zealand and Australia the terrible figures now recorded in Canada are apparently unknown.

The World's Record.

South Australia and New Zealand both show a rate of 71 deaths under one year of age per 1,000 births. West Australia in 1910 had an infant mortality of 78 and Tasmania shows, in the last report of the Chief Health Officer, Dr. J. S. Purdy, a rate of 65 per 1,000 births.

The following figures show that steady progress has been made towards this low rate of infant mortality:

Western Australia	97.7
New South Wales	88.6
Queensland	77.2
Victoria	72.6
Tasmania	83.0
New Zealand	88.9

(Quoted by Dr. Helen Mayo for 1907.)

How To Do It.

The Society for the Health of Women and Children in New Zealand has helped to do this. It was founded in 1907 "to help the mothers and save the babies," and they do help the mothers and save the babies. There are now branches of the Society all over the Dominion, but only one Central Home, the Karitane Hospital, at Dunedin, where the nurses are trained. The first branch was founded here in 1907 by Dr. Truby King, and the Karitane Hospital was opened by the Society in Dr. Truby King's home in 1908 because there was no provision in the General Hospital for sick children under two years of age, except for surgical cases. Mrs. King is the President of the Society.

The Karitane Home deals only with cases of malnutrition, improper feeding, infant diarrhoea, etc. It began in a cottage of seven rooms with three nurses. It now has a matron and eight nurses. In 1910 Mr. Wolf Harris bought the Home and presented it to the Society. The babies of the poor are taken and the babies of the rich. The former are often paid for (5s. a week) by the Charitable Aid Board. The Government give an annual grant of £500. At the Karitane Home a certificated General Hospital nurse must take three months' training and a maternity nurse six months' training before applying for an appointment as a "Plunket Nurse." There are twelve such nurses in New Zealand employed by the various branches of the Society.

A Canadian in New Zealand.

Plunket nurses are called after Lady Plunket, wife of the Governor of New Zealand, and youngest daughter of the late Marquis of Dufferin and Ava. She is a Canadian, as she was born at Ottawa when Lord Dufferin was Governor-General of Canada. It was she and Lord Plunket who prepared and published a leaflet to help this Society, which to quote Lady Plunket's own words was established, "For the sake of women and children, for the advancement of the Dominion, and for the honour of the Empire."

Nurses.

Another good thing done at the Karitane Home is the training of children's nurses. Girls without any previous training in nursing are trained for twelve months, and then on passing an examination are given a certificate as baby's nurse.

Immigration.

It may, of course, be said that in the Commonwealth of Australia and the Dominion of New Zealand there is not the large immigration that now yearly comes to Canada and probably influences our infant mortality adversely. Perhaps, but we know nothing accurately about it. How do we know that the immigrant's baby dies oftenest? The whole subject needs thorough investigation.

State Children.

If one seeks to know why the infant mortality in Australia and New Zealand is so low the most obvious answer is the attitude of the Government. It acknowledges its responsibility for these children. Children not otherwise provided for are called State children. And this name means that the State sees that they have a home. Nor does the State refuse to acknowledge them until they are of an age when adoption is easy. For one person who is willing to take a child under one year old into the home there are many who are willing to take a child of four or five. In Australia as well as in Hungary a mother and a home is found for the child by the State and the real relatives are obliged to pay for its maintenance. The foster-mother is thus repaid for the service she does to the State, and the State causes the relatives to make this payment, or if this is impossible, then the State makes the payment for State children.

Institutions.

It has been shown again and again, and cannot be emphasized too much, that the institution for a baby, is a fatal failure compared with a home. We should set our faces against institutions in Canada, except for the very few Canadians, insane, feeble-minded, chronic criminals, etc., who cannot make good outside an institution.

Who Need an Institution.

For the patient, the hospital is the place. It gives him his best chance to fight for his life and to win. Health returns and the first use the patient should make of it is to leave the Hospital.

To the mentally diseased, the psychiatric ward, the Psychiatric Hospital is more imperative still. Almost always one may say that the patient's chance of recovery is seriously risked by keeping him at home. For the feeble-minded and the habitual criminal, society must provide an institution in self-defence.

Not for the Baby.

But for the baby the institution is an impossible solution and the baby simply proves it by vanishing out of life. Hungary and some of our sister Australian Provinces have found the solution—the same that Egyptian princess found for the baby floating on the Nile in an ark of bulrushes.

I Will Give Thee Thy Wages.

These States call destitute or deserted infants their children—State children, and they choose foster-mothers as carefully as Miriam selected the Hebrew woman whom she recommended to Pharaoh's daughter and they say to them what Pharaoh's daughter said: "Take this child away and nurse it for me, and I will give thee thy wages."

The Illegitimate Child.

One class of infants adds an awful burden to the infant mortality. The child that has no father. Repudiated and disowned by the man who is responsible for its existence, it begins that existence under a handicap so overwhelming that it is next to unknown for such a child to obtain a footing in the community. Surely the fact that such a child is disowned should justify the community in going one step farther and ordering that since that dishonorable fact is the only one known about the innocent child, the iniquity and desertion of the father should entitle the child to the protection of the State. To "rescue" the woman at the expense of the child or with little thought or concern for the poor child, is a matter of doubtful morality.

Death by Starvation.

Many of these children are strong and healthy. But their death rate is almost twice as great as the death rate of legitimate children. That death is often simply murder, and a slow and cruel murder of a helpless victim. It is time we faced and thought out this matter of what to do about the illegitimate child.

How many illegitimate children are there in that ghastly death roll of 1,727 in Toronto? We do not know. We have no information on that point in the report of the Registrar-General for 1909, nor any about the 8,768 infants who died in Ontario in 1909 under one year old.

A Slow Form of Murder.

Dr. Wodehouse, M. O. H. of Fort William, says: "The mortality and conditions surrounding illegitimate babies of our city are appalling—wilfully wrong feeding apparently being a slow form of murder."

How Old are the Mothers?

The age of protection of girls, sometimes called the age of consent, should be raised. And there is great need to know the age of these unhappy mothers. It was stated at a conference in Australia that in one of the Australian Colonies where the matter had been investigated in 1906 it was found that 200 of these mothers were under 16 years of age and 20 were under 14 years.

Public Opinion.

Signs are not wanting that down far down below the surface of national life and thought there is a rising conviction that all is not well with the nation who can give no better account of its civilization and stewardship than that furnished by our infant mortality returns in Great Britain, the United States and Canada. Take up any newspaper, magazine or review and you will find some such expression on its pages as there is in *The Spectator* of November 11th, 1911, written by Miss M. Loane from her unsurpassed and shrewd knowledge of the very class which must be reached to improve infant mortality. Miss Loane remarks that we are all agreed as to the value of child life and from a national as well as a humanitarian standpoint are determined to preserve it.

Who is Responsible?

The question is, who is to preserve the child? Manifestly the parents and the State both have responsibility for this. Yet this is a world not yet very efficient in its organization and "the State may (and not infrequently does) materialize as a man clerk presenting leaflets to an illiterate woman, or as a Poor Law Guardian of rather forbidding exterior perfunctorily questioning boarded-out children twice a year, or a Sanitary Inspector with a district so large and duties so varied that a conscientious person would speedily be driven to his grave or a lunatic asylum. The parents may be a half-witted woman and a street-corner man, or (more probably) a factory hand and a casual labourer, they may be represented by a penniless, friendless girl, or, far worse, by her elder sister, who recalls with grim satisfaction that the last didn't trouble her long, not after she left the house."

Maternal Nursing.

Miss Loane, in common with every one who is capable of giving intelligent thought to the subject, speaks of the all-importance to the child of maternal nursing, and also adds that when the baby is weaned, between 8 or 10 months of age, or in the very few cases where maternal nursing is truly impossible we may

be fairly well satisfied if the child is fed solely on fresh milk served in an absolutely clean bottle and raised to blood heat by the addition of a little boiling water, and if the meals are given at regular intervals. "The teacher must be careful to speak as if convinced that the mother wishes to do her utmost for the child, and as if it were quite possible to be a most respectable and intelligent woman and yet be in need of a little instruction as to the artificial feeding of infants."

Blame the Mother.

The popular fashion of the day is to "come down on" the mother, to say that she "does not know her business," should be ashamed to look a respectable tabby cat in the face, etc., etc., etc.

The average mother is a heroine. The soldier who goes to the battlefield, whether he returns again or not, has shown his willingness to lay down his life and the mother does the same. But what avails her sacrifice if the light of that life which she is willing to give her own life for is only to flicker for a few months and then go out forever? "To bear—to rear—and then to lose." And is it better or worse when instead of swift and merciful death we have the long struggle of the severely handicapped for a bare existence? There is no handicap like bad health.

Manufacturing Unfit Citizens.

When nearly 7,000 babies were put under the sod in Ontario in 1909 the disaster did not end there. It has now been proved that where the infant death rate is high the general death rate is high too. And the same want of proper care and want of proper feeding and general unsanitary conditions which slew the seven thousand babies in Ontario in 1909 cause in the survivors a condition of unfitness and inability to meet the demands of able-bodied citizenship which costs the community dear and has caused in older countries a serious deterioration of the national physique.

The Rest of the Family.

It may be mentioned in passing that all the members of the family, and indeed every citizen of a civilized country, should know something about a baby. As Miss Loane says, "time bestowed upon the father's instruction is rarely wasted, especially if devoted to general warnings and recommendations as to the ventilation of the house and the proper condition of yard and drainage." "The grandmother should be specially warned as to the danger of soothing syrups and teething powders."

Give the Mother a Chance.

Before we can be righteously indignant with the mother for not knowing her business, we should see that some chance is given her to learn that business. How, when and where are the mothers of the babies to be born in 1925 to learn their business? They should learn it both in the home and in the school. The opportunity may not occur in the home. It should be given in the school. Girls of 11 to 14 years of age may and do learn an infinite deal about the home and the baby whenever they get the chance in school. Residential schools, elementary schools and other schools for girls are fast introducing lessons on home management.

These are very popular with the girls if they are at all well conducted and if the teacher is really interested in them. Miss Hitching, organizer and inspector of Home Management to the Derby County Council says:

To Run a House.

"To run a house" smoothly and well is an achievement of which any woman, even the highest and most cultured, may well be proud. No work is more responsible for weal or woe; none is harder or more engrossing; none needs more forethought and a greater amount of common sense; none more careful training. Far too long has it been taken for granted that, to a woman, the proper management of a home and an infant comes by instinct. In very many homes husband and child are made the unwilling victims of various experiments, that spoil the digestion and the temper of the one, and not infrequently end the life of the other. It is a splendid thing for the nation, that on all sides people are beginning to realize that no longer must the education of the future wife and mother be left to chance; that to allow girls to leave our schools able to do the hundred-and-one things that *don't* matter, but totally unable to do the one thing that *does*, is a great and costly mistake.

Lessons for the Elder Girls.

"Standard VI. take up the important subject of Infant Management—the washing, dressing, feeding, and 'minding.' A life-size baby-doll is used for practice, but a real baby is brought into school, and washed and dressed in front of the girls. Practice is given in the mixing of food for the various ages, when mother's milk is out of the question. The lessons are given in a most *matter-of-fact* way, and in an *intensely earnest* manner, which never fails to impress and set the 'tone.' With a nearly twenty years' experience of teaching home management, I would say that no part of it is more important than infant management. We are so in the habit of taking it for granted that every girl has the opportunity of nursing a baby *at home!* In a class of seventeen Standard VII. girls, only three had a baby at home under 2 years of age! I tested the other classes with similar results.

"If taught in the right way the lessons are immensely enjoyed. I would like readers of *The Child* to see the intensely earnest look in the girls' eyes as they tell visitors that 'a baby has a *right* to its mother's milk—that cows' milk was meant for calves, not for babies!"—*The Child.*

Little Mothers in the United States.

American cities are introducing the same thing. New York has its "Little Mothers' Leagues," and Chicago its "Little Mothers' Classes" in the schools.

In New York the Department of Health has been able, by an educational campaign, to reduce infant mortality. The corps of physicians and nurses who visited from house to house and took part in the various activities for infant welfare found that a great deal could be done to teach the older girls, and consequently in 1910 Dr. S. Josephine Baker, the head of the Division of Child Hygiene in the Department of Health organized the older girls at home and at school, into Little Mothers' Leagues. In May and June, 1911, the physicians and nurses gave lectures and demonstrations at schools attended by girls of twelve years of age and over, and 183 Little Mothers' Leagues were organized to care for the babies.

The Sword of Herod. Ignorance.

If the sword of Herod is ignorance, then those who fight for the baby's life must be armed with the sword of knowledge. Certain very simple and all-important matters are really not adequately known. Even nursing by the mother is thought by some people to admit of argument, perhaps because every newspaper, journal and magazine, the bill-board, the druggist's window, and the conversation of the average mother's acquaintances teems with allusions to the miraculous effect of somebody's food for infants at so many cents a tin.

The First Day Settles the Baby's Fate.

