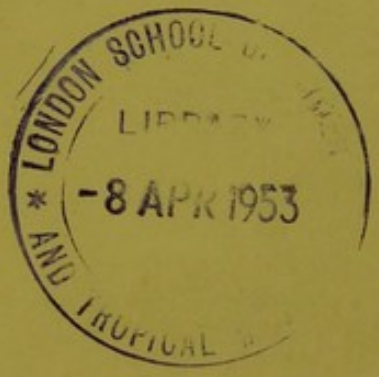
Infant mortality and milk stations ; special report dealing with the problem of reducing infant mortality, work carried on in ten largest cities of the United States, together with details of a demonstration ... in New York city during 1911 to determine the value of milk station work as a practical means of reducing infant mortality / ed. by Philip Van Ingen ... medical director of the Committee for the reduction of infant mortality and Paul Emmons Taylor ... director of the Committee for the reduction of infant mortality.



INFANT MORTALITY AND MILK STATIONS

Consultation Day at the Milk Station

INFANT MORTALITY AND MILK STATIONS

SPECIAL REPORT DEALING WITH THE PROBLEM OF REDUCING INFANT MORTALITY. WORK CARRIED ON IN TEN LARGEST CITIES OF THE UNITED STATES

TOGETHER WITH

DETAILS OF A DEMONSTRATION BY PUBLIC AND PRIVATE AGENCIES IN NEW YORK CITY DURING 1911 TO DETERMINE THE VALUE OF MILK STATION WORK AS A PRACTICAL MEANS OF REDUCING INFANT MORTALITY

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Edited by

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PUBLISHED BY

THE NEW YORK MILK COMMITTEE

1912

Infant mortality statistics presented in this report were prepared By Philip Van Ingen, M.D.

PRICE, ONE DOLLAR

The New York Milk Committee

ORGANIZED BY THE NEW YORK ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR IN 1906
INCORPORATED IN 1910

Purpose

Create through education and publicity a public demand for a clean and safe milk supply for all. Prevent unnecessary loss of infant life.

Committee for the Reduction of Infant Mortality

Table of Contents

Introduction

The purpose of this report is to make available to every one having an interest in the campaign against infant mortality the information acquired by the Committee for the Reduction of Infant Mortality of the New York Milk Committee during the summer of 1911, when it undertook a demonstration to determine the value of infants' milk stations as a means of reducing that mortality.

It is not intended as a general report of the work done by the Committee, which is contained in the Fifth Annual Report of the New York Milk Committee. Statistics were carefully kept and tabulated. They are here presented, with the deductions drawn from them, together with the opinions derived from the experience of those who organized and directed and carried on the work.

In the first chapter is given a very brief summary of the problem, to help in the solution of which the milk station was called upon. A frightful tragedy, costing the lives of some 1600 men and women, horrifies the entire world, and yet every year many thousands of babies die unnecessarily. Tables are given showing that in the civilized world from one in every ten to one in every three babies born die during the first year of life.

The various factors concerned in this waste of life are very briefly discussed.

In the next chapter is given a résumé of what has been done in New York city during recent years for the prevention of this high infant mortality. An attempt is made to trace the development of the activities working together today toward this end.

Chapter IV deals with the results obtained in New York city as a whole, and its different subdivisions. Tabulations of the official figures of the Health Department for a number of years are given. These tables show a most remarkable reduction in infant mortality for the year, and chiefly during the summer months. They show that, with a low total infant mortality, only 28 per cent. occurred during the three summer months in Manhattan, as against an average for the preceding ten years of 33.8 per cent.

A tabulation and brief discussion of weather conditions in New York is also given, which shows that in the first half of the summer conditions were very unfavorable for a low infant mortality. The first part of July was the most unfavorable since 1901, and yet the deaths during that month were the lowest since 1901, not even taking into consideration the increase in population.

Chapter V deals with the results obtained at the milk stations. Careful records were kept containing all data which could be used to any advantage. The feeding records of 3182 babies under two years are analyzed and studied in some detail. Of these babies, only 158 died, and of them, 58 were never treated in any way by the station physician or nurses, being immediately sent to a hospital

or private physician. The milk stations were carried on to *prevent* sickness among babies. Many facilities exist for treating sick ones. Every baby who died, however, if it once came inside the station, was charged against that station, in order to avoid possible charges of selecting cases. *The results show the entire feasibility of teaching the mother to modify the milk at home.*

Detailed studies of mortality in a large portion of the borough of Manhattan were made by one of the Committee, in order to try to show the relation of the mortality among the station babies to that in the blocks surrounding the stations and from which the babies came. The results are rather striking.

In order to determine whether results in New York, especially the boroughs of Manhattan, where the Committee was working, and Brooklyn, where the Health Department was most active, were better than in other cities, as complete records of their vital statistics as possible were made, together with an attempt to find out what was being done there. The nine largest cities after New York were selected. More could not be attempted, owing to the difficulty of securing information. The lack of published statistical records makes it very difficult to make a thorough study of conditions. Comparatively few cities outside of the largest ones publish monthly bulletins of vital statistics. Of those that do, the data printed in regard to infant deaths are often scanty and classified entirely differently in different cities. Even the Census Bureau, in its splendid yearly reports on mortality, does not tabulate *infant deaths* by months of occurrence, though it does adults. For many of the data the Committee is indebted to health officers, who supplied them on written request.

In Chapter VI the various data collected are tabulated and summarized, and an attempt is made to compare results fairly and impartially. *The Committee believes the value of the milk station as a means to reduce infant mortality through educational prevention is proved.*

In the chapters that follow, the organization of the stations and the central office is shown for the benefit of any communities planning to organize such a work. The cost of maintenance is most carefully and fully worked out. The problem of relief and the details of its management are given fully. A chapter is devoted to the future of the milk station and its possibilities of usefulness.

The work of the Committee was carried on to help the Department of Health demonstrate the value of milk stations in reducing infant mortality. The city appropriated funds in 1910 to maintain 15 municipal milk stations. When the Board of Estimate and Apportionment met to pass on the appropriations for 1912, the Committee submitted a report to each member stating what had been accomplished, and illustrating results with maps, charts, and tables. It also was represented at the public hearing on the budget, and that the city increased the previous appropriation so that the Department of Health could maintain 55 in 1912, they feel sets the official seal of approval on the work of milk stations,—not theirs,—but what is far more important, milk stations as a means for the prevention of infant mortality through education.

The Committee wishes in this way to acknowledge the help and coöperation of many—it is impossible to mention them by name, they were so many. The

various relief organizations, settlements, and hospitals gave much assistance; without it the work would have been impossible. The coöperation of the Health Department and the Bureau of Municipal Research was much appreciated. The ice companies did their share in generously supplying free ice to those unable to buy it.

Our thanks are due to the many health officers who provided statistical material and information. Many physicians and private individuals also furnished valuable information.

And, finally, we wish to express our thanks and appreciation to the staff of physicians, nurses, matrons, and the office force, who worked in season and out of season, early and late, under most trying and almost impossible conditions, giving their very best to their work. Without such a spirit on the part of all we could not have accomplished what we did.

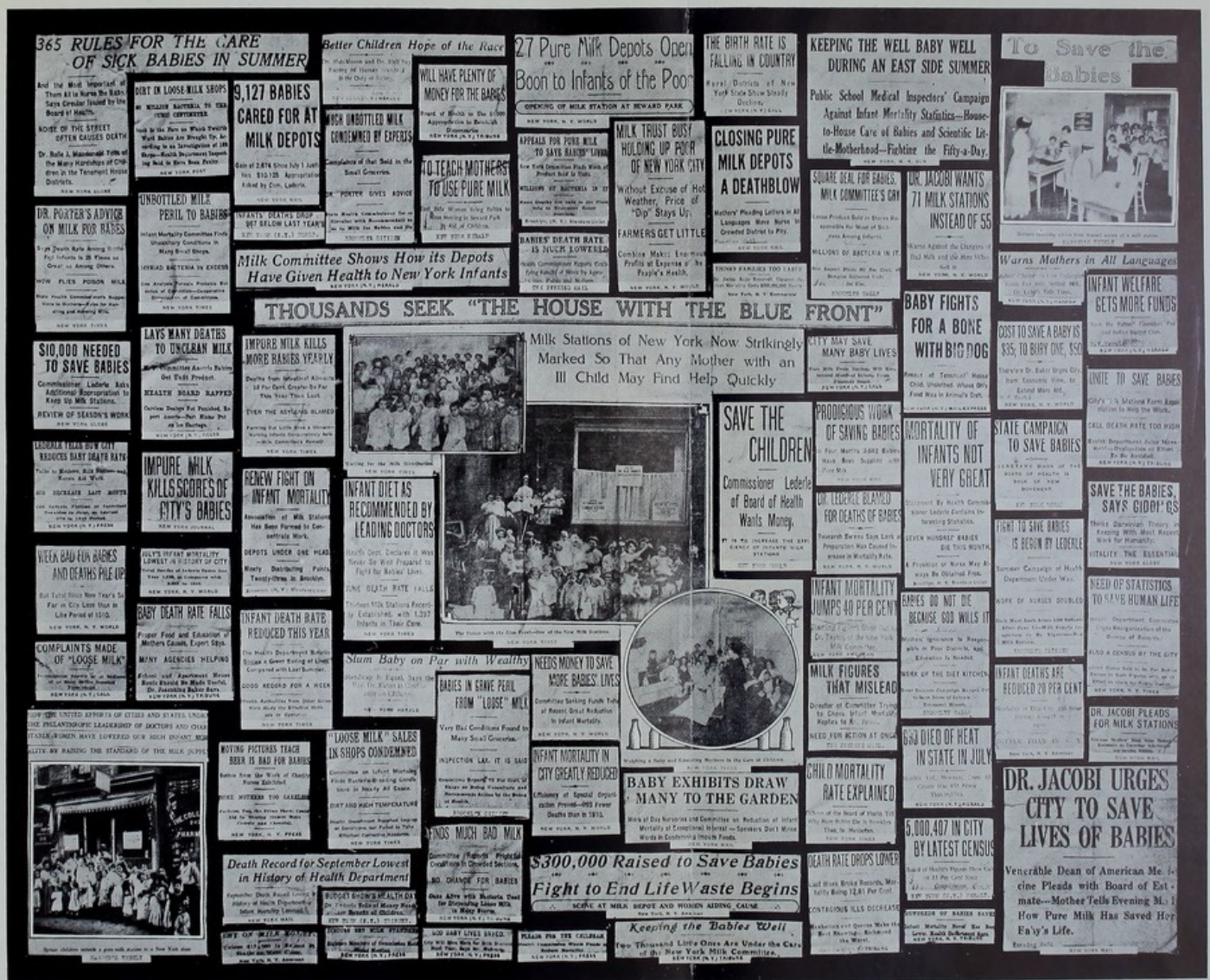


EXHIBIT 1
HOW NEWSPAPERS HELP

CHAPTER I

The Problem

"A baby who comes into the world has less chance to live one week than an old man of ninety; and less chance to live a year than one of eighty."

So said Bergeron some years ago, and it is practically true today. In 1900, 2.2 per cent. of the total population of the Registration Area* were under one year of age. Assuming the same proportion to hold good in 1910, among 2.2 per cent. of the population occurred† 19.2 per cent., or nearly one-fifth, of all the deaths. The infantile mortality rate‡ in eight States having fairly complete birth registration varied in 1910 from 108 to 168 (†); that is, from one in every six to one in every ten, babies died before they were one year old.

These figures are not exceptionally high, as will be seen from the following table:§

TABLE 1.—SHOWING GENERAL AND INFANT DEATH-RATES IN FOREIGN COUNTRIES IN 1909‖

	General Death-rate	Infant Death-rate
England and Wales	14.5	109
Scotland	15.3	121**
Ireland	17.2	92
New South Wales	9.6	74
Victoria	11.2	71
Queensland	9.7	72
S. Australia	9.3	61
W. Australia	9.9	78
Tasmania	10.0	65
New Zealand	9.2	62
Denmark	13.1	123**
Norway	13.5	76**
Sweden	13.7	85**
Prussia	17.0	164
Hungary	25.1	212
Austria	22.3**	204††
Servia	29.3	158
Netherlands	13.7	99
Belgium	16.5**	147**
France	19.3	135††
Switzerland	16.2**	108**
Spain	23.4	173‡‡
Italy	21.4	153**
Chili	31.5	320**

* The registration area in 1900 comprised 40.5 per cent. of the population of continental United States. It embraces those States and cities which have adequate laws for registration of vital statistics.

† Census Bureau Bulletin, 109.

‡ Infant mortality rate is deaths of infants per 1000 living births for same period.

§ From Seventy-second Annual Report of Registrar General of Births, Deaths, and Marriages in England and Wales (1909).

‖ General death-rate is number of deaths at all ages per 1000 of population. Infant death-rate is number of deaths under one year per 1000 births.

** 1908 figures. †† 1907 figures. ‡‡ 1906 figures.

Ireland, Norway, Sweden, The Netherlands, and the great Australian colonies, New Zealand and Tasmania, alone fall below 100; while in Prussia, roughly, one in every six; Austria and Hungary, one in every five; and Chili, one in every three, babies die before they are a year old.

In order to understand the problem we must analyze these figues still further. It is necessary to know when the babies die, and from what causes. The following tables show the age at death and the cause of death (general groups of diseases) in England and Wales in 1909:

TABLE 2.—INFANT MORTALITY IN ENGLAND AND WALES. NUMBER OF DEATHS PER 1000 BIRTHS AT VARIOUS AGES AND FROM VARIOUS GROUPS OF DISEASES, BASED ON FIGURES FOR 1909*

	Under One Day	One Day to One Week	One Week	Two Weeks	Three Weeks	Under One Month	Under One Year
I. Common infectious diseases	..	..	..	0.04	0.07	0.11	6.97, or 6.4% infant deaths
II. Diarrheal diseases	..	0.04	0.18	0.28	0.30	0.80	12.64, or 11.6% " "
III. Wasting diseases	10.14	10.68	3.82	3.16	2.08	29.88	41.69, or 38.3% " "
IV. Tuberculous diseases	..	..	0.01	0.01	0.04	0.06	4.00, or 3.6% " "
V. Miscellaneous	1.41	2.46	1.69	1.84	1.50	8.90	43.43, or 39.9% " "
All causes	11.55	13.18	5.70	5.33	3.99	39.20	108.73

By Months.

	1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	Under 1 Year
I.	0.11	0.36	0.36	0.33	0.32	0.42	0.54	0.74	0.85	0.93	0.97	1.04	6.97
II.	0.80	1.47	1.63	1.50	1.47	1.23	1.02	0.89	0.81	0.72	0.56	0.54	12.64
III.	29.88	4.30	2.35	1.46	1.02	0.71	0.52	0.40	0.32	0.30	0.23	0.20	41.69
IV.	0.06	0.20	0.32	0.34	0.44	0.41	0.38	0.36	0.40	0.39	0.35	0.35	4.00
V.	8.90	5.26	4.12	3.44	3.18	2.93	2.89	2.76	2.72	2.58	2.35	2.30	43.40
All causes	39.75	11.59	8.78	7.07	6.43	5.70	5.35	5.15	5.10	4.92	4.46	4.43	108.73

I. Includes smallpox, chicken-pox, measles, scarlet fever, diphtheria, whooping-cough.

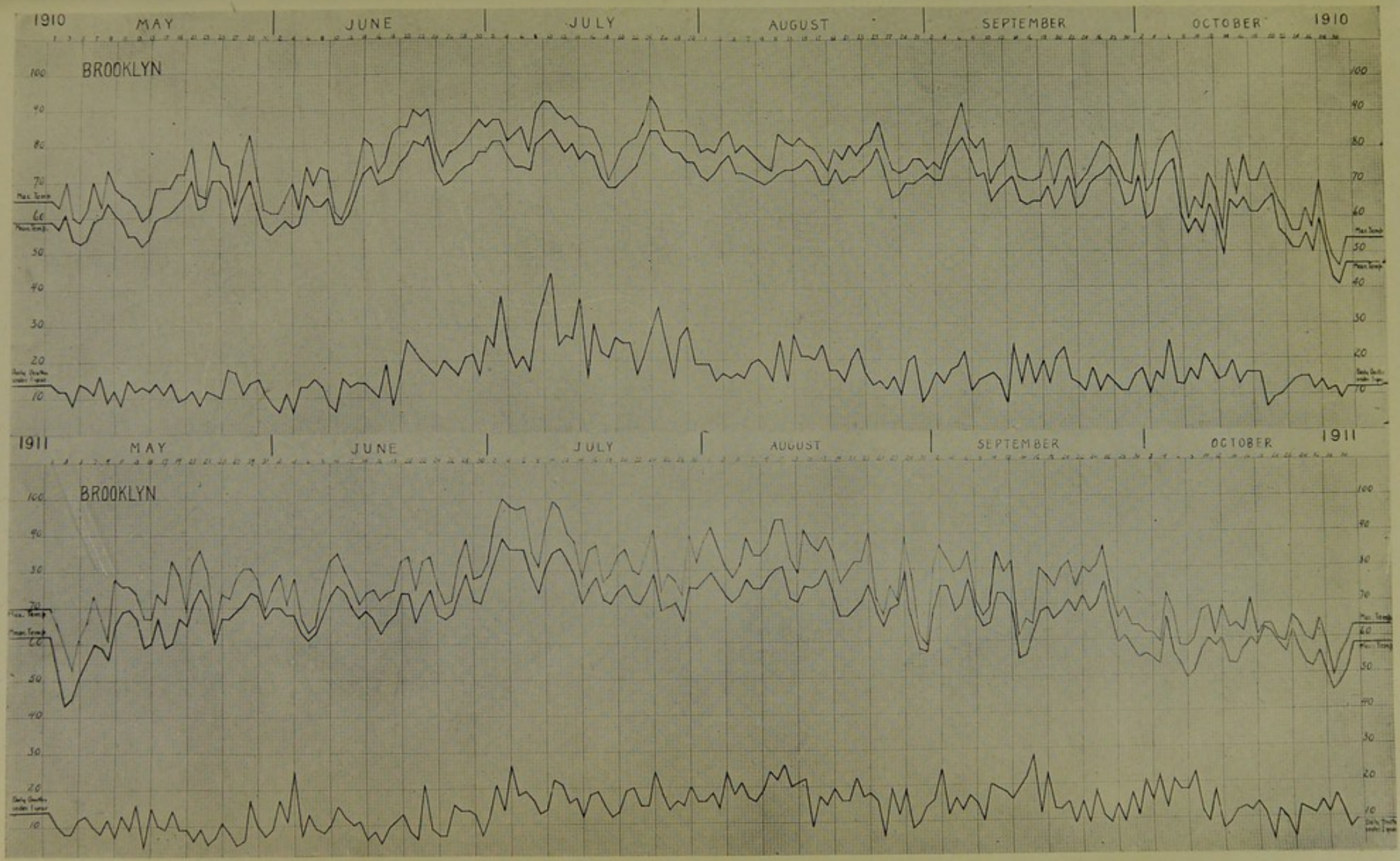
II. All gastro-intestinal diseases except gastritis and gastric catarrh.

III. Includes premature births, congenital defects, want of breast milk, starvation, atrophy, debility, marasmus.

* Compiled from Annual Report of Registrar General, England and Wales, 1909. It should be noted here that in Group V are included "meningitis, not tuberculous," and "convulsions," which amount to 10.43 under one year, and "gastritis, gastric catarrh," amounting to 1.83. The latter, in our classification, would probably be included in Group II, and the former are probably largely digestive in character. This should be remembered in comparing the above table with Table 4.

Exhibit 7

Exhibit 8



Daily Maximum and Mean Temperatures Compared With Daily Deaths of Infants—1910, 1911, Brooklyn

station, and caring for 1197 babies. This year they were open from June 24th to September 5th. The same general principle was followed, dispensing milk according to age, already modified. The Henry Street Nurses' Settlement began this year to dispense milk to the poor in their neighborhood in connection with their visiting work.

In 1903 the Health Department broadened out its work considerably. The summer corps of physicians and nurses began visiting the families of every baby whose birth was registered with the department between August 1, 1902, and June 30, 1903. A circular on "How to Keep the Baby Well" was mailed to each address. After three days it was found that 30 per cent. of the families had moved, and so many unregistered babies were found that a house-to-house canvass was started, and a report made on every child under one year found. Literature was distributed, and, when necessary, sick babies were treated by inspectors and nurses. Six inspectors chosen for their fitness were specially assigned to this. In Brooklyn the Children's Aid Society increased their stations to 14, feeding 1547 babies from June 17th to September 5th. In Manhattan the Strauss laboratories, the Good Samaritan, and the Diet Kitchen continued their work as before.

In 1904 the department continued its work along the same lines, visiting the tenement districts, tabulating all cases, and treating the sick children. The physicians visited 159,726 families and treated 1428 sick babies. Thirty-three nurses were doing district work, and visited 56,271 families and cared for 437 sick babies. They distributed orders for milk and ice as needed. In Brooklyn the Children's Aid Society improved on their method by attempting seriously to carry on some instruction. The matrons visited among the sick babies, and a corps of volunteer physicians (nine) followed up the sick cases. Again, 14 stations were maintained and 1233 babies fed from June 27th to September 3d.

In 1905 the Health Department increased its activities, employing 31 nurses in Manhattan, 14 in Brooklyn, 1 in the Bronx, and 2 each in Queens and Richmond. The families visited numbered 289,114, and 1985 sick babies were treated. The New York Diet Kitchen Association had been paying more and more attention to babies and to tuberculosis work, and in their reports only milk and eggs are mentioned as being distributed. In Brooklyn 15 stations were maintained by the Children's Aid Society from June 26th to September 9th, feeding 1649 babies.

In 1905 the milk problem was energetically handled. The New York Association for Improving the Condition of the Poor carried on a very extensive investigation with the coöperation of the Health Department. As a result of this investigation many violations of the law were discovered and offenders punished. It was the beginning of a vigorous campaign.

In 1906 a new agency came into the field. Mr. John D. Rockefeller accepted the suggestion made by the A. I. C. P. that the land adjoining the Rockefeller Institute be utilized for a summer hospital for sick babies, where mothers could be taught that they can "save their own babies, in their own tenement homes, if they will give them clean milk, clean air, and clean bodies."

The old Schermerhorn mansion, in a state of apparently hopeless decay, was rejuvenated by soap and water and plenty of whitewash. Five open-air shacks were provided, capable of accommodating 60 babies. Everything was of the simplest. A large shelter tent was provided, and "Junior Sea Breeze" was ready for work. Mothers were allowed as free access as possible to the shacks in order that they might learn that the simplest articles were sufficient to care for the baby; also how much had to be done when a baby was sick. With the hospital work proper was combined an educational campaign. In the shelter tent there were given, twice a week, simple lectures and demonstrations to the mothers in the care of their babies, the importance of maternal nursing, "clean milk, clean air, clean bodies." A nurse did follow-up and district work.

The Health Department continued its work on much the same lines, always increasing in amount: 350,618 families were visited, and 3331 sick children treated. The Children's Aid Society in Brooklyn continued as before, feeding 1620 babies at its 15 stations from June 25th to September 8th. There was little change other than Junior Sea Breeze. In 1906 the appropriation for milk inspectors for the Health Department was doubled, and a vigorous inspection was carried on.

In 1906 the New York Milk Committee came into existence as a result of a conference called by Dr. Darlington, then Commissioner of Health. This committee was formed to investigate the milk problem, especially in its relation to infant mortality. The Mayor also appointed a committee to investigate the problem of insuring a safe milk supply.

In 1907 the work of the Health Department, Diet Kitchen, Strauss laboratories, Good Samaritan, and Children's Aid Society of Brooklyn was continued with little change. The chief feature of the summer work was the enlarging of the scope of the work of Junior Sea Breeze. A very vigorous educational campaign was carried on. Nineteen nurses were employed in district work. This work was confined to the nineteenth ward, extending from Fortieth Street to Eighty-sixth Street, and from Sixth Avenue to the East River. A house-to-house canvass of the district was made; mothers were urged to feed their babies on wholesome milk if nursing was impossible, and watch was kept on the babies of the district. It was a piece of intensive work of great importance. While the summer deaths were higher in the rest of the city, in the nineteenth ward they were lower than the previous year.

The Association for Improving the Condition of the Poor also started this summer its Caroline Rest, where mothers and babies were sent as soon after the confinement as possible. Here the mother had a chance to recuperate and fit herself to nurse her baby. She was given the most careful instruction in the care of babies and older children.

The year 1908 marks the beginning of a very vigorous campaign, with emphasis on the educational factor. Up to this year the Department of Health had carried on its summer corps work as part of the Division of Contagious Diseases. In August, 1908, the Division of Child Hygiene was formed, in charge of a chief and 5 assistant chiefs, 16 supervising inspectors, 1 superintendent of nurses, 5 supervising nurses, and 195 district nurses. This was a very great step

in advance. The summer work was carried on by 83 nurses and 20 doctors. Visits were made to all new-born babies as the births were reported. Lectures were given at various places by Health Department inspectors, and it is noticeable that this year there was a very marked decrease in infant deaths and in the infant death-rate.

Early in the spring the Commissioner of Health issued an invitation to all organizations interested in any way in the campaign against infant mortality to attend a conference at the Health Department. This conference was held and was largely attended, and the coöperation of all agencies was earnestly asked for. In Brooklyn the department increased its coöperation by detailing inspectors and nurses to the stations of the Brooklyn Children's Aid Society. The work of this organization was, therefore, greatly increased, and the educational factor became very pronounced. The physicians and nurses were provided with simple medicines which were given to any sick children. From their 16 stations 2296 babies were fed. Seventy mothers' meetings and clinics were held, in charge of a physician and nurse. Literature was distributed in the homes, and free ice-tickets, provided by the Herald Free Ice Fund, were given when needed.

On June 17, 1908, the New York Milk Committee opened seven stations, from which they dispensed milk modified at the stations according to set formulæ. Volunteer physicians had charge of all the consultations, and trained nurses were employed to prepare the milk and supervise the babies in their homes. No mother was permitted to obtain milk from the station until it was proved that she was unable to nurse her baby, and she was allowed to obtain milk then only on condition that she would bring her baby once a week to be weighed during consultation hours. A careful record of all cases was kept as a basis for further work. From three of the depots pasteurized milk was dispensed, and from four, raw milk. Consultations were also held at the Union Settlement in East One Hundred and Fifth Street and in West Ninety-third Street, though milk was not dispensed from these places. Junior Sea Breeze continued its work as in the past year, although not so many nurses were employed in visiting work as in the previous year.

In 1909 the work of the Division of Child Hygiene was increased. It was made to include the supervision of midwives, boarded-out children, nurseries, and other institutions caring for children. From April 15th to September 1st the summer campaign was carried on. A great step in advance was made by beginning the campaign early. The summer corps visited 57,059 mothers of new-born infants.

Another important step in advance was the formation of the so-called "Little Mothers' League." There were 54 centers for this league, which enrolled the little mothers in the public schools, giving them lessons and demonstrations in the care of the baby and general hygiene. An inspector and a nurse held these meetings once or twice weekly in each center. The New York Milk Committee maintained seven stations throughout the year. This organization was originally a special committee of the New York Association for Improving the Condition of the Poor. In October of this year it became an independent organ-

ization, in accordance with the policy of the Association in allowing its offspring to become independent as soon as they were able to care for themselves.

In Brooklyn the Children's Aid Society continued its coöperation with the Health Department. Sixteen stations were maintained, caring for 2142 babies. Physicians and nurses were provided by the Health Department, and there was also coöperation by the District Nursing Committee. Increased emphasis was laid on educational work, maternal nursing, and the care and preparation of milk. Three hundred and twenty meetings were held during the year.

In 1910 the work continued as before. The New York Milk Committee was able to maintain only four stations, owing to lack of funds. These were conducted also along different lines. The distribution of already modified milk was discontinued, and the policy of teaching mothers to prepare the baby's food themselves, under the supervision of the nurse, according to the doctor's direction, was carried out. It was with considerable hesitation that this work was undertaken, but the results soon proved its value. The mothers were more regular in their attendance, and took greater personal interest and pride in the progress of their babies when they themselves prepared the food. During this year the Health Department coöperated with the New York Diet Kitchen, providing physicians and nurses for eight of their nine stations. The ninth station was managed by the association itself. Physicians and nurses held at first weekly clinics, then semi-weekly, and, finally, during the summer, daily clinics. Expectant mothers were also cared for. In Brooklyn the Children's Aid Society continued as before. The importance of small classes and individual instruction was brought home to them, and greater attention was paid to this detail. From 18 stations 2182 babies were fed, of whom half were sick on admission, and only 32 deaths occurred.

It will be noticed that of late years, especially since 1908, prevention has been playing a greater and greater part in the attempts at the reduction of infant mortality. What has been given above is merely a very brief outline of certain phases of the work which has been carried on. It is impossible to give in detail everything that has been done. One of the most important agencies in the prevention of the waste of infant lives has been the adoption of the so-called social service work of Dr. Cabot, of Boston. Most of the hospitals and dispensaries of this city now have a social service department. It interests itself, among other things, with the care of babies and the prevention of disease among them. Another very important step has been the increasing coöperation developing among various agencies. The Health Department has been ready and willing to make the work which is being done in every way more efficient. In 1907 the department turned over practically all the work of visiting new-born babies in the nineteenth ward to Junior Sea Breeze Hospital. A list of births was provided to the Junior Sea Breeze nurses, just as to their own. This coöperation increased in a most encouraging way, as will be seen in the report of what has been done in 1911.

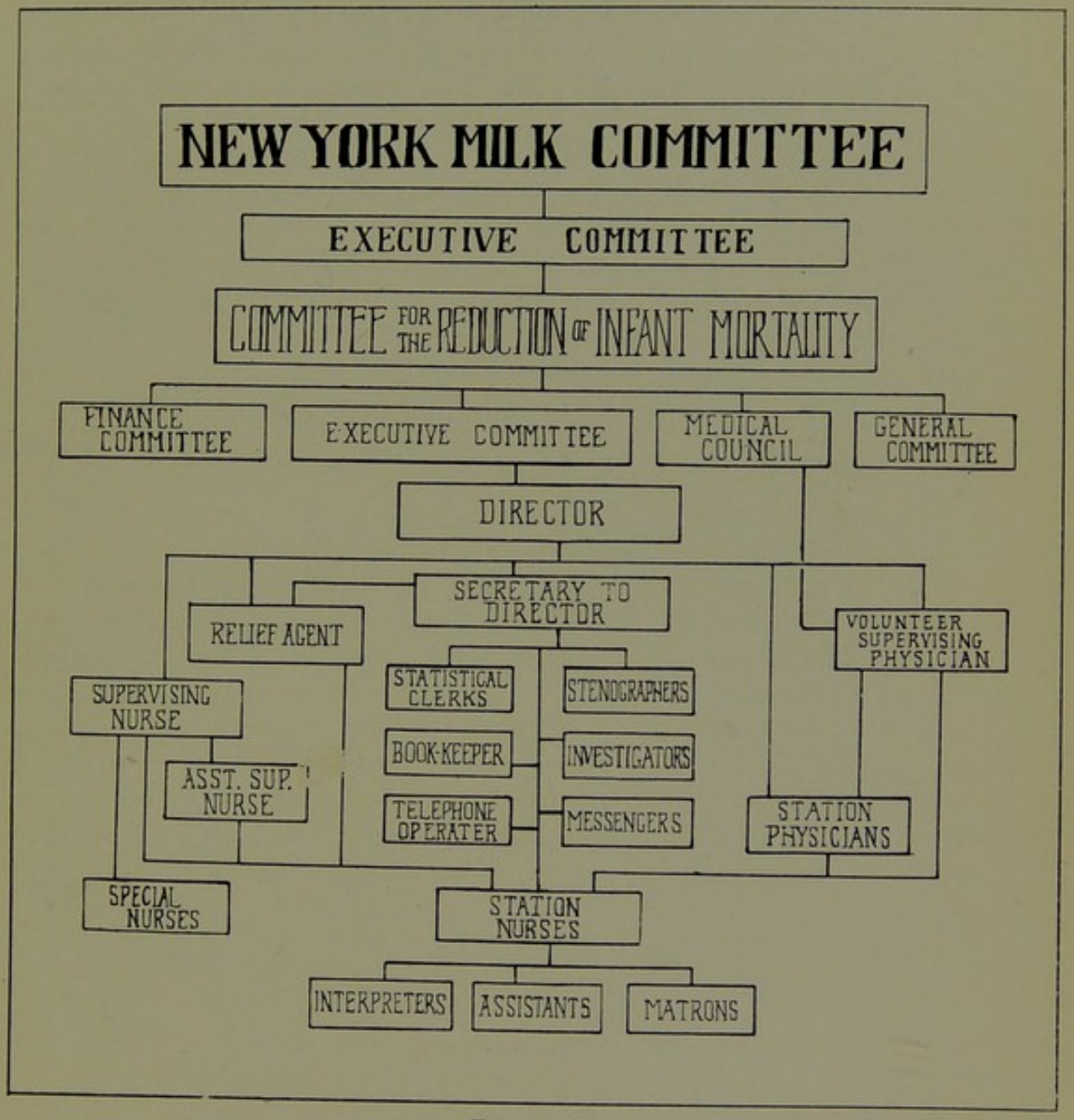


EXHIBIT 9

ORGANIZATION CHART OF THE COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY OF THE NEW YORK MILK COMMITTEE

CHAPTER III

The Campaign in New York City in 1911

The year 1911 marks the beginning of the most extensive and efficient campaign for the reduction of infant mortality ever undertaken in New York city. The lessons of past years had apparently been learned. Here were a number of organizations, each working independently, with practically no general coöperation, though many worked well with the Health Department.

Campaign of the New York Milk Committee

In the fall of 1910 the Board of Estimate and Apportionment appropriated sufficient funds to maintain, during the entire year, 15 infants' milk depots under city control. These stations were put under the control of the Division of Child Hygiene. The New York Milk Committee realized that this was a new venture, and that the extension of this system of milk depots depended on the success of the year's work. They also realized that the summer months were the ones when the greatest reduction ought to be obtained. To make the experiment a strongly convincing one, a sufficiently large number of stations must be provided to cover thoroughly a large portion of the city. The Health Department decided to place only five in Manhattan, one in the Bronx, and nine in Brooklyn. It was felt that the mortality of the city could not be demonstrably affected by the existing stations, so a subcommittee of the New York Milk Committee, known as the Committee for the Reduction of Infant Mortality, was formed. They were authorized to plan a campaign, raise money, and conduct their demonstration, subject to the approval of the Executive Committee of the parent body.

The new subcommittee selected an Executive Committee and a Finance Committee. The former committee thoroughly canvassed the city, studying the available records of population and mortality, and the presence of other similar organizations in given districts. As a result of this study it was decided to start, as soon as funds could be raised, 22 stations, in addition to the 4 already maintained by the Committee. It was thought that these stations could care for most of the worst portions of the city.

The Finance Committee started in on a whirlwind campaign. The city was divided into districts, each district being in charge of a leader. Mrs. J. Borden Harriman was chairman of the Committee, and she associated with her a number of prominent and active women as district leaders. Each district leader divided her district into streets, and appointed a street leader for each. These latter approached the residents in their vicinity with a personal letter of appeal. The result was quite startling. The financial campaign did not start

until April, but enough money was obtained to open 11 stations of the 22 on the second of May. By the twentieth of May 10 more were ready to open, and on May 22d a meeting was held at Seward Park, officially opening the campaign. At this meeting Borough President McAneny, the Rt. Rev. David H. Greer, the Rt. Rev. Monsigneur McMahon, the Rev. Rabbi Wise, and Commissioner of Health Lederle spoke.

On May 31st the last 2 of the 23 stations were opened; with the original 4 stations, this made 27.

Realizing that the problem was a large one, and that every energy of all who were interested was needed to do the necessary work, a scheme of coöperation was devised to prevent unnecessary duplication of work. The Association of Infants' Milk Stations was organized in May. Its objects were briefly:

1. To prevent duplication of work by districting the city, and giving each milk station a distinct area for its activities.
2. To establish some uniform system of record keeping, so that the work of the various agencies could be put together at the end of the season.
3. To render the information in the possession of one group available to all.
4. To conduct a publicity campaign in the interests of the reduction of infant mortality.

At the invitation of Commissioner Lederle a meeting was held, and such an association was formed May 24, 1911. Eight organizations, maintaining 79 milk stations, comprised the Association, and an Executive Committee, composed of a representative of each, was organized, as follows:

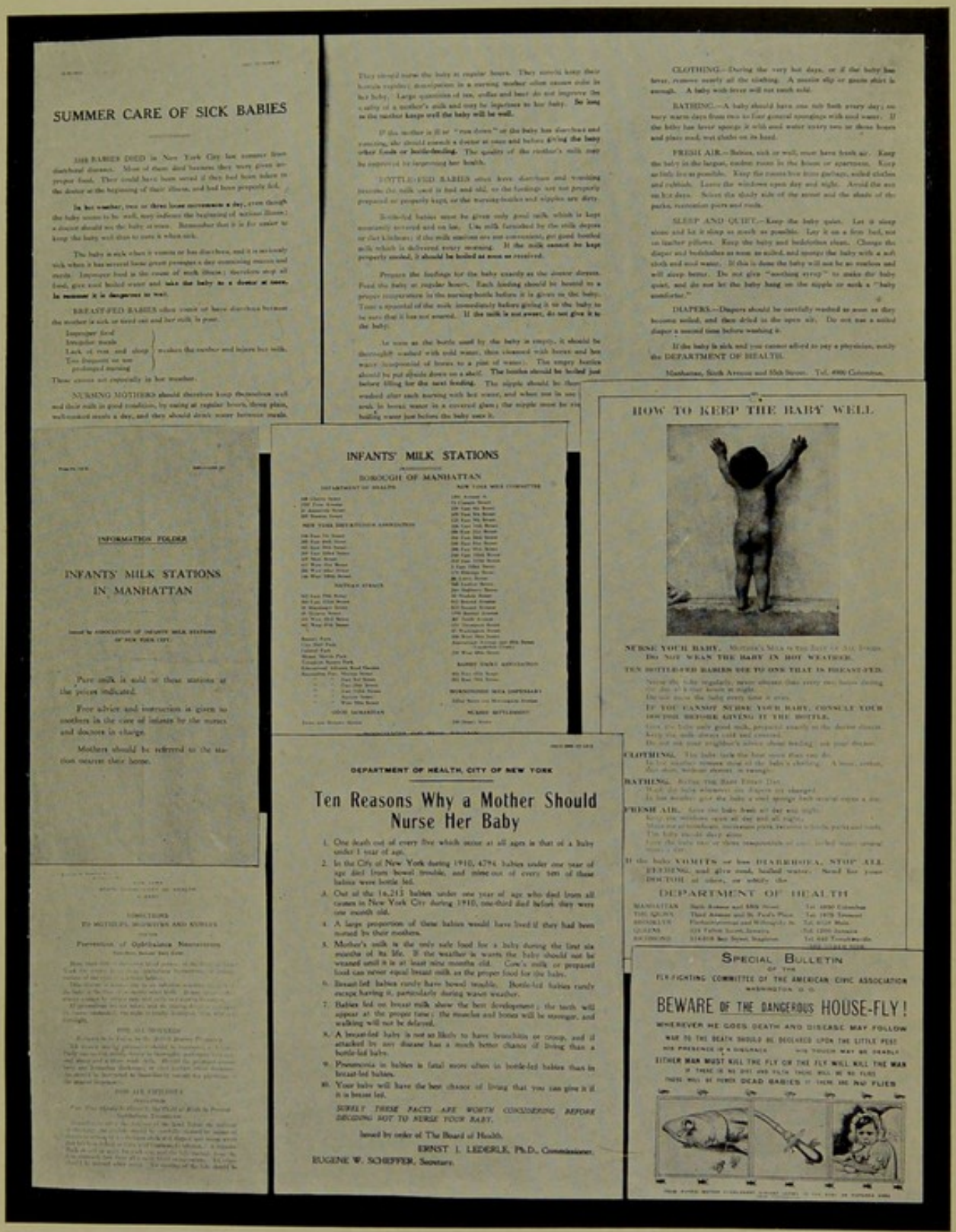
S. Josephine Baker, M.D., Chief Division of Child Hygiene	Department of Health.
Reuel A. Benson, M.D.	Babies' Dairies Assn.
Maria L. Daniels, R.N.	N. Y. Diet Kitchen Assn.
Arthur R. Green, M.D.	Nathan Strauss Pasteurized Milk Laboratories.
Jane E. Hitchcock, R.N.	Nurses' Settlement.
G. N. McCurdy	Morningside Milk Dispensary.
Paul E. Taylor, Director	N. Y. Milk Committee.
Arthur E. Wakeman	Brooklyn Children's Aid Society.

Through the courtesy of Dr. Baker office room, with use of a stenographer and clerk, was provided at the headquarters of the Division of Child Hygiene. Dr. H. H. Hart, of the Child-Helping Department of the Russell Sage Foundation, provided funds for the salary of a secretary. Mr. Charles J. Storey was appointed to fill this position.

By a committee of the Association the city was districted, thus preventing two nurses from visiting the same family and wasting time and effort. Whenever possible, a baby applying at a station living outside the district was referred to the station located in that district, but, owing to the price of the milk varying in different sets of stations, this was not always possible to bring about. No canvassing was done, however, outside the district assigned to each particular station.

Each station sent in a weekly report in detail showing its enrolment and

EDUCATION THROUGH PRINTED MATTER



SUMMER CARE OF SICK BABIES

INFORMATION FOLDER

INFANTS' MILK STATIONS IN MANHATTAN

INFANTS' MILK STATIONS

BOROUGH OF MANHATTAN

HOW TO KEEP THE BABY WELL

DEPARTMENT OF HEALTH, CITY OF NEW YORK

Ten Reasons Why a Mother Should Nurse Her Baby

SPECIAL BULLETIN

BEWARE OF THE DANGEROUS HOUSE-FLY!

Exhibit 10

Distributed to Thousands of Homes by Public and Private Agencies

TABLE 3.—INFANT MORTALITY IN ENGLAND AND WALES. PERCENTAGE OF TOTAL DEATHS UNDER ONE YEAR OCCURRING AT VARIOUS AGES, BASED ON FIGURES FOR 1909

Of the infant deaths—

10.6%	occurred	under 1 day.
12.1%	"	1 day and less than 1 week.
5.2%	"	1 week and less than 2 weeks.
4.9%	"	2 weeks " " " 3 "
3.6%	"	3 " " " " 1 month.
36.5%	"	under 1 month of age.
10.6%	"	1 month and less than 2 months.
8.0%	"	2 months " " " 3 "
6.5%	"	3 " " " " 4 "
5.9%	"	4 " " " " 5 "
5.2%	"	5 " " " " 6 "
4.9%	"	6 " " " " 7 "
4.7%	"	7 " " " " 8 "
4.6%	"	8 " " " " 9 "
4.5%	"	9 " " " " 10 "
4.1%	"	10 " " " " 11 "
4.0%	"	11 " " " " 12 "

Of these deaths, 10.6 per cent. occur under one day old, 22.7 per cent. under one week old, and over a third during the first month of life. From then on the proportion steadily decreases. The above tables also show that 38.3 per cent. of these deaths under one year occur from the so-called "wasting diseases," and 11.6 per cent. from diarrheal diseases. As noted above, the proportion of the latter is probably too low, but practically 50 per cent. are due to these two classes.

The following table shows the proportion of deaths under one year in the Registration Area of the United States due to these causes:

TABLE 4.—PERCENTAGE OF DEATHS UNDER ONE YEAR OF AGE IN THE REGISTRATION AREA OF THE UNITED STATES DUE TO DIARRHEAL AND WASTING DISEASE*

	1900–4	1905–9	1900–9
Diarrhea and enteritis (II)	23.72	26.41	25.23
Wasting disease (III)	25.61	27.79	26.83
	49.33	54.20	52.06

It will be seen that in the United States also a little over one-half of all the deaths under one year are due to these two classes of disease. Further, the proportion has shown a steady increase from year to year, as will be seen from the following figures:

TABLE 5.—PERCENTAGE OF ALL DEATHS UNDER ONE YEAR DUE TO DIARRHEAL AND WASTING DISEASES IN THE REGISTRATION AREA OF THE UNITED STATES*

1900	48.80	per cent.	
1901	48.40	"	
1902	47.57	"	
1903	49.96	"	
1904	51.84	"	
1905	52.46	per cent.	
1906	53.21	"	
1907	54.23	"	
1908	55.59	"	
1909	55.03	"	

Such, then, in brief is the problem which confronts us. When we look still

* "A Statistical Survey of Infant Mortality's Urgent Call for Action," *Phelps.* Amer. Assoc. for Study and Prevention of Infant Mortality, Annual Meeting, 1910.

further and try to discover the causes of this appalling state of affairs, we are brought face to face with practically the entire social problem of today.

Conditions Affecting Infant Mortality

Ignorance and poverty are written all over the situation. As has been said, one-quarter of all the deaths in babies are due to the so-called "wasting diseases." Poverty forces married women to be wage-earners. It forces the expectant mother to work long hours, often in the factory, under unsanitary conditions, with poor food and with her family at home to take care of after working hours. This is a poor preparation for the ordeal through which she must go. She is less likely to give birth to a baby who has a fair start in the world. Further, her own physical condition is such that she is less likely to be able to give the baby the food that nature intended it to have. Even if she can give the baby the breast, poverty again drives her to return to work immediately after her confinement. This forces her not only to feed the baby artificially, but to leave it to the care and tender mercies of a "Little Mother," often a mere child herself, or to confide it to the care of a day nursery.

Poverty forces the poor to live in overcrowded, unsanitary tenements. Exhibit 2 shows graphically the distribution of infant deaths along the East Side of Manhattan—New York city. In some of these blocks as many as 5000 people are herded together, and it is in these districts that the infant deaths occur in such large numbers. Compare the black dots near the river with those near Fifth Avenue. We are here confronted with the problem of congestion of population in all its phases.

Another quarter of the deaths among babies is due to diarrheal disease. This means bad food and bad methods of feeding. Deprived of its mother's milk, the baby must be artificially fed, and milk should be the chief article of diet during the first year. This brings us face to face with the entire milk problem. How is the city to be insured a clean milk supply? About 2,000,000 quarts of milk a day are brought into New York city from 44,000 farms in seven different States. To the average mother milk is milk. She is ignorant of the necessity for clean, pure milk. Poverty forces her to buy the cheapest milk she can get. Pure milk costs more to produce than dirty milk, but if buying food for the older members of the family, she would not willingly buy decomposing meat or vegetables. She is ignorant of the fact that impure milk is a poison to her baby, just as decomposing food is to the rest of the family.

Bad methods of feeding, even when the milk used is a good milk, are responsible for a vast number of deaths. The mother is ignorant of how to feed her baby, and it is not only the mother, but unfortunately often the physician as well, who is ignorant. When her baby is sickly, in desperation she tries anything her neighbors suggest—condensed milk, proprietary foods, or even solid food. Artificial feeding diminishes tenfold the baby's chance to survive the first year.

Finally, crime and illegitimacy come in as causes. The figures for England and Wales for 1909 show the death-rate among illegitimate children under one year of age to be 211.1, as against 104.8 for legitimate children—more than twice as high a mortality.

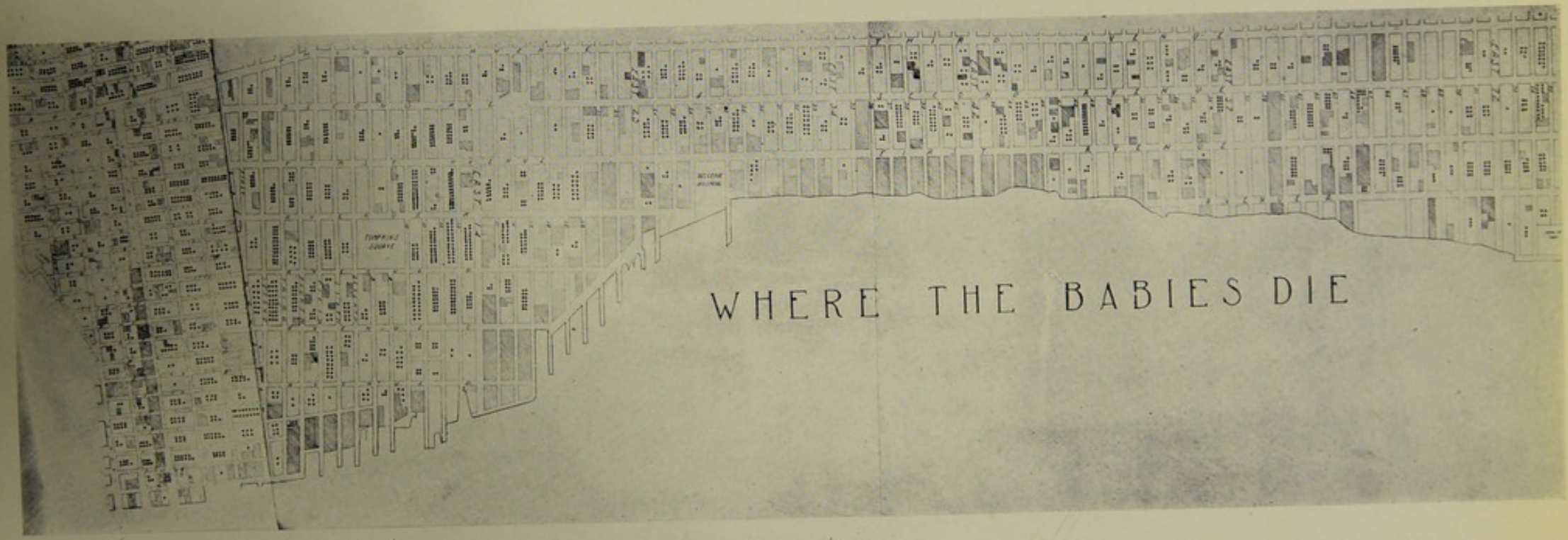
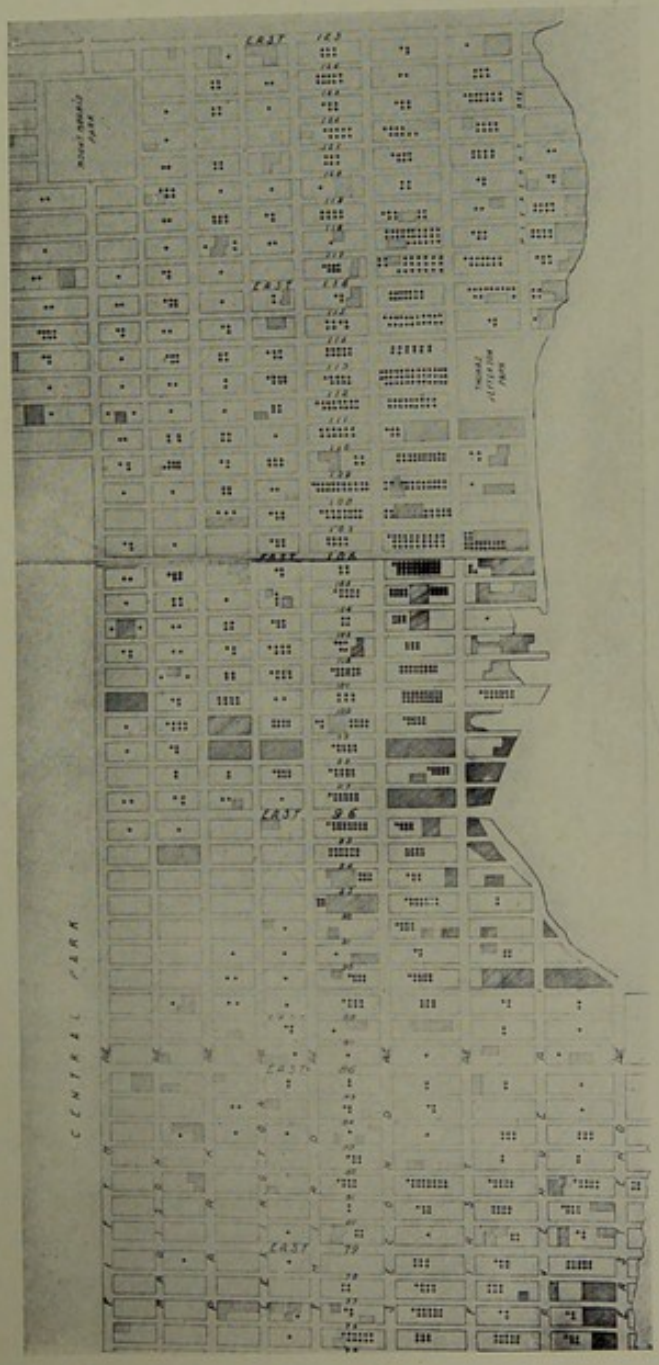


EXHIBIT 2

A STUDY OF DEATH CERTIFICATES SHOWS THE HIGH INFANT MORTALITY AREAS—MANHATTAN—EAST SIDE

(Canal to 75th Street)



MANHATTAN—EAST SIDE
(75th to 125th Streets)

EXHIBIT 2
A STUDY OF DEATH CERTIFICATES SHOWS THE HIGH INFANT MORTALITY AREAS
(Each dot represents an infant's death in 1910)

WHERE THE BABIES DIE IN BROOKLYN

(Each dot represents a baby's death in 1910)

EXHIBIT 3

IN LESS THAN ONE-HALF OF BROOKLYN'S TOTAL AREA OCCURS NINETY-FIVE PER CENT. OF THE BOROUGH'S INFANT MORTALITY

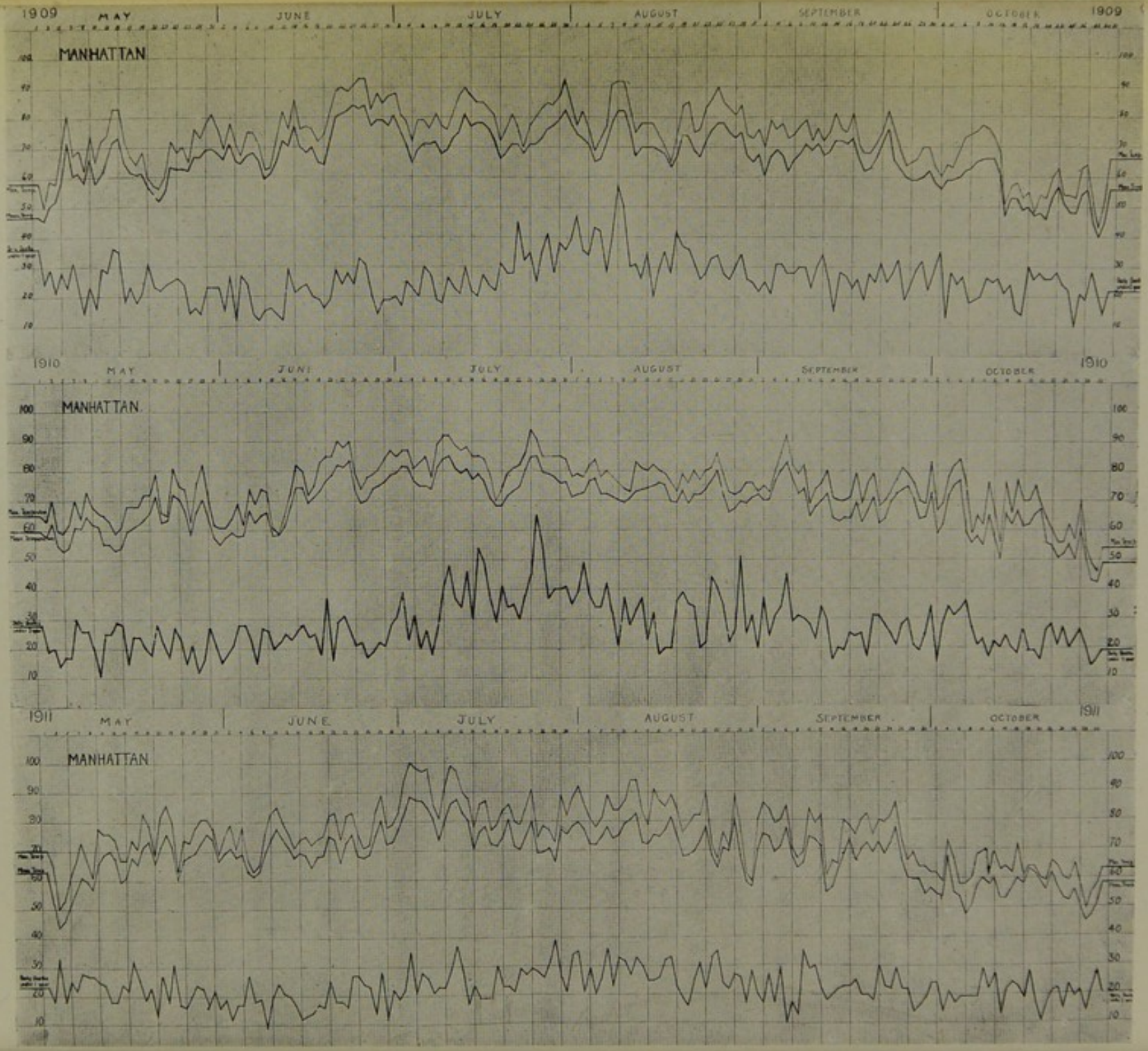


EXHIBIT 4

EXHIBIT 5

EXHIBIT 6

EDUCATION THROUGH PRINTED MATTER

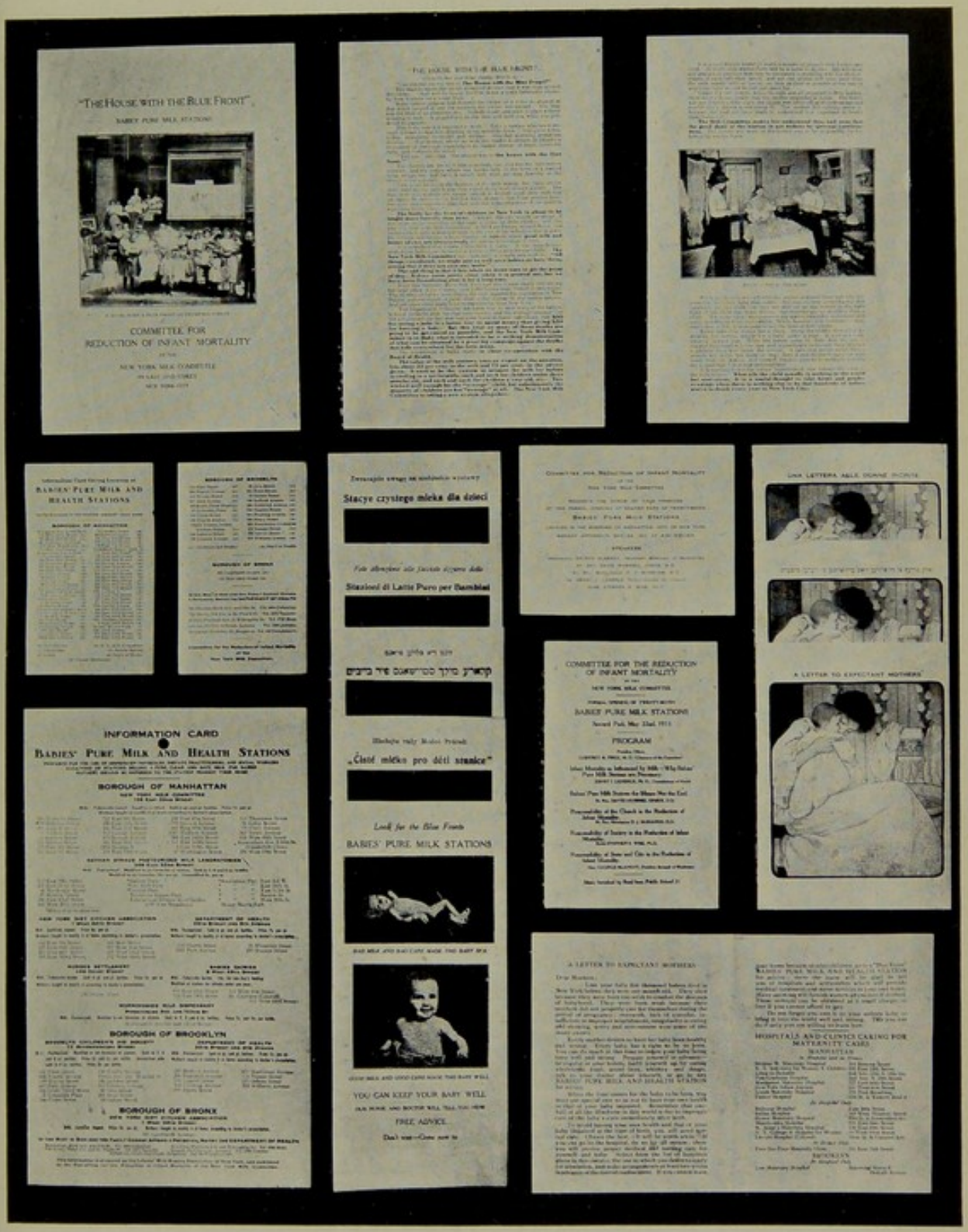


EXHIBIT 11
PUBLICITY AND INFORMATION

Opened May 20th	47 Washington St.
	326 E. 11th St.
	316 E. 56th St.
	512 Second Ave.
	873 Second Ave.
	1705 Second Ave.
	235 E. 81st St.
	315 E. 112th St.
	3 E. 115th St.
	Vanderbilt Clinic.
Opened May 31st	165 Ludlow St.
	200 E. 97th St.
Opened July 8th	331 Stanton St., to relieve 73 Cannon St.
Opened July 10th	223 E. 75th St., to relieve 1391 Avenue A.
Opened July 12th	78 Ninth Ave., a new station where the summer deaths were high.
Opened July 14th	1457 Madison Ave., to relieve 200 E. 97th St.

The dates given above are those on which *milk* was first distributed. The nurse and matron had been at work in the district for several days.

Not only was the scope of work increased by adding four new stations, but every station whose enrolment passed the 100 mark was provided with an extra nurse. This was essential if the purpose of the station—*instruction*—was to be carried out.

In August, therefore, 31 stations were in operation. Doctors were on duty, holding clinics, and often visiting the sick babies in their homes; nurses were daily at the stations and visiting in the homes, watching, advising, encouraging, scolding, teaching, as the case demanded. As the nurse went about from house to house, from family to family, she found many expectant mothers. Part of the campaign was to get in touch with these women and to try to advise and teach them so that they might pass successfully through their pregnancy and be in physical condition to nurse their babies. It was soon found that this was a large undertaking, and in August a special nurse was delegated to take charge of this work. Her salary was kindly provided by Dr. Hastings H. Hart, of the Russell Sage Foundation. During the summer, 964 expectant mothers were under observation.

The coöperation existing between the Milk Committee and the various charitable organizations, especially those already mentioned, was of the closest kind. Whenever tired-out mothers were found whose babies were doing well enough to be sent away, through the cordial relations existing an outing was easily arranged.