The fate of the baby is frequently settled in the first twenty-four hours of its life. The mother herself and the nurse caring for her, should know that the baby should be placed at the mother's breast and so taught to nurse just as soon after the birth as the mother has slept and rested and been made comfortable (including giving her a cup of warm food). Now, if the baby is placed at the breast and taught how to nurse, in all human probability, it will escape the ills which carried off, in this Province in 1909, 132 per thousand of our children under one year old. In all but very exceptional cases the baby needs no teaching.

What the Baby Knows.

Two things that the new born almost invariably knows are how to grasp with its fingers and how to suck with its lips. Present anything of a suitable size to the tiny hand or to the tiny mouth and your part is done. The baby does the rest. But if this is not done on the first day of life when it is easy, it will be found difficult on the second day and almost impossible later on.

Hence the absolute and indeed over-whelming necessity of having births certified within 24 hours so that the greatest chance of health and welfare may not be missed for the baby.

How To Do It.

As soon as the child begins to nurse the quantity of the milk increases from day to day for several days. A liberal quantity of good plain food and fresh air for the mother will increase the milk and the quality of the milk. One or two cups of good milk half an hour before nursing also helps.

Tell Them All.

Hence the indispensable importance of educating not only the mothers, but the fathers and the grandmothers, and the "Little Mothers" and the acquaintances and the whole community in this fundamental fact about the baby.

It can be Done.

Because the nation depends on the babies for its continuance, therefore, no good citizen can afford to neglect child welfare. The mother will do her part. Every effort is now being made by the manufacturer of infant foods, and the sellers of infant foods to get the mother to think that these certified foods are the best for the baby. Just the moment that the mother finds out that the little baby's life is

in danger every minute as long as he is a little baby unless she nurses him, just that minute she will make up her mind to nurse him if she can. Even if the mother has not nursed the last baby and is afraid she cannot nurse the next baby, that does not mean *that she cannot nurse the baby.* It only means that she *thinks* she cannot. Nature has made the provision. The mother with help and skilled care and an understanding person to handle the situation will nurse the next baby. Nursing or not nursing is no more an unalterable and irrevocable matter than any other mode of feeding is.

Watch the Baby.

The next critical time in the history of the baby is the change from maternal nursing to some other plan of feeding. Some of the modern plans of preventing infant mortality and the best skill of the community should be utilized now for the baby. Our wealthy citizens have fewer children, and infant mortality among them is very small. The babies of the rich are cared for by the best physician available assisted by a thoroughly trained maternity nurse, and few of them die. Quite right. But nearly all our children come to the middle class home and to the homes of the wage-workers, and many of them died in 1909. We must change that death-rate. If necessary these babies should be seen every week, as they are at infant consultations or by the nurse in charge of infant welfare for the Department of Health. If neither of these plans is in working order yet, then surely some sensible volunteer worker could pay two visits to the baby, at three months and six months of age, to weigh it and to see how it is doing and to help to keep it well. Sometimes, but not often, babies at that age may begin to need a little additional food, and this needs skilled advice. It is no small matter to carry a baby safely over this period.

The Baby's Food.

Then between the 8th and 10th month the baby should be seen several times and care taken to see that it starts well on the new plan of feeding necessary then. The truth is that the successful care of a baby depends on a world of small details, often repeated, and needing exact attention and real interest. In this it is like everything else that is worth doing. Besides the fundamental fact that maternal nursing is all-important at first there are many minor things. When the baby gets to about nine months of age, the milk supply gets to be all-important.

Keep Everything Clean.

Clean cow's milk, diluted and sweetened and kept in carefully covered bottles and kept cold must gradually replace maternal nursing. Summer is the time when infant diarrhœa is so fatal, and the poison reaches the baby through the dust and dirt that get into its milk, through the dirty rubber nipple, through the "comfort" that falls on the floor and is replaced in its mouth, through the deadly long rubber tube to the feeding-bottle that gives the bacteria their chance to multiply exceedingly and infect the milk.

A home-made refrigerator for the baby's milk costing a few cents (see p. 42) may be, and often is, the means of saving the baby's life.

A Cradle.

Another important detail in the care of the baby is its cradle. To the wage earner this need not be an expensive luxury. A good cradle may be made from a banana-crate at a cost of about ten cents. The father will do the carpentering necessary, the mother will make a soft mattress of chaff or sawdust. Over this put a piece of packing paper (tarred or varnished) or a piece of waterproof and the bed is ready for the sheets and blankets.

Keep the Baby Warm.

Few people realize how necessary it is to keep the baby's hands and feet warm. The baby has not yet sufficient vitality to keep itself warm as the grown person can. It must be warmed and kept warm, and the danger of burning a baby with a hot brick or a hot water bottle must not be lost sight of. And the wise nurse or volunteer worker to reduce infant mortality must remember that these precepts must be gone over and practically and acceptably put to the mother over and over again. In this work repetition makes certain.

The Expectant Mother.

We can never be too early in our efforts to save the baby. We are almost always too late, as Miss Loane says:

"Only too often no help or advice has been given to even the most ignorant mother until she has two children in their graves, one far on its way thither, and another deformed from malnutrition, and probably her own health ruined in addition."

Five or six months before the advent of the baby the mother should be visited by the nurse or other expert, her own health and comfort, especially her food, (the mother is self-denying) and her environment should be considered, first from the standpoint of the responsibility and ability of the husband and father and family and then from the standpoint of the community of which the coming child will be a member.

Get Ready.

Everything should be done to make the utmost of the family's private resources to prepare the baby's little outfit and to provide the necessary medical care and nursing. The housework and the care of the family for at least ten days or two weeks must be thought of. The great kindness of good neighbours, friends or relatives, who will come and take charge of things till the mother gets somewhat strong again must be sought for. Sometimes a Maternity Hospital is the place, but not always. The very presence of the mother in the house means so much.

Look After the Mother.

More and more the advantage and necessity of care for the expectant mother is being realized.

The New York Milk Committee, to whom no small share of the reduction in infant mortality in that city is to be attributed, determined in October, 1911, when the summer campaign ended to turn its attention to the prevention of infant deaths due to congenital troubles, which cause 17 per cent. of all infant deaths.

The committee is giving attention to 1,000 expectant mothers to enable them, if possible, to bring into the world children strong enough to meet the stress of life. An arrangement will be made with the Russell Sage Foundation by which a special nurse will be detailed for this work. In addition to medical care and hygienic precautions, help will be provided if the mother is overworked.

The Insurance Bill.

The much debated Insurance Bill in England contains a provision of 30s. for a Maternity Benefit. As Ald. Broadbent says, in the *Pall Mall Gazette*: "This is for the baby. First of all there must be absolute security for safety in birth; that is to say, the mother should have skilled medical attendance. But the life is not yet independent, because the mother has the key to the baby's food and the most part of the maternity benefit must be conditioned on the mother feeding the baby. With these two essentials adequately secured, probably the 30s. will be exhausted."

Legislation for the Mother.

The Maternity Benefit of the National Insurance Bill may be taken to mean that some sense of the importance of the care of the mother-to-be and the mother-that-is has at last been expressed in legislative enactment. But it does not go very far. The last two months before the baby's birth are of special importance and the mother should be cared for during that time. It is the right of the child to be nursed at the mother's breast and it is the right of the mother to nurse her child.

Economic Insanity.

It is ill for the nation that allows commercialism, or covetousness, or cruelty to do what Job says the wicked do—"They pluck the fatherless from the breast." It is the fatherless who are most in danger of this loss. The mother has to earn for them. This is economic folly—yes, more—it is economic insanity. What man in his right mind would pluck the baby from the mother's breast? It is a tragedy that the mother for any reason should be taken from the work of caring for little children, work indispensable for the welfare of the State, work that no one else can really do but the mother. Some way should be found to give the mother enough to live on at least while she has a baby to care for.

The Young Physicians.

It is a sign of the times and a cheering one, that our physicians, and especially the young physicians, are beginning to devote more attention to the question of nursing by the mother. At the 1911 meeting of the Ontario Medical Association Dr. George Strathy, in a valuable paper on the "Difficulties in Breast-feeding," points out how frequently nursing by the mother is discontinued on account of some slight digestive disturbance that might easily be remedied. If the baby is not thriving, not gaining in weight, then find out by the test-feed, *i.e.* (weighing the baby before and after the nursing), how much milk the child is really getting. If the quantity (usually 6 oz.) is sufficient, then is the quality good? Is the mother tired, over-worked, run-down, underfed? If so, then less work, a mid-day rest, better food will set things right both for mother and baby.

Sometimes on the other hand, the child's weight is good, but it is distressed by colic. This is most frequently caused by, (1) Irregular Feeding. Remedy, Feed by the clock. (2) By stale milk. Sometimes the breast is not completely emptied at one feeding and this milk, remaining in the breast too long is distasteful to the baby and causes colic. Remedy, The breast should be completely emptied after nursing, by the breast pump if necessary. (3) The baby gets too much milk. A strong baby will sometimes get six ounces in five minutes and if allowed to go on for the usual fifteen minutes gets the stomach dilated and consequently suffers. Remedy, see that the child does not get too much milk. (4) Lack of digestive juices. Remedy, the doctor will prescribe some medicine to help this condition.

The Test Feed.

Another important paper published in 1911 was that by Dr. Eric Pritchard in the *Lancet*, on Breast Feeding; The Value of the Test-Feed.

By the test-feed is meant the actual amount of milk which the infant gets at one nursing, ascertained by weighing it before and after. This is found to vary from two ounces to eight ounces. So many observations were made by Dr. Pritchard and his colleagues in three institutions and in private cases—(in one institution alone 9,435 observations were made) and so carefully is everything recorded, such as age, number of feedings in the 24 hours, total number of ounces of milk got in the 24 hours, etc., etc., etc., that these researches will probably become classic. The cases were finally arranged in three groups:

(1) Those obtaining less than 10 oz. milk in 24 hours.

(2) Those obtaining from 10 oz. to 20 oz. milk in 24 hours.

(3) Those obtaining over 20 oz. milk in 24 hours.

Just as one finds in grown people, it is not the baby who takes the most food that thrives best.

The Starved Baby.

Any doctor or nurse or medical student who has attended the out patient department of a Children's Hospital, or even of a General Hospital, knows the story of the starved baby only too well. Here it is as Dr. E. H. R. Harris writes it in the *British Journal of Children's Diseases*:

Panic.

"The prevailing state of mind of the mother who sees that her bottle-fed baby is not thriving appears to border on panic. She rushes wildly from one food to another, and the unfortunate child is tried for two or three days on a patent mixture recommended by a neighbour, only to have it changed—at the behest of another neighbour or the local chemist—for another certain success. Meanwhile the infant wastes with more or less rapidity, and the maddened intestinal tract is driven to revolt and to reject everything 'fore and aft.'

"Case 1.—F.D—, full-time male, aged 6½ months. Breast to four months. Weight then was 21 lb. Since then has been fed on cow's milk and barley water, and for the last *month* on barley-water only. Present weight, 14 lb. 4 oz. Diarrhœa and vomiting. Boat bottle. Father, dock labourer; mother does outside housework.

"CASE 4.—J. G—, full-time male, aged 4 months; 7 lb. 5 oz. at birth. First child, born in lying-in hospital; breast-fed for one month, at which time mother left hospital and gave up breast-feeding, although she had plenty of milk. Father died in epileptic fit and mother has to work. Since breast has had cow's milk and barley-water and then a patent food. Wasting; present weight 7 lb. 10 oz. Boat bottle. The child had gained 5 oz. in weight in the four months of its existence."

Could anything be plainer than that if the maternal nursing had not been given up the baby would have continued to thrive. Think of feeding a human being on barley water for *a month!*

THINK A LITTLE.

The more we know about the nursing mother and the more she knows about nursing, the better for Ontario. It is not so easy as it looks. As Dr. E. V. Davis says, in the *Weekly Bulletin* of the Chicago Department of Health:

In Chicago last summer fifteen bottle-fed babies died to every one that was breast fed. Mothers should be made to appreciate this fact when bottle feeding is contemplated.

You can dry up a mother's milk by putting the baby to her breast only at long intervals, say morning and evening, or only at night. Such habits will spoil the best wet nurse ever created.

You can check a mother's milk by constant or too many night feedings or by disturbing the woman's hours of sleep in any other way.

You can spoil the best breast milk in the world by feeding the woman too rich food, giving her alcoholic tonics and checking normal exercise.

You can "upset" the baby by putting it to the breast too frequently, loading a half-empty stomach with a fresh meal. Vomiting, colic, green stools and diarrhœa are some of the results.

You can get the best results by first knowing what the wet nurse yields to her baby by a system of weighing the child before and after nursing. Every baby doctor should keep suitable scales to rent or lend for this purpose until he is satisfied on the matter.

The interval between nursings can best be regulated when you know how much milk the baby gets in twenty-four hours. An ordinary baby will thrive best on not more than seven meals in twenty-four hours during the first three months of life, and often will do as well or better on six feedings. An effort should be made early to cut down night feedings, as it favours the welfare of both mother and child.