The Association for Improving the Condition of the Poor offered to receive any baby needing hospital treatment at Junior Sea Breeze Hospital. This offer was gladly accepted, and during the summer months 43 babies were admitted there. At discharge or death a report of the case was made to the Committee. Discharged babies were immediately referred back to the milk station from which they came.

Figures showing that a large percentage of deaths among babies occur in foundling institutions, the Committeeoffered the services of its milk stations to the New York Foundling Hospital and the New York Infant Asylum. They explained to those in authority at these institutions the purpose of the stations. The offer

was gladly accepted, and during the summer 110 babies were enrolled from these institutions. The fact that so many of the foster mothers lived in the outlying boroughs prevented a greater number from being able to make use of the stations.

The milk which was used during the summer was provided by the New York Dairy Demonstration Company.* It came from tuberculin-tested herds and was of the highest standard. It was sold for seven cents a quart. The contract for this milk was awarded after bids had been asked for from the chief milk-dealers of the city. A constant watch was kept on the quality of this milk. Bacterial counts were made daily from samples taken at various stations, and control bacterial counts were made frequently by the Research Laboratory of the Health Department, through the courtesy of Dr. W. H. Park. The milk was used raw. These counts were compared with those made by the Health Department of the milk dispensed at their stations and compared favorably. The table showing the bacterial counts will be found at the end of this report.

The central office of the Committee was in charge of the Director, Mr. Paul E. Taylor, who was selected by the committee because of his proved executive and constructive ability and his knowledge of the problem from his active participation in the Philadelphia campaign of 1910. He was associated with the Philadelphia Bureau of Municipal Research, who kindly granted him leave of absence to undertake the work here.

The general supervision of the whole work was in the hands of the Director; a supervising nurse was at the office constantly; station nurses were instructed to report by telephone to headquarters every difficulty or complication which arose; an assistant to the supervising nurse was constantly in the field, visiting and inspecting the stations; and a special assistant was appointed during the summer to keep track of the relief cases.

The work of the physicians was supervised by a volunteer supervising physician, who visited the various stations as often as possible, and especially difficult cases when asked, and was general adviser on all strictly medical work. Much of the supervising work was done by the assistant supervising physician.

The entire scope of the work was submitted to the Medical Council in considerable detail and was indorsed by them.

Work of the Health Department

The Department of Health conducted a very vigorous campaign. Fifteen stations were maintained by them at the following locations:

Manhattan	108 Cherry St.	Brooklyn	185 Bedford Ave.
	31 Roosevelt St.		296 Bushwick Ave.
	209 Stanton St.		128 Dupont St.
	2287 First Ave.		994 Flushing Ave.
	207 Division St.		698 Henry St.
			651 Manhattan Ave.
Bronx	511 East 149th St.		176 Nassau St.
			129 Osborn St.
			303 Williams Ave.

*This company was organized by the New York Milk Committee to demonstrate that a high-grade milk from healthy herds can be produced by the ordinary farmer with ordinary equipment, and sold at a price usually charged for bottled milk of uncertain quality. (See Fifth Annual Report of New York Milk Committee for details of this experiment.)

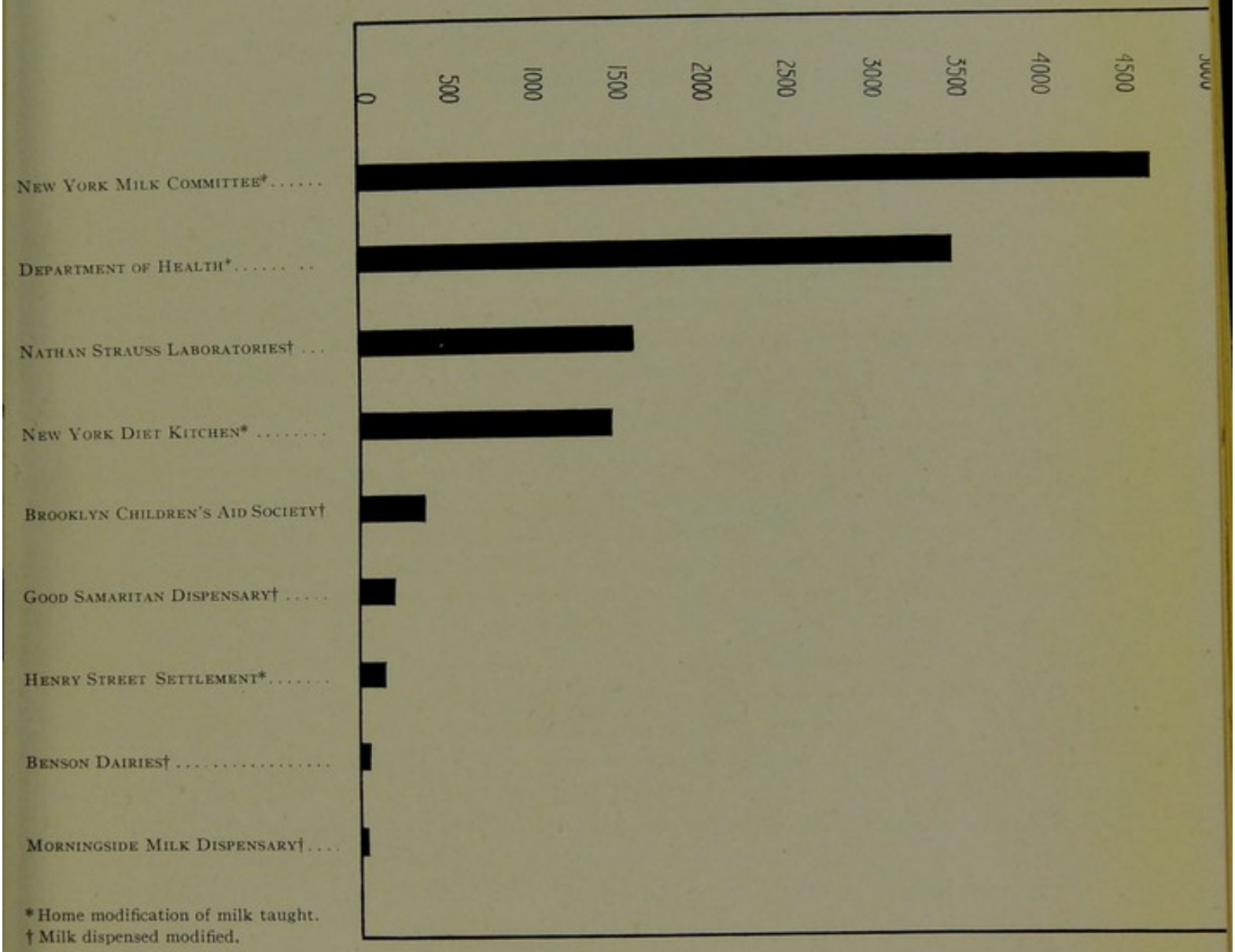


Exhibit 12

Number of Babies Registered at Milk Stations September, 1911

The same general policy was carried out in the stations of the Health Department as in those of the New York Milk Committee. Individual formulæ were ordered,—almost always whole milk formulæ,—and the food was prepared at home under supervision of the nurse. Careful records were kept and the cases were followed up. The work of the summer corps was coördinated with that of the milk stations. The district nurses and inspectors received lists of sick babies from the stations each day, and visited and cared for the sick children of those unable to pay a physician. The department coöperated with the other organizations, sending their inspectors to see any sick child in the care of a milk station on request.

The "Little Mothers' League" continued its active and most valuable work in teaching the future mothers of the city how to care for the little brothers and sisters left in their charge.

The efficient coöperation of the Health Department was further shown by the assignment of physicians and nurses to the stations of the Brooklyn Children's Aid Society and the New York Diet Kitchen stations.

The milk used at the stations was the Sheffield Farms Slawson-Decker pasteurized milk, and was sold in quart and pint bottles, unmodified, for seven cents per quart.

Work of Other Organizations

The New York Diet Kitchen maintained 8 stations in Manhattan and one in the Bronx, as follows:

Manhattan	146 E. 7th St.
	205 E. 66th St.
	451 E. 86th St.
	209 E. 103d St.
	169 Mott St.
	437 W. 41st St.
	205 W. 62d St.
	152 W. 100th St.
Bronx	583 Courtlandt Ave.

Daily clinics were held at their depots in charge of the Health Department physicians and nurses. Formulæ were ordered according to each baby's individual needs, and mothers were taught by the nurses to prepare the food at their homes.

Certified milk in bulk was dispensed, the daily quantity being "dipped." It was sold at six cents a quart. The same records and system were employed as at the Milk Committee and Health Department stations.

The Nurses' Settlement station was continued as before. Two physicians were in charge of the consultations, and the settlement nurses did the home visiting. Milk was tuberculin tested and shipped to the settlement in cans, where it was bottled and sold in quart and pint bottles at eight cents a quart. Modification was carried out at the homes according to individual prescription under the supervision of visiting nurses.

All the above-mentioned organizations worked along similar lines, laying

special emphasis on instruction, in the belief that permanent results are more likely to follow teaching a mother to care for her baby and its food herself, than by simply giving her the food already prepared. The campaign was also participated in by other organizations, who did their share along slightly different lines.

The Nathan Strauss Pasteurized Milk laboratories maintained eight stations:

322 E. 59th St.
303 E. 111th St.
38 Macdougal St.
45 Monroe St.
348 E. 32d St.
402 W. 37th St.
Tompkins Square Park
Educational Alliance Roof Garden, 197 East Broadway

From these stations pasteurized milk, already modified to set formulæ, was dispensed in 3-, 6-, and 8-ounce individual feeding-bottles, at ten cents a quart modified, or for older children at eight cents a quart unmodified. There was no home instruction or visiting and no compulsory medical supervision.

The Babies' Dairies provided tuberculin-tested milk in individual feeding-bottles, modified at the station on individual prescription, at ten cents for a day's feeding. Home supervision was not carried out. Medical supervision at the station was provided. The stations were located at—

416 E. 65th St.
523 E. 78th St.
511 W. 41st St.
117 W. 63d St. (St. Cyprian's, colored)

The Good Samaritan Dispensary, at the corner of Broome and Essex Streets, continued its work, dispensing pasteurized milk modified to set formulæ. The Morningside Milk Dispensary, at Morningside Avenue and 122d Street, dispensed pasteurized milk, modified to set formulæ, in individual bottles of 4, 6, and 8 ounces, at two and three cents the bottle.

In Brooklyn the Children's Aid Society maintained 14 stations. Through the active coöperation of the Health Department in providing the physicians and nurses, follow-up work at the home was carried on, and consultations were held. Considerable attention was paid to the educational side. Pasteurized milk, modified to set formulæ, was sold in 3-, 6-, and 8-ounce bottles, at one and two cents a bottle; unmodified milk in 8-ounce bottles at two cents. The stations were located as follows:

105 Fleet St.
608 Fourth Ave.
159 Wyona St.
817 Park Ave.
106 S. 3d St.
27 Columbia Place
146 Union St.
190 Fourth Ave.
Pitkin, cor. of Watkins St.
148 Jackson Ave.
165 Johnson Ave.
85 Java St.
201 Hoyt St.
15 Garnet St.

These stations were open from June 15th to September 15th.

The various dispensaries and hospitals continued their follow-up work through visiting nurses. Bellevue Hospital, Presbyterian, Roosevelt, St. Luke's, Mt. Sinai, The Babies', University and Bellevue Medical School Dispensary,

EDUCATION THROUGH PRINTED MATTER

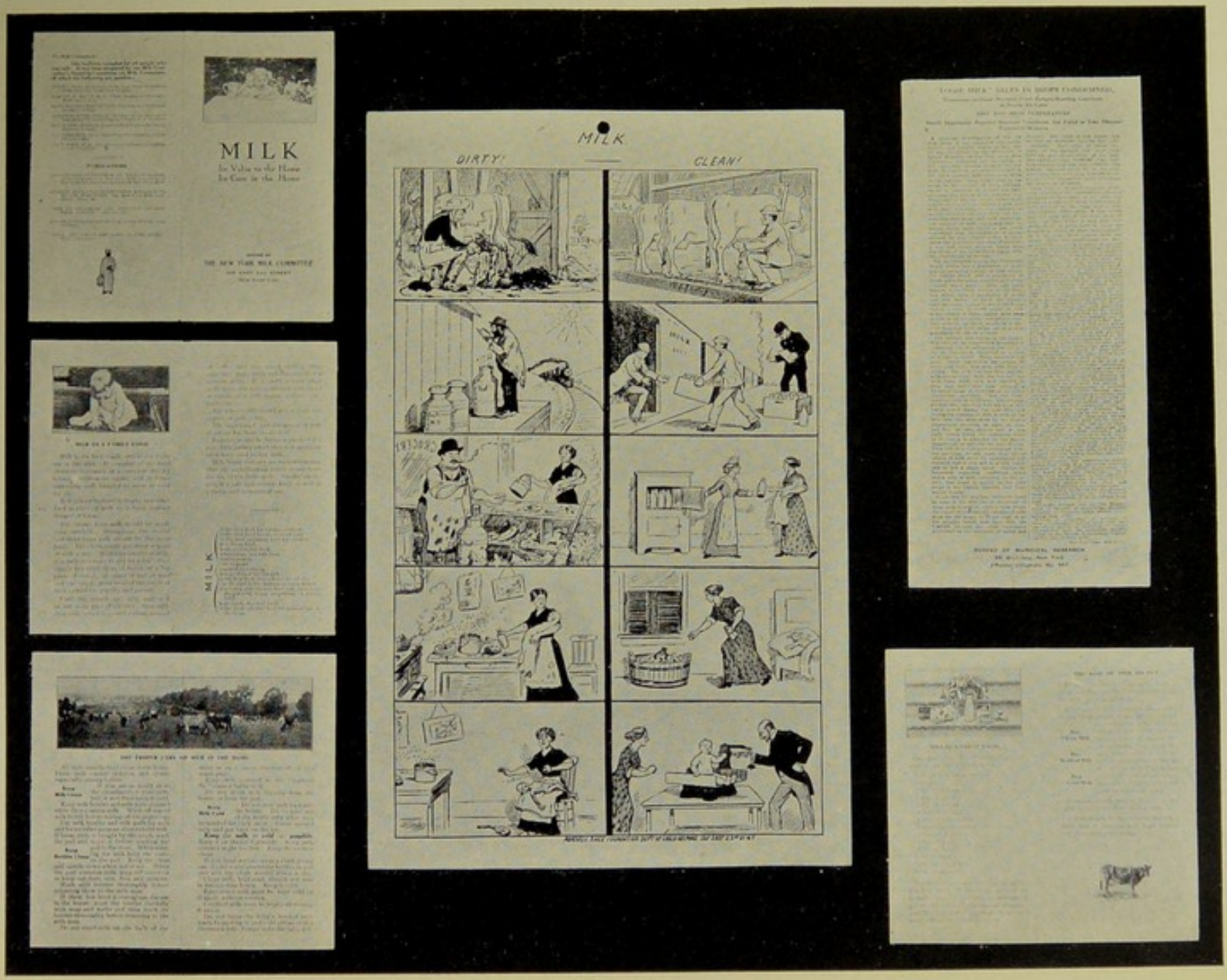


EXHIBIT 13

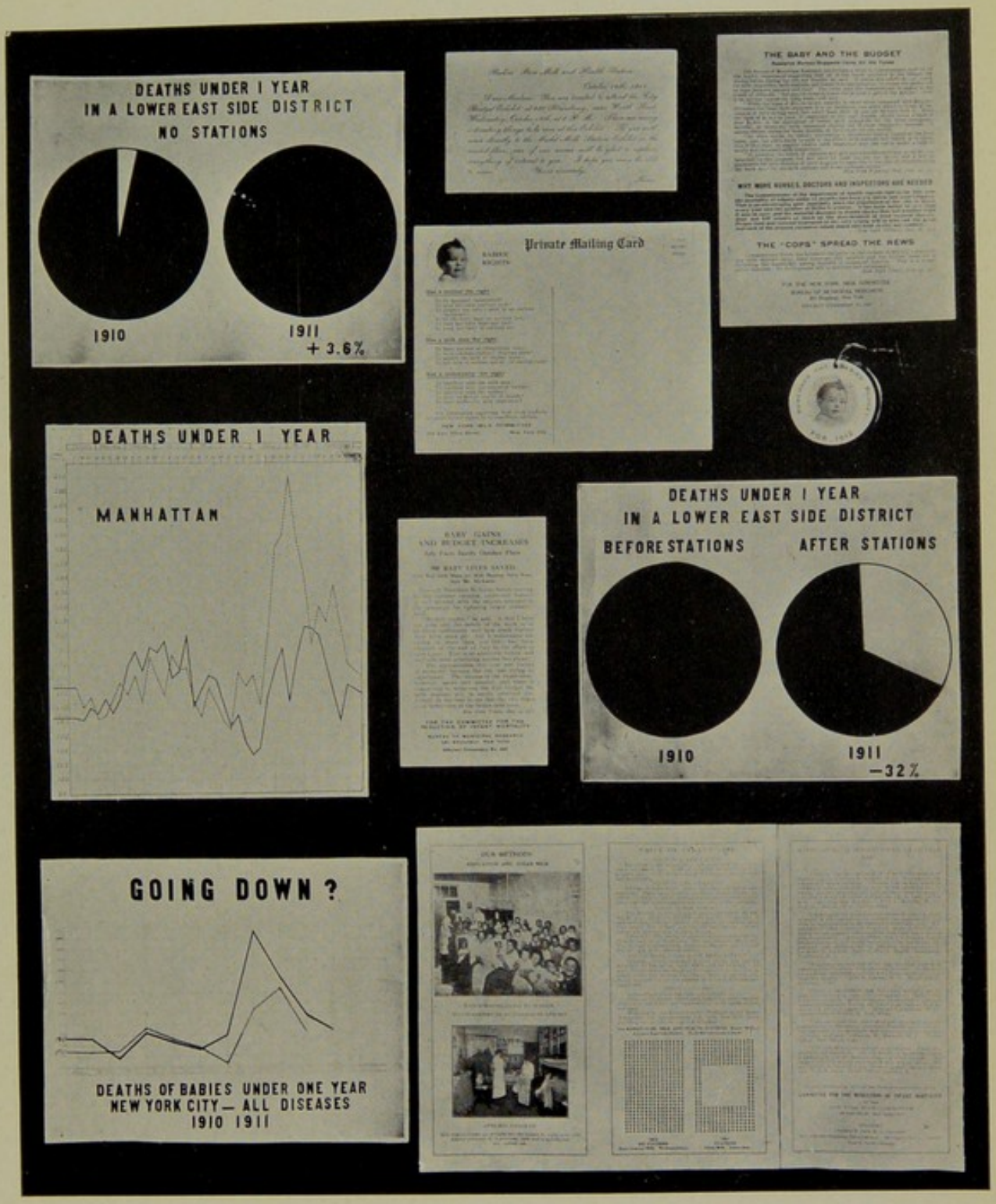


EXHIBIT 14

THE COMMITTEE PROVIDED THE BOARD OF ESTIMATE AND APPORTIONMENT WITH THE FACTS—
THE NUMBER OF MUNICIPAL STATIONS WAS INCREASED FROM FIFTEEN TO FIFTY-FIVE

Vanderbilt Clinic, and many others have visiting nurses who instruct mothers in the care of their babies, and all are factors in the campaign. There was, however, no particular change from previous years in their methods. The same applies to the St. John's Guild and Junior Sea Breeze, except as already noted in regard to coöperation with the milk stations.

Coöperation was earnestly sought from all the special agencies. The New York Milk Committee sent out an information card, giving the list of all milk stations and information regarding kind of milk, method of preparation, cost, etc. This card was sent to hospitals, dispensaries, social workers, nurses' settlements, and many physicians.

Police Commissioner Waldo distributed lists of the milk stations, provided by the Milk Committee in size suitable for carrying in the pocket, to all patrolmen of the police force, and issued instructions to give the address of the nearest station to any mother with a sick baby seen in the parks or on the recreation piers. The coöperation of the press was active. Articles appeared frequently in many newspapers in New York and throughout the country. Editorial help was also frequently given.

Toward the latter part of the summer the committee prepared to back up the Commissioner of Health in his request for funds to maintain 75 milk stations in New York in 1912. All summer special statistics had been compiled through the courtesy of Dr. Guilfoy, Registrar of the Health Department, who allowed access to the records. These statistics were put together in as striking a manner as possible, with charts and tables. A detailed study of the location of the high mortality centers was made by a member of the Executive Committee, and the results of this study were embodied in a report which was delivered to each member of the Board of Estimate and Apportionment before the hearings.

The Committee was represented at the public hearings; only one protesting voice was raised there against the appropriation, and in this case it was evident that the protester did not understand what the money was to be used for. The Board finally appropriated money to maintain 55 stations, which, although 16 less than the number urged by the Milk Committee, was a very great advance over the 15 provided for the previous year; and there is hope that if these are efficiently carried on in 1912, the full number will be provided for in 1913.

CHAPTER IV

Results of the Campaign in New York City

In the pages that follow an honest attempt is made to discuss fairly the facts shown by vital statistics. As already mentioned, the factors in infant mortality are many and complicated, and at the present moment many statistics are still unavailable. Only the most obvious facts can be more than briefly touched upon.

In studying the mortality among infants in this country we are sadly handicapped by lax registration ordinances—lax themselves or laxly enforced. The recognized method of rating yearly infant mortality is to record the number of deaths in infants under one year of age per 1000 births during the same year. In New York the registration of births has been incomplete up to the last few years; therefore comparisons of infant mortality rates (deaths per 1000 births) cannot be made between widely separated periods. The years 1901 and 1911, for instance, cannot be compared. The greater the number of unreported births, the higher will be the rate, of course. A glance at Table 6 will show that in 1901 the rate was 191.5, while in 1911 it was 111.6. Nobody believes this really happened. So inaccurate is this method that the Census Bureau has only in 1910 begun to record these figures, and then (Bulletin No. 109) only for 35 large cities. Only 5 of the 10 largest cities in the country have sufficiently complete registration of births to be included. Chicago admits that not more than one-third of the births are registered, but steps are being taken to remedy this state of affairs.

Another method of rating infant mortality is on the estimated population under one year, based on the percentage at that age according to the last United States Census, and assuming this percentage to remain constant. The results are, of course, only approximate.

Again, the number of deaths under one year of age in proportion to all deaths is an approximate method of estimate.

Tables 6, 7, 8, and 9 show in some detail the infant mortality by months and groups of months, in the city of New York as a whole, the boroughs of Manhattan and Brooklyn, and the "Rest of the City" (comprising Bronx, Queens, and Richmond), for the years 1901 to 1911 inclusive, with five- and ten-year averages. It also shows the relation to total mortality and to births.

It will be noted that there is a steady tendency to increase from 1901 through 1907, with the exception of 1903. The year 1903 shows the lowest gross total mortality of any year in the decade 1901–10.

Again it will be noted that in 1908 there was a sharp fall of 1206 deaths in New York city from the record of 1907; a further decrease of 255 in 1909; a rise of 239 in 1910; followed in 1911 by a fall of 1198. In other words, in 1908 there was a sharp fall, a small change in 1909 and 1910, followed by another sharp fall in 1911.

TABLE 6.—MORTALITY UNDER ONE YEAR OF AGE, 1901–1911

CITY OF NEW YORK

Total Deaths Under One Year	1901	1902	1903	1904	1905	Average 1901-05	1906	1907	1908	1909	1910	Average 1906-10	Average 1901-10	1911
January	1,016	1,183	1 038	1,133	1,169	**1,107**	1,221	1,307	1,180	1,234	1,261	**1,204**	**1,174**	1,139
February	971	1,104	1,051	1,138	1,092	**1,071**	1,240	1,209	1,147	1,076	1,081	**1,150**	**1,110**	1,150
March	1,121	1,110	1,122	1,321	1,259	**1,186**	1,330	1,336	1,283	1,322	1,320	**1,318**	**1,252**	1,372
April	1,105	1,113	972	1,222	1,281	**1,138**	1,290	1,285	1,259	1,272	1,228	**1,266**	**1,202**	1,262
May	941	1,057	1,021	1,095	1,126	**1,048**	1,189	1,175	1,218	1,216	1,160	**1,191**	**1,119**	1,181
June	1,035	1,204	1,188	1,267	1,352	**1,209**	1,215	1,184	1,170	1,102	1,297	**1,193**	**1,201**	1,034
July	2,404	2,117	1,920	2,552	2,802	**2,359**	2,218	2,292	2,317	1,759	2,253	**2,167**	**2,263**	1,530
August	2,154	1,837	1,711	1,861	1,963	**1,905**	2,224	2,560	1,950	1,939	1,840	**2,102**	**2,003**	1,731
September	1,718	1,380	1,391	1,542	1,415	**1,489**	1,843	1,650	1,472	1,456	1,481	**1,580**	**1,534**	1,332
October	1,170	1,145	1,148	1,077	1,180	**1,144**	1,364	1,315	1,232	1,308	1,344	**1,311**	**1,227**	1,189
November	849	863	928	869	876	**877**	968	956	953	1,089	903	**973**	**925**	993
December	983	990	923	1,048	1,007	**990**	1,086	1,168	1,050	1,208	1,047	**1,111**	**1,051**	1,104
Year	15,467	15,103	14,413	16,125	16,522	**15,526**	17,188	17,437	16,231	15,976	16,215	**16,609**	**16,067**	15,017
All ages	70,720	68,112	67,864	78,060	73,714	**71,694**	76,203	79,205	73,072	74,105	76,750	**75,867**	**73,780**	75,423
Per cent. under one year	**21.8**	**22.1**	**21.2**	**20.6**	**22.4**	21.6	**22.5**	**22.0**	**22.2**	**21.5**	**21.1**	21.8	21.7	**19.9**
July–August–September:														
Under one year	6,276	5,334	5,022	5,955	6,180	**5,753**	6,285	6,502	5,739	5,154	5,574	**5,850**	**5,802**	4,593
Per cent. total year	**40.5**	**35.3**	**34.8**	**36.9**	**37.4**	37.0	**36.5**	**37.2**	**35.3**	**32.2**	**34.3**	35.2	36.1	**30.5**
All ages	19,635	17,353	16,637	18,435	19,091	**18,230**	19,430	20,139	18,081	17,512	18,785	**18,789**	**18,509**	18,048
Per cent. under one year	**31.9**	**30.7**	**30.1**	**32.3**	**32.3**	31.5	**32.3**	**32.2**	**31.7**	**29.4**	**29.6**	31.7	31.3	**25.4**
Births for year	80,735	85,644	94,755	99,555	103,881	**92,914**	111,772	120,720	126,862	122,975	129,080	**122,281**	**107,597**	134,477
Infant deaths per 1000 births	**191.5**	**176.3**	**152.1**	**161.9**	**159.0**	167.1	**153.7**	**144.4**	**127.9**	**129.9**	**125.6**	135.8	149.3	**111.6**

TABLE 7.—MORTALITY UNDER ONE YEAR OF AGE, 1901–1911

BOROUGH OF MANHATTAN

Total Deaths Under One Year	1901	1902	1903	1904	1905	Average 1901-05	1906	1907	1908	1909	1910	Average 1906-10	Average 1901-10	1911
January	580	739	644	654	711	**665**	699	763	692	689	686	**705**	**685**	658
February	564	657	614	681	658	**634**	751	694	621	647	639	**670**	**652**	651
March	645	662	662	852	757	**715**	803	780	768	794	756	**780**	**747**	842
April	639	697	611	751	809	**701**	787	755	771	811	741	**773**	**737**	732
May	535	622	640	679	707	**636**	675	663	756	739	651	**696**	**666**	712
June	605	588	637	672	711	**642**	635	738	644	630	723	**674**	**658**	572
July	1,175	1,084	990	1,290	1,443	**1,196**	1,025	1,069	1,185	810	1,126	**1,043**	**1,119**	764
August	1,167	999	919	1,014	1,037	**1,027**	1,144	1,313	1,059	1,071	1,004	**1,118**	**1,072**	859
September	883	807	802	880	814	**837**	1,013	896	799	759	822	**857**	**847**	671
October	641	688	643	629	658	**651**	778	740	677	733	720	**729**	**690**	627
November	501	494	498	490	523	**501**	529	540	529	597	481	**535**	**518**	528
December	594	577	521	615	573	**576**	625	651	547	634	605	**612**	**594**	576
Year	8,529	8,594	8,181	9,207	9,401	**8,782**	9,464	9,602	9,048	8,914	8,954	**9,196**	**8,989**	8,192
All ages	38,507	36,769	37,013	42,326	39,671	**38,857**	39,831	41,319	37,723	37,963	38,660	**39,099**	**38,978**	38,386
Per cent. under one year	**22.1**	**23.3**	**22.1**	**21.7**	**23.6**	22.6	**23.7**	**23.2**	**23.9**	**23.4**	**23.1**	23.5	23.1	**21.3**
July–August–September:														
Under one year	3,225	2,890	2,711	3,184	3,294	**3,060**	3,182	3,278	3,043	2,640	2,952	**3,019**	**3,039**	2,294
Per cent. total year	**37.8**	**33.6**	**33.1**	**34.5**	**35.0**	34.8	**33.6**	**34.1**	**33.6**	**29.6**	**32.9**	32.8	33.8	**28.0**
All ages	10,315	9,040	8,820	9,661	9,945	**9,556**	9,890	10,120	9,181	8,519	9,376	**9,417**	**9,486**	8,936
Per cent. under one year	**32.2**	**31.9**	**30.7**	**32.9**	**33.2**	32.0	**32.1**	**32.4**	**33.1**	**30.9**	**31.4**	32.0	32.0	**25.6**
Births for year	49,990	52,291	56,078	59,196	60,203	**55,551**	63,005	65,771	66,875	63,599	66,357	**65,121**	**60,336**	66,527
Infant deaths per 1000 births	**170.6**	**164.3**	**145.8**	**155.5**	**156.1**	158.0	**150.2**	**145.9**	**135.3**	**140.1**	**134.9**	141.2	148.9	**123.1**

TABLE 8.—MORTALITY UNDER ONE YEAR OF AGE, 1901–1911

BOROUGH OF BROOKLYN

Total Deaths Under One Year	1901	1902	1903	1904	1905	Average 1901-05	1906	1907	1908	1909	1910	Average 1906-10	Average 1901-10	1911
January	333	364	290	342	338	**333**	400	394	355	384	414	**389**	**361**	321
February	304	355	329	340	317	**329**	360	365	366	300	313	**340**	**334**	352
March	368	343	331	341	370	**350**	379	400	360	367	402	**381**	**366**	362
April	351	323	260	350	346	**326**	358	383	355	328	365	**357**	**341**	372
May	307	336	291	326	282	**308**	386	374	330	335	363	**357**	**333**	300
June	327	507	441	451	521	**449**	425	325	379	341	426	**379**	**414**	328
July	934	808	662	915	944	**852**	812	875	769	682	782	**784**	**818**	506
August	683	632	543	575	635	**613**	700	804	592	562	543	**640**	**626**	545
September	640	451	540	472	425	**487**	562	512	474	489	443	**496**	**491**	448
October	396	348	384	311	387	**365**	422	401	371	385	430	**401**	**383**	415
November	270	272	325	273	257	**279**	316	304	315	324	278	**307**	**293**	326
December	286	320	295	319	328	**309**	333	366	346	426	300	**354**	**331**	354
Year	5,197	5,059	4,601	5,015	5,150	**5,004**	5,453	5,503	5,012	4,923	5,059	**5,190**	**5,097**	4,629
All ages	23,271	22,344	22,192	24,831	23,935	**23,314**	25,024	26,043	23,938	24,365	25,676	**25,009**	**24,161**	24,481
Per cent. under one year	**22.3**	**22.6**	**20.7**	**20.1**	**21.5**	21.4	**21.7**	**21.1**	**20.9**	**20.2**	**19.7**	20.7	21.0	**18.9**
July–August–September:														
Under one year	2,257	1,891	1,655	1,962	2,004	**1,953**	2,074	2,191	1,835	1,733	1,768	**1,920**	**1,937**	1,499
Per cent. total year	**43.4**	**37.3**	**35.9**	**39.1**	**38.9**	39.0	**38.0**	**39.8**	**36.6**	**35.2**	**34.9**	36.9	38.0	**32.3**
All ages	6,695	5,845	5,562	6,145	6,328	**6,115**	6,373	6,789	5,922	5,973	6,197	**6,250**	**6,182**	5,795
Per cent. under one year	**33.7**	**32.3**	**29.7**	**31.9**	**31.6**	31.9	**32.5**	**32.2**	**30.9**	**29.0**	**28.5**	30.7	31.3	**25.8**
Births for year	22,182	23,507	27,292	28,859	30,972	**26,562**	34,538	38,632	41,906	41,494	42,708	**39,855**	**33,209**	45,699
Infant deaths per 1000 births	**243.3**	**215.2**	**168.5**	**173.7**	**166.2**	188.4	**157.8**	**142.4**	**119.6**	**118.6**	**118.4**	130.2	153.5	**101.3**

TABLE 9.—MORTALITY UNDER ONE YEAR OF AGE, 1901–1911

REST OF CITY (BRONX, QUEENS, RICHMOND)

Total Deaths Under One Year	1901	1902	1903	1904	1905	Average 1901-05	1906	1907	1908	1909	1910	Average 1906-10	Average 1901-10	1911
January	103	107	104	137	120	**114**	121	150	133	161	161	**145**	**129**	160
February	103	125	108	137	117	**118**	138	150	160	129	129	**141**	**129**	147
March	108	148	129	128	132	**129**	148	156	155	161	162	**156**	**142**	168
April	115	113	101	121	126	**115**	146	147	133	133	122	**136**	**125**	158
May	99	119	90	90	137	**107**	128	138	132	142	146	**137**	**122**	169
June	103	140	110	144	120	**123**	156	120	147	131	148	**140**	**131**	134
July	295	323	268	347	415	**329**	381	348	363	267	345	**340**	**335**	260
August	304	289	249	272	291	**281**	380	443	299	306	293	**344**	**312**	327
September	195	165	139	190	176	**173**	268	243	199	208	216	**226**	**199**	213
October	133	125	121	137	135	**130**	164	174	184	185	194	**180**	**155**	147
November	78	132	105	106	96	**103**	123	112	109	168	144	**131**	**117**	139
December	105	97	107	114	106	**105**	128	151	157	148	142	**145**	**125**	174
Year	1,741	1,883	1,631	*1,923	1,961	**1,827**	2,281	2,332	2,171	2,139	2,202	**2,221**	**2,021**	2,196
All ages	8,942	8,999	8,659	10,903	10,108	..	11,148	11,843	11,411	11,777	12,406	**11,717**	..	12,526
Per cent. under one year	**19.4**	**20.8**	**18.8**	**17.6**	**19.5**	..	**20.4**	**19.6**	**19.0**	**18.1**	**17.7**	18.9	..	**17.5**
July–August–September:														
Under one year	794	777	656	809	882	**783**	1,029	1,034	861	781	854	**910**	**847**	800
Per cent. total year	**45.6**	**41.3**	**40.2**	**42.1**	**45.0**	42.8	**45.1**	**44.3**	**39.6**	**36.5**	**38.7**	41.0	41.8	**36.4**
All ages	2,622	2,368	2,255	2,629	2,818	**2,538**	3,167	3,229	2,978	3,030	3,213	**3,123**	**2,830**	3,287
Per cent. under one year	**30.2**	**32.5**	**29.1**	**30.7**	**31.3**	30.8	**32.4**	**32.0**	**28.9**	**25.7**	**26.5**	29.2	29.9	**24.3**
Births for year	8,563	9,846	11,385	11,500	12,706	**10,800**	14,229	16,317	18,081	17,882	20,015	**17,304**	**14,052**	22,251
Infant deaths per 1000 births	**203.3**	**190.2**	**143.2**	**165.4**	**155.1**	168.8	**159.6**	**142.9**	**120.0**	**119.6**	**110.0**	128.4	143.9	**98.6**

* Note: The Slocum disaster, in which 918 lives were lost, occurred in June, 1904. Deducting these from the total, the number of deaths for the year would be 9985. The per cent. under one year was 19.0.

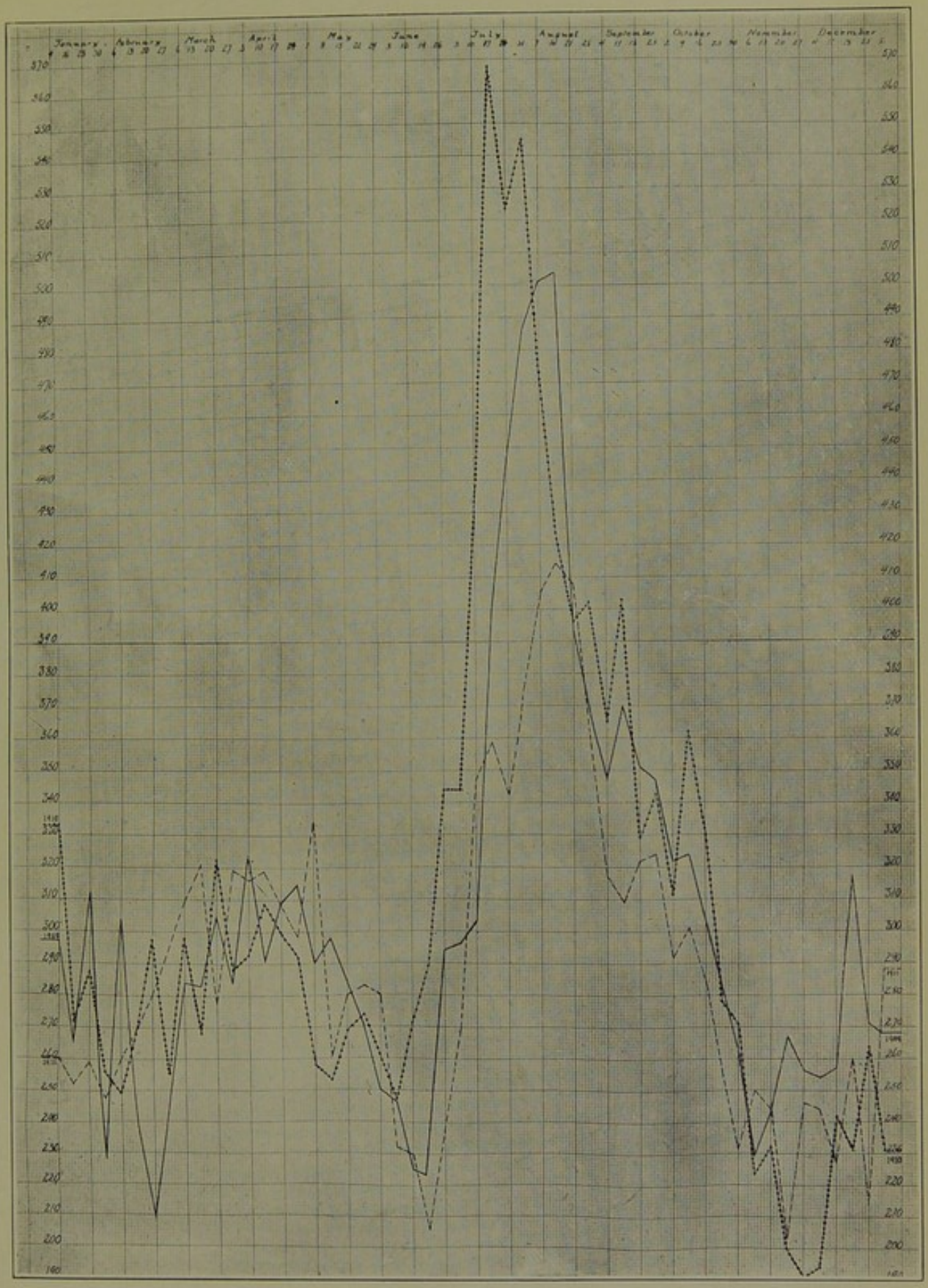


EXHIBIT 15
INFANT DEATHS OCCURRING IN NEW YORK CITY BY WEEKS
(1909, 1910, 1911)

As already mentioned, in 1908 there was a very great increase in activity in the campaign in New York. That was the year of the formation of the Division of Child Hygiene in the Health Department; the coöperation of the Health Department with the Children's Aid Society; the effort to bring about general coöperation, as shown by the first conference on the summer care of babies; the opening of seven milk depots by the New York Milk Committee; in other words, a great extension of the campaign and the coming to the front of educational prevention.

The year 1911 was another one of great extension in the work, especially along educational lines.

It must be remembered that the special efforts were confined largely to the summer months; also it must be remembered that the problem is very different in different boroughs, owing to their different physical characteristics. The following tables illustrate the changes that have occurred since 1908:

TABLE 10.—MORTALITY UNDER ONE YEAR IN NEW YORK CITY OCCURRING DURING THREE SUMMER MONTHS

	1908	1909	1910	1911
Actual	5739	5154	5574	4593
Percentage of year	35.3	32.2	34.3	30.5

It will be noticed, from Table 10, that while the total year's mortality in 1908 was low, the summer mortality was quite high—higher than either 1909 or 1910—35.35 per cent. in 1908, as against 32.26 per cent. in 1909, and 34.37 per cent. in 1910. It was, however, below previous years, except 1903.

In 1911 the summer mortality was low, being only 30.58 per cent. of the year's total. Table 11 shows the difference between these years and 1911.

TABLE 11.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN THREE SUMMER MONTHS OF 1911 AND CERTAIN OTHER YEARS

	From 1908	From 1909	From 1910
Actual	—1146	—561	—981
Percentage	—19.9	—10.8	—17.6

The summer mortality in 1911, compared with the three previous years in the different boroughs, as shown in Tables 12 and 13, is worth noticing.

TABLE 12.—MORTALITY UNDER ONE YEAR DURING THREE SUMMER MONTHS IN DIFFERENT SECTIONS OF NEW YORK CITY

		1908	1909	1910	1911
Manhattan	Actual	3043	2640	2952	2294
	Percentage of year	**33.63**	**29.61**	**32.96**	**28.00**
Brooklyn	Actual	1835	1733	1768	1499
	Percentage of year	**36.6**	**35.2**	**34.9**	**32.3**
Rest of City	Actual	861	781	854	800
	Percentage of year	**37.9**	**36.5**	**38.7**	**34.8**

TABLE 13.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN THREE SUMMER MONTHS OF 1911 AND CERTAIN OTHER YEARS

		From 1908	From 1909	From 1910
Manhattan	Actual	—749	—346	—658
	Per cent	**—24.6**	**—13.1**	**—22.2**
Brooklyn	Actual	—336	—234	—269
	Per cent	**—18.3**	**—13.5**	**—37.8**
Rest of City	Actual	—61	+19	—54
	Per cent	**—7**	**+2.4**	**—6.3**

It will be seen that while there was a very great actual and percentage reduction in 1911 from the figures in 1908 to 1910 in both Manhattan and Brooklyn, in the Rest of the City this was not so marked. There was an actual increase over 1909 figures.

The proportion of deaths occurring in the third quarter of the year was very low. Table 14 shows the distribution of the mortality by trimesters for the years 1901–1911, with five- and ten-year averages for the boroughs of Manhattan, Brooklyn, and the "Rest of the City."

It will be noted that in Manhattan only 28 per cent. of the year's mortality occurred during the third quarter, while the ten-year average is 33.8 per cent., and the five-year average, 1906–1910, is 32.8 per cent. In no single year was so low a figure reached, and in only one, 1909, did it fall below 30 per cent. This occurred in connection with a very low total mortality for the whole year.

The figure for Brooklyn is 32.4 per cent., as against the ten-year average of 38 per cent. It is also the lowest of any single year by 2.5 per cent.

The "Rest of the City" shows 36.4 per cent., the ten-year average being 41.9 per cent. But in 1909 the proportion was 36.5 per cent. The lower figure and the proportionately greater reduction seem to make the inference fair that the more extensive and active campaign in Manhattan was responsible, in part, at any rate.

The New York Milk Committee opened its stations in 1911 in the latter part of May. The campaign did not really come into full swing until June. So far as the Milk Committee was concerned, it ceased its work on the first day of November, when the Health Department took over 22 of the 31 stations which it had maintained during the summer. In order to estimate the effect of the campaign during these five months, tabulations have been made of the deaths in the various parts of the city for a number of years and the births occurring during corresponding twelve-month periods ending October 1st.

In the summer of 1911 there were in Manhattan 57 milk stations; in Brooklyn, 23; and in the Bronx, 1. These tabulations have been made for Manhattan, Brooklyn, and the "Rest of the City." This last area has been taken because in all three boroughs there was practically no milk station work. The regular summer corps work of the Health Department was carried on as heretofore. Table 15 shows the results.

TABLE 14.—DEATHS UNDER ONE YEAR BY TRIMESTERS IN VARIOUS SECTIONS OF GREATER NEW YORK

	1901	1902	1903	1904	1905	Average 1901–05	1906	1907	1908	1909	1910	Average 1906–10	Average 1901–10	1911
Manhattan														
First Quarter:														
Actual	1789	2058	1920	2187	2126	**2016**	2253	2237	2081	2130	2081	**2156**	**2086**	2151
Percentage of year's mortality	**21.0**	**23.5**	**23.5**	**23.8**	**22.6**	22.9	**23.8**	**23.3**	**23.0**	**23.9**	**23.2**	23.5	23.2	**26.3**
Second Quarter:														
Actual	1779	1907	1888	2102	2227	**1981**	2097	2156	2171	2180	2115	**2144**	**2062**	2016
Percentage of year's mortality	**20.9**	**22.1**	**23.1**	**22.8**	**23.7**	22.6	**22.2**	**22.5**	**24.0**	**24.5**	**23.6**	23.3	23.0	**24.6**
Third Quarter:														
Actual	3225	2890	2711	3184	3294	**3061**	3182	3278	3043	2640	2962	**3021**	**3040**	2294
Percentage of year's mortality	**37.8**	**33.6**	**33.1**	**34.6**	**35.0**	34.8	**33.6**	**34.1**	**33.6**	**29.6**	**33.1**	32.8	33.8	**28.0**
Fourth Quarter:														
Actual	1736	1759	1662	1734	1754	**1729**	1932	1931	1753	1964	1806	**1877**	**1803**	1731
Percentage of year's mortality	**20.3**	**20.4**	**20.3**	**18.8**	**18.7**	19.7	**20.4**	**20.1**	**19.4**	**22.0**	**20.1**	20.4	20.0	**21.1**
Brooklyn														
First Quarter:														
Actual	1005	1062	950	1023	1025	**1013**	1139	1159	1081	1051	1129	**1112**	**1062**	1035
Percentage of year's mortality	**19.3**	**21.0**	**20.6**	**20.4**	**19.9**	20.2	**20.9**	**21.0**	**21.6**	**21.3**	**22.3**	21.4	20.8	**22.4**
Second Quarter:														
Actual	985	1166	992	1127	1149	**1084**	1169	1082	1064	1004	1154	**1095**	**1089**	1000
Percentage of year's mortality	**18.9**	**23.0**	**21.6**	**22.5**	**22.3**	21.7	**21.4**	**19.7**	**21.2**	**20.4**	**22.8**	21.1	21.4	**21.6**
Third Quarter:														
Actual	2257	1891	1655	1962	2004	**1954**	2074	2191	1835	1733	1768	**1920**	**1937**	1499
Percentage of year's mortality	**43.4**	**37.4**	**36.0**	**39.1**	**38.9**	39.0	**38.0**	**39.8**	**36.6**	**35.2**	**34.9**	37.0	38.0	**32.4**
Fourth Quarter:														
Actual	952	940	1004	903	972	**954**	1071	1071	1032	1135	1008	**1063**	**1008**	1095
Percentage of year's mortality	**18.3**	**18.6**	**21.8**	**18.0**	**18.9**	19.1	**19.6**	**19.5**	**20.6**	**23.1**	**19.9**	20.5	19.8	**23.6**
"Rest of City"														
First Quarter:														
Actual	314	380	341	402	369	**361**	407	456	448	451	452	**442**	**400**	475
Percentage of year's mortality	**18.0**	**20.2**	**20.9**	**20.9**	**18.8**	19.8	**17.8**	**19.6**	**20.6**	**21.1**	**20.5**	19.9	19.8	**21.6**
Second Quarter:														
Actual	317	372	301	355	373	**345**	430	405	412	406	416	**413**	**378**	461
Percentage of year's mortality	**18.2**	**19.7**	**18.5**	**18.5**	**19.0**	18.9	**18.9**	**17.4**	**18.9**	**19.0**	**18.9**	18.6	18.7	**21.0**
Third Quarter:														
Actual	794	777	656	809	882	**783**	1029	1034	861	781	854	**910**	**846**	800
Percentage of year's mortality	**45.6**	**41.3**	**40.2**	**42.1**	**45.0**	42.8	**45.1**	**44.3**	**39.6**	**36.5**	**38.8**	40.9	41.9	**36.4**
Fourth Quarter:														
Actual	316	354	333	357	337	**338**	415	437	450	501	480	**456**	**397**	460
Percentage of year's mortality	**18.2**	**18.8**	**20.4**	**18.5**	**17.2**	18.5	**18.2**	**18.7**	**20.7**	**23.4**	**21.8**	20.5	19.6	**21.0**

TABLE 15.—MORTALITY UNDER ONE YEAR DURING MONTHS JUNE 1ST TO NOVEMBER 1ST IN VARIOUS SECTIONS OF GREATER NEW YORK

	1908	1909	1910	1911
MANHATTAN:				
June	644	630	723	572
July	1185	810	1126	764
August	1059	1071	1004	859
September	799	759	822	671
October	677	733	720	627
Total	4364	4003	4395	3493
BROOKLYN:				
June	379	341	426	328
July	769	682	782	506
August	592	562	543	545
September	474	489	443	448
October	371	385	430	415
Total	2585	2459	2624	2242
"REST OF CITY":				
June	147	131	148	134
July	363	267	345	260
August	299	306	293	327
September	199	208	216	213
October	184	185	194	147
Total	1192	1097	1196	1081

It will be noted in Table 15 that the deaths under one year in 1908 and 1910 in all three areas were nearly the same. In 1909 the total was lower than in the years preceding and following. The year 1911 shows a very great drop in Manhattan and a very distinct drop in Brooklyn, and almost no drop in the Rest of the City compared with 1909. Table 16 shows the differences in actual numbers and in percentages. From the gross figures it appears that the Rest of the City did not do nearly so well as Manhattan and Brooklyn.

TABLE 16.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN MONTHS JUNE 1ST TO NOVEMBER 1ST, 1911, AND CERTAIN OTHER YEARS IN DIFFERENT SECTIONS OF GREATER NEW YORK

	FROM 1908	FROM 1909	FROM 1910
MANHATTAN:			
Actual	—871	—510	—902
Percentage	—19.9	—12.7	—20.5
BROOKLYN:			
Actual	—343	—217	—382
Percentage	—13.2	—8.8	—14.5
"REST OF CITY":			
Actual	—111	—16	—115
Percentage	—9.3	—1.4	—9.6

Table 17 shows the actual and percentage changes in the gross infant mor-

tality for these three areas for each of the years 1909, 1910, and 1911, compared with previous years back to 1908.

TABLE 17.—DIFFERENCE IN MORTALITY UNDER ONE YEAR DURING MONTHS JUNE 1ST TO NOVEMBER 1ST BETWEEN CERTAIN YEARS AND YEARS PRECEDING

1909 *as Compared With* **1908**

	Actual Difference	Percentage Difference
Manhattan	—361	—8.27
Brooklyn	—126	—4.87
"Rest of City"	— 95	—7.97

1910 *as Compared With* **1908** *and* **1909**

	Actual Difference		Percentage Difference	
	1908	1909	1908	1909
Manhattan	+31	+392	+0.71	+9.79
Brooklyn	+39	+165	+1.50	+6.71
"Rest of City"	+ 4	+ 99	+0.33	+9.02

1911 *as Compared With* **1908, 1909,** *and* **1910**

	Actual Difference			Percentage Difference		
	1908	1909	1910	1908	1909	1910
Manhattan	—871	—510	—902	—19.9	—12.7	—20.5
Brooklyn	—343	—217	—383	—13.2	— 8.8	—14.5
"Rest of City"	—111	— 16	—115	— 9.3	— 1.4	— 9.6

Table 18 compares the percentage difference in actual deaths under one year during this period for each area in the years 1909, 1910, 1911, and with the year immediately preceding. It will be seen that in Manhattan and Brooklyn the percentage decrease in deaths during these months in 1911 was greater than in either 1910 or 1909, while for the rest of the city the change is very much less.

TABLE 18.—PERCENTAGE DIFFERENCE BETWEEN THE MORTALITY UNDER ONE YEAR DURING MONTHS JUNE 1ST TO NOVEMBER 1ST IN 1909, 1910, AND 1911, AND THE YEAR IMMEDIATELY PRECEDING

	1909	1910	1911
Manhattan	—8.27%	+9.79%	—20.5%
Brooklyn	—4.87	+6.71	—14.5
"Rest of City"	—7.97	+9.02	— 9.6

These gross figures, as given above, make no allowance for the increase in population. Taking the census figures of 1910 as a basis, the percentage increase in population for 1900–1910 for the various areas is:

Manhattan, ten years	26.020
Yearly average	2.602
Brooklyn, ten years	40.100
Yearly average	4.010
"Rest of City," ten years	90.380
Yearly average	9.038

If we apply this increase to the number of deaths occurring in 1909, the low year of the five preceding 1911, and compare with these figures the actual deaths which did occur in these years during this same period, we find some interesting points, as shown by the following table:

TABLE 19.—MORTALITY UNDER ONE YEAR, WHICH SHOULD HAVE OCCURRED DURING THE MONTHS JUNE TO NOVEMBER, 1910 AND 1911, ON BASIS OF 1909 FIGURES, ALLOWING FOR INCREASE IN POPULATION

	1910	1911
Manhattan	4107	4211
Brooklyn	2557	2656
"Rest of City"	1196	1295

The actual and percentage differences from these estimated mortalities are:

	Actual		Percentages	
	1910	1911	1910	1911
Manhattan	+288	—718	+7.0	—17.0
Brooklyn	+ 67	—414	+2.6	—15.5
"Rest of City"	+ 0	—214	+0.0	—16.5

There has been in the "Rest of the City" a steady tendency downward during the last three years. In 1910, when Manhattan and Brooklyn were in excess of the estimated mortality, the "Rest of the City" maintained the same proportion. In 1911 it fell more than Brooklyn, and almost as much as Manhattan.

It is possible that the influence of the campaign in New York city may have had something to do with this result. Conditions in these outlying boroughs are very different from Manhattan and Brooklyn.

If, now, we look at the infant mortality rates for these years, we find that, based on the total births for the year, the proportion of infant deaths in the months of June to November 1st was:

TABLE 20.—INFANT MORTALITY RATE FOR MONTHS JUNE TO NOVEMBER FOR DIFFERENT SECTIONS OF GREATER NEW YORK

	1908	1909	1910	1911
Manhattan	65.2	62.9	66.2	52.5
Brooklyn	61.6	59.2	61.4	49.0
"Rest of City"	65.9	61.3	59.7	48.5

Table 21 shows the actual and percentage difference in these rates compared with the years preceding, during the period discussed:

TABLE 21.—DIFFERENCE IN INFANT MORTALITY RATE FOR MONTHS JUNE TO NOVEMBER, BETWEEN 1909, 1910, AND 1911, AND YEARS PRECEDING, FOR DIFFERENT SECTIONS OF GREATER NEW YORK

1909 *as Compared With* **1908**

	Actual	Per Cent.
Manhattan	—2.3	—3.52
Brooklyn	—2.4	—3.89
"Rest of City"	—4.6	—6.98

1910 *as Compared With* **1908** and **1909**

	Actual		Per Cent.	
	1908	1909	1908	1909
Manhattan	+1.0	+3.3	+1.53	+5.24
Brooklyn	—0.2	+2.2	—0.32	+3.71
"Rest of City"	—6.2	—1.6	—8.16	—2.6

1911 *as Compared With* **1908, 1909,** and **1910**

	Actual			Per Cent.		
	1908	1909	1910	1908	1909	1910
Manhattan	—12.7	—10.4	—13.7	—19.4	—16.5	—20.7
Brooklyn	—12.6	—10.2	—12.4	—20.4	—17.2	—20.1
"Rest of City"	—17.4	—12.8	—11.2	—26.4	—20.8	—18.7

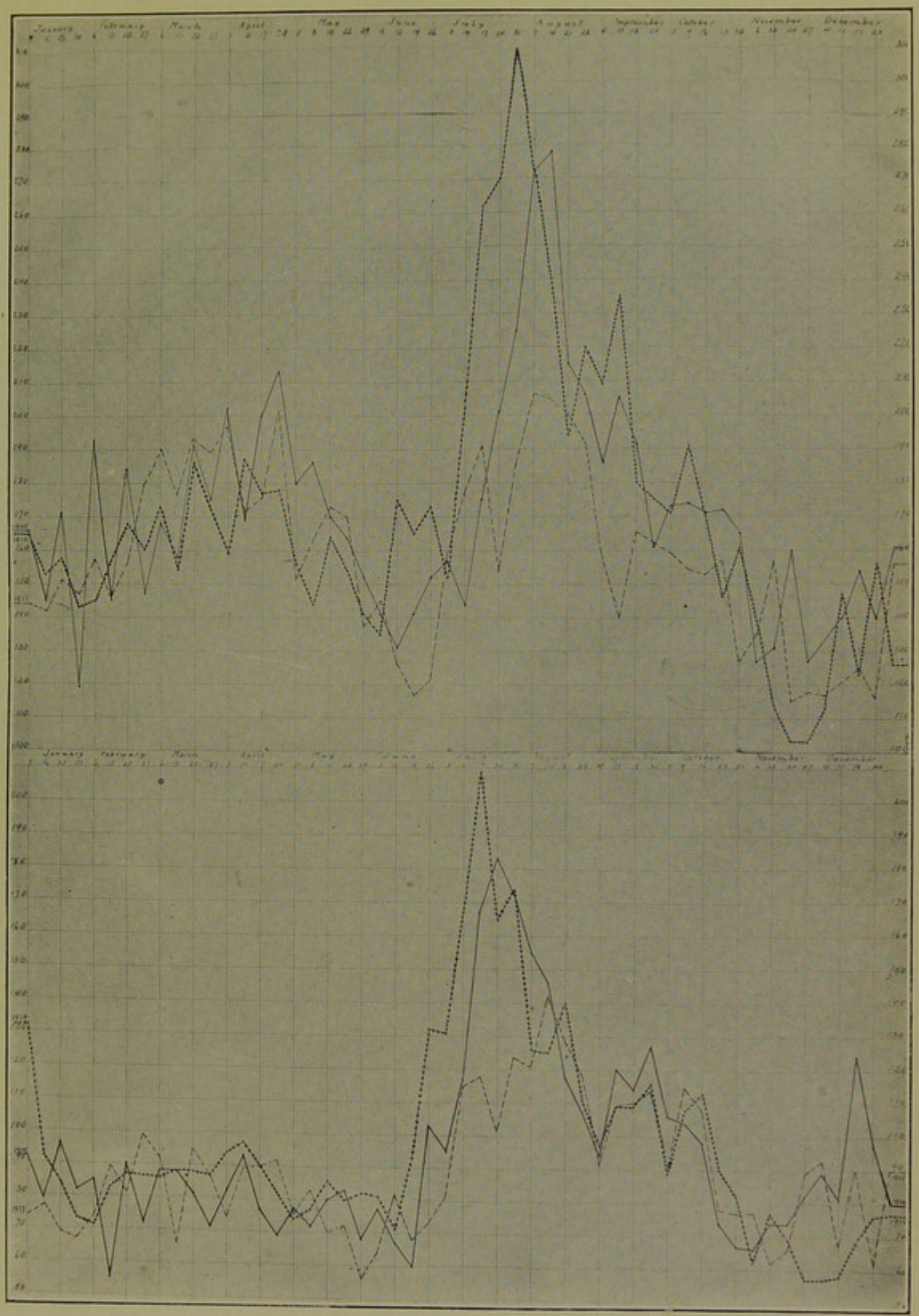


Exhibit 16
Deaths of Infants, 1909, 1910, 1911, by Weeks
Upper Chart—Manhattan; Lower Chart—Brooklyn

Comparing the percentage change in the infant mortality rates in consecutive years we find:

TABLE 22

	1909	1910	1911
MANHATTAN	—3.5	+5.2	—20.0
BROOKLYN	—3.8	+3.7	—20.1
"REST OF CITY"	—6.9	—2.6	—18.7

The mortality rate of the "Rest of the City" fell in 1909 much more than that of Manhattan and Brooklyn. In 1910 it fell, while that of the other two boroughs rose. In 1911, in Manhattan and Brooklyn, the mortality fell more than in the "Rest of the City."

The tables given above would seem to show that—

(1) *In the city of New York during the summer and early fall of 1911 there was a very great diminution in infant mortality.*

(2) *That the diminution is demonstrable both in the gross infant mortality and in the infant mortality rate.*

(3) *That the diminution is slightly but distinctly more marked in the boroughs of Manhattan and Brooklyn, where the greatest efforts were put forth, than in the "Rest of the City."*

It is a well-known fact that infant mortality tends to vary from year to year in given localities. This is usually explained on the ground of varying weather conditions. Summers of intense heat and scant rainfall have usually been followed by a high infant mortality. It remains now to investigate weather conditions which have existed in New York during certain years, and to see how they compare with the mortality rates.

Table 23 shows the number of days on which the maximum temperature and mean temperature reached or passed certain figures.

TABLE 23.*—NUMBER OF DAYS MAXIMUM AND MEAN TEMPERATURES IN NEW YORK REACHED CERTAIN FIGURES

	Maximum Temperature was			Mean Temperature was	
	95° or +	90° or +	85° or +	85° or +	80° or +
June					
1901	2	5	10	1	5
1903	0	0	0	0	0
1908	0	1	8	0	4
1909	0	4	9	0	6
1910	0	2	6	0	3
1911	0	0	2	0	0
July					
1901	2	9	19	2	12
1903	1	6	12	0	5
1908	2	7	21	2	18
1909	0	2	10	0	3
1910	0	4	19	0	10
1911	6	10	18	6	9
August					
1901	0	1	7	0	2
1903	0	0	3	0	0
1908	0	4	10	3	6
1909	0	4	7	0	2
1910	0	0	1	0	0
1911	0	5	12	0	3

* New York Meteorological Observatory Reports.