When the yield of breast milk is scanty and the child not gaining, give an ounce or two of artificial food just after its nursing, rather than omit a breast feeding altogether, if the child is under six months or even older, and if the time be midsummer, as such a method keeps the breasts up to their best yielding capacity. The old way of substituting a bottle for one or two feedings only checks the yield of milk all the more.

NONSENSE.

Another favorite fiction is that "the milk dried up on the fourth day," or that the mother "lost the milk on the fourth day." The reason that people think the milk dries up on the fourth day is because the breast becomes soft and small. Why? Because the gland cells about the fourth day are changed into the "colo-

strum," which secretion is then drawn from the breast by the baby and is not replaced for perhaps a few hours by the milk which now begins to be secreted in larger quantity. But the milk has not "dried up," on the contrary the full flow of milk is just about to be established. Two cases from real life may serve to illustrate this. They are taken from a paper in the *Clinical Journal*, by Dr. Eric Pritchard, February 2nd, 1910:

Two Interesting Little Stories.

A Baby (A. B.—), born January 1th, 1907, was brought to my "infant consultations" at the St. Marylebone General Dispensary on January 17, 1907. At birth the infant weighed 7 lb. 10 oz.; it now weighed 6 lb. 14 oz.—a loss of 12 oz. in fourteen days. It had been put to the breast regularly.

The nursling, though somewhat thin, was in good condition, had a good color, and had never been sick. I suspected under-feeding from the symptoms, but was surprised to find the mother's breasts well developed, and affording the usual stream of milk on compression of the nipple. A test-feed was arranged, and, after waiting two hours since the last feed, the infant was put to the breast. The scales proved that the infant obtained less than two teaspoonfuls of milk. I therefore ordered the mother to give the baby one ounce of whey and twenty drops of cream alternately with breast feedings. During the following six days the test-feed showed that the amount of breast milk did not increase, but, all the same, the infant recovered part of the loss in weight, for on January 24th it weighed 7 lb. 4 oz.—a gain of 6 oz. The whey and cream mixture was increased on January 24th to one and a half ounces of whey and thirty drops of cream, and the mother, who was very anxious to nurse her baby, was encouraged in every way to persevere with breast feeding. On January 28th, that is to say, four days later, the scales registered a gain of half a pound in weight, but the test-feed still proved that this gain was in no way due to breast feeding, for the infant only abstracted one teaspoonful of milk from the breast. On February 4th the infant had gained a further half-pound in weight, but now the test-feed proved that the infant was obtaining a full amount (3 oz.) from the breast. The whey mixture was consequently suspended, and the infant continued to make uninterrupted progress; in fact, he proved to be a particularly fine baby, and was one of the prize-winners at our 1907 baby show.

This case is of peculiar interest, because it shows that with patience and perseverance an apparently non-active breast may ultimately secrete a good supply of milk provided that the infant can supply the necessary stimulus, and that the psychological factor is called into requisition. Encouragement on the part of the doctor and confidence on the part of the mother are most important elements in the treatment.

To show how mistakes in this connection may arise, I will again quote the case of an infant who was born in August last in one of our maternity institutions. The baby was brought to my consultations at the end of November; it was bottle-fed and doing badly. I asked the mother why she was not nursing it. She told me that her milk had disappeared on the fourth day, and that the authorities in the institution had told her that she must bring the infant up on the bottle. The infant was consequently supplied with a diluted milk mixture, and hence the present trouble. But the interesting part of this case was that the mother, under the impression that she would thereby avert a second pregnancy, surreptitiously put the

infant to the breast at night, and had continued to do so ever since. I asked her whether she thought this practice was of any advantage to the baby, but she told me that she knew it was not, as she had no milk. More out of curiosity than for any other reason I ordered a test-feed to be given there and then. To my surprise, and to the mother's surprise, the weighing proved that the infant had extracted from the breast 3 oz. of milk. I promptly ordered a suspension of the artificial feeding, and when I saw the infant last it was flourishing on breast feeding alone.

For Babies Nine Months Old or Older.

The best bottle for the baby:

(1) One that has no tube.

(2) One that has no corners.

(3) One with a wide opening.

(4) A nipple that fits directly over the wide opening.

Care of the bottle:

(1) Keep a little covered pan for the bottle and the nipple.

(2) Fill the pan with a quart of water in which a teaspoonful of baking soda is dissolved.

(3) Take the nipple off the bottle and turn it inside out, empty out any milk left; rinse bottle and nipple with cold water, then put the bottle and nipple into the pan and boil about ten minutes. The bottle and nipple are now clean. Cover the pan and leave it until time for next nursing. Do not use the same water twice.

Milk for the Baby.

The milk must be good, not skimmed and watery, and kept clean and cold in a sealed or capped bottle till it gets into the baby's bottle. Then hot water may be added to warm it and a little milk-sugar (to be bought at the druggist's) to sweeten it, and perhaps a little cream to enrich it.

Good milk may be made bad:

(1) By not keeping it covered, as in a sealed or capped bottle, from dust, dirt and flies.

(2) By not keeping it cool.

(3) By keeping it too long. Give baby fresh milk never more than 24 hours old, and the fresher the better.

(4) By putting it into any vessel that has not been boiled just before or at least rinsed out with boiling water.

(5) By using a dirty nipple or bottle. Nipples and bottles are not clean enough for a baby's milk unless they have been boiled and kept clean.

Hints on Feeding.

It is well known that no baby nursed by the mother should have its food changed to cow's milk or anything else in the hot weather if this may by any means be avoided. About eight or nine months after birth is soon enough to give the baby artificial food. The baby then has several teeth, which is nature's notice that the baby can digest artificial food.

Olive Oil.

When a baby is not thriving, try giving a few drops of the best olive oil on its tongue from a clean medicine dropper. The oil may be sweetened a little with milk sugar. If the baby takes this well, increase it very gradually until a small teaspoonful is given three times a day.

At the age of about nine months the healthy thriving child can digest good clean cow's milk, with but little hot water and milk sugar added. "Top milk" is usually good for this purpose. But the change from nursing by the mother to nursing by the bottle is a great one to the child.

How to Make Whey.

One pint of good milk. (This makes about 12 ounces of whey.)
Liquid Rennet (3 ounces cost about 25 cents).
A dairy thermometer (cost 25 cents).
(1) Heat the pint of milk to 98½ degrees.
(2) Season with salt.
(3) Pour into a warm bowl.
(4) Stir in gently one teaspoonful of liquid rennet, mixing all thoroughly.
(5) Set the bowl in a moderately warm place, where it will not get cold or be shaken.
(6) When it has formed a firm jelly (which should be in a few minutes) break the jelly up thoroughly, strain it, and heat the liquid to 150 degrees, stirring it well for a few minutes at this temperature. Strain again and set away ready for use.
(7) Add cream, milk sugar, or water according to the doctor's directions. No baby should be fed on whey except by a doctor's directions, as there is not much nourishment in it.

Cow's Milk.

One great difficulty about cow's milk is that it forms a tough curd in the infant's stomach. It may be rendered more easily digestible by adding one grain or two grains of Sodium Citrate to one ounce of milk. A doctor should order the exact amount. But this is a useful fact to know. It is a modern plan for helping the baby to thrive.

Sugar.

The mother's milk has more sugar in it than cow's milk has. Hence it is a good thing to add a little sugar to each feeding of cow's milk. The best form is milk sugar (bought at any drug store), but any pure sugar will do. Add a small teaspoonful to about six ounces of milk.

Water.

Cow's milk is more easily digested by the baby if a little water is added. This should always be boiled first to be sure that it is perfectly clean, except in very warm weather, the addition of boiling water makes the milk a better temperature. The convenient way to add milk sugar (see above) is to add it to the water.

To Make One Quart of Oat or Barley Water.

Do not feed a baby on barley water alone, except by a doctor's advice, when the baby is ill. Otherwise there is danger of starving the baby.

Boil two tablespoonfuls of barley flour in a quart of water until it is reduced to half the quantity, then add sufficient water to make up the quart.

Always keep clean and well covered.

Mr. John Ross Robertson has added another to his many kindnesses to children by establishing a Pasteurizing Department in connection with the Hospital for Sick Children in Toronto, where modified milk mixtures for well babies are prepared. The following formulæ are those prescribed and recommended by the physicians of the hospital staff.

Formula No. 1—For 1 to 4 Weeks.
16% Cream, 1½ oz.
Whole Milk, ¾ oz.
Milk Sugar, 7 drams.
Lime Water, ¾ oz.
Boiled Water to 18 oz.
Fill 9 bottles, 2 oz. each. Feed every 2 hours.

Formula No. 2—For 2 to 3 Months.
16% Cream, 3 oz.
Whole Milk, 3 oz.
Milk Sugar, 9½ drams.
Lime Water, 1 oz.
Boiled Water to 24 oz.
Fill 8 bottles, 3 oz. each. Feed every 2½ hours.

Formula No. 3—For 4 to 5 Months.
16% Cream .....4½ oz.— 5¼
Whole Milk .....9 oz.—10½
Milk Sugar .....12 drams—12
Lime Water .....1½ oz.— 1½
Boiled Water to .....35 oz.—42
Fill 7 bottles, 6 oz. each. Feed every 3 hours.

Formula No. 4—For 6 to 7 Months.
16% Cream, 4½ oz.
Whole Milk, 13½ oz.
White Sugar, 1 oz.
Table Salt, small ¼ teaspoonful.
Barley Water, to 36 oz.
Fill 6 bottles, 6 oz. each. Feed every 3 hours.

Formula No. 5—For 8 to 9 Months.
16% Cream .....4⅝ oz.— 5
Whole Milk .....21⅞ oz.—25
White Sugar .....1½ oz.— 1½
Table Salt .....¼ teaspoonful— ¼
Oat or Barley Water to.....42 oz.—48
Fill 6 bottles, 8 oz. each. Feed every 3 hours.

For 10 to 12 Months.
Whole Milk.
Fill 5 bottles, 8 oz. each. Feed every 4 hours.

Pasteurize.

If you are not sure that the baby's milk is clean and the cow healthy, and the milker had clean hands and was careful, then it is at present safer to pasteurize your milk. Pasteurizing means heating the milk to about 180 degrees. Boiling raises it to 212 degrees, but boiled milk is not so good for the baby as fresh milk, nor is it as good as pasteurized milk? Do not keep milk more than 18 hours after pasteurizing it.

Directions for Home Pasteurization of Milk.

Use a metal pail or tin can which is several inches taller than the milk bottles. Fill the pail almost full of water and place it on the fire. When the water boils, set the pail off the stove. Now completely immerse the full-capped bottle in the water so that the cap is one-half to one inch under the surface. The immersing must be done quickly, otherwise the bottle is apt to break. Leave for twenty or thirty

minutes. Then remove the bottle and set it aside until it has cooled somewhat; after which it should be placed in a pail of running water under the cold-water faucet. The bottle should not be transferred directly from the hot water to the cold water, as this often causes it to break. When the milk has cooled thoroughly, place it in the ice-box until it is used.

Home-made Refrigerator.

Materials.	Cost.
Sawdust	10 cents.
1 butter tub with lid	"
Blue denim	"
Ice	3 cents.
1 empty lard pail	"

Make a cushion of the blue denim to fit inside the top of the butter tub. Place a thick layer of sawdust in the bottom of the butter tub. Wrap the ice in newspaper and put it in the bottom of the lard pail. Stand the milk bottle on the ice. Put on the lid of the pail and stand in the butter tub. Pack the sawdust all around the pail. Put on the cushion on top. Put on the lid of the tub. If the ice cannot be afforded, the milk, if cold when put in, will keep cold in such a sawdust box for 24 hours.

Common Sense.

No one who is not in direct contact with the problem of How to Feed Babies would believe it possible that people could show so little common sense about such a matter. Two women were overheard during the year at the Union Station, Toronto, comparing notes on what they gave their babies. One drew the line at raw onions, but the other considered this rule quite unnecessary. Miss Tyson, of the Children's Hospital, Chicago, met a tall, gaunt woman there one day with a small thin three-year-old girl who had serious eye disease. The nurse asked if she had other children. "Yes," she said, "I have two more and they are both sick. The one eighteen months has been sick ever since last Sunday, when I gave it a pork chop to eat, and the one four months has never been well; the Eagle brand milk does not agree with it!"

They Kill the Baby.

Instances have been found in Ontario of infants under one year old being given beer, bacon, and doughnuts. If it is possible to kill the baby, probably these articles of diet will do it.

Food That Suits the Baby.

There is another extreme—that of not giving the strong and healthy child food which would do it good. Oat jelly or stale bread crumbs would do to begin with. Oat jelly is made as follows:—

Soak 4 ounces of coarse oatmeal in a quart of cold water for 12 hours. The mixture is then boiled down so as to make a pint, and is strained through a fine cloth while it is hot. When cold a jelly is formed, which is to be kept cold until needed.