	Maximum Temperature was			Mean Temperature was	
	95° or +	90° or +	85° or +	85° or +	80° or +
September					
1901	0	0	4	0	0
1903	0	0	3	0	0
1908	0	0	0	0	0
1909	0	0	0	0	0
1910	0	1	2	0	1
1911	0	0	3	0	0
June–September					
1901	4	15	40	3	19
1903	1	6	18	0	5
1908	2	12	39	5	28
1909	0	10	26	0	11
1910	0	7	28	0	14
1911	6	15	35	6	12

The years 1901 and 1903 are included in the above table, because the latter showed the lowest year's mortality on record since 1901. The annual meteorologic summary for 1911, issued by the Weather Bureau (New York), contains the following statement: "July, period—— hot weather exceeded only by that of July, 1901, in duration and intensity, prevailed during the first thirteen days of the month." The highest temperature was only one degree below the highest ever recorded at the station, and for thirteen days the average temperature was 81°. These records were taken 400 feet above the street.

Not only was the number of days when the temperature reached the high point greater in 1911 than in these other years, but the duration of the heat was greater, as will be seen in Table 24.

TABLE 24.*—NUMBER OF HOURS TEMPERATURE WAS AT OR ABOVE CERTAIN FIGURES

	Temperature was		
	95° or +	90° or +	85° or +
June			
1901	3	23	66
1903	0	0	0
1908	0	5	38
1909	0	14	65
1910	0	5	34
1911	0	0	10
July			
1901	10	40	134
1903	1	26	80
1908	3	33	149
1909	0	6	41
1910	0	20	100
1911	25	67	151
August			
1901	0	3	35
1903	0	0	11
1908	0	24	76
1909	0	10	34
1910	0	0	5
1911	0	15	59
September			
1901	0	0	12
1903	0	0	11
1908	0	0	0
1909	0	0	0
1910	0	5	14
1911	0	0	8

* New York Meteorological Observatory Reports.

June-September	Temperature was 95° or +	90° or +	85° or +
1901	13	86	247
1903	1	26	102
1908	3	62	263
1909	0	30	140
1910	0	30	153
1911	25	82	228

This table shows a very much greater duration of heat than in any other of the years tabulated, especially in regard to temperatures of 90° or over. In 1908 a temperature of 85° or over was maintained longer than in 1911, but in 1909 and 1910 weather conditions were much less severe. The years 1901 and 1903 will be discussed later. The mean temperature for the month taken alone is deceptive in making comparisons, a long period of hot weather being often balanced by a long cool period, or short hot and cool periods following one another. The following table (Table 25), taken in conjunction with Table 24, shows the records for the four months of June, July, August, and September, and the average monthly mean over a period of forty-two years:

TABLE 25.—MEAN MONTHLY TEMPERATURES AND INFANT MORTALITY RATES, JUNE–SEPTEMBER*

Average Mean Temperature for Month for Forty-two Years	1901	1903	1908	1909	1910	1911
June **70.3**	70.5	64.2	72.9	72.1	68.7	69.8
July **75.3**	77.7	74.6	79.8	73.5	77.2	77.5
August **73.3**	74.9	69.0	75.7	72.2	72.0	72.8
September **67.1**	68.1	67.0	68.3	66.8	69.4	67.6
Infant mortality	7311	6210	6909	6256	6871	5627
Rate	(90.5)	(65.5)	54.4	50.8	53.2	41.8

Table 25 shows that the mean monthly temperature in 1908 for all four months was distinctly above the average for the forty-two years. In this year the summer mortality was high, being 54.4. In 1909 June alone was above the average mean, July and August being considerably below, and September slightly below; the infant mortality was low, the rate being 50.8. The records for 1910 and 1911 were very similar. In June both were below the average mean, especially 1910. July was nearly two degrees above the mean in both years; August was below in both, 1911 being the higher of the two. September shows considerable excess in 1910 and a slight excess in 1911. In the death-rates for the two years there is a difference of 1.4 in favor of 1911. So far as temperature was concerned, it would seem that 1911 was a bad year.

The year 1903 was the remarkable one of the decade as to low infant mortality, both for the year and for the four months June, July, August, and September. Its death-rate, based upon births for the entire year and for the summer months, was also much below the years preceding and following; in fact, the yearly rate was not equaled again until 1907, when there was a very great increase in the reported births. In 1903 there can be no question as to the remarkable weather

* New York Meteorological Observatory Reports.

conditions that prevailed. June was over 6° below the mean; July, 0.7° below; August, over 4° below; and September, about the average. On only one day of the four months did the temperature reach 95° or over, and it remained there for only one hour. For only nine hours did it reach 90° or over, and for only 102 hours was it 85°+. The mean temperature never reached 85° and was only 80° or over on five days. There has been no such record as this in any year since 1900, the nearest approach being 1909, as already mentioned.

The years 1901 and 1911 each had a prolonged hot spell in July. In the former year, at 6 A.M. on July 1st, the temperature was 81° and did not fall below 80° until 2 P.M. on the third, a period of fifty-six hours, when between 1 P.M. and 6 P.M. there was a hard storm, the thermometer falling from 94° to 77° in one hour. From 11 A.M. to 9 P.M. on the first, from 9 A.M. to 6 P.M. on the second, and from 10 A.M. to 1 P.M. on the third, the temperature registered 90 or over and reached 100° on the first and second. Then followed cooler weather. There was a period of high temperature from July 14th to 17th inclusive; August 21st to 24th inclusive, and August 29th and 30th, but the temperature did not reach such great heights, nor did it remain so high during the entire twenty-four hours. During the month of July, 1901, there were 2404 deaths under one year of age. In the week ending July 6, 1901, 617.

In July, 1911, during the first thirteen days, there was a period of extreme heat. From 10 A.M. on the morning of the second to 7 P.M. on the evening of the seventh, a total of one hundred and twenty-nine hours, the temperature was recorded below 80° for only twenty-six hours. From 3 P.M. to 9 P.M. on the second, 9 A.M. to 9 P.M. on the third, 11 A.M. to 8 P.M. on the fourth, 12 M. to 9 P.M. on the fifth, 11 A.M. to 8 P.M. on the sixth, it was continually at 90° or over; then came thirty-nine hours of relief, to be followed by another period of extreme heat. From 10 A.M. on the ninth, to 10 P.M. on the thirteenth, a total of one hundred and eight hours, the temperature was below 80° only twenty-three hours. From 3 P.M. to 8 P.M. on the ninth, 11 A.M. to 5 P.M. on the tenth, 12 M. to 9 P.M. on the eleventh, 4 P.M. to 9 P.M. on the twelfth, it was continually 90° or over, and yet during the month of July, 1911, only 1530 babies died, compared with 2404 in 1901. In the week ending July 8, 1911, only 347 babies died, compared with 617 in 1901. This remarkable failure of the infant deaths to rise promptly and markedly during the hot weather is even more strikingly shown in Exhibits 6 and 8, which show the daily deaths in Manhattan and Brooklyn during this hot period. On no day in the entire summer did the deaths in Manhattan reach 40. In 1909, on the other hand, 57, and in 1910, 65, deaths were recorded in a single day. The hot period in 1901, while it lasted a shorter time, was a little more intense in that the temperature did not fall below 80° for fifty-six hours. In 1911, in the early mornings, between 2 and 7 or 8 A.M., the thermometer registered 77° to 80°, but its effect on the thoroughly baked tenements could not have been great.

When we come to consider the subject of rainfall and the number of rainy days occurring during these years, several points must be emphasized. The total rainfall for the month, so far as its bearing upon health conditions may be con-

cerned, must be considered as to its distribution throughout the month, as well as its total amount. For instance, August, 1911, had a total rainfall of 9.28 inches, as against 1.07 in 1910, but up to and including the twenty-third only 1.95 inches had fallen in 1911, as against 0.89 in 1910.

Table 26 shows the monthly rainfall and the number of rainy days in each month for the years we have been considering, and also the rainfall from July 1st to August 23d inclusive.

TABLE 26.—RAINFALL AND RAINY DAYS, NEW YORK CITY

Average, Forty-two Years	1901	1903	1908	1909	1910	1911
RAINFALL, INCHES						
June.....**3.29**	1.00	9.78	1.27	3.02	6.03	5.67
July.....**4.38**	7.64	3.93	3.80	2.17	0.49	2.16
August.....**4.54**	6.55	7.85	6.01	8.50	1.07	9.28
September.....**3.62**	2.42	4.31	1.91	2.65	1.42	1.70
Total.....**15.83**	17.61	25.87	12.99	16.34	9.01	18.81
NUMBER OF RAINY DAYS						
June.....**9**	5	18	3	10	12	14
July.....**10**	16	10	7	5	6	11
August.....**9**	9	11	10	8	11	12
September.....**8**	12	6	3	7	5	9
Total.....**36**	42	45	23	30	34	46
RAINFALL,* JULY 1ST TO AUGUST 23D, INCHES						
July.....	7.64	3.93	3.80	2.17	0.49	2.16
August.....	4.05	3.66	2.59	8.50	0.89	1.95
Total.....	11.69	7.59	6.39	10.67	1.38	4.11

It will be seen that during the entire period, 1911 had a greater precipitation than any of the three previous years, slightly greater than in 1901, and less than in 1903. The number of rainy days was greater than in any of the five other years considered, although during the period July 1st to August 23d the rainfall was lower than in any of the five years except 1910. We must, therefore, admit that in 1911 the rainfall and number of rainy days were in favor of low mortality, as compared with 1910, during the latter part of the summer. During July and the first part of August climatic conditions were unfavorable.

In a general way summers having bad climatic conditions had a high infant mortality. During 1911 these conditions were unfavorable, especially during July. This Committee believes that the reduction in the mortality in the summer of 1911 was not due to "chance" variation in mortality, but to increased efficiency in the methods used to combat it.

* New York Meteorological Observatory figures.

CHAPTER V

The Results at the Milk Stations of the New York Milk Committee

The results of the work of the Milk Stations may be gauged to a certain extent by the response of the communities in which the stations were located; by the mortality among the babies within their spheres of influence; and by the mortality among the station babies.

In order to obtain these figures a vast amount of statistical work had to be done, and it was impossible to carry it out for all the stations in Greater New York. The work was, therefore, limited to the stations maintained by the Milk Committee.

It has already been stated that the response to the work was so great at most of the stations that extra nurses and sometimes extra matrons had to be provided. In 20 stations an extra nurse was provided, and in 15 an extra assistant. Table 27 shows the enrolment of babies actually under supervision at the end of each week from May 20th to the end of the season.

In order to estimate the mortality among the babies in the areas under the influence of the milk stations, the following method was adopted: A map was made and plotted out showing the location of the station and the number of babies enrolled in each block surrounding the station. In this way the actual sphere of influence of the station was determined. A few babies came from longer distances, and, therefore, from outside the district. In order to determine the mortality in the district thus established a search of the records at the Health Department and a tabulation of all deaths occurring in the months of June to November were made for the years 1910–1911. In order to determine the infant mortality rates it was necessary to tabulate the births by blocks in the same areas. The Committee originally intended to close its work on October 1st, so that the births were tabulated for the years October 1, 1909, to September 30, 1910; and October 1, 1910, to September 30, 1911. The deaths were originally tabulated from January 1st to September 30th, but it seemed more accurate to take only the five months of active work, and this tabulation was made a second time. It was, however, impossible to go through the birth figures again.

The following table shows the deaths under one year for the "Station Areas" in the months June to October inclusive in 1910, before, and in 1911, after, stations were maintained. It should be remembered that the stations at Mulberry, Cannon, East 21st, and West 48th Streets had been running for several years. This table also shows the births for the twelve months ending September 30th, and the infant mortality rate based thereon. For comparison the death-rate

Where Milk Stations are Needed. Street Scene on Lower East Side, New York

TABLE 27.—ENROLMENT AT MILK STATIONS OF THE NEW YORK MILK COMMITTEE (BY WEEKS)

Station Number	May 20	May 27	June 3	June 10	June 17	June 24	July 1	July 8	July 15	July 22	July 29	Aug. 5	Aug. 12	Aug. 19	Aug. 26	Sept. 2	Sept. 9	Sept. 16	Sept. 23	Sept. 30	Oct. 7	Oct. 14	Oct. 21	Oct. 28	Oct. 31
East																									
1	105	109	109	112	119	126	126	129	144	146	156	166	168	166	175	185	184	188	197	193	188	196	195	198	198
2	8	23	22	25	32	33	40	45	65	67	75	77	74	81	98	106	118	109	109	111	107	106	110	112	112
3	15	29	29	36	41	58	71	81	99	113	118	133	151	169	170	154	153	139	143	153	154	148	151	146	134
4	135	157	158	152	158	159	162	174	156	174	174	178	177	183	190	197	193	187	189	194	197	199	199	206	203
5	10	16	20	23	35	49	47	58	67	77	90	90	95	105	118	129	134	141	143	141	138	140	141	145	145
6	12	21	17	17	19	18	14	18	22	26	32	42	66	85	98	87	108	120	119	121	121	122	126	125	126
7	9	13	14	19	28	30	38	52	62	68	74	80	103	113	125	134	140	142	144	151	155	157	159	164	162
8	12	15	21	21	32	37	50	64	95	114	127	131	135	153	169	166	179	184	195	197	195	183	181	181	183
9	66	68	72	73	82	90	90	96	100	94	93	93	110	123	147	157	166	173	185	188	193	199	202	204	204
10	21	36	41	46	53	62	66	89	115	124	141	159	164	176	183	186	191	190	203	211	201	211	208	211	212
11	80	80	104	116	119	129	136	144	162	179	179	169	183	188	205	218	225	240	253	260	269	275	280	280	280
12	..	10	36	38	43	58	66	81	107	119	151	176	196	210	220	225	241	249	239	237	244	244	237	228	231
13	..	..	13	21	25	28	43	54	58	68	82	81	89	104	113	116	117	118	110	113	113	106	118	120	120
14	..	11	22	26	43	44	42	60	91	105	116	122	125	130	136	142	149	159	160	163	167	174	180	181	183
15	..	2	8	17	25	40	47	58	82	82	101	108	121	139	139	142	145	146	151	154	157	155	148	150	153
16	..	4	15	20	20	35	41	53	71	68	87	92	97	102	109	113	114	119	116	117	115	113	111	113	113
17	..	..	10	19	18	27	37	44	64	76	74	80	89	96	103	106	105	114	119	113	114	107	105	108	108
18	..	..	..	22	35	56	70	107	145	159	172	184	196	212	230	240	250	252	254	256	250	265	280	289	289
19	..	2	5	12	20	30	39	55	77	94	112	129	151	158	163	174	187	194	199	200	205	204	212	217	218
20	..	..	4	14	16	25	36	49	60	66	72	87	95	102	106	110	115	120	121	128	131	133	131	130	130
21	..	..	..	..	..	..	..	..	18	52	62	68	76	104	120	124	132	138	141	145	149	149	151	152	152
22	..	..	..	..	..	..	..	..	10	20	36	54	59	66	72	83	97	111	111	112	118	115	115	102	102
23	..	..	..	..	..	..	..	..	..	23	49	74	92	121	149	160	184	183	191	195	214	228	224	227	227
West																									
1	29	44	51	30	46	67	96	101	124	119	109	120	133	146	163	167	178	186	191	168	179	175	158	174	177
2	19	22	23	28	33	41	48	51	63	72	72	84	101	102	105	106	118	113	111	114	112	113	111	119	119
3	11	11	14	17	44	56	61	73	80	91	98	100	103	110	107	109	112	116	118	117	110	111	106	109	109
4	88	97	100	101	104	107	113	123	127	131	138	144	162	174	182	185	187	192	200	208	201	205	208	209	209
5	14	24	31	27	28	45	51	61	71	75	76	79	80	85	8[illegible]	92	100	109	106	107	106	102	101	104	..
6	..	7	22	16	16	28	44	48	72	85	89	95	101	102	104	106	114	110	112	77	77	83	70	58	58
7	..	33	6	10	11	19	41	57	76	89	73	78	79	92	100	105	107	110	123	124	131	137	138	143	115
8	..	..	..	..	..	..	..	..	..	40	67	88	106	119	133	133	141	144	150	155	160	161	163	165	165
Total	634	834	967	1058	1245	1477	1715	2025	2483	2816	2395	3361	3674	4016	4320	4457	4684	4796	4903	4923	4971	5016	5019	5070	4937

among babies under one year, based on the enrolment, is given for each station; also the totals for East and West Side stations and for the total area.

TABLE 28.—STATISTICS OF STATION AREAS AND STATIONS

Station Area East Side	1910			1911			Station Mortality		
	Deaths, June–Oct.	Births, Oct.–Sept.	Infant Mortality	Deaths, June–Oct.	Births, Oct.–Sept.	Infant Mortality	Deaths, June–Oct.	Enrolment	Death-rate
1. Mulberry	42	**1307**	32.1	54	**1243**	43.4	12	**256**	46.8
2. Norfolk	16	**601**	26.6	11	**580**	18.9	0	**123**	0.0
3. Eldridge	39	**1305**	29.8	34	**1274**	26.6	2	**207**	9.6
4. Cannon and Stanton (21)	78	**1909**	40.8	52	**1777**	29.2	6	**430**	13.9
5. Ludlow	65	**1130**	57.5	30	**1012**	29.6	0	**155**	0.0
6. East 3d	58	**1219**	47.5	40	**1199**	33.3	1	**153**	6.5
7. East 5th	33	**882**	37.4	29	**820**	35.3	7	**142**	49.3
8. East 9th	55	**1011**	54.4	36	**911**	39.5	3	**158**	18.9
9. East 21st	53	**598**	88.6	34	**561**	60.6	5	**187**	26.7
10. Avenue A	53	**831**	63.7	50	**786**	63.6	6	**205**	29.2
11. East 105th	90	**1678**	53.6	83	**1663**	49.9	14	**299**	46.8
12. East 11th	92	**1568**	58.6	70	**1556**	44.9	5	**283**	17.6
13. East 56th	20	**358**	55.8	14	**366**	38.2	1	**111**	9.0
14. 512 2d Ave.	47	**554**	84.8	31	**553**	56.0	4	**176**	22.7
15. 873 2d Ave.	37	**568**	65.1	39	**605**	64.4	9	**170**	52.9
16. E. 81st St.	30	**505**	59.4	23	**471**	48.8	5	**135**	37.0
17. 1705 2d Ave.	24	**378**	63.4	21	**397**	52.8	6	**135**	44.4
18. E. 97th	53	**834**	63.5	40	**783**	51.0	6	**267**	22.4
19. E. 112th	110	**1593**	69.0	84	**1631**	51.5	8	**198**	40.4
20. E. 115th	13	**349**	37.2	10	**338**	29.5	2	**134**	14.9
21. Combined with 4	..	..	..	..	..	..	..	..	..
22. E. 75th	27	**373**	72.3	14	**366**	38.2	2	**101**	19.8
23. Madison Ave.	27	**738**	36.5	25	**776**	32.2	0	**189**	0.0
Total East Side	1062	**20289**	52.3	824	**19668**	41.8	104	**4214**	24.6

Station Area West Side	1910			1911			Station Mortality		
	Deaths, June–Oct.	Births, Oct.–Sept.	Infant Mortality	Deaths, June–Oct.	Births, Oct.–Sept.	Infant Mortality	Deaths, June–Oct.	Enrolment	Infant Mortality
1. Thompson	42	**917**	45.8	47	**861**	54.5	4	**236**	16.9
2. Leroy	40	**550**	72.7	32	**555**	57.6	10	**129**	77.5
3. 10th Ave.	54	**629**	85.8	46	**524**	87.7	8	**117**	68.3
4. W. 48th	127	**1360**	93.3	101	**1409**	71.7	7	**198**	35.3
5. W. 69th	32	**375**	85.3	25	**378**	66.1	2	**91**	21.9
6. Washington	33	**222**	148.5	24	**242**	99.1	5	**121**	41.3
7. Vanderbilt Clinic	59	**545**	108.2	44	**481**	91.4	2	**139**	14.3
8. 9th Ave.	44	**373**	117.9	19	**365**	52.0	3	**134**	22.3
Total West Side	431	**4971**	86.6	338	**4815**	70.2	41	**1165**	35.1
East Side	1062	**20289**	52.3	824	**19668**	41.8	104	**4214**	24.6
West Side	431	**4971**	86.6	338	**4815**	70.2	41	**1165**	35.1
All Areas	1493	**25260**	59.0	1162	**24483**	47.4	145	**5379**	26.9

It will be seen that in the station areas on the East Side there was a reduction of 10.5 over 1910, and on the West Side, 16.4. The infant population affected on the West Side, however, was about one-quarter that of the East Side. This

would seem to point either to less efficient station technic or to a poorer class of patients, *i. e.*, needing the stations more. Comparing the station rate and the district rate, the latter conclusion is borne out, for on the West Side the station rate was just half the district rate. The testimony of the nurses and physicians in charge of the stations also points to this being the case.

Another noticeable fact is that in the Mulberry Street, East 5th Street, and Leroy Street stations the station mortality is in excess of the district mortality. This is explained by the fact that the nurses in these districts were particularly active in seeking out sick babies; also by the particularly bad character of the neighborhood in which at least two of the stations (East 5th Street and Leroy Street) were situated. Although many of these babies were seen only once and cannot be fairly charged against the station, the Committee adopted the policy of accepting the responsibility for the death of every baby enrolled, even if seen only once, in order to avoid criticism, and it stands on these records as given.

The West Side figures show the great need of stations in this part of the city. The areas of intensely congested population are more scattered; there is not the long stretch that is seen on the East Side, and this part of the city has been neglected. In only 4 of the 23 East Side station areas does the death-rate equal or exceed the lowest one on the West Side. In 4 of the West Side districts the rates are higher than those of the worst East Side district.

Some of the figures are very striking. In the Washington Street district, among the Syrian population, the death-rate in 1910 was 148.5, and fell in 1911 to 99.1, a net difference of 49.4. This little strip of densely populated territory extends from Battery Place to Cedar Street, from West Side to Greenwich. The people rarely speak English, and an interpreter was needed almost all the time. Two hundred and forty-two babies were born in the year, and the enrolment was 121, or exactly 50 per cent., while the station death-rate was 41.3, or 41.6 per cent. of the district mortality.

Table 29, while not strictly accurate, is suggestive for purposes of comparison. If the enrolment be deducted from the district births, and the station deaths from the district deaths, the comparison is even more striking.

This is not strictly accurate, because the enrolment was not absolutely confined to the station area of influence. For instance, at the East 105th Street station several enrolled babies lived in the Bronx. The station where the figures did most closely correspond was probably Washington Street, which shows a mortality of 41.3 as against the "corrected" rate of 157 for the district.

Another suggestive table, again not strictly accurate for the same reason, but not more than 1 or 2 per cent. out, is Table 30, showing the percentage of births enrolled at the stations and the percentage of the district deaths among babies enrolled.

One of the objects of the demonstration carried on by the New York Milk Committee in coöperation with other organizations was to show that home modification was practicable among the very poor and ignorant, among whom the work was done. The Committee felt very strongly that not only was this a more practical way, because less expensive, but that it accomplished more in that it *taught* something.

TABLE 29.—STATISTICS FOR STATION AREAS, DEDUCTING STATION ENROLMENT FROM DISTRICT BIRTHS, AND STATION DEATHS FROM DISTRICT DEATHS, COMPARED WITH STATION FIGURES

	Station Districts			Stations		
	Deaths	Births	Rate	Deaths	Enrolment	Rate
1 E.	42	**987**	42.5	12	**256**	46.8
2 E.	11	**457**	24.0	0	**123**	0.0
3 E.	32	**1067**	29.9	2	**207**	9.6
4 and 21 E.	46	**1347**	34.1	6	**430**	13.9
5 E.	30	**857**	35.0	0	**155**	0.0
6 E.	39	**1046**	27.2	1	**153**	6.5
7 E.	22	**678**	32.4	7	**142**	49.3
8 E.	33	**753**	43.8	3	**158**	18.9
9 E.	29	**374**	77.5	5	**187**	26.7
10 E.	44	**581**	75.7	6	**205**	29.2
11 E.	69	**1364**	50.5	14	**299**	46.8
12 E.	65	**1273**	51.0	5	**283**	17.6
13 E.	13	**255**	50.9	1	**111**	9.0
14 E.	27	**377**	71.6	4	**176**	22.7
15 E.	30	**435**	68.9	9	**170**	52.9
16 E.	18	**336**	53.5	5	**135**	37.0
17 E.	15	**262**	57.2	6	**135**	44.4
18 E.	34	**516**	65.8	6	**267**	22.4
19 E.	76	**1433**	53.0	8	**198**	40.4
20 E.	8	**204**	39.2	2	**134**	14.9
22 E.	12	**265**	45.2	2	**101**	19.8
23 E.	25	**587**	42.5	0	**189**	0.0
Total East Side	720	**15454**	46.5	104	**4214**	24.6
1 W.	43	**625**	68.8	4	**236**	16.9
2 W.	22	**426**	51.6	10	**129**	77.5
3 W.	38	**407**	93.3	8	**117**	68.3
4 W.	94	**1211**	77.6	7	**198**	35.3
5 W.	23	**287**	80.1	2	**91**	21.9
6 W.	19	**121**	157.0	5	**121**	41.3
7 W.	42	**342**	122.8	2	**139**	14.3
8 W.	16	**231**	69.2	3	**134**	22.3
Total West Side	297	**3650**	81.3	41	**1165**	35.1
Summary						
East Side	720	**15454**	46.5	104	**4214**	24.6
West Side	297	**3650**	81.3	41	**1165**	35.1
Total	1017	**19104**	53.2	145	**5379**	26.9

With this point in view, careful records were kept of each case, and from the individual records the following tables (Tables 31 to 42) have been compiled, showing in some detail the feeding history of 3182 babies. The period of observation extended from June 1st to September 15th. The latter date was selected in order that something definite might be compiled for the Board of Estimate and Apportionment. If the full time—June 1st to November 1st—could have been utilized for these records, the results might have been even better, as many babies were recorded as well at the end who showed no gain in weight.

TABLE 30.—RELATION OF ENROLMENT AT STATION TO BIRTHS IN DISTRICT AND STATION DEATHS TO DISTRICT DEATHS

Station Districts	Percentage of Births Enrolled	Percentage of District Deaths Among Enrolled
East Side		
1	20.5	22.2
2	21.2	0.0
3	16.2	5.8
4 and 21	24.2	11.5
5	15.3	0.0
6	12.7	2.5
7	17.3	24.1
8	17.3	8.3
9	33.3	14.7
10	26.0	12.0
11	17.9	16.8
12	18.1	7.1
13	30.3	6.8
14	31.8	12.9
15	28.0	23.0
16	28.6	21.7
17	34.0	28.5
18	34.0	15.0
19	12.1	9.5
20	39.6	20.0
22	27.5	14.2
23	24.3	0.0
	21.4	12.6
West Side		
1	27.4	8.5
2	23.2	31.2
3	22.3	17.3
4	14.0	6.9
5	24.0	8.0
6	50.0	20.8
7	28.9	4.5
8	36.7	15.7
	24.2	12.1
Grand Total	21.9	12.4

With reference to the condition of "well" or "sick" at the close of the period, the criticism may be made that overenthusiasm of the physicians and nurses may have made the well too many, and the sick too few. This criticism cannot be disproved, but even leaving out of all consideration the statement of "well" or "sick," the *weights*, which show pretty conclusively the success or failure of feeding, cannot be questioned. They must be regarded as accurate and as free from error due to the personal equation.

In considering the following tables, noting the "condition at close," it must be remembered that the period of observation was short,—an average of six weeks,—and many babies classed as well did not have a chance to gain in weight. Every baby enrolled more than a week is included in this record. Fatal cases are included in the tables, although no data are given. These cases are considered in detail elsewhere. As no babies who did not attend a week or over are included in the table, the number of deaths is only 74 instead of 119, as 45 babies were seen only once and immediately referred to a hospital or private physician, or else the mother refused to attend.

TABLE 31.—SHOWING FOR WELL BABIES, BREAST-FED ON ADMISSION AND THROUGHOUT PERIOD OF OBSERVATION, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight											Showing Loss in Weight										Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	90	89	5.37	8	10.29	11	0.64	2	6.35	..	**7.14**	89	..	1	3.00	7	4.00	5	6.00	1	14.00	..	**10.00**	1	..	..
2	144	139	4.84	9	15.16	11	9.79	1	10.63	..	**5.50**	135	4	4	2.50	10	3.25	9	3.75	..	15.50	..	**6.20**	4	..	1
3	74	73	5.41	11	4.90	13	3.05	1	14.15	..	**5.57**	71	2	..	..	..	..	..	..	..	..	..	..	..	..	1
4	67	66	5.86	12	11.52	14	4.21	1	8.69	..	**4.21**	66	..	1	1.00	11	2.00	9	8.00	1	10.00	**1**	**10.00**	1	..	..
5	58	57	5.60	13	10.21	15	3.35	1	9.14	..	**4.49**	57	..	1	1.00	15	8.00	14	15.00	..	9.00	..	**9.00**	1	..	1
6	45	42	5.64	14	11.59	15	14.95	1	3.36	..	**3.43**	42	..	2	4.00	12	13.50	12	12.00	..	1.50	..	**0.38**	1	1	..
7	41	37	4.16	15	11.54	16	14.43	1	2.89	..	**4.54**	35	2	4	4.25	15	7.75	14	10.75	..	13.00	..	**3.06**	2	2	..
8	37	32	6.03	16	7.56	17	9.62	1	2.06	..	**3.00**	32	..	5	1.60	18	6.80	17	11.00	..	11.80	..	**7.38**	4	1	..
9	18	15	4.87	17	7.80	18	8.20	1	0.40	..	**3.37**	14	1	3	3.33	18	2.33	17	12.00	..	6.33	..	**1.90**	3	..	..
10	24	18	4.50	16	12.06	17	8.78	..	12.72	..	**2.83**	18	..	6	4.33	20	0.33	19	9.00	..	7.33	..	**1.69**	6	..	..
11	10	9	5.00	19	3.66	19	13.55	..	9.89	..	**1.98**	8	1	1	1.00	20	12.00	20	2.00	..	0.10	..	**10.00**	1	..	..
12	12	8	5.38	17	12.13	18	7.38	..	11.25	..	**2.09**	8	..	4	3.50	19	10.00	18	12.75	..	13.25	..	**3.79**	3	1	..
13	5	5	4.60	15	9.20	17	3.60	1	10.40	..	**5.74**	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..
14	16	15	5.13	18	10.93	19	6.93	..	12.00	..	**2.34**	13	2	1	14.00	19	12.00	19	9.00	..	3.00	..	**0.21**	1	..	..
15	5	3	4.33	17	7.66	19	10.66	2	3.00	..	**8.08**	3	..	2	2.00	19	1.50	18	8.00	..	9.50	..	**4.75**	2	..	..
16	3	1	4.00	20	1.00	22	11.00	2	10.00	..	**10.50**	1	..	2	2.00	21	..	20	9.50	..	6.50	..	**3.25**	2	..	..
17	6	4	4.50	18	10.75	19	8.25	..	13.50	..	**3.00**	4	..	2	1.50	26	1.00	24	12.00	..	1.50	..	**1.00**	2	..	..
18	2	2	3.00	23	6.00	23	12.00	..	6.00	..	**2.00**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	2	1	4.00	21	7.00	23	9.00	..	2.02	..	**8.50**	1	..	1	3.00	19	9.00	19	..	..	9.00	..	**3.00**	1	..	..
20	2	2	5.00	21	11.50	22	6.00	..	10.50	..	**2.10**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	1	1	4.00	22	4.00	23	6.00	1	2.00	..	**4.50**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	2	2	4.00	21	1.50	22	5.00	1	3.50	..	**4.88**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	4	3	5.00	20	9.66	21	12.33	1	2.67	..	**3.73**	3	..	1	7.00	23	14.00	23	1.00	..	13.00	..	**1.86**	1	..	..
Total ...	668	624	5.22	12	11.68	14	5.03	1	9.35	..	**4.86**	611	13	41	3.27	17	10.44	16	15.07	..	11.37	..	**3.48**	36	5	3

TABLE 32.—SHOWING FOR WELL BABIES, BREAST-FED ON ADMISSION, LATER CHANGED TO MIXED FEEDING, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight										Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	18	15	6.00	7	13.07	9	2.40	1	5.33	..	**3.56**	13	2	3	3.00	8	2.33	7	15.66	..	2.66	..	**0.89**	3	..	..
2	15	15	6.00	10	0.13	11	10.80	1	10.67	..	**4.45**	12	3	..	..	..	..	..	..	..	..	..	..	..	..	..
3	14	13	5.23	9	5.77	10	14.23	1	8.46	..	**4.68**	11	2	1	4.00	9	11.00	9	8.00	..	3.00	..	**0.75**	1	..	..
4	16	15	6.07	10	12.73	12	5.53	1	8.80	..	**4.09**	15	..	1	8.00	12	..	11	5.00	..	11.00	..	**1.38**	..	1	..
5	18	15	6.06	11	13.93	13	8.06	1	10.13	..	**3.96**	14	1	3	2.33	13	14.00	13	8.33	..	5.67	..	**2.43**	3	..	..
6	18	16	6.63	14	11.00	16	0.25	1	5.25	..	**3.21**	16	..	2	2.00	12	11.00	12	8.00	..	3.00	..	**1.50**	2	..	..
7	9	8	7.75	14	14.88	16	2.13	1	3.25	..	**2.48**	8	..	1	6.00	16	2.00	14	14.00	1	4.00	..	**3.33**	1	..	..
8	9	9	7.00	16	3.22	17	3.11	..	15.89	..	**2.27**	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	8	7	6.43	16	4.57	17	8.86	1	4.29	..	**3.16**	6	1	1	6.00	18	..	17	3.00	..	13.00	..	**2.17**	1	..	..
10	8	7	7.43	17	12.14	18	13.85	1	1.71	..	**2.38**	6	1	1	7.00	14	..	13	3.00	..	13.00	..	**1.86**	1	..	..
11	7	6	3.66	17	1.83	17	13.00	..	11.17	..	**3.05**	6	..	1	2.00	16	11.00	16	6.00	..	5.00	..	**2.50**	1	..	..
12	9	8	7.75	18	4.75	19	6.50	1	1.75	..	**2.29**	8	..	1	1.00	17	4.00	16	9.00	..	11.00	..	**11.00**	..	1	..
13	2	..	..	..	..	..	..	..	..	..	..	..	..	2	4.00	17	12.50	17	4.00	..	8.50	..	**2.13**	1	1	..
14	4	4	7.50	17	6.75	18	0.25	..	9.50	..	**1.27**	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	2	2	4.50	19	5.00	20	1.00	..	12.00	..	**2.67**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	2	2	6.50	18	10.50	20	8.00	1	13.50	..	**4.54**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	1	1	5.00	18	8.00	19	..	..	8.00	..	**1.60**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	1	1	8.00	20	5.00	21	..	..	11.00	..	**1.38**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	2	2	8.00	16	15.50	17	6.00	..	6.50	..	**0.81**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	163	146	6.38	13	4.06	14	9.07	1	5.01	..	**3.29**	136	10	17	3.65	13	9.17	13	1.88	..	7.29	..	**2.00**	14	3	0

TABLE 33.—SHOWING FOR WELL BABIES, BREAST-FED ON ADMISSION, LATER CHANGED TO ARTIFICIAL FEEDING, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight										Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	8	8	8.25	7	2.00	9	1.13	1	15.13	..	**3.77**	7	1	..	..	..	..	..	..	..	..	..	..	..	..	..
2	3	2	9.00	9	5.50	11	14.50	2	9.00	..	**4.56**	2	..	1	1.00	10	8.00	10	4.00	..	4.00	..	**4.00**	1	..	..
3	5	5	7.60	10	11.60	12	8.20	1	12.60	..	**3.76**	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	7	7	5.86	11	12.14	14	2.71	2	6.57	..	**6.58**	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	3	3	8.00	13	3.67	15	2.00	1	14.33	..	**3.79**	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	6	6	7.50	13	14.00	14	12.67	0	14.67	..	**1.96**	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	3	3	10.00	13	5.67	15	9.00	2	3.33	..	**3.53**	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	3	2	9.00	14	15.50	17	1.00	2	1.50	..	**3.72**	1	1	1	6.00	13	10.00	13	8.00	..	2.00	..	**0.33**	1	..	..
9	6	5	4.00	17	0.40	17	5.60	..	5.20	..	**1.30**	5	..	1	6.00	14	7.00	14	4.00	..	3.00	..	**0.50**	1	..	..
10	9	8	7.50	17	11.75	18	8.13	..	12.38	..	**1.65**	8	..	1	2.00	19	..	18	7.00	..	9.00	..	**4.50**	1	..	..
11	1	1	6.00	19	6.00	20	5.00	..	15.00	..	**2.50**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	6	4	7.50	16	8.75	17	5.75	..	13.00	..	**1.73**	4	..	2	7.50	19	14.50	19	1.00	..	13.50	..	**1.80**	2	..	..
13	6	5	3.60	17	14.40	18	1.20	..	2.80	..	**0.78**	5	..	1	7.00	16	5.00	16	1.00	..	4.00	..	**0.57**	1	..	..
14	9	6	5.33	18	7.33	19	4.33	..	13.00	..	**2.44**	6	..	3	5.33	20	1.67	19	9.33	..	8.33	..	**1.56**	3	..	..
15	2	1	7.00	21	9.00	23	4.00	1	11.00	..	**3.86**	1	..	1	5.00	20	14.00	20	13.00	..	1.00	..	**0.20**	1	..	..
16	1	1	6.00	19	12.00	20	14.00	1	2.00	..	**3.00**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	2	1	6.00	25	4.00	26	9.00	1	5.00	..	**3.50**	1	..	1	7.00	19	3.00	18	8.00	..	11.00	..	**1.57**	1	..	..
19	2	2	6.00	21	4.50	22	7.00	1	2.50	..	**3.08**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	1	1	6.00	23	6.00	24	..	..	10.00	..	**1.67**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	2	2	5.50	20	7.50	21	..	..	8.50	..	**1.55**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	85	73	6.08	14	15.08	16	3.76	1	4.68	..	**3.40**	71	2	12	5.42	17	13.42	17	6.25	..	7.17	..	**1.32**	12	..	0

TABLE 34.—SHOWING FOR WELL BABIES, MIXED FED ON ADMISSION AND THROUGHOUT PERIOD OF OBSERVATION, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	34	30	7.13	8	2.40	10	4.27	2	1.87	..	**4.75**	30	..	2	3.50	9	5.00	9	1.00	..	4.00	..	**1.14**	1	1	2
2	55	49	8.49	9	7.33	12	1.27	2	9.94	..	**4.94**	47	2	4	3.50	11	11.00	11	2.75	..	8.25	..	**2.36**	1	3	2
3	31	30	5.87	10	2.90	12	3.03	2	0.13	..	**5.47**	30	..	1	3.00	10	4.00	9	14.00	..	6.00	..	**2.00**	1	..	..
4	35	33	8.24	11	12.61	13	7.24	1	10.63	..	**3.23**	32	1	1	7.00	13	8.00	13	7.00	..	1.00	..	**0.14**	1	..	1
5	19	17	8.88	13	0.70	14	12.23	1	11.53	..	**3.10**	16	1	1	1.00	14	4.00	13	8.00	..	12.00	..	**12.00**	1	..	1
6	23	19	8.26	13	11.00	15	8.05	1	13.05	..	**3.52**	19	..	4	4.25	14	4.50	13	11.25	..	9.25	..	**2.18**	3	1	..
7	29	24	8.92	15	15.67	17	12.13	1	12.46	..	**3.19**	24	..	3	3.00	13	8.66	13	1.33	..	7.33	..	**2.44**	3	..	1
8	22	21	6.05	15	9.14	16	10.81	1	1.67	..	**2.92**	21	..	1	7.00	16	14.00	16	12.00	..	2.00	..	**0.29**	1	..	..
9	26	23	5.00	16	14.52	17	14.56	1	1.04	..	**3.41**	21	2	3	2.00	19	..	18	11.67	..	4.33	..	**2.17**	3	..	..
10	26	21	6.76	16	15.76	18	12.57	1	12.81	..	**4.26**	20	1	5	2.80	18	14.40	18	6.80	..	7.60	..	**2.71**	5	..	..
11	30	27	6.44	17	9.30	18	10.59	1	1.29	..	**2.68**	26	1	3	4.00	19	4.38	18	8.67	..	11.66	..	**2.92**	2	1	..
12	20	17	5.88	18	0.76	18	15.76	..	15.00	..	**2.55**	17	..	3	4.00	17	3.33	16	13.67	..	5.66	..	**1.42**	2	1	..
13	17	15	6.40	17	6.53	19	0.93	1	10.40	..	**4.13**	15	..	2	4.00	14	1.50	13	2.00	..	15.50	..	**3.88**	2	..	..
14	13	10	3.50	21	4.80	21	15.40	..	10.60	..	**3.03**	10	..	3	3.00	22	8.00	22	..	..	8.00	..	**2.67**	3	..	..
15	11	8	6.25	19	13.38	20	15.00	1	1.62	..	**2.82**	7	1	3	5.67	17	9.66	17	3.33	..	6.33	..	**1.12**	3	..	..
16	8	6	9.33	19	12.33	20	12.33	1	..	..	**1.71**	6	..	1	5.00	22	..	21	5.00	..	11.00	..	**2.20**	1	..	1
17	6	5	4.60	18	12.20	20	3.80	1	7.60	..	**5.13**	5	..	1	1.00	17	10.00	17	7.00	..	3.00	..	**3.00**	1	..	..
18	6	5	4.20	18	7.60	19	3.80	..	12.20	..	**2.90**	5	..	1	7.00	26	8.00	26	4.00	..	4.00	..	**0.57**	1	..	..
19	3	1	1.00	21	8.00	21	14.00	..	6.00	..	**6.00**	1	..	2	1.50	17	15.50	17	10.00	..	5.50	..	**3.67**	1	1	..
20	5	3	6.33	17	11.67	20	4.33	2	8.66	..	**6.42**	3	..	2	3.50	25	2.50	24	10.50	..	8.00	..	**2.28**	2	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	1	1	7.00	23	14.00	24	10.00	..	12.00	..	**1.71**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	8	6	4.17	22	12.67	23	12.67	1	..	..	**3.84**	5	1	2	1.50	25	7.50	24	15.00	..	8.50	..	**5.67**	1	1	..
TOTAL ...	428	371	6.98	14	4.34	15	14.92	1	10.58	..	**3.81**	361	10	48	3.52	17	4.92	16	13.42	..	7.50	..	**2.13**	39	9	8

TABLE 35.—SHOWING FOR WELL BABIES, MIXED FED ON ADMISSION, LATER CHANGED TO ARTIFICIAL FEEDING, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	2	1	5.00	10	3.00	12	1.00	1	14.00	..	**6.00**	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
2	4	2	11.50	11	1.50	13	9.00	2	7.50	..	**3.43**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	2	2	4.50	9	5.50	9	6.50	..	1.00	..	**0.22**	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
4	3	3	10.00	11	10.33	14	9.00	2	14.67	..	**4.67**	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
7	2	2	11.00	14	7.50	15	1.00	..	9.50	..	**0.86**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	2	2	10.00	15	10.00	18	2.50	2	8.50	..	**4.05**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	1	1	8.00	16	10.00	16	11.00	..	1.00	..	**0.13**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	3	2	7.00	16	12.50	18	10.50	1	14.00	..	**4.29**	2	..	1	12.00	17	13.00	17	12.00	..	1.00	..	**0.08**	1	..	..
11	6	5	8.20	16	4.20	16	12.80	..	8.60	..	**1.05**	5	..	1	3.00	18	6.00	17	5.00	1	1.00	..	**5.67**	1	..	..
12	2	1	1.00	15	5.00	16	9.00	1	4.00	**1**	**4.00**	1	..	1	8.00	18	7.00	17	13.00	..	10.00	..	**1.25**	1	..	..
13	2	1	2.00	22	6.00	23	..	..	10.00	..	**5.00**	1	..	1	4.00	17	5.00	17	2.00	..	3.00	..	**0.75**	1	..	..
14	2	2	6.50	18	12.00	21	0.50	2	4.50	..	**5.62**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	4	4	6.50	19	0.50	20	1.75	1	1.25	..	**2.65**	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	2	2	9.50	18	2.50	19	3.50	1	1.00	..	**1.79**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	1	..	..	..	..	..	..	..	..	..	..	..	..	1	6.00	20	12.00	20	8.00	..	4.00	..	**0.67**	1	..	..
18	1	1	6.00	22	..	22	9.00	..	9.00	..	**1.50**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	2	1	3.00	20	12.00	23	..	2	4.00	..	**12.00**	1	..	1	11.00	20	13.00	20	10.00	..	3.00	..	**0.27**	..	1	..
21	1	1	6.00	20	3.00	27	12.00	7	9.00	**1**	**4.17**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	2	1	10.00	18	..	18	10.00	..	10.00	..	**1.00**	1	..	1	3.00	17	8.00	17	..	..	8.00	..	**2.67**	1	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	45	34	7.59	16	1.06	17	9.68	1	8.62	..	**3.24**	32	2	7	6.71	18	11.43	18	4.86	..	6.57	..	**0.98**	6	1	4

TABLE 36.—SHOWING FOR WELL BABIES, ARTIFICIALLY FED ON ADMISSION AND THROUGHOUT PERIOD OF OBSERVATION, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	32	25	6.84	8	14.44	10	10.12	1	11.68	..	**4.05**	25	..	6	4.17	9	12.33	9	4.50	..	7.83	..	**1.88**	5	1	1
2	38	29	6.59	11	15.72	13	14.55	1	14.83	..	**4.68**	29	..	7	2.14	9	8.57	9	2.28	..	6.29	..	**2.94**	5	2	2
3	30	28	6.68	10	5.46	12	0.96	1	11.50	..	**4.12**	28	..	2	8.00	11	14.00	11	11.00	..	3.00	..	**0.38**	2	..	..
4	40	34	7.68	11	12.41	13	13.29	2	0.88	..	**4.28**	34	..	5	4.60	13	10.60	12	15.60	..	11.00	..	**2.39**	5	..	1
5	36	34	7.94	12	15.88	14	9.79	1	9.91	..	**3.26**	33	1	2	8.50	13	9.00	13	6.00	..	3.00	..	**0.35**	2	..	..
6	49	39	8.23	13	6.08	14	15.67	1	9.59	..	**3.11**	39	..	9	4.22	13	5.50	13	0.78	..	4.78	..	**1.13**	9	..	1
7	49	42	6.93	13	13.40	15	7.92	1	10.52	..	**3.83**	42	..	7	4.00	14	0.57	13	9.57	..	7.00	..	**1.75**	6	1	..
8	41	36	7.50	14	13.28	16	3.67	1	6.39	..	**2.99**	36	..	4	7.00	16	2.50	15	0.25		2.25	..	**2.61**	3	1	1
9	41	35	6.20	16	2.80	17	8.88	1	6.08	..	**3.56**	34	1	6	4.17	17	11.83	17	1.50	..	10.33	..	**2.48**	5	1	..
10	40	33	6.82	16	1.73	17	3.91	1	2.18	..	**2.67**	32	1	5	7.00	15	11.20	15	6.00	..	5.20	..	**0.74**	5	..	2
11	55	47	7.00	16	14.45	18	3.26	1	4.81	..	**2.97**	47	..	8	7.25	16	8.50	15	7.50	1	1.00	..	**2.34**	8	..	..
12	41	32	7.22	16	12.22	18	4.59	1	8.37	..	**3.38**	31	1	9	4.56	19	3.11	17	14.00	1	5.11	..	**4.63**	9	..	..
13	45	37	6.08	17	3.59	18	5.75	1	2.16	..	**2.99**	36	1	7	5.14	17	6.86	16	9.43	..	13.43	..	**2.61**	7	..	1
14	76	62	6.47	18	0.23	19	12.24	1	12.01	..	**4.33**	61	1	14	6.79	19	10.57	18	12.00	..	14.57	..	**2.15**	12	2	..
15	39	33	6.76	21	4.82	22	6.78	1	1.96	..	**2.66**	28	5	5	5.20	18	8.80	18	..	..	8.80	..	**1.69**	5	..	1
16	45	35	5.57	19	11.89	20	11.63	..	15.74	..	**2.83**	34	1	10	5.20	19	9.60	18	11.70	..	13.90	..	**2.67**	10	..	..
17	47	41	6.85	19	15.10	20	14.98	..	15.88	..	**2.32**	40	1	5	3.40	20	10.40	20	2.80	..	7.60	..	**2.24**	5	..	1
18	37	31	6.52	21	3.16	22	3.61	1	0.45	..	**2.52**	29	2	5	3.20	20	9.80	20	0.40	..	9.40	..	**2.94**	5	..	1
19	37	31	6.03	21	2.19	22	2.22	1	0.03	..	**2.66**	30	1	6	4.00	22	0.16	21	6.33	..	9.83	..	**2.46**	5	1	..
20	46	37	6.59	21	12.89	22	12.29	..	15.40	..	**2.34**	37	..	9	4.33	21	5.56	20	15.89	..	5.67	..	**1.31**	9	..	..
21	27	23	5.96	20	0.96	21	3.30	1	2.34	..	**3.08**	22	1	4	5.75	22	..	21	6.75	..	9.25	..	**1.61**	4	..	..
22	27	25	6.20	21	13.52	23	5.56	1	8.04	..	**3.88**	24	1	2	2.50	20	6.00	19	8.00	..	14.00	..	**5.60**	1	1	..
23	62	55	4.73	23	1.13	23	15.45	..	14.32	..	**3.03**	55	..	7	4.00	22	1.00	21	12.29	..	4.71	..	**1.18**	7	..	..
Total ...	980	824	6.64	17	2.34	18	8.18	1	5.84	..	**3.29**	806	18	144	4.93	17	7.68	16	13.19	..	10.49	..	**2.13**	134	10	12

TABLE 39.—SHOWING FOR SICK BABIES, BREAST-FED ON ADMISSION, LATER CHANGED TO ARTIFICIAL FEEDING, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight										Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	3	3	13.00	9	1.33	10	11.33	1	10.00	..	**2.00**	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
2	4	4	4.50	6	0.50	7	15.00	1	14.50	..	**6.78**	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	3	3	5.33	6	14.33	7	8.66	..	10.33	..	**1.94**	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
5	1	1	5.00	9	9.00	9	15.00	..	6.00	..	**1.20**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	1	1	6.00	13	2.00	14	7.00	1	5.00	..	**3.50**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	1	..	..	..	..	..	..	..	..	..	..	..	..	1	3	14	8.00	13	13.00	..	11.00	..	**3.67**	..	1	..
11	3	2	8.00	11	15.00	14	15.00	3	..	..	**6.00**	2	..	1	5	17	..	15	9.00	1	7.00	..	**4.60**	1	..	..
12	1	1	9.00	11	3.00	12	4.00	1	1.00	..	**1.89**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	1	1	8.00	15	6.00	17	..	1	10.00	..	**3.25**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	1	1	3.00	19	8.00	20	..	..	8.00	..	**2.67**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	19	17	7.06	9	11.00	11	2.82	1	7.82	..	**3.37**	13	4	2	4	15	12.00	14	11.00	1	1.00	..	**4.25**	1	1	0

TABLE 40.—SHOWING FOR SICK BABIES, MIXED FED ON ADMISSION AND THROUGHOUT PERIOD OF OBSERVATION, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	11	7	4.43	6	7.29	7	1.71	..	10.43	..	**2.35**	2	5	1	5.00	6	8.00	6	5.00	..	3.00	..	**0.60**	..	1	3
2	20	13	8.00	9	3.23	11	0.46	1	13.23	..	**3.65**	4	9	3	6.33	8	13.67	7	11.67	1	2.00	..	**2.84**	1	2	4
3	14	12	6.75	11	3.92	13	14.50	2	10.58	..	**6.31**	9	3	2	6.00	10	1.50	9	9.50	..	8.00	..	**1.33**	1	1	..
4	12	9	8.00	11	10.89	13	5.33	1	10.44	..	**3.31**	4	5	1	2.00	9	7.00	9	6.00	..	1.00	..	**0.50**	..	1	2
5	11	9	7.22	10	0.11	11	3.44	1	3.33	..	**2.68**	5	4	2	2.00	11	12.50	11	9.50	..	3.00	..	**1.50**	..	2	..
6	7	6	6.17	12	2.67	13	8.67	1	6.00	..	**3.57**	3	3	1	8.00	9	15.00	9	4.00	..	11.00	..	**1.38**	..	0	..
7	9	6	10.33	10	5.17	12	7.67	2	2.50	..	**3.34**	5	1	2	7.00	11	15.50	10	7.50	1	8.00	..	**3.43**	..	2	1
8	3	2	5.50	16	5.00	17	0.50	..	11.50	..	**2.09**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1
9	10	8	6.63	14	2.88	16	0.88	1	14.00	..	**4.52**	3	5	2	4.00	14	15.50	14	11.00	..	4.50	..	**1.13**	1	1	..
10	4	4	3.50	15	4.50	16	1.50	..	13.00	..	**3.71**	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..
11	7	5	3.60	14	1.60	15	1.20	..	15.60	..	**4.33**	1	4	2	4.50	15	15.00	15	7.50	..	7.50	..	**1.67**	1	1	..
12	8	6	7.50	15	13.67	17	2.67	1	5.00	..	**2.80**	5	1	2	2.00	16	5.50	16	2.00	..	3.50	..	**1.75**	..	2	..
13	9	7	3.86	16	9.86	17	10.57	1	0.71	..	**4.33**	1	6	2	3.00	17	2.50	16	6.00	..	12.50	..	**4.17**	1	1	..
14	10	8	5.75	15	3.63	16	4.63	1	1.00	..	**2.96**	2	6	2	5.00	18	6.00	17	7.50	..	14.50	..	**2.90**	..	2	..
15	8	7	5.00	16	3.86	17	10.71	1	6.85	..	**4.57**	..	7	1	1.00	18	4.00	18	1.00	..	3.00	..	**3.00**	..	1	..
16	6	3	3.67	16	6.33	17	2.66	..	12.33	..	**3.36**	..	3	3	3.33	22	15.67	22	6.67	..	9.00	..	**2.70**	..	3	..
17	4	2	13.00	17	4.50	19	8.50	2	4.00	..	**2.77**	2	..	2	4.50	18	0.50	17	13.50	..	3.00	..	**0.67**	..	2	..
18	4	3	6.00	19	9.00	20	6.00	..	13.00	..	**2.17**	1	2	1	3.00	20	1.00	20	..	..	1.00	..	**0.33**	..	1	..
19	3	1	2.00	15	..	16	8.00	1	8.00	..	**12.00**	..	1	2	5.00	20	..	19	4.50	..	11.50	..	**2.30**	..	2	..
20	1	1	8.00	15	9.00	16	10.00	1	1.00	..	**2.13**	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	1	1	7.00	18	2.00	18	13.00	..	11.00	..	**1.57**	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
23	6	6	5.17	23	0.67	23	14.00	..	13.33	..	**2.58**	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	168	126	6.38	13	5.83	14	13.06	1	7.23	..	**3.64**	55	71	31	4.32	15	2.06	14	8.90	..	9.16	..	**2.12**	5	26	11

TABLE 41.—SHOWING FOR SICK BABIES, MIXED FED ON ADMISSION, LATER CHANGED TO ARTIFICIAL FEEDING, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight										Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	4	3	5.33	9	8.67	10	12.00	1	3.33	..	**3.63**	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	1	1	3.00	11	..	11	7.00	..	7.00	..	**2.33**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	1	1	12.00	13	9.00	15	2.00	1	9.00	..	**2.08**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	1	1	10.00	11	15.00	12	11.00	..	12.00	..	**1.20**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	1	1	12.00	10	6.00	18	8.00	8	2.00	..	**10.83**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	2	2	7.50	16	6.50	17	12.00	1	5.50	..	**2.87**	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
13	2	2	9.00	14	7.00	16	7.00	2	..	..	**3.56**	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
14	3	1	4.00	16	10.00	17	15.00	1	15.00	..	**7.75**	1	..	2	5.00	19	6.00	18	15.00	..	6.50	..	**1.30**	..	2	..
15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	5	4	5.25	17	14.25	18	13.50	..	15.25	..	**2.90**	2	2	1	2.00	21	2.00	19	10.00	1	8.00	..	**12.00**	1	..	..
17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	1	1	5.00	21	..	21	7.00	..	7.00	..	**1.40**	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ...	22	17	6.82	14	7.88	16	1.06	1	9.18	..	**3.69**	14	3	3	4.00	19	15.33	19	3.00	..	12.33	..	**3.08**	1	2	2

TABLE 42.—SHOWING FOR SICK BABIES, ARTIFICIALLY FED ON ADMISSION AND THROUGHOUT PERIOD OF OBSERVATION, GAIN OR LOSS IN WEIGHT FOR EACH AGE GROUP, AND CONDITION AT CLOSE OF PERIOD OF OBSERVATION. PERIOD JUNE 1 TO SEPTEMBER 15, 1911

Age by Months	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
1	9	4	7.50	7	13.75	10	12.50	2	14.75	..	**6.23**	2	2	2	5.00	9	..	8	11.00	..	5.00	..	**1.00**	1	1	3
2	23	16	6.75	10	12.50	12	5.00	1	8.50	..	**3.63**	11	5	3	5.00	9	4.67	8	5.67	..	15.00	..	**3.00**	..	3	4
3	24	17	6.41	8	11.00	10	7.71	1	12.71	..	**4.48**	10	7	2	2.50	12	1.00	11	10.50	..	6.50	..	**2.60**	..	2	5
4	27	17	8.88	9	15.59	12	6.23	2	6.64	..	**4.35**	16	1	6	3.67	9	8.33	9	1.50	..	6.83	..	**1.86**	2	4	4
5	33	24	6.42	9	14.00	11	4.00	1	6.00	..	**3.43**	16	8	7	3.71	12	9.28	12	2.71	..	6.57	..	**1.77**	1	6	2
6	32	24	6.67	10	7.17	12	3.87	1	12.70	..	**4.30**	13	11	5	3.20	12	1.00	11	0.80	1	0.20	..	**5.06**	..	5	3
7	37	28	6.36	11	15.50	13	13.89	1	14.39	..	**4.78**	14	14	5	8.80	11	11.40	11	3.60	..	7.80	..	**0.89**	..	5	4
8	21	16	6.63	12	11.88	14	10.63	1	14.75	..	**4.64**	8	8	4	7.00	14	7.75	13	9.75	..	14.00	..	**2.00**	1	3	1
9	27	18	5.89	13	11.72	15	5.88	1	10.16	..	**4.44**	11	7	7	4.14	13	7.29	13	0.86	..	6.43	..	**1.55**	1	6	2
10	27	19	5.32	15	2.89	15	13.89	..	11.00	..	**2.07**	16	3	6	4.17	12	7.50	12	0.17	..	7.33	..	**1.76**	3	3	2
11	24	17	8.00	14	5.24	15	12.47	1	7.23	..	**2.90**	13	4	6	5.00	16	7.67	15	8.17	..	15.50	..	**3.10**	2	4	1
12	13	9	6.33	16	3.22	17	10.44	1	7.22	..	**3.67**	6	3	4	2.75	17	9.25	17	2.25	..	7.00	..	**2.54**	1	3	..
13	16	13	6.23	14	14.00	16	11.30	1	13.30	..	**4.70**	8	5	3	4.00	17	2.66	16	0.33	1	2.33	..	**4.58**	1	2	..
14	25	24	6.63	16	12.29	18	3.62	1	7.33	..	**3.52**	17	7	1	11.00	18	6.00	17	5.00	1	1.00	..	**1.55**	..	1	..
15	16	14	4.93	16	10.71	17	7.85	..	13.14	..	**2.67**	6	8	2	2.50	16	11.00	15	10.00	1	1.00	..	**6.80**	..	2	..
16	23	18	5.55	17	7.56	18	8.67	1	1.11	..	**3.08**	13	5	4	4.25	21	5.75	18	15.75	2	6.00	..	**8.94**	..	4	1
17	15	12	6.83	19	14.33	21	5.91	1	7.58	..	**3.45**	6	6	3	3.33	22	15.33	22	7.66	..	7.67	..	**2.30**	2	1	..
18	14	11	4.82	18	11.73	20	5.63	1	9.90	..	**5.37**	8	3	3	2.33	20	11.00	20	4.67	..	6.33	..	**2.72**	..	3	..
19	14	13	6.15	19	5.54	20	14.23	1	8.69	..	**4.01**	11	2	1	1.00	18	13.00	18	6.00	..	7.00	..	**7.00**	..	1	..
20	21	17	5.35	19	11.94	20	12.70	1	0.76	..	**3.13**	8	9	4	5.00	20	5.00	19	14.75	..	6.25	..	**1.25**	2	2	..
21	7	5	3.60	17	10.60	18	9.60	..	15.00	..	**4.17**	1	4	2	4.00	23	4.50	22	10.00	..	10.50	..	**2.63**	..	2	..
22	10	9	6.00	21	7.00	22	15.89	1	8.89	..	**4.15**	9	..	1	4.00	21	2.00	21	..	..	2.00	..	**0.50**	..	1	..
23	20	15	5.13	20	11.73	21	10.53	..	14.80	..	**2.88**	9	6	5	4.40	20	2.60	19	10.40	..	8.20	..	**1.86**	1	4	..
Total ...	478	360	6.28	14	8.92	16	1.08	1	8.16	..	**3.85**	232	128	86	4.40	15	5.28	14	10.38	..	10.90	..	**2.48**	18	68	32

TABLE 43.—SUMMARY.