When the child is about one year old it is time to begin feeding it with a spoon. A little bread, one day old, may be added to the milk. As soon as possible it is better to do without a feeding-bottle. Some infants will not take bread until

the age of two years, or even older. Equal parts of oat jelly and milk, warmed, with a little salt added and occasionally a little broth, preferably chicken broth, with bread, may be used. At the age of twelve or thirteen months, the child should have about five meals a day, such as the following:

7.00 a.m. Stale bread crumbs, soaked in a breakfast cup of new milk.

9.30 a.m. Equal parts of oat jelly and milk, slightly warmed, and a little salt added to suit the infant's taste.

12.30 p.m. One-half pint of well-made chicken broth, with the fat carefully removed, and with stale bread crumbs soaked in it.

3.30 p.m. Equal parts of oat jelly and milk, warmed.

6.30 p.m. Same as 7.00 a.m.

At fourteen or fifteen months, some thoroughly boiled rice may be added to the diet list.

At sixteen months, a little butter of the best quality may be spread on the bread. Fresh bread should never be given. A crust of bread may occasionally be given, the infant will try its teeth upon it.

At eighteen months a well-baked white potato may be given, and at nineteen or twenty months eggs may be added.

At about fifteen months it is usually safe to try a little baked apple, or a teaspoonful of orange juice, and when peaches are in season, a small piece of a ripe peach may be given to a child in its second year, say about sixteen months.

At about two years and six months of age young peas and other easily digestible vegetables may be given, very carefully at first. Different fruits may now be tried, but they should be cooked.

Towards the end of the third year a small amount of meat may be given, but not every day, as meat is not required until the child is about three or four years of age. Chicken, mutton chop, roast beef and beefsteak are the best meats for young children. Great care should be taken that the meat is cut small and the child taught to masticate properly. A good plan is to give the child an egg one day and on alternate days meat or fish.

Never give cake or candy to a little child. Wait at least till the child goes to school.

Dangerous Drugs.

Almost all of the so-called soothing medicines given to infants, contain opium, morphine, or some other dangerous drug. They should never be given to any baby.

Mrs. Winslow's Soothing Syrup (morphine sulphate).
Children's Comfort (morphine sulphate).
Dr. Fahey's Pepsin Anodyne Compound (morphine sulphate).
Dr. Fahrney's Teething Syrup (morphine and chloroform).
Dr. Fowler's Strawberry and Peppermint Mixture (morphine).
Dr. Grove's Anodyne for Infant's (morphine sulphate).
Hooper's Anodyne, the Infants' Friend (morphine hydrochloride).
Jadway's Elixir for Infants (codein).
Dr. James' Soothing Syrup (heroin).
Koepp's Baby's Friend (morphine sulphate).
Dr. Miller's Anodyne for Babies (morphine sulphate and chloral hydrate).
Dr. Moffett's Teethina Teething Powders (powdered opium).
Victor Infant Relief (chloroform and cannabis indica).

Printed Advice to Mothers.

A great deal of good may be done by giving a mother a leaflet she can keep and read over often. The following leaflet is excellent.

HOW TO BRING UP A BABY.

Natural Feeding.

1. The natural food of a baby is its mother's milk. If the mother has enough good milk, the baby must have nothing else until it is eight or nine months old. Babies who are entirely breast-fed are stronger than bottle-fed babies. They thrive much better than bottle-fed babies, and they very rarely have summer diarrhœa.

Directions for Suckling.

2. Breast milk, *and nothing else*, is the proper food until a baby is eight or nine months old. Gruel, arrowroot, cornflour, biscuits, crusts, and patent foods must never be given.

3. If the mother has not enough milk, a bottle of fresh cow's milk and water may be given once or twice in 24 hours.

4. Always suckle the baby at regular intervals.

Whether a baby is fed by breast or bottle, it should not require feeding between 11 o'clock at night and 5 in the morning, after the first six weeks.

Allow at least 15 minutes for every feed by the breast or bottle.

Do not rock the baby after feeding.

Raise the head and shoulders for the baby to bring up the wind, after a feed, before laying it down.

5. Always lay your baby down awake, and do not sit with it till it goes to sleep; do not leave a light in the room.

6. Do not feed a baby every time it cries, as over-feeding is a frequent cause of illness. If it cries between its feeds, or at night, see that it is dry, that there are no pins or other discomforts, that its binder is not too tight, and, if nothing is found, it may be thirsty—give a teaspoonful or two of warm water only.

Directions for Weaning and Feeding Afterwards.

7. Do not begin to wean the baby, unless by a doctor's orders, until it is 8 or 9 months old. Wean entirely before the end of the first year. The way to begin to wean a baby is to give it good cow's milk two or three times a day, instead of the breast feeds.

8. At 8 or 9 months the child may also have *the yolk of one egg very lightly boiled* or *one tablespoonful of red gravy* once a day, *which may be given in one of the feeds.* At 10 or 11 months the milk may be thickened once a day with well-boiled oatmeal, strained through a fine hair sieve or coarse muslin, or bread soaked for an hour in cold water and then strained and thoroughly boiled in fresh water, or nursery biscuit. The food must be thin enough to pass through a fine strainer.

9. At 12 months a cup of beef tea or broth, a lightly boiled egg, or milk pudding, may be added. Be sure that the pudding is not lumpy.

10. At 18 months begin giving a little lean meat or fresh fish, scraped or pounded into a pulp; with this the child should have thin bread and butter and finely mashed potato. Plenty of milk should still be given.

Artificial Feeding.

11. A great deal more trouble must be taken to bring up a baby by hand than by breast feeding—because:—

(*a*) It is very difficult to obtain pure milk.
(*b*) Bottles, teats, jugs and spoons do not keep clean.
(*c*) Cow's milk has to be prepared to imitate human milk.
(*d*) The food is not at the heat of the breast milk.

Directions for Hand Feeding.

12. Fresh cow's milk (not condensed milk) should be obtained twice a day. *The milk should be scalded at once.* To do this, put the jug into a saucepan which has been half filled with cold water, place on the fire and bring to the boil. When the water is boiling, the milk is fit for use. The jug should then be placed in cold water, to keep the milk cool; and should be covered with a clean plate or slip of glass, to keep out dust and flies. All water put into the baby's food must have been *boiled.*

13. All bottles, teats, jugs and spoons should be cleaned directly after use; first with cold water, then with scalding water. Teats must be turned inside out for cleansing. Once a day put bottles and teats in a saucepan with cold water, and raise to the boil.

14. The best feeding bottle is boat shaped, marked in tablespoonfuls, with simply a leech-bite teat. Never use a feeding bottle with a rubber tube. Always keep two bottles in use and two teats or more. Bottles and teats after they have been scalded must be kept in a basin full of cold water that has been boiled.

Preparation of Food and Quantities.

15. All milk foods should be sweetened with sugar and given warm (not hot). The quantities of milk and water should be measured out.

Age of Child.	Milk.	Boiled Water.	Total Amount for each Meal.	Add Sugar.	Time.
During—					
1st fortnight	1 Tablespoon	2 Tablespoons	3 Tablespoons	½ Teaspoon	2 hours
2nd "	2 "	3 "	5 "	½ "	2 "
2nd month	2½ "	3½ "	6 "	½ "	2 "
3rd "	4 "	4 "	8 "	1 "	2½ "
4th "	5 "	4 "	9 "	1 "	3 "
5th "	6 "	4 "	10 "	1 "	3 "
6th "	8 "	4 "	12 "	1 "	3 "
7th "	9 "	4 "	13 "	1 "	3 "
8th "	10 "	4 "	14 "	1 "	3 "
9th "	12 "	4 "	16 "	1 "	3 "

Increase feeds very gradually, but feed by common sense, not by rule. If the baby seems unsatisfied, try the milk stronger. If the baby cannot digest it, try it weaker.

If the milk with plain water does not agree, give the same amount of barley water with the milk if the bowels are costive, and if the bowels are loose use lime water instead of plain water. If the child refuses the mixture, or vomits it, or if diarrhœa continues, the doctor must be consulted.

After 9 months the yoke of an egg may be mixed with a feed once a day.

Things to be Avoided.

1. Never force food down a child's throat, nor feed it when it retches.
2. Never keep the milk that the baby leaves for the next feed.
3. Never give skimmed or separated milk.
4. Never use a feeding-bottle with a rubber tube.
5. Never use a "dummy."
6. Never give a baby "just what is going," or "what you have yourselves."
7. Never give a baby teething powders, soothing syrups, tea, coffee, beer, wine, spirits, herrings or bloaters, new bread, pastry, cheese, nuts, or unripe fruits.

General Directions.

1. The Eyes.—The baby's eyes must be washed once a day at least. If the eyelids swell and run with matter and look red, tell the doctor at once, as delay is dangerous, and one or both eyes may become blind if not treated properly. The discharge is very catching. For removing it, tear quite clean linen rag or cotton wool into small pieces; do not put the same piece back into the water, but throw it in the fire, and take a fresh piece every time, before touching the eyes again.

2. Washing.—In order that the baby may thrive on its food, it should be protected from chills, which will upset its digestion. This can only be done by keeping its feet and legs warm and taking care that it is bathed quickly and not exposed too much while being dried. Wash the child all over once a day in a warm room with warm water and soap. Dry carefully with a soft towel, especially about the head and ears after the bath, then the baby will not take cold. Be careful to dry thoroughly the lower parts of the body, under the knees and under the arms. It is a good plan to put the child in bed between the blankets for half an hour after the morning bath. The mouth should also be carefully washed.

3. Sleep.—The child should sleep in a cot or basket alone. Even a banana box with a calico bag of chaff may be used. Many babies are overlaid every year from sleeping with their parents. Keep the window one or two inches open day and night except in stormy weather. Never use sleeping draughts, soothing syrups, teething powders, or any other medicine to make the child sleep.

4. Clothing.—*Always flannel* next the skin, not flannelette, which catches fire easily. Do not put the binder on too tight, with the notion of supporting the body. No part of the body, except the head and hands, should be bare. Underclothing and diapers should be of cotton cloth and as soft as possible. They should be changed as soon as wet, and should be immediately put into hot water and washed out.

Every time the child's bowels are moved, the parts should be well washed and all the creases about that part of its body should be cleaned out.

The baby is often made sore because it is not well washed, or because powder is put on it while it is still dirty, or because the diapers are not washed out, but are only dried, before being used again.

5. Fresh Air and Sunlight are nearly as important as food for a baby. It should be taken out every day in fine weather, but not after sunset. When out in a perambulator a baby should sometimes lie on its side, not always on its back—because, on its back, the sun is bad for its eyes, even though closed, and it cannot bring up the wind so easily.

6. Nursing Mothers should have plain, nutritious food. Above all things, mothers should avoid spirits, which are very hurtful to the child.

To Make Barley Water.

Barley water is best made by taking one teaspoonful of prepared barley (in powder), adding it to one pint of boiling water, and then boiling for five minutes; it must be made fresh each day at the very least, and if possible, every six hours and kept covered in a cool place.

To Make Lime Water.

Slake a piece of freshly-burned lime about the size of an orange by sprinkling water upon it; then put the crumbled lime into a gallon jar, and fill up with water, corking it tightly; shake it well, and in twenty-four hours it will be ready for use. Pour off as much as you require quite clear and fill up the jar with fresh water. The jar is to be kept well corked, for lime water soon spoils by exposure to air.

Published by the National League of Physical Education and Improvement, 4, Tavistock Square, London, England, W.C.

MIDWIVES.

Not only is the education of the mother and of the community important, but we must get our facts before us. Where is the baby? And who is looking after it?

One of the questions on which we greatly require information is the number of cases in which mother and child in obstetrical cases are attended, not by a physician, but by a midwife. It would seem that information on this point might well be required, both when a birth is registered, and when the death of a child under one year old is registered. In Boston, on account of much interest being taken in the matter by the medical profession, and the extension of the dispensary facilities for obstetrical work, only about 10 per cent. of all mothers are attended by midwives at such times. But in New York, Buffalo, and Chicago, it is supposed that almost 60 per cent. of all births are attended by midwives, and it is known that where the foreign population is large, the proportion of births attended by midwives is not inconsiderable. In 33 of the 49 States and Territories of the United States there is no law providing for the licensing or regulation of midwives. In 13 of the States there are laws requiring midwives to pass an examination before being licensed to practice, but there is no attempt to educate these midwives or prepare them for their duties.

How Many Midwives in Ontario?

In the absence of reliable information no statement can be made. But it seems at least a matter of great importance in regard to Infant Mortality to know how many infants and their mothers are cared for by midwives only, and with what results, so far at least as Infant Mortality is concerned.

The Central Midwives' Board, established in England in 1902, to examine, license, and control midwives, has undoubtedly been of great service in Great Britain, but whether or not such a plan would suit Canadian conditions is at least doubtful. Our nurses, graduates of the leading Canadian hospitals, all or nearly all have an excellent training in obstetrics, and so far, at least, as that aspect of the matter is concerned, the position of affairs with us is different. It is the unknown and unlicensed midwife, practising among the non-English speaking people, not yet Canadianized, that may be the danger. And until we have accurate statistics on the subject, we may well be uneasy as to the real state of affairs.

Normal Infant Mortality.

It cannot be reasonably expected that all infants should escape all the dangers incident to birth and to the first year of life. Dr. Rich, of Detroit, places a "reasonable infant mortality for the State of Michigan" at 70 per 1,000 living infants, and quotes Holt, of New York, who is an authority on pedistries, as follows: "I judge that the well-to-do classes, with the best care, the mortality from all causes during infancy does not exceed 2 to 3 per cent. Another authority, Dr. J. F. J. Sykes, (St. Pancras, London), considers 50 per 1,000 births a more reasonable figure for large cities.

Reduction of Infant Mortality.

No fact in sanitary history can be better proved than the fact that Infant Mortality can be reduced by sanitary instruction. A good example of this is furnished by Chicago, where the first organized efforts were made in 1895, with what result the following table and chart will show.

CHILD MORTALITY—UNDER ONE YEAR OF AGE.

Comparing Two Twelve-Year Periods: Before and After the Department of Health Actively Prosecuted Measures for the Reduction of Infant Deaths, Especially During Hot Weather.

	Before—1883-1894.		After—1896-1907.		Percent Reduction of Death Rate "After."
	Deaths under One Year of Age.	Death Rate per 1000 of Total Population.	Deaths under One Year of Age.	Death Rate per 1000 of Total Population.	
January	4,784	5.08	5,736	3.17	37.6
February	4,710	5.49	5,783	3.51	36.1
March	5,849	6.21	6,013	3.32	46.5
April	5,799	6.36	5,489	3.13	50.8
May	4,759	5.05	4,826	2.66	47.3
June	5,064	5.56	4,340	2.48	55.4
July	11,222	11.92	7,788	4.30	63.9
August	8,243	8.75	8,152	4.50	48.6
September	5,803	6.37	6,008	3.43	46.2
October	4,014	4.26	4,662	2.57	39.7
November	3,445	3.78	4,007	2.29	39.4
December	4,242	4.51	4,913	2.71	39.9
Totals	67,932	6.12	67,717	3.18	48.1

How it Was Done.

The chief means adopted was the education of the mother in the care of the baby, especially in hot weather. After 1900 there was an enormous increase of the Slav population of Chicago. Among the Slavs infant mortality is great—greater in Europe than after they come to America. In 1908, the Department of Health, put 100 physicians in the field in July and August, and in the streets where the Infant Mortality was greatest, the physicians called at every home to help the mother in the care of the baby.

Don't Kill Your Baby.

The City Council, for this purpose, transferred $10,000 from the Contagious Diseases Division to the Special Division on Infant Mortality, under Dr. Caroline Hedger. This work has since been kept up in summer, and has been of great benefit. Last summer the two most modern devices were the cartoons of Mr. Wilder, the cartoonist of the *Record-Herald,* which were seen far beyond Chicago, especially the famous cartoon, "Don't Kill Your Baby," and the bill-posters' work in placing these cartoons at the very doors of the houses where the babies died.

"The Spot-Map."

A definite record, used in all this work, is a "Spot-Map" of Chicago, marked with a little round mark at the place where any baby died. The bill-posters and the doctors follow the route of the little white hearse, as shown on the "Spot-Map."

Care for the Mother.

Massachusetts is the first place in America to enact legislation prohibiting the employment of women in factories or other industries immediately before or after the birth of a child. The law was approved March 31, 1910, and went into force Jan. 1, 1912.

It enacts that "no woman shall knowingly be employed in laboring in a mercantile, manufacturing or mechanical establishment within two weeks before or four weeks after childbirth."

VITAL STATISTICS.

Great Britain.

The vital statistics of Great Britain, Ireland, France, Germany, and other civilized nations are reliable. They may not be perfect, but they are good enough to be reliable and to be used in calculations. Ours are not. One of the very first things to be done is to get our births registered. We really cannot do anything worth mentioning, to reduce infant mortality, until we do that. Where is the baby?

Notification of Births.

In Great Britain the law is known as the Notification of Births Act, 1907, and provides that births must be notified within 36 hours, under a penalty of 20 shillings. It requires to be adopted by the municipality before it comes into force in

that municipality, and the Government, through the Local Government Board, made it clear from the beginning that the Government would not sanction the putting the Act into force unless and until there was a reasonable prospect that some useful purpose would be served by the Act in that municipality. That is, the municipality had to provide skilled persons to visit the mothers and infants, to give them expert advice and counsel and give the babies a better chance to live and thrive. The Act also provides that the local authority shall give to any doctor or nurse, on request, for their use in this matter, prepaid and addressed post cards, containing the form of Notice of Birth. The Manchester Corporation lately applied to the Local Government Board for permission to pay a fee to a doctor for any such notification, but they did not get leave, the reason being, it is supposed, that the Government may pass a general (not adoptive) measure for the Early Registration of Births.

Where the Act has been adopted, it has worked well. In Eastbourne, for example, it has secured the notification of 91 per cent. of the total number of births, omission of the other 9 per cent. being due to ignorance of the Act.

The United States.

In the United States, in the opinion of Dr. Cressy L. Wilbur, of the United States Bureau of Vital Statistics at Washington, this matter is greatly neglected. It is supposed that some cities register only 20 per cent. of their births and others 90 per cent.

A Disappointment.

How nearly the latter figure is correct may be judged by the experience of Rochester. In 1910 the sanitary inspectors whenever they inspected a house for any cause asked if there were any children in it under two years of age. If so their names, parents' names, date of birth and name of attending physician were reported to the Registrar of the Vital Statistics to see whether the birth was recorded. School nurses and nurses in charge of milk stations gathered similar statistics, and at the end of 1910 it was found that the number of recorded births was twenty per cent. more than in 1909. Another plan was also adopted. Names were taken from the Baptismal Records in the churches and compared with the official records. It was found that twenty per cent. of these were previously unrecorded. This makes it quite certain that not nearly ninety per cent. of the births in Rochester are recorded.

Mr. Carmody, Attorney-General of the State of New York, has just given a decision to the effect that if any physician fails promptly to report births and deaths to the proper authorities his license to practise medicine may be taken away.

The State Board of Health for the State of New York regards this as a most important decision.

Organization.

Among the signs of progress in combating infant mortality, is to be observed that many Associations and Exhibitions have been organized. It is felt that individual effort, while indispensable, is not enough. The National League of Physical Education and Improvement, founded in 1905, helped to establish infant consultations and schools for mothers. It has now been decided to form of these organizations A Separate Branch or department of the National League for Physical Education and Improvement. Thirty-four of these societies have joined

together to make it. It is hoped that thus there will be obtained: (1) A uniform method of keeping records and statistics. (2) The formation of new societies on the best lines, as shown by the failure or success of older societies. (3) The publication of leaflets, charts, diagrams, pictures, and other educational material in the most acceptable and economical way. (4) The co-operation of all interested in infant welfare through the above means, and by general conferences and public meetings.

This work was promoted by a general meeting in London in July and another in December. The chairman, Ald. Broadbent, laid before the meeting the constitution which had been prepared, and a strong provisional executive was formed to make arrangements for the first annual meeting in 1912.

Another event in the world's infant mortality campaign of 1911 was a Health Exhibition at Bristol, England, of "BRISTOL'S BEST BABIES." The Exhibition was a great success, especially as an educative force. It was held on March 1, 2, 3 and 4, 1911, under the auspices of the Bristol Maternity and Nursing Aid Society, and was organized by the Secretary, Dr. W. L. Christie. The catalogue was a readable document containing the names of the three hundred and fifty babies who were entered, and such paragraphs as the following:

A HEROINE.

"The mother, who brings up a large family of healthy children on a pound ($4.86) a week and often less, is a heroine worthy of admiration and honour."

A CURSE.

"We daily witness the pinched faces of babies whose expression is a silent curse louder than that of the strong man in his wrath. Let Statesmen see to it and alter it."

TEN PER CENT.

In connection with the good done by this Exhibition it is to be observed that the rate of infant mortality in Bristol is now down to 100 per 1,000 births.

The THIRD INTERNATIONAL CONGRESS for the study of infant mortality was held at Berlin, September 10th to 15th, 1911, and like the previous congresses at Paris and Brussels, is likely to have far reaching results. Dr. Charles Hodgetts, medical adviser to the Canadian Commission of Conservation, Major Lorne Drum, M.D., and Prof. Adami, of McGill University, were among the Canadians who were present. There were upwards of 650 delegates. The Congress was divided into four sections: (1) Teaching and special instruction. (2) Practical work for the care and protection of infants. (3) Legislation, guardianship and other official measures for the protection of infants. (4) Statistics.

It will be observed that even the form of this programme shows how great an advance has been made since the last International Conference. Much is taken for granted, nothing is said as to the importance of infant mortality, and the discussions at the Conference are almost altogether on methods of educating doctors and nurses and the general public on the question of infant mortality. The meetings took place in the Reichstadt and the German Queen and Empress was present

at the opening. The British Government was officially represented by Dr. Newsholme and Ald Broadbent. A special meeting of British Delegates was held during the Congress, in which Canadian and American delegates took part, and it was determined to hold a British Imperial Conference on infant mortality, which should practically be an English-speaking Conference, in London in 1913, at or near the time of the International Medical Congress.

CHILD WELFARE EXHIBITIONS.

New York.

A new and somewhat wonderful manifestation of the trend of modern thought about childhood was the Child Welfare Exhibition, held in the 71st Regiment Armory, New York City, January 18th to February 12th, 1911. Even to read the catalogue of the remarkable exhibition was stimulating and to spend some time in it could not fail to interest and instruct anyone with any capacity for interest and instruction.

Many of the exhibits were directly upon infant mortality, and a paper upon the subject was presented by Dr. Ira S. Wile at one of the evening Conferences.

Chicago.

This New York exhibit was afterwards secured by the City of Chicago and by a liberal gift from Mrs. McCormick, enlarged still further. The educational influence of these exhibitions was very great.

St. Louis.

Later in the year another great Child Welfare Exhibit took place in St. Louis.

Montreal.

A Child Welfare Exhibition will be held in Montreal in the autumn of 1912. An event to which all those in Canada interested in child welfare are looking forward.

The plans for the exhibit, promoted as they are by both French and English, by the City, the University, the Associated Charities, the Settlements and all the clubs and organizations in Montreal generally, are such as to assure its success. It is expected that the subject of infant mortality will receive a large share of attention at this exhibition.

Montreal Child Welfare Exhibition.

The infant mortality of Montreal is phenomenal, greater than the infant mortality of any other city in America. Of the total deaths in Montreal 54.92 per cent. die before the age of 5 years. The exhibition, which will be held in the autumn of 1912, promises to do a great deal of good. It has been found in Bristol, in Newcastle, in New York, Chicago and St. Louis, wherever there has been an exhibition of an educational character the public have crowded it to the doors. Men, women and children have flocked into the building day after day,

and it has been the leading topic of conversation everywhere. This all helps. The cinematograph, the popular lecture, the efforts of the volunteer guides who are in charge, and many other features, catch the popular attention, and teach many useful lessons. The Sword of Herod, in the twentieth century, is ignorance. And not only the ignorance of the mother, but the ignorance of the community causes the loss of so many babies.

The Canadian Public Health Association.

A new health organization for the Dominion held its first meeting in Montreal in December, 1911, under the direct patronage of His Excellency the Governor-General, who opened it in person and visited all the sections. Two papers on infant mortality were presented at this meeting and it was frequently alluded to as one of the subjects which must be taken up by all interested in National Welfare.

American Association for the Study and Prevention of Infant Mortality.

This Association held its second annual meeting in Chicago, November 16th to 18th, 1911, and already in the short space of two years, has developed an efficient organization with increasing interest and confidence shown by the community. The attendance this year was larger and more representative than before and the papers were practical. Among the subjects upon which most time was spent were municipal work to prevent infant mortality, the problem of the midwives, and the preparation at school and home of the future mother and father for parental duties. The "Little Mothers' League," established and carried on in New York schools by the Child Hygiene Department of the Department of Health in New York, under Dr. S. Josephine Baker, and similar plans in Chicago and other cities are felt to be a real contribution to the solution of the problem of infant mortality.

The motto of the Society is in the words of Dr. Arthur Newsholme, medical adviser to the Local Government Board: "Infant mortality is the most sensitive index we possess of Social Welfare." This motto indicates the wide and practical interpretation which the Society gives to its duty.

Schools for Mothers.