Condition at Entrance and Feeding	Number of Babies	Showing Gain in Weight												Showing Loss in Weight												Died
		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Gain Per Case		Av. Gain Per Wk.		Condition at Close		Number of Cases	Av. Wks. Observed	Av. Wt. at Entrance		Av. Wt. at Close		Av. Loss Per Case		Av. Loss Per Wk.		Condition at Close		
				Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick			Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Lbs.	Ozs.	Well	Sick	
Well babies breast-fed. No change in feeding	668	624	5.22	12	11.68	14	5.03	1	9.35	..	**4.86**	611	13	41	3.27	17	10.44	16	15.07	..	11.37	..	**3.48**	36	5	3
Well babies breast-fed. Changed to mixed feeding	163	146	6.38	13	4.06	14	9.07	1	5.01	..	**3.29**	136	10	17	3.65	13	9.17	13	1.88	..	7.29	..	**2.00**	14	3	0
Well babies breast-fed. Changed to artificial feeding	85	73	6.08	14	15.08	16	3.76	1	4.68	..	**3.40**	71	2	12	5.42	17	13.42	17	6.25	..	7.17	..	**1.32**	12	..	0
Well babies mixed fed. No change in feeding	428	371	6.98	14	4.34	15	14.92	1	10.58	..	**3.81**	361	10	48	3.52	17	4.92	16	13.42	..	7.50	..	**2.13**	39	9	8
Well babies mixed fed. Changed to artificial feeding	45	34	7.59	16	1.06	17	9.68	1	8.62	..	**3.11**	32	2	7	6.71	18	11.43	18	4.86	..	6.57	..	**0.98**	6	1	4
Well babies artificially fed. No change in feeding	980	824	6.64	17	2.34	18	8.18	1	5.84	..	**3.29**	806	18	144	4.93	17	7.68	16	13.19	..	10.49	..	**2.13**	134	10	12
Total for Well Babies	2369	2072	6.28	14	14.91	16	16.60	1	7.69	..	**3.77**	2017	55	269	4.41	17	4.43	16	10.79	..	9.64	..	**2.19**	241	28	27
Sick babies breast-fed. No change in feeding	100	80	5.04	13	6.13	14	14.30	1	8.19	..	**4.80**	46	34	18	3.39	15	8.94	14	14.22	..	10.72	..	**3.19**	6	12	2
Sick babies breast-fed. Changed to mixed feeding	27	25	6.04	12	15.20	14	3.72	1	4.52	..	**3.40**	17	8	2	5.50	16	6.50	16	4.50	..	2.00	..	**0.36**	..	2	0
Sick babies breast-fed. Changed to artificial feeding	19	17	7.06	9	11.00	11	2.82	1	7.82	..	**3.37**	13	4	2	4.00	15	12.00	14	11.00	1	1.00	..	**4.25**	1	1	0
Sick babies mixed fed. No change in feeding	168	126	6.38	13	5.83	14	13.06	1	7.23	..	**3.64**	55	71	31	4.32	15	2.06	14	8.90	..	9.16	..	**2.12**	5	26	11
Sick babies mixed fed. Changed to artificial feeding	22	17	6.82	14	7.88	16	1.06	1	9.18	..	**3.69**	14	3	3	4.00	19	15.33	19	3.00	..	12.33	..	**3.08**	1	2	2
Sick babies artificially fed. No change in feeding	478	360	6.28	14	8.92	16	1.08	1	8.16	..	**3.85**	232	128	86	4.40	15	5.28	14	10.38	..	10.90	..	**2.48**	18	68	32
Total for Sick Babies	814	625	6.17	13	15.49	15	7.34	1	7.85	..	**3.87**	377	248	142	4.25	15	6.94	14	12.46	..	10.48	..	**2.47**	31	111	47
Total Well and Sick Babies	3182	2697	6.25	14	11.34	16	3.06	1	7.72	..	**3.80**	2394	303	411	4.36	16	10.24	16	0.31	..	9.93	..	**2.28**	272	139	74
Total and Averages Well and Sick: Gain and loss	3182	3108	6.00	14	15.43	16	2.70	1	3.27	..	**3.21**	2666	442	..	..	..	..	..	..	..	..	..	..	..	..	74

TABLE 44.—SUMMARY.—RESULTS OF FEEDING OF 3182 BABIES UNDER TWO YEARS OF AGE AS TO GAIN OR LOSS IN WEIGHT AND DEATH AT END OF PERIOD

	Well Babies. Condition at Close							Sick Babies. Condition at Close							All Babies. Condition at Close						
Age	Total	Gain	Per Cent.	Loss	Per Cent.	Died	Per Cent.	Total	Gain	Per Cent.	Loss	Per Cent.	Died	Per Cent.	Total	Gain	Per Cent.	Loss	Per Cent.	Died	Per Cent.
1	184	168	91.3	12	6.5	4	2.2	39	30	76.9	3	7.7	6	15.4	223	198	88.8	15	6.7	10	4.5
2	259	236	91.1	16	6.2	7	2.7	58	42	72.4	7	12.1	9	15.5	317	278	87.7	23	7.3	16	5.0
3	156	151	96.8	4	2.6	1	0.6	54	42	77.8	6	11.1	6	11.1	210	193	91.9	10	4.8	7	3.3
4	168	158	94.1	8	4.7	2	1.2	51	37	72.5	8	15.7	6	11.8	219	195	89.0	16	7.3	8	3.7
5	134	126	94.0	7	5.2	1	0.8	55	43	78.2	10	18.2	2	3.6	189	169	89.4	17	9.0	3	1.6
6	142	122	85.9	17	12.0	3	2.1	50	40	80.0	6	12.0	4	8.0	192	162	84.4	23	12.0	7	3.6
7	132	116	87.9	15	11.3	1	0.8	55	42	76.4	8	14.5	5	9.1	187	158	84.5	23	12.3	6	3.2
8	114	102	89.5	11	9.6	1	0.9	33	24	72.7	7	21.2	2	5.1	147	126	85.7	18	12.2	3	2.1
9	100	86	86.0	14	14.0	..	..	49	37	75.5	9	18.4	3	6.1	149	123	82.5	23	15.4	3	2.1
10	110	89	80.9	19	17.3	2	1.8	38	29	76.3	7	18.4	2	5.3	148	118	79.7	26	17.6	4	2.7
11	109	95	87.2	14	12.8	..	..	42	29	69.0	12	28.6	1	2.4	151	124	82.1	26	17.2	1	0.7
12	90	70	77.8	20	22.2	..	..	25	18	72.0	7	28.0	..	..	115	88	76.5	27	23.5	..	..
13	77	63	81.8	13	16.9	1	1.3	30	23	76.7	7	23.3	..	..	107	86	80.4	20	18.7	1	0.9
14	120	99	82.5	21	17.5	..	..	41	36	87.8	5	12.2	..	..	161	135	83.9	26	16.1	..	..
15	63	51	80.9	11	17.5	1	1.6	26	22	34.6	4	15.4	..	..	89	73	82.0	15	16.9	1	1.1
16	61	47	77.0	13	21.3	1	1.7	36	27	75.0	8	22.2	1	2.8	97	74	76.3	21	21.6	2	2.1
17	60	50	83.3	9	15.0	1	1.7	21	16	76.2	5	23.8	..	..	81	66	81.5	14	17.3	1	1.2
18	49	41	83.7	7	14.3	1	2.0	23	17	73.9	6	26.1	..	..	72	58	80.5	13	18.1	1	1.4
19	45	36	80.0	9	20.0	..	..	18	14	77.8	4	22.2	..	..	63	50	79.4	13	20.6	..	..
20	58	46	79.3	12	20.7	..	..	23	19	82.6	4	17.4	..	..	81	65	80.3	16	19.7	..	..
21	29	25	86.2	4	13.8	..	..	8	6	75.0	2	25.0	..	..	37	31	84.8	6	16.2	..	..
22	32	29	90.6	3	9.4	..	..	11	10	90.9	1	9.1	..	..	43	39	90.7	4	9.3	..	..
23	76	66	86.8	10	13.2	..	..	28	22	78.6	6	21.4	..	..	104	88	84.6	16	15.4	..	..
Total	2368	2072	87.5	269	11.4	27	1.1	814	625	76.8	142	17.4	47	5.8	3182	2697	84.8	411	12.9	74	2.3

TABLE 45.—SUMMARY.—RESULTS OF FEEDING OF 3182 BABIES UNDER TWO YEARS OF AGE AS TO WELL, SICK, OR DEAD AT END OF PERIOD

	Well Babies. Condition at Close							Sick Babies. Condition at Close							All Babies. Condition at Close						
Age	Total	Well	Per Cent.	Sick	Per Cent.	Died	Per Cent.	Total	Well	Per Cent.	Sick	Per Cent.	Died	Per Cent.	Total	Well	Per Cent.	Sick	Per Cent.	Died	Per Cent.
1	184	174	94.6	6	3.2	4	2.2	39	21	53.8	12	30.8	6	15.4	223	195	87.4	18	8.1	10	4.5
2	259	238	91.9	14	5.4	7	2.7	58	24	41.4	25	43.1	9	15.5	317	262	82.7	39	12.3	16	5.0
3	156	150	96.2	5	3.2	1	0.6	54	25	46.3	23	42.6	6	11.1	210	175	83.4	28	13.3	7	3.3
4	168	164	97.6	2	1.2	2	1.2	51	28	54.9	17	33.3	6	11.8	219	192	87.7	19	8.6	8	3.7
5	134	130	97.0	3	2.2	1	0.8	55	30	54.6	23	41.8	2	3.6	189	160	84.6	26	13.8	3	1.6
6	142	137	96.5	2	1.4	3	2.1	50	23	46.0	23	46.0	4	8.0	192	160	83.3	25	13.1	7	3.6
7	132	126	95.5	5	3.7	1	0.8	55	24	43.6	26	47.3	5	9.1	187	150	80.2	31	16.6	6	3.2
8	114	110	96.5	3	2.6	1	0.9	33	16	48.5	15	46.4	2	5.1	147	126	85.7	18	12.2	3	2.1
9	100	94	94.0	6	6.0	..	0.0	49	23	46.9	23	46.9	3	6.2	149	117	78.5	29	19.4	3	2.1
10	110	105	95.5	3	2.7	2	1.8	38	25	65.8	11	28.9	2	5.3	148	130	87.8	14	9.5	4	2.7
11	109	106	97.2	3	2.8	..	..	42	23	54.8	18	42.8	1	2.4	151	129	85.4	21	13.9	1	0.7
12	90	86	95.5	4	4.5	..	..	25	15	60.0	10	40.0	..	..	115	101	87.8	14	12.2	..	..
13	77	73	94.8	3	3.9	1	1.3	30	15	50.0	15	50.0	..	..	107	88	82.3	18	16.8	1	0.9
14	120	115	95.8	5	4.2	..	..	41	22	53.6	19	46.4	..	..	161	137	85.1	24	14.9	..	..
15	63	56	88.9	6	9.5	1	1.6	26	7	26.9	19	73.1	..	..	89	63	70.8	25	28.1	1	1.1
16	61	59	96.7	1	1.7	1	1.7	36	17	47.2	18	50.0	1	2.8	97	76	78.3	19	19.6	2	2.1
17	60	58	96.7	1	1.7	1	1.7	21	11	52.4	10	47.6	..	..	81	69	85.2	11	13.6	1	1.2
18	49	46	93.9	2	4.1	1	2.0	23	11	47.8	12	52.2	..	..	72	57	79.2	14	19.4	1	1.4
19	45	42	93.3	3	6.7	..	..	18	12	66.7	6	33.3	..	..	63	54	85.7	9	14.3	..	..
20	58	57	98.3	1	1.7	..	..	23	11	47.8	12	52.2	..	..	81	68	83.9	13	16.1	..	..
21	29	28	96.5	1	3.5	..	..	8	2	25.0	6	75.0	..	..	37	30	81.1	7	18.9	..	..
22	32	30	93.7	2	6.3	..	..	11	9	81.8	2	18.2	..	..	43	39	90.7	4	9.3	..	..
23	76	74	97.4	2	2.6	..	..	28	14	50.0	14	50.0	..	..	104	88	84.6	16	15.4	..	..
Total	2368	2258	95.4	83	3.5	27	1.1	814	408	50.1	359	44.1	47	5.8	3182	2666	83.8	442	13.9	74	2.3

It is also to be remembered, in studying these tables, that the period of observation was during the hottest summer weather. The gain in weight is very striking. This is most marked among the breast-fed babies, as would be expected. It is also interesting to note the average weights of the babies under one year. In the group over one year it will be noted that they were practically all very much under normal weight when admitted, and that the gains were considerable.

Summary Tables 44 and 45 show the condition of babies at the close of the period of observation, grouped according to age, sick or well on admission, and total, expressed in gross and percentage figures.

As would be expected, the results for babies well on admission are much better than for sick babies. In the former group, 87.5 per cent. showed gain in weight, as against 76.8 per cent. in the latter, the average being 84.8 per cent. Again, 95.4 per cent. of the well babies were well at the close, 3.5 per cent. were sick, and 1.1 per cent. had died.

Of the sick babies, 50.1 per cent. were well, 44.1 per cent. were still sick, and only 5.8 per cent. had died. That over-optimism did not make the "well" too high may be gathered from the relation of gain in weight and "well" among the sick babies.

A more detailed discussion of the deaths will be given later on in this chapter.

The following table shows the condition of babies on admission, grouped according to feeding history, and further divided into groups of babies under one year and over one year of age.

TABLE 46.—SUMMARY OF FEEDING HISTORIES AND CONDITION ON ADMISSION

Feeding	Under One			Over One			Total		
	Well	Sick	Total	Well	Sick	Total	Well	Sick	Total
Breast	608	83	691	60	17	77	668	100	768
Breast to mixed	140	24	164	23	3	26	163	27	190
Breast to artificial	54	16	70	31	3	34	85	19	104
Total breast on admission	802	123	925	114	23	137	916	146	1062
Mixed	329	108	437	98	60	158	427	168	595
Mixed to artificial	26	9	35	19	13	32	45	22	67
Total mixed on admission	355	117	472	117	73	190	472	190	662
Artificial	451	284	735	529	194	723	980	478	1458
Total	1608	524	2132	760	290	1050	2368	814	3182

Of 3182 babies at end of period—

2697, or 84.87 per cent., showed gain in weight.
2666, or 83.8 per cent., were well.
74, or 2.3 per cent., had died.

Of 3182 babies on admission—

2368, or 74.4 per cent., were well.
814, or 25.6 per cent., were sick.

Of 2368 babies well on admission, at end of period—

2072, or 87.5 per cent., showed gain in weight.
2258, or 95.4 per cent., were well.
27, or 1.1 per cent., had died.

Of 814 babies sick on admission, at end of period—

625, or 76.8 per cent., showed gain in weight.
408, or 50.1 per cent., were well.
47, or 5.8 per cent., had died.

TABLE 47.—NUMBER OF BABIES GROUPED ACCORDING TO FEEDING HISTORY, NUMBER SICK AND WELL ON ADMISSION, AND PERCENTAGES OF TOTAL ENROLMENT FOR EACH GROUP AND CONDITION

	Breast-fed		Breast-fed to Mixed Fed		Breast-fed to Artificially Fed		Mixed Fed		Mixed Fed to Artificially Fed		Artificially Fed		Totals	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Well	668	21.0	163	5.1	85	2.7	427	13.4	45	1.4	980	30.8	2368	74.4
Sick	100	3.1	27	0.8	19	0.6	168	5.3	22	0.7	478	15.0	814	25.6
Total	768	24.1	190	5.9	104	3.3	595	18.7	67	2.1	1458	45.8	3182	99.9

TABLE 48.—FEEDING HISTORY AND PROPORTION OF EACH GROUP, SICK OR WELL ON ADMISSION

	Breast-fed		Breast-fed to Mixed Fed		Breast-fed to Artificially Fed		Mixed Fed		Mixed Fed to Artificially Fed		Artificially Fed		Totals	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent	No.	Per Cent.
Well	668	87.0	163	85.8	85	81.7	427	71.8	45	67.2	980	67.2	2368	74.4
Sick	100	13.0	27	14.2	19	18.3	168	28.2	22	32.8	478	32.8	814	25.6
Total	768	100.0	190	100.0	104	100.0	595	100.0	67	100.0	1458	100.0	3182	100.0

Nearly one-quarter of the entire enrolment, therefore, were breast-fed throughout, and 30 per cent. were entirely or partially nursed. The ratio of sick to well increases from breast-fed to mixed fed to artificially fed.

TABLE 49.—PROPORTION OF TOTAL BABIES BREAST-FED, MIXED FED, AND ARTIFICIALLY FED ON ADMISSION

Breast		Mixed		Artificial	
No.	Per cent.	No.	Per cent.	No.	Per cent.
1062	33.4	662	20.8	1458	45.8

Of 1062 babies breast-fed on admission—

768, or 72.3 per cent., were breast-fed throughout; at end of period—
704, or 91.7 per cent., showed gain in weight.
699, or 91.0 per cent., were well.
5, or 0.47 per cent., had died.

190, or 17.9 per cent., were changed to mixed feeding; at end of period—
171, or 90.0 per cent., showed gain in weight.
167, or 87.9 per cent., were well.
None had died.

104, or 9.8 per cent., were changed to artificial feeding; at end of period—
90, or 86.5 per cent., showed gain in weight.
97, or 93.3 per cent., were well.
None had died.

Of 662 babies mixed fed on admission—

595, or 89.9 per cent., were mixed fed throughout; at end of period—
497, or 83.5 per cent., showed gain in weight.
460, or 77.3 per cent., were well.
19, or 3.2 per cent., had died.

67, or 10.1 per cent., were changed to artificial feeding; at end of period—
51, or 76.1 per cent., showed gain in weight.
53, or 79.1 per cent., were well.
6, or 9.0 per cent., had died.

Of 1458 babies artificially fed on admission; at end of period—

1184, or 81.2 per cent., showed gain in weight.
1190, or 81.6 per cent., were well.
44, or 3.0 per cent., had died.

TABLE 50.—PROPORTION OF TOTAL BABIES WELL OR SICK ON ADMISSION ACCORDING TO FEEDING ON ADMISSION

	Breast-fed		Mixed Fed		Artificially Fed	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Well	916	86.3	472	71.3	980	67.2
Sick	146	13.7	190	28.7	478	32.8
Total	1062	100.0	662	100.0	1458	100.0

Of 916 babies well and breast-fed on admission—

668, or 72.9 per cent., were breast-fed throughout; at end of period—
624, or 93.4 per cent., showed gain in weight.
647, or 96.8 per cent., were well.
3, or 0.45 per cent., had died.

163, or 17.8 per cent., were changed to mixed feeding; at end of period—
146, or 89.6 per cent., showed gain in weight.
150, or 92.0 per cent., were well.
None had died.
85, or 9.3 per cent., were changed to artificial feeding; at end of period—
73, or 85.0 per cent., showed gain in weight.
83, or 97.6 per cent., were well.
None had died.

Of 472 babies well and mixed fed on admission—
427, or 90.5 per cent., were mixed fed throughout; at end of period—
371, or 86.9 per cent., showed gain in weight.
400, or 93.7 per cent., were well.
8, or 1.9 per cent., had died.
45, or 9.5 per cent., were changed to artificial feeding; at end of period—
34, or 75.5 per cent., showed gain in weight.
38, or 84.4 per cent., were well.
4, or 9.1 per cent., had died.

Of 980 babies well on admission and artificially fed throughout; at end of period—
824, or 84.1 per cent., showed gain in weight.
940, or 95.9 per cent., were well.
12, or 1.2 per cent., had died.

Of 146 babies sick and breast-fed on admission—
100, or 68.5 per cent., were breast-fed throughout; at end of period—
80, or 80 per cent., showed gain in weight.
52, or 52 per cent., were well.
2, or 2 per cent., had died.
27, or 18.5 per cent., were changed to mixed feeding; at end of period—
25, or 92.6 per cent., showed gain in weight.
17, or 63.0 per cent., were well.
None had died.
19, or 13 per cent., were changed to artificial feeding; at end of period—
17, or 89.5 per cent., showed gain in weight.
14, or 73.7 per cent., were well.
None had died.

Of 190 babies sick and mixed fed on admission—
168, or 88.4 per cent., were mixed fed throughout; at end of period—
126, or 75.0 per cent., showed gain in weight.
60, or 35.7 per cent., were well.
11, or 6.6 per cent., had died.
22, or 11.6 per cent., were changed to artificial feeding; at end of period—
17, or 77.3 per cent., showed gain in weight.
15, or 68.2 per cent., were well.
2, or 9.1 per cent., had died.

Of 478 babies sick on admission and artificially fed throughout; at end of period—
360, or 75.3 per cent., showed gain in weight.
250, or 52.3 per cent., were well.
32, or 6.7 per cent., had died.

The above figures are for babies under two years of age. It may be well to study the results of the feeding in the 2132 babies under one year of age.

Of 2132 babies under one year of age, at end of period—
1844, or 86.5 per cent., showed gain in weight.
1796, or 84.2 per cent., were well.
68, or 3.2 per cent., had died.

Of 2132 babies on admission—
1608, or 75.4 per cent., were well.
524, or 24.6 per cent., were sick.

Of 1608 babies well on admission, at end of period—
1449, or 90.1 per cent., showed gain in weight.
1534, or 95.4 per cent., were well.
22, or 1.4 per cent., had died.

Of 524 babies sick on admission, at end of period—
395, or 75.4 per cent., showed gain in weight.
262, or 50 per cent., were well.
46, or 8.8 per cent., had died.

TABLE 51.—PROPORTION OF TOTAL BABIES UNDER ONE YEAR WHO WERE BREAST-FED, MIXED FED, OR ARTIFICIALLY FED ON ADMISSION

Breast-fed		Mixed fed		Artificially fed	
No.	Per cent.	No.	Per cent.	No.	Per cent.
925	43.4	472	22.1	735	34.5

Of 925 babies breast-fed on admission—
691, or 74.7 per cent., were breast-fed throughout; at end of period—
648, or 93.8 per cent., showed gain in weight.
634, or 91.8 per cent., were well.
5, or 0.72 per cent., had died.
164, or 17.7 per cent., were changed to mixed feeding; at end of period—
148, or 90.2 per cent., showed gain in weight.
144, or 87.8 per cent., were well.
None had died.
70, or 7.6 per cent., were changed to artificial feeding; at end of period—
64, or 91.4 per cent., showed gain in weight.
63, or 90.0 per cent., were well.
None had died.

Of 472 babies mixed fed on admission—
437, or 92.6 per cent., were mixed fed throughout; at end of period—
375, or 85.8 per cent., showed gain in weight.
353, or 80.8 per cent., were well.
18, or 4.1 per cent., had died.
35, or 7.4 per cent., were changed to artificial feeding; at end of period—
27, or 77.1 per cent., showed gain in weight.
27, or 77.1 per cent., were well.
6, or 17.1 per cent., had died.

Of 735 babies artificially fed on admission, at end of period—
582, or 79.2 per cent., showed gain in weight.
575, or 78.2 per cent., were well.
39, or 5.3 per cent., had died.

TABLE 52.—PROPORTION OF BABIES UNDER ONE YEAR WHO WERE WELL OR SICK ON ADMISSION ACCORDING TO FEEDING ON ADMISSION

	Breast-fed		Mixed Fed		Artificially Fed	
	No.	Per cent.	No.	Per Cent.	No.	Per cent.
Well	802	86.7	355	75.2	541	61 4
Sick	123	13.3	117	24.8	284	38.6
Total	925	100.0	472	100.0	735	100.0

Of 802 babies well and breast-fed on admission—

608, or 75.8 per cent., were breast-fed throughout; at end of period—
577, or 94.9 per cent., showed gain in weight.
591, or 97.4 per cent., were well.
3, or 0.49 per cent., had died.

140, or 17.5 per cent., were changed to mixed feeding; at end of period—
126, or 90.0 per cent., showed gain in weight.
129, or 92.1 per cent., were well.
None had died.

54, or 6.7 per cent., were changed to artificial feeding; at end of period—
50, or 92.6 per cent., showed gain in weight.
52, or 96.3 per cent., were well.
None had died.

Of 355 babies well and mixed fed on admission—

329, or 92.7 per cent., were mixed fed throughout; at end of period—
294, or 89.4 per cent., showed gain in weight.
308, or 93.6 per cent., were well.
7, or 2.1 per cent., had died.

26, or 7.3 per cent., were changed to artificial feeding; at end of period—
20, or 76.9 per cent., showed gain in weight.
20, or 76.9 per cent., were well.
4, or 15.4 per cent., had died.

Of 451 babies well and artificially fed on admission; at end of period—
382, or 84.7 per cent., showed gain in weight.
434, or 96.2 per cent., were well.
8, or 1.8 per cent., had died.

Of 123 babies sick and breast-fed on admission—

83, or 67.5 per cent., were breast-fed throughout; at end of period—
71, or 85.5 per cent., showed gain in weight.
43, or 51.8 per cent., were well.
2, or 2.4 per cent., had died.

24, or 19.5 per cent., were changed to mixed feeding; at end of period—
22, or 19.7 per cent., showed gain in weight.
15, or 62.5 per cent., were well.
None had died.

16, or 13 per cent., were changed to artificial feeding; at end of period—
14, or 87.5 per cent., showed gain in weight.
11, or 68.7 per cent., were well.
None had died.

Of 117 babies sick and mixed fed on admission—

108, or 92.3 per cent., were mixed fed throughout; at end of period—
81, or 75.0 per cent., showed gain in weight.
45, or 41.7 per cent., were well.
11, or 10.2 per cent., had died.
9, or 7.6 per cent., were changed to artificial feeding; at end of period—
7, or 77.8 per cent., showed gain in weight.
7, or 77.8 per cent., were well.
2, or 22.2 per cent., had died.

Of the 284 babies sick and artificially fed on admission, at end of period—

200, or 70.4 per cent., showed gain in weight.
141, or 49.6 per cent., were well.
31, or 10.9 per cent., had died.

The above figures prove pretty conclusively that the home modification of milk is possible among the very poor and ignorant, and that the results, when this feeding is carefully ordered and careful supervision insures the instructions being carried out, are as good as when modified milk is dispensed.

As has been already stated, every fatal case which was seen once by the physician or nurse at the station has been charged against that station. This is obviously unfair, for in practically every case the mother was referred to a physician or advised to take the child to a hospital, arrangements usually being made at once by the nurse, and a card given to the mother. However, in order that no charge of selecting cases could be made, all were credited to the stations, and the general mortality rates for each station and for the stations as a whole include these deaths.

Of the 158* deaths occurring among the station babies during the entire period June to November, the method of feeding, condition on admission, disposition of the case, place of death, average interval elapsing between last visit and date of death, and age at death, are shown in the following detailed tables, grouped according to diagnosis and number of clinics attended.

In studying these tables it must be remembered that the diagnoses are those given on the death-certificates by the reporting physician. It will be noted that diarrheal disease is credited with 79, or exactly 50 per cent. of the total deaths; malnutrition, 21, or 13.3 per cent.; respiratory diseases, 17, or 10.8 per cent.; contagious diseases, 14, or 8.9 per cent.; all other diseases, 27, or 17 per cent. In this last group there are included:

Diseases of cerebrospinal system	14
Congenital debility	2
Tuberculosis	3
Congenital syphilis	1
Mastoiditis	1
"Choked to death"	1
Unknown	5
TOTAL	27

* The deaths given in connection with the feeding tables are for the period June 1st to September 15th.

TABLE 53.—DATA CONCERNING 158 FATAL CASES

	Number	Feeding			On Admission		Referred to		Refused to Attend	Died at		Average Interval in Days	Age in Months				
		Breast	Mixed	Artificial	Well	Sick	Doctor	Hosp.		Home	Hosp.		Under One Month	1–3	3–6	6–12	12–24
Diarrheal																	
1 clinic	29	1	5	23	3	26	13	10	6	19	10	9.86	2	7	12	6	2
2 clinics	18	2	7	9	5	13	10	5	3	13	5	13.83	2	4	7	5	0
3 clinics	10	3	4	3	3	7	2	7	1	4	6	27.20	0	3	3	4	0
4 or more clinics	22	4	3	15	3	19	8	12	2	10	12	15.41	0	3	7	12	0
Total	79	10	19	50	14	65	33	34	12	46	33	14.50	4	17	29	27	2
Malnutrition																	
1 clinic	4	0	2	2	0	4	4	0	0	4	0	3.75	2	2	0	0	0
2 clinics	3	0	3	0	0	3	3	0	0	3	0	6.00	0	3	0	0	0
3 clinics	6	0	2	4	0	6	2	3	1	3	3	12.50	0	3	2	1	0
4 or more clinics	8	2	1	5	0	8	4	3	1	4	4	23.12	0	1	2	4	1
Total	21	2	8	11	0	21	13	6	2	14	7	13.95	2	9	4	5	1
Respiratory																	
1 clinic	7	1	0	6	2	5	5	0	2	7	0	20.40	0	0	1	5	1
2 clinics	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0
3 clinics	3	1	1	1	1	2	0	2	1	2	1	16.30	0	0	2	1	0
4 or more clinics	7	1	4	2	3	4	5	2	0	5	2	21.50	0	0	1	5	1
Total	17	3	5	9	6	11	10	4	3	14	3	20.20	0	0	4	11	2
Contagious																	
1 clinic	6	0	2	4	0	6	3	1	2	4	2	25.10	1	0	0	4	1
2 clinics	3	0	2	1	1	2	1	0	2	3	0	15.30	1	0	0	2	0
3 clinics	1	1	0	0	1	0	0	1	0	0	1	1.00	0	0	0	0	1
4 or more clinics	4	1	1	2	3	1	2	2	0	2	2	14.50	0	0	0	3	1
Total	14	2	5	7	5	9	6	4	4	9	5	18.20	2	0	0	9	3
Other Causes																	
1 clinic	12	3	0	9	1	11	8	2	2	8	4	20.90	1	3	3	2	3
2 clinics	3	0	1	2	0	3	1	1	1	2	1	21.00	0	1	0	0	2
3 clinics	1	0	0	1	1	0	0	1	0	0	1	25.00	0	0	0	0	1
4 or more clinics	11	4	2	5	6	5	5	5	1	8	3	6.60	0	1	4	5	1
Total	27	7	3	17	8	19	14	9	4	18	9	15.20	1	5	7	7	7

Summary

All Causes																	
1 clinic	58	5	9	44	6	52	33	13	12	42	16	14.50	6	12	16	17	7
2 clinics	27	2	13	12	6	21	15	6	6	21	6	13.90	3	8	7	7	2
3 clinics	21	5	7	9	6	15	4	14	3	9	12	20.10	0	6	7	6	2
4 or more clinics	52	12	11	29	15	37	24	24	4	29	23	15.50	0	5	14	29	4
Total	158	24	40	94	33	125	76	57	25	101	57	15.50	9	31	44	59	15
All Clinics																	
Diarrheal	79	10	19	50	14	65	33	34	12	46	33	14.50	4	17	29	27	2
Malnutrition	21	2	8	11	0	21	13	6	2	14	7	13.95	2	9	4	5	1
Respiratory	17	3	5	9	6	11	10	4	3	14	3	20.20	0	0	4	11	2
Contagious	14	2	5	7	5	9	6	4	4	9	5	18.20	2	0	0	9	3
All others	27	7	3	17	8	19	14	9	4	18	9	15.20	1	5	7	7	7
Total	158	24	40	94	33	125	76	57	25	101	57	0.0	9	31	44	59	15

It is possible that, as only four died in the hospital, some of the "cerebro-spinal diseases" may have been diarrheal in nature.

The above figures give a death-rate from the different groups of causes as follows, based on the enrolment of 7919 babies:

TABLE 54.—DEATH-RATE FOR EACH GROUP OF DISEASES

Diarrheal	8.0 per thousand
Malnutrition	2.6 "
Respiratory	2.1 "
Contagious	1.8 "
Other causes	3.4 "

In order to get a really accurate view of what was accomplished it is necessary to deduct the deaths of babies seen only once and referred to hospitals or physicians, numbering 58, or 26.7 per cent. This leaves exactly 100 deaths to be credited to the stations.

We, therefore, have 100 deaths among 7861 babies (deducting 58 from enrolment totals under two years of age), a death-rate of *12.7 per thousand.*

There were charged against the stations 145 deaths among babies under one year, and 13 deaths among babies between one and two years. Of these cases there attended only one clinic, or were seen but once, 51 under one year and 7 over one year and under two years.

Deducting these figures from the deaths and enrolment at the different age periods we have—

94 deaths among 5328 babies under one year, or *17.6 per thousand.*

6 deaths among 2533 babies over one year, and under two, or *2.4 per thousand.*

The deaths under one year in Manhattan for the same months, based on the births of the preceding twelve months, were 52.5 per thousand—almost exactly three times as many.

If, in addition to the deaths among babies attending only one clinic, we exclude everything except diarrheal and malnutrition deaths, we shall have the startling total of 66 deaths among 5287 babies, or 12.5 per thousand. This is, of course, putting the matter in its most favorable light, and is mentioned only as an interesting statement.