It must always be remembered that conditions which killed 1,727 infants under one year old in a city like Toronto in 1909 did not stop there. Conditions that kill so many always disable others. Low vitality, enfeebled resisting power, a poor constitution, are the inheritance of children whom scandalous sanitary conditions have not killed, but have maimed. It is not to preserve the unfit that we plead when we would prevent infant mortality. It is the protection of the fit, that they may continue fit, not the preservation of the unfit that is the result of a sanitary campaign. Dr. Newsholme, in his classical researches (report published last year) shows that in countries where the infant mortality is low, the death rate at any other age is correspondingly low. That shows that the babies who were saved were fit to survive if they got anything like a fair chance. And one of the best ways to secure a fair chance for the baby is to teach the mother. A properly equipped school for mother includes:

(1) The infant consultation.
(2) The school for mothers.
(3) The restaurant for nursing mothers.

It requires the following staff:—

(1) A medical officer. (Fully qualified physician.)

(2) Lady superintendent. (Trained nurse.)

(3) Ladies committee. (Volunteer helpers, ladies who know something about homes and children and who are both interested and intelligent. The committee should be organized by appointing one lady as Chairman and President of the School for Mothers and others as Secretary and Treasurer.)

It is essential that the doctor, the nurse and two or three of the committee should be present at every consultation. The members of the committee can be of the greatest assistance in receiving the mothers and babies, conducting the classes, preparing the babies for being weighed, filling out the weight-charts, etc., etc., etc.

The object of an infant consultation is to keep the well baby well. If the baby is sick, it should be sent to the hospital at once or the Dispensary. For an infant consultation one large room may do. But if possible there should be:

(1) A doctor's room, where the doctor sees the baby, the nurse and the mother being present.

(2) A weighing room where the baby whose turn comes next is being undressed and weighed by its mother and one of the ladies.

(3) A waiting-room where the mothers and babies are received by one of the ladies and wait their turn.

(4) One or more rooms where practical instruction is given. This is the School for Mothers and the first object of this and every other part of the "School for Mothers" is to make sure that the baby is nursed by the mother. This is the most important thing in infant care and management. Then help is given in every detail of infant care and hygiene, in cookery, plain sewing, dressmaking, cutting out, mending and renovating. Paper patterns of baby garments are sold cheap. Demonstrations must be given with somebody's baby on how to bath and dress and care for an infant.

An infant consultation is much cheaper, and much more useful and satisfactory than a milk depot. But a milk depot has its place too, especially when the infant is nine months old or more.

The rooms must be kept decidedly warm, about 70 degrees being the proper heat for an infant. The place needs to be thoroughly ventilated, but not draughty. Special provision must be made for this, as if something be not done to keep the air reasonably good, the ladies committee may become extinct.

An extra room is almost necessary, when a sick baby comes, it must be seen quickly by the doctor, who should direct it to some hospital or dispensary. But this takes a few moments and afterwards the room should be well-aired before others are admitted to it.

The furniture should be simple, but not ugly or depressing. The walls should be of a pleasing tint. Everything should be shining with cleanliness and should be pretty. Flowers, good pictures, maxims and mottos and wise sayings, simple rules and charts and apt quotations all help. A few toys are a great comfort. So, too, several cradles made out of banana crates, to hold the babies, etc., etc. Above all, the character and efficiency of the doctor, the nurse, and the members of the committee will be the greatest stronghold and safeguard of the school and will secure its success. They all need knowledge of the world, refinement, no small amount of patience and tact and real sympathy and insight, as well as special knowledge of some practical kind relating to the child and the home.

If the mother is to have dinner (and this is the way to feed the baby too) there must be a good kitchen under expert management. The assistants may be all learners, but the head must be an expert. No one else could do as Madame Coullet does at her restaurants for mothers in Paris, give for 3½d., including all working expenses, to every nursing mother who comes in with her baby and nurses that baby while there, a good meal of fish or fresh meat boiled or roasted, vegetables, cheese, or a stick of chocolate, with an unlimited supply of bread. The community which lets a baby be torn by "work" from the mother's breast, and lets the mother with her baby at her breast go hungry or starving is surely not only inhuman, but so stupid as to be blind to its own interests.

It must be remembered, however, that the Mother's Restaurant is only for emergencies. What is to become of the other children if the mother is away from home at dinner-time. If the meals are not taken at home it is a serious matter for the home. The destitute mother, with but one baby—the unmarried mother, the widow, there are these and others for whom this may be necessary, but while some way must be found to serve the hungry mother, it should be a way which will not introduce a still greater evil.

Records.

Home visiting by the ladies of the committee and also by the nurses, is really essential and will help with the records, and, indeed, with every part of the work.

"Much useful and good work can be done on the statistical side if the cards and charts of each baby are carefully kept. As full particulars as possible should be obtained about each case, but there should be no elaborate tabulation in the presence of the mother, information can only be obtained by tact, and it should be regarded as strictly private. The record, of which the duplicate card is given to the mother, should only contain the simplest particulars, *e.g.*, name, address, and occupation of parents, name and date of birth of child (weight at birth if known), how fed, diet recommended and followed, and the record of the periodical weighings. The following particulars are, however, very useful for statistical and eugenic purposes: Occupation, age and earnings of parents and their circumstances (*i.e.*, kind and state of dwelling-house and sanitation), habits (temperate, industrious, or otherwise), religion or race, health of parents, any family diseases, number of children in family, and of conceptions of mother, number of still-born and of miscarriages (if any), number of children dead, and cause of death, whether the mother worked during pregnancy, and how soon work was resumed afterwards. State of health, weight, and height of child at birth, any defects, any apparent tendencies to disease, progress of weight, height, and health, teeth cut, intelligence, habits; how fed from birth (if artificially, give reason).

"Finally, the principles of the work must always be kept in mind—the lessening of unnecessary suffering and death among mothers and children, by the prevention and cure of disease, by the teaching of the ignorant, and by improvement in feeding, clothing, cooking, housing, sanitation, and in personal hygiene, and above all, by the encouragement of breast-feeding—the relief of poverty, but at the same time the encouragement of thrift and home-making. Not an easy work—often in individual cases impossible and discouraging—but surely abundantly worth doing, and in the long run bound to bear fruit in the increased healthiness and well-being of the race."—*H. M. B. in The Crusade.*

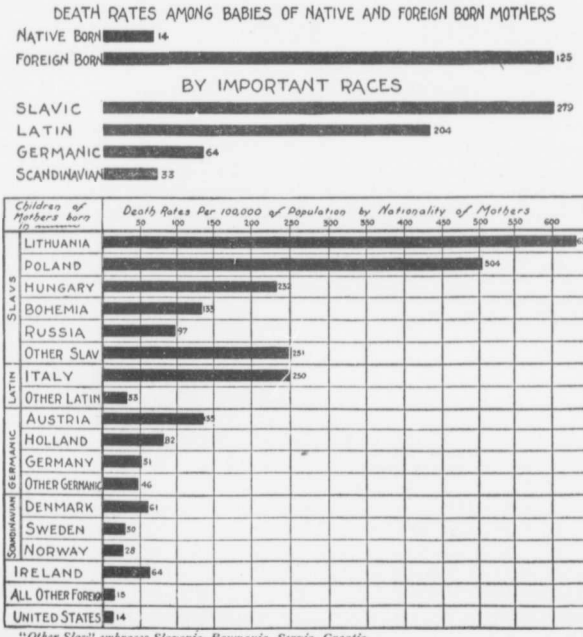
In regard to records, there are a few points of great importance. As already indicated, we must know particularly all about how the child is fed.

Probably next in order comes the exact cause of all the deaths under one year of age. Next the age of the mother. This has a marked effect on the child's chance of survival. If the mother is only 15 or 16 years of age her condition and the condition of the child are as pitiful as they are disgraceful to the community.

Another matter of the utmost importance is the nationality of the parents, as illustrated in the Chicago results. How does this compare with Ontario, or the Cities of Ontario? We do not know.

INFANT DEATHS FROM THE DIARRHEAL DISEASES DURING THE HOT WEATHER IN CHICAGO AND THEIR RELATION TO NATIONALITY OF MOTHERS

Death rates per 100,000 by Birthplaces of Mothers.



"Other Slav" embraces Slavonia, Roumania, Servia, Croatia.
"Other Latin" embraces France, Greece, Spain, Portugal.
"Other Germanic" embraces Belgium, Switzerland, Luxembourg.

Calcutta.

Chicago, is not the only city that has made this discovery. In Calcutta, where the population is 890,493, the infantile mortality rate was 273 per 1,000 births, and in some parts even this high rate was increased, for in six separate wards it varied from 350 per 1,000 to 447 per 1,000. There was a remarkable difference in the infantile mortality rate among the different nationalities. Among the Hindus it was 252 per 1,000, among Mohammedans 343 per 1,000, among non-Asiatics 141 per 1,000, among mixed races 260 per 1,000, and among other classes 238 per 1,000. The high rate among the Mohammedans, it is thought, may possibly be due to the defective registration of births among these people.

Know Where the Babies Die.

It would probably also be of great service to Know where the babies die. If every week we had a record in our newspapers of the number of deaths under one year old, arranged according to wards, with the nationality, the cause of death and a few other interesting particulars, it would affect public opinion and hasten the education of the public on this important matter.

The following card used in Chicago for recording visits to homes of the nurses under the direction of Dr. Caroline Hedger, is a good form of record:

Department of Health, Chicago.

Infant Welfare Service.

(Card 1)

Ward ..... Street ..... No. .....

House ..... Ft. ..... Rr. ..... Flat .....

Ft. ..... Mid. .....Rr. ..... Floor 1-2-3-B

NAME .....

Place Mother's Birth ..... Occupation.....

Place Father's Birth ..... Occupation.....

Children: Alive ..... Ages ..... Youngest Child Sex .....

General Condition ..... Dead .....

Ages at Death ..... Second Child Sex .....

General Condition ..... Abortions .....

Feeding Youngest: Breast ..... Breast and ..... Comm. .....

Pat. Fd. ..... Cow's Milk only ..... Cow's

and ..... Cond. Milk ..... Water .....

(Card 1.)—*Continued.*

Feeding Next Youngest:

If the Mother is Nursing what does she take to make milk?

Feeding: Regular ..... Too often .....Night

Feedings .....How many? .....

Milk: Boiled ..... Pasteurized ..... Covered .....

Kept on Ice ..... In Water .....

Bathing: Sponge ..... Tub ..... How often? .....

Clothing: Too much ..... Too little .....

Stool: Color ..... Consistency ..... Blood .....

Mucous ..... No. in 24 hours .....

Sickness in House: Cases Diarrhea ..... Tuberculosis .....

Chronic Cough ..... Contagious ..... Skin .....

LIVING ROOMS	Perf.	Allow
Cleanliness: Deduct when Unclean Floors 4, Walls. 3, Ceilings, 3, Ledges 3, Windows 2.	15	
Ventilation: Adjustable Windows 6, No Odor, 4.	10	
Lighting: Deduct 2 Points for every 3 per cent. less than 15 per cent. of Floor space.	10	
Presence of Flies:	15	
Crowding: Rooms, No..... Men .....Women..... Children ..... Boarders	10	
	60	

SURROUNDINGS	Perf.	Allow
Accumulations: Within 50 feet: Garbage—Rubbish.	15	
Yard and Areas: Space available.	15	
Plumbing on Premises: Deduct when leaking 4, Clogged 4, Odor 2.	10	
	40	
Plus Living Rooms	60	
Final Score.....	100	

CAUSES.

The realization of the importance of infant mortality has led during 1911 to a still more minute and searching scrutiny of the first causes of infant mortality.

WHY DO WE LOSE ALL THESE LIVES? Certain aspects of the question have received special attention. Thus, the COMMON HOUSE FLY (Musca Domestica) used to be regarded as harmlessness itself. We now regard it as one of the most deadly enemies of man. And it has been readily recognized that the house fly helps to contaminate milk and so cause infant diarrhœa.

Researches which are now pursued with so much energy constantly result in new facts being brought forward. The influence of ALCOHOL has, of course, received marked attention. Professor Bunge's work is valuable in regard to the influence on the daughter of alcoholism in the father so far as the daughter's ability to nurse her child is concerned. Professor Bunge gives this table:

The Father Consumes Alcohol.	Daughter able to Nurse.
Not habitually	91.5 per cent.
Habitually, but moderately	88 per cent.
Habitually, immoderately	31.4 per cent.
Inebriate	10 per cent.

The Medical Officer of the Local Government Board, Dr. Arthur Newsholme, has directed two investigations during the last year which bear on infant mortality. One was an examination by doctors in London, Manchester, Birmingham and Shrewsbury, to ascertain the ORGANISMS IN EPIDEMIC DIARRHOEA. A great many different organisms were found, but none could be identified as the cause of the disease.

The other was in regard to THE HOUSE FLY. Dr. Newsholme points out that while not the sole cause of epidemic diarrhœa, by carrying the bacillus on their feet and elsewhere, flies are a good index of the probable contamination of milk and other foods in cities where scavenging is neglected and filthy privies are permitted. Flies, like infant mortality itself are an index that cannot lie as to sanitary conditions.

A third investigation on CONDENSED MILK was ordered by the Local Government Board. A rather fatal food for infants is condensed milk. The local Government Board has had a special report prepared on it by Dr. F. J. H. Coutts. He finds:

(1) That none of the condensed milk was free from germs. One at least of these germs found is suspected to cause infant diarrhœa.

(2) That the name of condensed milks is Legion, for they are many. Dr. Coutts got 100 different brands of machine-skimmed milk and 40 brands of full cream condensed milk. When something goes wrong with the process and one "lot" of condensed milk is too thick or too thin, then the wary manufacturer gives it a new and beautiful name and picture on the tin and sends it forth thus to fight against the baby, so the number increases yearly.

(3) The merchant makes more profit on machine-skimmed condensed milk than on full cream condensed milk. The figures are about 20 per cent. profit on the one and about 10 per cent. on the other.

Death and disease are in league with him and make a bigger profit still. The lack of fat leads to malnutrition, lowered vitality, rickets, scurvy, more liability to epidemic diarrhœa, and more predisposition to bronchitis, tonsilitis, pneumonia and adenoids, with all their evil consequences. A considerable proportion of infants fed on machine skimmed milk die in the first year, and those who survive are apt to be stunted, ill-developed and inefficient.

(4) Ignorance and poverty are the causes which lead to feeding babies on condensed milk. The mother pays 5½ pence for condensed milk, when she can get an equal amount of fresh full cream cow's milk for 5 pence. But she does not know it.

This research attracted much attention, and the general opinion about the matter is thus voiced by the *Lancet*:

"The State should step in wherever possible to prevent the waste of infant life which is due to ignorance and poverty, and, in the case of condensed milk, to render more difficult the commercial game of making things appear to be what they are not."

How much condensed milk is used in Ontario?

Immaturity.

More emphasis has recently been laid on infant deaths resulting from immaturity. It is remarked by Dr. Walford, M.O.H. for Cardiff, and by other observers, that State and Municipal Hygiene can do more for the infant after it reaches three months or so than before that time. Prematurity, weakness at birth, etc., can only be prevented by the care of the expectant mother and by her education and instruction in her duties and her responsibilities to her child.

A great controversy has been held over the question of the Employment of Married Women outside their homes, on which opinions are very varied.

It may be recalled that an important inquiry on this subject was made under Dr. John Robertson, M.O.H. of Birmingham, by Dr. Jessie Duncan, who made detailed and thorough investigation in St. George's and St. Stephen's wards in Birmingham. The two most important facts brought out by this enquiry were as Dr. Duncan says: "The mortality among the infants born in 1908 of all mothers employed, either before or after child birth, was at the rate of 190 per 1,000 births, while among those not industrially employed it was 207 per 1,000 births, and that the weight of babies at the end of 12 months did not vary greatly according to whether or not the mother was industrially employed, but did vary greatly according to the wages of the father."

"These mothers live more exacting and self-denying lives than probably any other group in the community. I have personal knowledge, and have the testimony of many reliable workers, that what food comes into the house is given to the children or the husband, while they themselves go on from day to day in a state of semi-starvation.

"The life of a mother among the poorer classes is always a strenuous one if the family is large, but when hunger is added, and particularly when such a woman is an expectant or nursing mother, the condition is a particularly distressing one."

The following are the figures referred to:

		Average Weight of Babies.
260	Industrially employed mothers after confinement.....	17.3 lbs.
157	Industrially employed mothers before but not after confinement.....	18.0 lbs.
399	Mothers not industrially employed	18.0 lbs.

	No. of Babies weighed.	Average Weight of Babies at 12 months.
All Infants breast-fed for 6 months.....	466	18.0 lbs.
All Infants partially breast-fed for 6 months.....	177	17.2 lbs.
All Infants bottle-fed for 6 months.....	173	17.2 lbs.

In the course of these weighings it was found that the question of the degree of poverty had a very considerable influence on the infant, whether breast-fed or not. This is shown in the following figures:

Income of Family, excluding Mothers, at Time of Birth.	No. of Babies weighed.	Average Weight of Baby at 12 months.
Father out of work	107	17.6 lbs.
Total Income under 10s. per week	52	16.8 lbs.
" 10s.—20s. "	303	17.5 lbs.
" 20s.—30s. "	300	18.3 lbs.
" over 30s. "	39	18.8 lbs.
Illegitimate Children, no income at first visit	15	18.0 lbs.

Dr. Robertson sums up his general conclusions as follows:

"I do not for a moment maintain that such industrial employment is free from all harmful influence. The mere fact that it prevents breast-feeding in the majority of cases is in my opinion a reason for some State interference. Here, however, it appears to be a question in this Birmingham area as to whether the additional poverty which would be occasioned by preventing mothers from working for, say, six months after a birth, would not be the greater of two evils."

The same investigation was carried on in 1910, but more thoroughly, as the organization to help the mother was better. Dr. Duncan says:

"The general conclusions to be drawn from another year's study of this question are much the same as those arrived at in 1908. It seems pretty certain that industrial employment has a bad effect on the infantile mortality, principally because it interferes with breast feeding. For this reason employment in a factory is more harmful than employment at home. But the influence of industrial employment is quite small when compared with the influence of acute poverty. It would seem, therefore, that in so far as the mother's employment reduces the acuteness of the poverty, it may tend to improve the infant mortality. At any rate, it is doubtful whether any further interference with the employment of married women would be at all beneficial as long as the acute poverty remains.

"The influence of poverty (even only dividing the wages into below and above £1 per week) on the infantile mortality rate is far greater than that of industrial employment. Employment of the mother apparently had the effect of causing a difference of 10 per 1,000 in the infant mortality, whereas the father's earnings being under or over £1 per week resulted in a difference of 65 per 1,000. Poverty appears to act upon the child both before and after its birth. The children may seem to be healthy at birth, but they have a very insecure hold upon life, and are unable to live in the poverty-stricken homes into which they are born.

Poverty.

Poverty, of course, is not a simple, but a complex condition. It probably means poor health, inefficiency, lack of energy, less than average intelligence or force in some way, not enough imagination to see the importance of details, etc., etc.

This report was made in February, 1911, and in March, of the same year, Dr. Robertson published a further statement. He thinks that infantile diarrhœa should be subject to Compulsory Notification. It was ascertained in 1911 that 73 per cent. of the cases of infant diarrhœa occurred in houses with four rooms or less, and only 27 per cent. in houses of more than four rooms.

The Mother Saves the Baby.

Breast feeding has once more been shown to be the great safeguard against infant diarrhœa. An infant nursed by the mother is almost or quite safe from infant diarrhœa. An infant fed artificially is 30 times more likely to die of infant diarrhœa than one nursed by the mother.

Housing.

No one condition has a more direct influence on infant mortality than housing. Poverty and misery and unfitness are of course at the bottom of both infant mortality and bad housing. To prevent infant mortality we must find some way of preventing destitution. Dr. Newman gives the figures for Finsbury in 1905, infant mortality.

Number of Deaths per 1,000 *Births.*

One-room tenement	219
Two-room tenement	157
Three-room tenement	141
Four-room tenement and upwards	99

In Hamilton, in Toronto, and elsewhere in Ontario during 1911, some thought has been taken about the housing problem. In Hamilton the Annual Report of the Health Officer states that a number of houses unfit for habitation, photographs of which are given, were closed by the order of the Local Board of Health.

Early in 1911 an investigation of housing conditions in certain districts of Toronto took place. It was ordered by the Local Board of Health at the request of the Medical Health Officer, Dr. Charles Hastings, and was provided for by a special grant of $800 from the Board of Control. Dr. Hastings appointed four women as housing inspectors to do this work, all of whom had special qualifications for the work and special knowledge of these districts. A physician received and revised their reports daily, inspected a number of doubtful or very bad houses and directed the investigation, as well as preparing and presenting the results which were published by Dr. Hastings in a report dated July 5th, 1911.

No better commentary on the infant mortality of Toronto, which was 1,727 in 1909, could be found than is furnished by this report. The following photographs and descriptions, with the accompanying statistics, are taken from it by kind permission of Dr. Hastings.

This picture was taken under the shadow of the City Hall. To the left is a tenement house occupied by six "families." There are six dark sleeping rooms in it. To the right is a "sanitary convenience," intended to be used by all the inhabitants of the row, except those in the third house. At the door of the third house may be seen the outside entrance to a closet in the cellar, used not only by the people of that house, but by the workers in the "factory" which occupies the top flat of all these houses.

In the foreground is a muddy, dirty, unpaved yard and lane. The tap with the pail under it is the sole water supply for all the houses, and the tenement house, and the workers in the factory—40 persons in all. The tap is sometimes frozen in winter. It is not protected at all from frost.

These are rear houses, hidden away in behind the street. They cannot be seen from the street. The rent for the houses is high. On the day the photograph was taken the owner had for some unknown reason cut off the use of the sole "sanitary convenience" for 30 people, in the manner shown by nailing it up.

The bare branches of the tree shown to the extreme right mark the place where stands an outside privy of another type, the condemned and out-of-date privy-pit. That closet belongs to a house on the front street rented for $10.00 a month. One of the best known real estate firms in Toronto collects the rent. The house is unfit for habitation. The outside privy has been for a long time over-flowing. Its disgraceful state may be seen from the open street across a vacant lot. Into that vacant lot the husband of the poor woman who still struggles to keep that house decent casts under cover of night, the "night soil." The same thing is done from seven other dwellings which we have reports of.

In other words, what we have read of with disgust as having happened in the cities of Europe in the middle ages, happens in Toronto now before our very eyes. But we do not look that way. We pass by on the other side.

Problems of the Great City.

Thus the problems of the great city have come upon us unawares, and are presented before us in this one scene:

(1) High rents.
(2) Rear houses.
(3) Dark rooms.
(4) Over-crowding.
(5) Tenement houses.
(6) Houses unfit for habitation.
(7) Inadequate water supply.
(8) Unpaved filthy yards and lanes.
(9) "Sanitary conveniences" (so-called) which, by their condition, their position or their lack are: A nuisance, a menace to public health, a danger to public morals, an offence against public decency.
(10) Infant mortality, tuberculosis, and other evils brought upon as a consequence of these conditions.

"Infant mortality is highest where, under urban conditions of life, filthy privies are permitted, where scavenging is neglected, and where the streets and yards are to a large extent not 'made up' or paved."—*Newsholme.*

In not a few instances a whole row of houses has been built on a back lane of a width of eight feet or even less.

The south end of the row of houses to the left of the next photograph is a striking instance of this. A tall man with arms outstretched, could probably touch the high wall on the right with one hand, and the houses on the left with the other. The road is a study in mud.

Behind the row of houses on the right is another still narrower lane. The street in front is only a lane, with mud six inches deep. But the narrower lane behind is deeper in worse filth, for the contents of the row of outside closets ooze out into that lane.

The Danger of Dust.

In summer the dust from unpaved streets gets into the house and into the food, particularly into the milk, and this probably causes a great deal of sickness and death among little children.

The same may be said of the uncared-for, dusty, dirty, muddy, sometimes filthy, often unsanitary yard and back lane.

A Plea for Playgrounds.

Grass is scarce in the City Hall district. These children seldom set their poor little feet in the green pastures. The street is dusty and dangerous, the yard is muddy and dirty.

The Slough of Despond.

Again the picture gives no idea of the depth of mud. It was a Slough of Despond. There was no drain at all.

Overcrowding.

The rear view shown above illustrates another example of over-crowding. On this lot, 90 feet by 44 feet, there are built four stores and five dwellings, three closets, two sheds and an "abattoir" on a small scale.

To the extreme left of the picture is a shed where the business of killing fowls is carried on. There are two barrels encrusted with gore to a thickness of about three-quarters of an inch. The whole shed is filthy.

Next is the door, propped open, of a closet out of order. The water runs down from it, and the little stream drains into the kitchen door of the rear dwelling opposite.

The window of the other rear dwelling is shown at the end. The whole yard is dirty and needs a good cleaning up. But the worst feature of all is the terrible condition of the outside closet draining into the kitchen. As the poor woman said, "Have to send my children away." "Catch easy sickness."

The next photograph shows another outside closet in a disgraceful state. But not so disgraceful as the one in the shed just opposite, which is not shown. It baffles description. So does the shed.

Toronto is now attempting to abolish these bad housing conditions and to establish a garden suburb in the near future.

In the Shadow of the City Hall.

Houses on a Back Lane.

The Slough of Despond.

Number of houses inspected	4,696
" " families living in one-room dwellings	198
" " families living in two-room dwellings	411
" " families living in three-room dwellings	646
" " families living in four-room dwellings	4,080
" " families living in basement cellars	79
" " families living in rear houses	246
Houses unfit for habitation	390
Toilets, privies or outside closets unfit for use	716
Dark rooms	48
Over-crowded rooms	109
Families with no water in house	559
Families with no drain in house	662
Families with no bath in house	3,095
Families with no toilet in house	2,207

The most dangerous of these figures to Toronto, Ontario, and Canada are those which mean the absence of the decencies of human life. Well did Sidney Webb speak of the "Soul destroying conditions of the one-roomed dwelling." Has the mother with her baby at her breast any chance in the one-room dwelling, the dark room, the cellar, the house unfit for habitation, the house that does not hold one water tap, one sink, one sanitary convenience? No. And therefore we buried our four babies a day in 1909.

The Children of the Province.

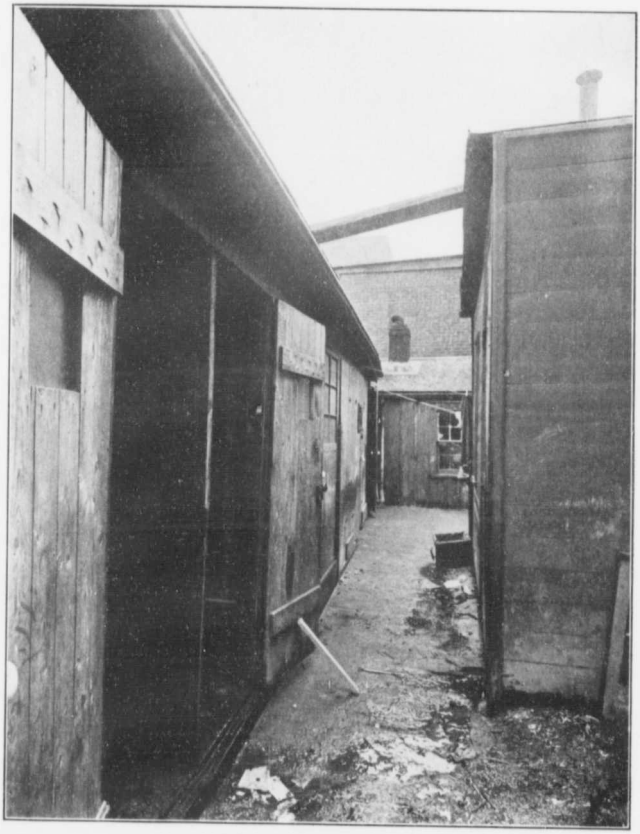
Why Did They Die?

The Province of Ontario, whose children thus die in thousands, (for no system of Birth Registration, however successful, can alter the fact that 6,932 children died within our borders in 1909), should know why they died, and a good deal more about the whole subject than it does at present? Realizing, in fact, as well as in name, that these are the Children of the Province of Ontario, we should do something to save them alive, and this we cannot do till we know more about them. Probably infant diarrhœa should be made a notifiable disease.

It Can Be Done.

It lies in our power to make a great improvement in our present high infant mortality rate, which is unworthy of Canada, and strikes, in more ways than one, at the root of the real prosperity of the nation. Every country that has tried to do it has succeeded in reducing infant mortality. It was stated this year, by Dr. S. G. H. Moore, the Health Officer of Huddersfield, who visited Villers le Duc, that the Mayor, who was a doctor, had made certain regulations *re* the care of infants, and had had them carried out. The result was that of all the infants born in that commune during ten years, *not one died.*

What community in Canada will make a record like that for one year..



"Catch Easy" Sickness.

It is Worth Doing.

According to figures published by the United States Conservation Commission, the monetary value of a new-born baby is $90. According to this the Province of Ontario lost $600,000 worth of babies in 1909, and the City of Toronto $155,430 worth in the same year.

As Others See Us.

Mr. and Mrs. Sidney Webb visited Canada in the summer of 1911. Whatever opinion we may hold as to their views set forth in the celebrated "Minority Report" of the Poor-Law Commission there can be little doubt that in aiming at the "Prevention of Destitution" they are getting at the root of the matter, and that as Social Experts they have few equals.

What did they see here, and what did they say?

"We have journeyed thousands of miles; rested in magnificent cities, counting their inhabitants by hundreds of thousands; passed over miles of cultivated fields and boundless prairies; gone through vast stretches of forest and seen the output of prolific mines; and—in spite of whole districts of barren waste of rock and sagebrush, and of some overcrowded quarters of the cities which are not far off being slums—we cannot say that we have seen even the smallest class of destitute persons. There are individuals in temporary distress. Here and there, in the great cities, you may find a roomful of persons—here and there in the "shack" that the "homesteader" first erects on the prairie you may find families—who are, in essentials, below the "poverty line." But the optimistic Canadians are right (and all Canada is just now more optimistic than the typical Western American) in feeling that, of destitution as a disease of society they have practically none."

A brief statement of the resources and prosperity of Canada follows:—

"What is just now happening, in short, is the individual appropriation and reduction to effective use of the natural resources of a vast continent, which was, until lately, not practically opened up.

This has been rendered possible by the enormous influx into Canada during the past decade of both capital and labor. The spirited advertisement policy and large-minded inducements of the Dominion Government are bringing over each year an addition of something like five or six per cent. to the total population; and a practically unlimited supply of capital is being placed by English, Scottish, and French investors at the disposal of the Great Canadian banks and "captains of industry." The result of all this is a perfectly marvellous "expansion"—everywhere new railroads are being built, new houses erected, new mines opened, new factories started, new industrial enterprises set going—parallel with the new acres being brought under cultivation. This means a practically insatiable demand for manual labor (and, indeed, for most other kinds, in due proportion and at the right points); and accordingly a high level of wages; and, just at present, no unemployment, even in winter. Thus, what is in progress in Canada during the opening years of the twentieth century is not the normal growth of a settled community, but the rapid—almost the sudden—economic appropriation of a new land. To the economist, the discovery of Canada will date, not from Jacques Cartier, or its acquisition from Wolfe, but from the opening of the "C. P. R." (Canadian Pacific Railway) in 1886. The present inhabitants of Canada are a race of conquerors.

It Baffles Description.

How long will this last? It may easily be predicted that as soon as the unappropriated land practically accessible to the urban laborer becomes exhausted, the usual wage-earning "proletariat" will emerge. This point may be reached long before the vast geographical areas on the map are all divided into farms; just as it was reached in the United States a generation ago. Land which the laborer cannot get to and cannot economically work is as good as no land at all.

Moreover, what is usually forgotten, the class of destitute persons in England is made up, to the extent of 95 per cent. of the sick, the feeble-minded, the lunatic, the aged, the crippled, and the widows and orphans. The chief reason why Canada has so few destitute persons is that nine-tenths of such persons have been left behind in Europe! No lunatic, sick, defective, or crippled person is allowed to land; the aged and the orphans likely to become chargeable are very grudgingly admitted; even the adult healthy immigrant is only admitted if he brings with him several pounds in cash; and the Asiatic races are excluded. The result is that Canada is, to an enormous extent, still a nation of healthy adults, self-selected for energy, enterprise, ambition, and endurance. We in Europe are maintaining—in our pauper class—a large proportion of the defectives and dependents belonging to these millions of conquering emigrants, who are themselves growing rich on their conquest.

What of the future? With this magnificent heritage of natural resources, and this carefully selected population, it will be a sin and a shame if the Canadian Dominion presently reproduces in Montreal and Toronto, Winnipeg and Vancouver, the "sweating," misery, and destitution of the Old World. It has all our experience to learn from. It has at its disposal all the achievements of economic and political science, and the successful experiments of Great Britain, Australia and New Zealand, and the Continent of Europe. It has a form of government and a constitutional framework which are the envy of the inhabitants of the adjacent States of America; and which are free from most of the vices that beset a new country. Capitalism, moreover, is, so to speak, on its good behavior, and is quite sincerely seeking its gain in efficient direction of the national enterprises.

The disquieting feature is the complete lack of any thinking about the problem, and the light-headed optimism of this nation of successful speculators in land values. The causes which produce destitution are already at work; and the beginnings of destitution, as a disease of society, are not far off. To begin with the babies. In Montreal and Toronto, as well as in Quebec, and generally throughout the cities of the Dominion, the infantile mortality is terrific—apparently equaling that of the worst slums of Preston and Liverpool. This implies, as we now know, the widespread deterioration of the infants who do not die, and the production of all sorts of degeneracy. It is no less a disgrace to the Canadian people and Government that the sickness rate and the death rate, more especially those of the obviously preventable zymotic diseases, should be, in practically all the Canadian cities, far above that of the average English town.

To put it shortly, the Canadian city is still essentially uncivilized—it is neither properly paved nor drained, nor supplied with water fit to drink, nor equipped with any adequate public health organization. This is particularly true of the cities of Quebec and Ontario, proud as they are of their civilization. The newer cities of the West have gone in much more for collectivist organization of the means of healthy city life. But after ages will wonder at the stupidity of Government and a people which takes so much trouble to bring in immigrants from every corner of Europe—even the Ruthenians and the Armenians—and, for sheer lack of public thought, lets its own Canadian babies die in quite unnecessary holocausts,

and for sheer lack of civic organization, allows even the laborers it has brought over to be decimated by enteric fever due to a contaminated water supply.

All this infantile mortality and adult sickness means that the production of a destitute class is beginning. The elaborate "eugenic" precautions taken at the ports are being nullified by the production of cripples and degenerates in the interior. Presently, too, the problem of the widow and orphan—as yet almost unfelt—will begin to demand a wise collective provision. Finally, the absence of any adequate provision for training the Canadian youth, so that he may grow up more than a manual laborer, will lead presently to an "unemployed" problem (which began to be seen in Toronto a few winters ago). All this demands thought—thought which does not seem yet to be given.

SUMMARY AND SUGGESTIONS.

Summary.

(1) Ontario has a high infant mortality.

(2) A high infant mortality is a sign of the need of education and of raising our standard of civilization, especially in sanitary matters.

Suggestions.

(3) This education should be made effective by the government, the municipality, the school, and the medical profession.

(4) The baby is a citizen. His or her arrival should be notified to the Division Registrar within 24 hours, by the doctor, father, nurse, or other responsible person. Immediately thereupon the Medical Health Officer should be notified and give an official card of birth registration, to be kept for the baby by the mother, to whom the card is to be given by the visiting nurse, within a few hours of the notificaton, in order that she may, if necessary, give expert advice and assistance in regard to the feeding and to the care of the baby.

(5) Every effort should be made to popularize the Birth Registration Bureau, by placing it, or a notice directing to it, in such a manner that every one who enters or passes the City Hall may see it. The convenience of the citizens to be consulted in every way. In cities over 100,000. this Birth Registration Bureau to be kept open at all times (perhaps with colored lights to indicate it), and every facility given to assist citizens to make registrations.

(6) The first person to notify any birth within 24 hours, to receive a fee of 25 cents from the municipality.

(7) Every certificate of death for any child under one year of age shall state the exact method employed to feed such child.

(8) Medical Health Officers to make weekly returns of births and infant deaths to the Secretary of the Provincial Board of Health, and to state in what ward, township, etc., such occurred.

(9) The Provincial Government to make a special grant of one-third of the salary paid to any physician or nurse exclusively employed in Infant Welfare work in any municipality.

(10) The Provincial Government to make a special grant under the terms of the Charity Aid Act of 14 cents per day for any infant nursed by the mother in any Provincial Institution, Hospital. Infants' Home, etc., and of 7 cents per day for any infant not nursed by the mother, in such Institution.

(11) The establishment of a Bureau of Infant Care and Management or Infant Welfare, under the Secretary of the Provincial Board of Health.

(12) The Registrar General to supply doctors with stamped and addressed post cards upon which to write the notification of births.

I have the honor to be,

Sir,

Your obedient servant,

HELEN MACMURCHY.

December 31st, 1911.

PROVINCE OF ONTARIO.

1908—Births, 55,388; Deaths under one year, 6,895; Infant mortality rate, 125 per 1,000.
1909— " 52,629; " " " " 6,932; " " " 131.7 "

CITIES.	Births.		Deaths under one year old.		Ratio of such deaths per 1,000 births.	
	1908.	1909.	1908.	1909.	1908.	1909.
Belleville	248	231	49	29	197.6	125.5
Brantford	597	523	95	91	159.1	174.0
Chatham	229	192	41	44	179.0	229.2
Fort William	442	413	110	94	248.8	227.6
Guelph	307	322	57	46	185.7	142.9
Hamilton	1,822	1,706	349	296	191.5	173.5
Kingston	395	451	71	86	179.7	190.7
London	1,024	965	205	175	200.2	181.3
Niagara Falls	214	200	47	36	219.6	180.0
Ottawa	2,035	1,920	521	545	256.0	283.9
Peterborough	459	390	78	72	169.9	184.6
Port Arthur	392	346	95	96	242.3	277.5
St. Catharines	294	242	50	47	170.1	194.2
Stratford	301	331	41	48	136.2	145.0
St. Thomas	334	295	62	45	185.6	152.5
Toronto	7,938	7,848	1,535	1,727	193.4	220.0
West Toronto	433	....	83	....	191.7	.....
Windsor	395	335	67	54	169.6	161.2
Woodstock	204	177	20	13	98.0	73.4