It is of interest to study the percentage of the deaths in each group in relation to the number of clinics attended:

TABLE 55.—PERCENTAGE OF DEATHS IN RELATION TO DIAGNOSIS AND NUMBER OF CLINICS ATTENDED

	1 Clinic	2 Clinics	3 Clinics	4 or more
Diarrheal	36.7	22.8	12.7	27.8
Malnutrition	19.0	14.3	28.6	38.1
Respiratory	41.2	0.0	17.6	41.2
Contagious	42.9	21.4	7.1	28.6
All others	44.4	11.1	3.7	40.7
	36.7	17.1	13.3	32.9

The interval elapsing between the time when the baby passed from under the observation of the station to date of death is shown by the following table:

TABLE 56.—PERCENTAGE OF DEATHS IN RELATION TO NUMBER OF CLINICS AND INTERVAL BETWEEN LAST ATTENDANCE AND DATE OF DEATH

Days Elapsing	1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90	Total
One clinic	50.0	31.0	10.3	1.7	3.4	0.0	0.0	1.7	1.7	99.9%
More than one clinic	48.0	24.0	17.0	2.0	3.0	4.0	2.0	0.0	0.0	100.0%
All cases	48.7	26.6	14.6	1.9	3.2	2.5	1.3	0.6	0.6	100.0%

From the above the following conclusions seem to be warranted:

First: That milk stations did have a distinct influence in diminishing the mortality among babies in the districts in which they were situated.

Second: That the milk stations did not indirectly encourage artificial feeding—32.4 per cent. of all babies under one year of age were entirely breast-fed throughout; 60.6 per cent. were partly breast-fed.

Third: That home modification, even among the very poor and ignorant, is possible.

Fourth: That the results, as shown by the mortality and by the condition of the surviving babies at the end of the period of demonstration, prove that as good results can be obtained as when already modified milk is distributed.

CHAPTER VI

Campaigns in Other Cities

While the figures that have been given for New York prove conclusively that there was a greater reduction in infant mortality in 1911 than in any previous year; that the weather conditions were not such as to explain this low mortality, especially in the early summer; and that the diminution in Manhattan and Brooklyn, where a very vigorous campaign was carried out, exceeded that of the rest of the city, the question arises, Was the mortality in New York reduced more than in other large cities?

With this question to answer, a careful tabulation of mortality statistics has been made for the nine largest cities in the country after New York. Study was also made of the weather conditions, and, as far as data could be secured from published records and articles, and in many cases from personal letters from health officers and lay and medical workers in those cities, a comparison was made of the extent and efficiency of the campaign against infant mortality.

It must be admitted that most of the efforts at reducing infant mortality in this country have been carried on spasmodically, being almost always confined entirely to the hot summer months. It is, therefore, these three hot months, generally July, August, and September, that we shall discuss most fully, although the figures for the entire year also give important information as showing the effects of the educational campaign carried on. The various cities will be discussed in the order of their population.

CHICAGO

The details of the mortality under one year of age in Chicago are shown in Table 57.

If we analyze these figures, we find that the total deaths in Chicago under one year rise steadily from 1906 to 1908, and that the percentage of total deaths at all ages occurring during the first year of life rises from 21.05 in 1906 to 22.67 in 1908. In 1909 there was a diminution of 504 in the infant deaths for the year, the proportion of total deaths being 20.4. In 1910 the total rose almost to the figure of 1908, but the percentage of the total mortality remained about the same. In 1911 the gross total reached the lowest figure since 1906, although it was only 75 below 1909.

A similar condition is noted in the deaths occurring during the three summer months. Again 1909 was a low year, 1911 being 60 less than 1909, and the proportion of the year's deaths under one year of age occurring during these months is smaller than in any of the five preceding years. The percentage of total deaths

AROUSING GENERAL INTEREST IN

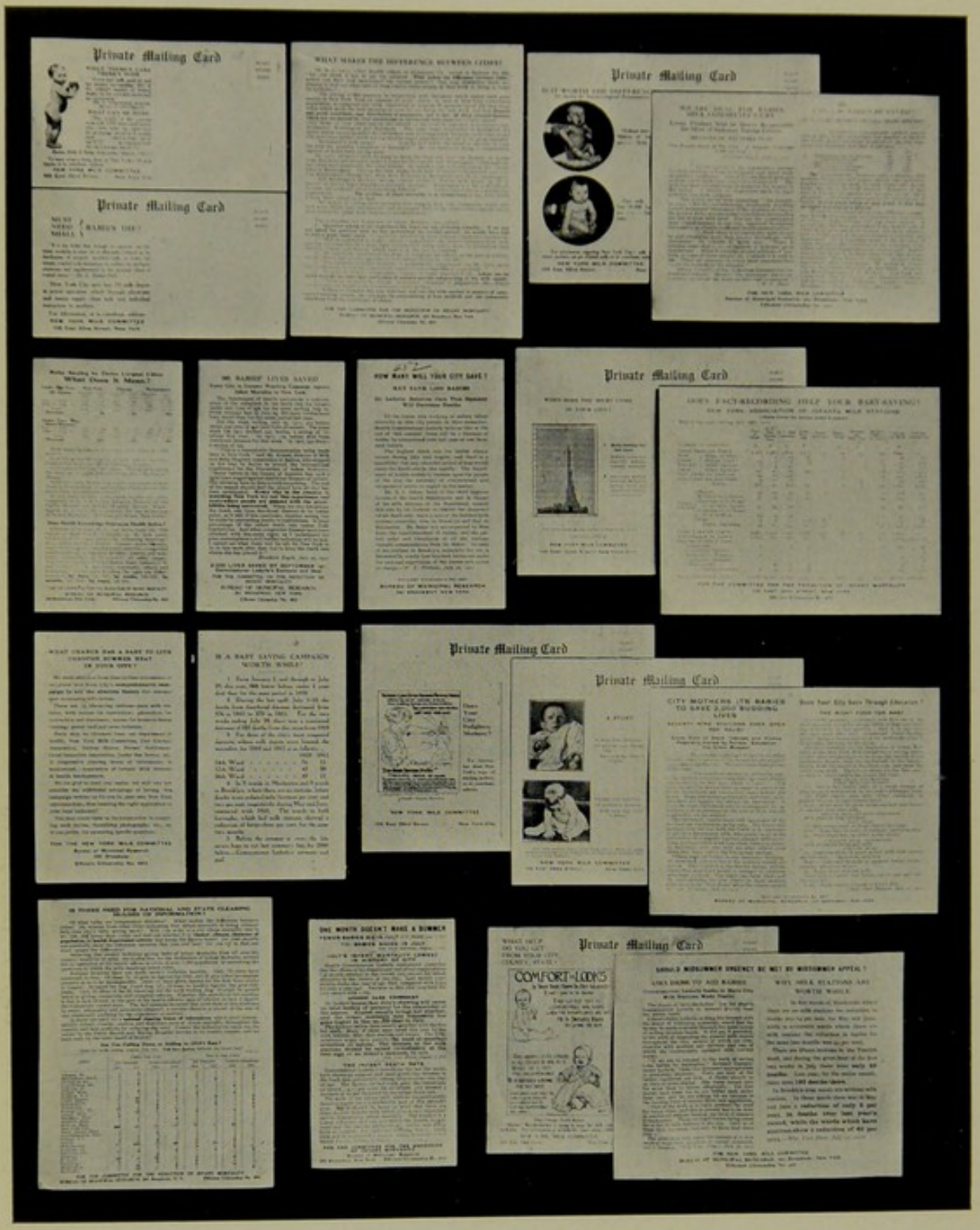


EXHIBIT 17

IMPORTANT FACTS BROUGHT TO THE ATTENTION OF

THE PROBLEM OF SAVING BABIES

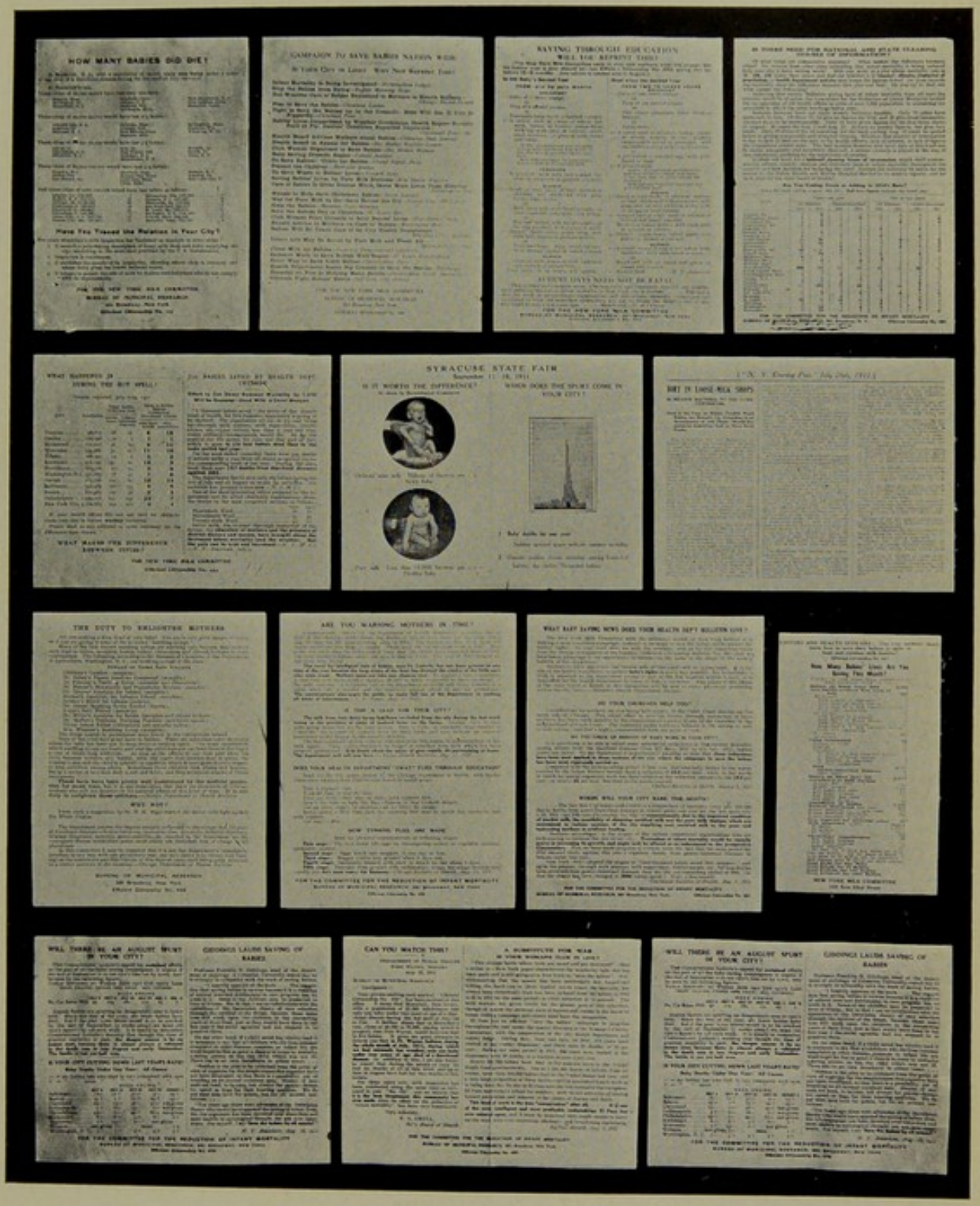


EXHIBIT 17

MAYORS, HEALTH OFFICERS, AND CIVIC ORGANIZATIONS

at all ages is in excess of 1910, but less than any of the other four years. The Assistant Registrar of Vital Statistics of Chicago states that about one-third of the births are reported, thanks to an inefficient ordinance, so that infant mortality rates cannot be compared.

TABLE 57.—MORTALITY UNDER ONE YEAR IN CHICAGO

	1906	1907	1908	1909	1910	Average Five Years	1911
January	484	568	606	588	521	**553**	576
February	454	579	698	537	497	**553**	506
March	504	611	627	557	663	**592**	543
April	494	546	547	480	524	**518**	495
May	497	536	466	490	526	**503**	540
June	344	404	389	407	478	**404**	393
July	585	487	671	435	811	**597**	614
August	749	967	863	830	758	**833**	739
September	589	676	620	699	640	**644**	551
October	480	457	525	510	504	**495**	434
November	414	390	425	399	445	**414**	421
December	520	478	451	452	474	**475**	497
Year	6114	6699	6888	6384	6841	**6581**	6309
Per cent. total mortality	**21.05**	**20.81**	**22.67**	**20.40**	**20.58**	21.08	**19.31**
July, August, and September	1923	2130	2154	1964	2209	**2074**	1904
Per cent. year's infant mortality	**31.45**	**31.79**	**31.27**	**30.76**	**32.29**	31.52	**30.18**
Per cent. of total deaths	**26.64**	**27.81**	**29.23**	**26.13**	**23.82**	27.55	**24.69**

For the year 1911, then, in relation to 1910, there was a reduction of 7.7 per cent. of actual deaths and a reduction of 5.8 per cent. in the percentage of total deaths. Of deaths for July, August, and September, there was a reduction of 13.8 per cent. in actual deaths, but an increase of 3.3 per cent. in the proportion of total deaths. The proportion of the infant mortality for the year occurring during the summer months is less by 6.5 per cent.

If, now, we estimate what the mortality would have been in the years following 1906 if the infant deaths had increased at the same rate as the population (2.87 per cent. yearly), and then compare the actual mortality in these years, we find the conditions which are set forth in the following table:

TABLE 58.—MORTALITY WHICH SHOULD HAVE OCCURRED ON BASIS OF 1906 FIGURES, ALLOWING FOR INCREASE IN POPULATION, COMPARED WITH ACTUAL MORTALITY, IN CHICAGO

	1907	1908	1909	1910	1911
Estimated mortality	6289	6464	6640	6815	6991
Actual mortality	6699	6888	6384	6841	6309
Difference	+410	+424	—256	+26	—682
Percentage difference	**+6.5%**	**+6.5%**	**—3.8%**	**+0.3%**	**—10.1%**

The deaths in each year from 1907 on were in excess of this estimated rate by from 0.3 to 6.5 per cent., except in 1909, when they were 3.8 per cent. below the estimated figure. In 1911 there was nearly three times as great a reduction from the estimate as in 1909.

The proportion of deaths occurring during the third trimester is the lowest of any of the cities considered except Manhattan and Buffalo. It may be of interest to tabulate these figures here for reference.

TABLE 59.—DEATHS UNDER ONE YEAR BY TRIMESTERS, CHICAGO

	1906	1907	1908	1909	1910	Average 1906-10	1911
First quarter: Actual	1442	1758	1931	1682	1681	**1698**	1625
Per cent. of year's mortality	**23.6**	**26.2**	**28.0**	**26.3**	**24.6**	**25.8**	**25.8**
Second quarter: Actual	1335	1486	1402	1377	1528	**1425**	1428
Per cent. of year's mortality	**21.8**	**22.2**	**20.4**	**21.6**	**22.3**	**21.7**	**22.6**
Third quarter: Actual	1923	2130	2154	1964	2209	**2074**	1904
Per cent. of year's mortality	**31.5**	**31.8**	**31.3**	**30.8**	**32.3**	**31.5**	**30.2**
Fourth quarter: Actual	1414	1325	1401	1361	1423	**1384**	1352
Per cent. of year's mortality	**23.1**	**19.8**	**20.3**	**21.3**	**20.8**	**21.0**	**21.4**

Weather Conditions

The weather conditions in Chicago during the last three years may be compared in the following tables:

TABLE 60.—WEATHER CONDITIONS: NUMBER OF DAYS MAXIMUM AND MEAN TEMPERATURES REACHED OR EXCEEDED CERTAIN FIGURES, CHICAGO*

	Maximum Temperature was—			Mean Temperature was—	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	0	5	0	1
July	0	3	11	0	2
August	0	2	8	0	4
September	0	0	2	0	1
	0	5	26	0	8
1910					
June	0	3	7	0	6
July	2	6	13	0	9
August	0	0	10	0	4
September	0	0	0	0	0
	2	9	30	0	19
1911					
June	3	6	9	2	5
July	5	9	15	6	10
August	0	4	7	0	4
September	0	0	1	0	0
	8	19	32	8	19

* Monthly Meteorological Summary, Local Weather Bureau, Chicago, and Monthly Weather Review, Washington.

TABLE 61.—MONTHLY MEAN TEMPERATURE, PRECIPITATION, AND NUMBER OF RAINY DAYS, CHICAGO*

	Average 39 Years	1909	1910	1911
June				
Mean	**66.4°**	67°	68°	72°
Rainfall	**3.56** in.	5.09 in.	0.91 in.	2.54 in.
Rainy days	..	13+5	4+1	10+2
July				
Mean	**72°**	72°	76°	76°
Rainfall	**3.57**	1.77	1.79	2.65
Rainy days	..	8+6	8+5	11+2
August				
Mean	**71°**	75°	73°	72°
Rainfall	**3.10**	6.20	3.08	3.72
Rainy days	..	10+3	6+5	12+2
September				
Mean	**65°**	64°	65°	67°
Rainfall	**3.07**	3.60	3.90	4.03
Rainy days	..	8+1	9+4	16+4
Total				
Mean	**68.6°**	69.5°	70.5°	71.7°
Rainfall	**13.30**	16.66	9.68	12.94
Rainy days	..	39+15	27+15	49+10

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

If we study these tables, we find that the maximum temperature for the four months, taken as a whole, reached 85°, 90°, and 95° on more days than in either 1909 and 1910. The thermometer never reached 95° in 1909, and on only five days did it reach 90°. In 1910 it registered 95° or + on only two days, and 90° on only nine days, as against eight and nineteen days respectively in 1911. Similarly, the mean temperature never reached 85° in either 1909 or 1910, while it did so on eight days in 1911.

Only the month of August fell below 1909 and 1910 as to mean temperature for the whole month. The average for four months was decidedly higher than either year, and 3° higher than the average for thirty-nine years. In each month, however, the total rainfall was higher than in 1910, though it was above the thirty-nine-year average only in August and September. In July and September it exceeded the figures for 1909. For the four months the rainfall was well above that of 1910 and well below that of 1909. In the number of rainy days 1911 is largely in excess of either year.

The month of July is particularly interesting. The mean temperature for the month was 4° higher in 1911 than in 1909, and the deaths were 170 more than in 1909. There was the same mean for 1910 and 1911, and the deaths in 1911 were 197 less than in 1910. Also the deaths in 1910 were 376 more (86 per cent.) than in 1909, as against 170 more (39 per cent.) in 1911.

In 1910 and 1911 August was 2° and 3° below 1909, and the deaths were 72

* Monthly Meteorological Summary, Local Weather Bureau, Chicago, and Monthly Weather Review, Washington.

and 91 respectively below those of 1909. In September, on the other hand, 1910 was 1° and 1911 was 3° above 1909, and yet the deaths were respectively 59 and 148 below those of 1909.

In July the rainfall was practically the same for 1909 and 1910, and 0.86 inch more in 1911. August showed less rainfall by 3.12 and 2.48 inches in 1910 and 1911 than in 1909, in both of the latter years the deaths being less. In September the rainfall was nearly the same, +0.30 inch in 1910 and +0.43 inch in 1911.

The Campaign

For a number of years Chicago had been getting ready for an organized effort for combating infant mortality. The United Charities, then consisting of two separate organizations, attempted to get mothers and babies out of the city, to care for the sick babies, and to educate the mothers in the city itself by means of public tents, in charge of a trained nurse and visited by a physician. The Children's Hospital Society established a Milk Commission to provide a modified and pasteurized milk for babies at a reasonable price. Milk was dispensed already modified to set formulæ.

In 1908 the Health Department first entered the field, putting 100 physicians at work visiting from house to house, instructing the mothers, during July and August. The work was not organized, and very little came of it; but a more comprehensive plan was worked out during the ensuing winter.

In 1909 the United Charities, the Health Department, and the Visiting Nurses' Association coöperated. The Health Department mapped out the areas of the highest death-rate, furnished 20 nurses and 14 doctors, and spent $10,000 on the campaign. The United Charities furnished nurses, tents, and workers. The Visiting Nurses' Association supervised the tents, furnished nurses in the tents, and worked in the field.

The general plan was a house-to-house canvass by nurses in the most crowded and unsanitary districts. Wherever a small child was found, instruction in feeding and care was given. At first the Health Department confined its activities to locating and referring cases, the actual care of the sick babies being turned over to the Visiting Nurses' Association, the settlements, and the United Charities. During July so much work had to be done that the Health Department had to take up part of the work of caring for the sick. Careful records were kept of all the cases, and information was acquired which was tabulated during the following months for use in the campaign of the next year.

It will be noted that 1909 was the first year with a lowered mortality since 1906. The percentage of the total mortality was also low.

Armed with the information obtained in 1909, the work was more active in 1910 and better organized. The activities of the Health Department were confined to one entire ward and parts of three others, as far as house-to-house visiting was concerned; and in 13 other wards they visited the homes of every baby that could be discovered from the records of the United Charities or the County Clerk's register of births. Ten public tents were located in centers having the highest

Garbage and Waste Forty-eight Hours in the Street; One of the Handicaps of a Summer Baby-saving Campaign

death-rates. These were maintained by the United Charities. Dr. Caroline Hedger spent her whole time in the work. An Infant Welfare Society was formed, consisting of representatives of all the various charities in Chicago.

During the summer the mothers of 23,984 babies were instructed. Ice tickets were distributed, and relief was provided through the United Charities, Jewish Aid, etc. The nurses were on the lookout for violations of the Sanitary Code, and 500 complaints were made.

The Civic Federation placarded the city fences and walls with a telling poster, "Don't Kill your Baby!"—with information how not to, and this was most effective. The well-known Bulletins of the Health Department featured the campaign, and its "Health Grams"and striking cartoons went far and wide.

In 1911 there was much greater coöperation among the nurses of the Department and other organizations. The work of the Health Department became more definite, and in every way the campaign was more efficient.

The Infant Welfare Society maintained 10 milk stations, open all the year, each in charge of a nurse. Volunteer physicians carried on the consultations, of which 806 were held. Two thousand one hundred and twenty-nine babies attended these conferences. Home modification was taught "when possible"; when impossible, modified milk was dispensed. Six hundred and twenty mothers were taught. Certified milk only was used.*

It will be noted that there was an increase in mortality in 1910 over 1909 nearly up to the figures of 1908, although this is only 0.3 per cent. greater than the mortality estimated on the 1906 figures. The work of the nurses, while more efficient, was not nearly so wide-spread as in 1909. In 1911, due to increased experience and better coöperation, a great diminution was again obtained, especially marked during the summer months, in spite of unfavorable weather conditions. Dr. Hedger, who has had charge of the work in large part during the last three years, says: "The campaign should be a year-long affair; a few weeks of instruction in the summer is not sufficient. It must be line upon line and precept upon precept, year in and year out."† Chicago realizes the importance of continuous instruction to obtain permanent results, and not an ineffectual, short campaign.

Since 1910 Chicago has been attempting to enforce the laws pertaining to a safe milk supply. Seventy-five per cent. of the city's milk is pasteurized. All the rest must be from tuberculin-tested herds. As thorough an inspection of pasteurization plants is carried out as available funds will permit. There is also inspection of dealers and depots, platform inspection, and a certain amount of country farm, creamery, and bottling plant inspection. It is interesting to note that, excepting that provided to restaurants, 95 per cent. of the city's milk is bottled.

* The above facts are obtained from the report of the Department of Health of the City of Chicago for the years 1907–1910, and from personal letters. In 1912 we are informed that practically all modification is done at the home. Through coöperation with certain milk dealers certified milk is delivered direct to the homes at 10 cents a quart.

† Report of the Campaign Against Summer Diarrhea, Chicago, 1909, etc.

PHILADELPHIA

We have been unable to obtain reports or records of infant mortality in Philadelphia by months prior to 1909. The following table gives the figures as far as obtainable:*

TABLE 62.—MORTALITY UNDER ONE YEAR, PHILADELPHIA

	1906	1907	1908	1909	1910	1911
January	..	..	..	387	398	286
February	..	..	..	438	404	289
March	..	..	..	433	497	427
April	..	..	..	330	349	332
May	..	..	..	289	313	344
June	..	..	..	396	540	401
July	..	..	..	659	799	587
August	..	..	..	490	552	556
September	..	..	..	496	426	394
October	..	..	..	364	315	313
November	..	..	..	238	284	330
December	..	..	..	350	355	357
TOTAL	5781	5508	5291	4870	5232	4616
Per cent. total mortality	**21.1**	**20.0**	**20.1**	**19.4**	**19.3**	**17.6**
July, August, and September	..	..	..	1645	1777	1537
Per cent. year's infant mortality	..	..	..	**33.7**	**33.9**	**33.2**
Per cent. total mortality	..	..	..	**28.4**	**27.9**	**25.0**
BIRTHS	34,771	35,142	36,641	37,540	38,676	41,000†
INFANT MORTALITY	**166.2**	**136.7**	**144.1**	**129.7**	**135.3**	**112.5**†

In 1911, therefore, Philadelphia had less deaths by 254 than in 1909, the low record of the five-year period 1906–1910; 1165 less than in 1906, the high year; and 616 less than in 1910. The proportion of the total mortality for the year is 17.6 per cent., a fall of 1.8 from 1909; 3.5 from 1906; and 1.7 from 1910.

The summer infant mortality was practically the same proportion of the year's infant mortality as in 1909 and 1910; but of the total deaths it was 3.4 per cent. and 2.9 per cent. lower.

The infant mortality rate also shows a marked fall, although it is only estimated. There is a reduction of 22.8 and 17.2 per thousand from 1909 and 1910 respectively.

In tabular form this appears as follows:

TABLE 63.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN 1911 AND OTHER YEARS

	ACTUAL DIFFERENCE		PERCENTAGE DIFFERENCE	
	1909	1910	1909	1910
Year's mortality	—254	—616	— 5.2	—11.7
Per cent. total mortality	**—1.8**	**—1.7**	**— 9.2**	**— 8.8**
July, August, and September	—108	—240	— 6.5	—13.5
Per cent. total year	—0.5	—0.7	— 1.4	— 2.0
Per cent. total mortality	**—3.4**	**—2.9**	**—11.9**	**—10.3**

* From figures supplied by Dr. S. W. Newmeyer, Philadelphia. † Estimated.

In 1903 there were 4597 deaths under one year of age in Philadelphia, which was 17.7 per cent. of the total mortality. This is the low record year of the decade in both respects. The following table shows the deaths which would have occurred had they increased in proportion to the population increase, and the actual and percentage differences from these figures:

TABLE 64.—MORTALITY UNDER ONE YEAR, WHICH SHOULD HAVE OCCURRED IN DIFFERENT YEARS, BASED ON 1903 FIGURES, COMPARED WITH ACTUAL MORTALITY, PHILADELPHIA

	1906	1907	1908	1909	1910	1911
Estimated deaths	4868	4959	5049	5140	5230	5321
Actual deaths	5781	5508	5291	4870	5232	4616
Difference	+ 913	+ 549	+242	—270	+ 2	— 705
Percentage difference	**+18.7**	**+11.0**	**+ 4.7**	**— 5.2**	**+ 0.0**	**—13.2**

There is, therefore, a very great reduction in 1911 from every point of view.

Weather Conditions

The weather conditions during the last three years are set forth in the following tables:

TABLE 65.—NUMBER OF DAYS ON WHICH MAXIMUM AND MEAN TEMPERATURES REACHED CERTAIN FIGURES, PHILADELPHIA*

	Maximum Temperature			Mean Temperature	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	8	10	1	8
July	1	5	17	1	8
August	1	3	13	1	3
September	0	0	0	0	0
	2	16	40	3	19
1910					
June	1	5	8	1	5
July	0	10	19	1	17
August	0	0	5	0	0
September	0	1	3	0	2
	1	15	35	2	24
1911					
June	0	2	9	0	3
July	5	10	19	6	12
August	0	3	13	0	5
September	0	0	2	0	0
	5	15	43	6	20

* Monthly Meteorological Summary, Philadelphia; and Monthly Weather Review, Washington, D. C.

TABLE 66.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, PHILADELPHIA*

	Normal	1909	1910	1911
June				
Mean temperature	**71.2°**	72.4°	69.6°	71.6°
Rainfall	**3.30** in.	2.26 in.	5.40 in.	5.10 in.
Rainy days	..	13	14	14+3
July				
Mean temperature	**75.8°**	75.3°	78.2°	78.5°
Rainfall	**4.33** in.	2.19 in.	1.84 in.	4.19 in.
Rainy days	..	4+4	5	9+2
August				
Mean temperature	**73.8°**	73.0°	73.2°	74.5°
Rainfall	**4.61** in.	1.95 in.	5.70 in.	12.10 in.
Rainy days	..	4+2	11	14+3
September				
Mean temperature	**67.4°**	67.2°	70.0°	68.6°
Rainfall	**3.38** in.	3.55 in.	3.05 in.	2.52 in.
Rainy days	..	8	5	7+6
Totals				
Mean temperature	**72.05°**	71.9°	72.75°	73.3°
Rainfall	**15.62** in.	9.95 in.	15.99 in.	23.91 in.
Rainy days	..	29+6	35	44+14

Note.—Two figures are given above for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

Except for extremely hot weather, that is, the number of days when very high temperatures were reached, there was very little difference in the temperature records for the three years.

The mean temperatures for the month show 1911 above the normal in all four months, especially in July; 1910 was lower than 1911 in each month except September, although there was only 0.3° difference in July. July and September were above the normal; 1909 was below the normal in all months except June, although very slightly. In 1909 the heat was more uniformly distributed throughout the summer.

In 1911 rainfall for the month and the number of rainy days were considerably in excess of 1910, especially in July and August. June and September, 1910, had a little more rain.

During June, July, and August temperature conditions may be said to have been distinctly less favorable to a low infant mortality than in 1909 and 1910. In respect to rainfall and its distribution during the same period, conditions were more favorable.

The Campaign

Before 1909 there was very little effort made toward the reduction of infant mortality outside the ordinary work of the various charitable organizations. The Modified Milk Society was about the only special agency at work. It pro-

* Monthly Meteorological Summary, Philadelphia; and Monthly Weather Review, Washington, D. C.

Any Place Will Do for a Milk Station

vided milk modified at a central laboratory and distributed to infants from several points in the most congested sections of the city.

In 1909 Dr. Neff, Director of the Department of Public Health and Charities, brought about a revision of the milk ordinances after considerable publicity had been given to the statement that 12 per cent. of the milk furnished the city was from cattle infected with tuberculosis.

A conference was held early in the summer, at which plans were considered for reducing infant mortality. As a result, the Modified Milk Society, various settlements, and a number of women's clubs conducted work along independent lines. The Health Department placed its medical inspectors in the most congested parts of the city to canvass for sick babies and to instruct mothers in their care. Milk dealers were provided with bags upon which were printed simple directions as to the care of milk and feeding of the baby. Bottled milk was sold in these bags.

In 1910 a conference was called by the Mayor. This was attended by representatives of some 200 agencies, the object being to bring about a better working relation between the various organizations engaged in summer work for mothers and children. As a result of this conference a Bureau of Registration and Information was established at the City Hall. A directory was published and distributed, giving the names of agencies and the kind of service each was prepared to render.

The Modified Milk Society established 10 distributing stations and later opened 8 more. The City Council appropriated funds to maintain a corps of 8 nurses, and, by utilizing the medical inspectors and district physicians, a temporary Division of Child Hygiene was established, with Dr. S. W. Newmayer in charge. This division began intensive work in June in four of the most congested wards. Other organizations assisted by furnishing nurses who reported daily to the Health Department and worked with their nurses. Two nurses each were provided by the Bureau of Municipal Research, the Visiting Nurses' Society, Starr Centre, and the Light House, and one each by the Phipps Institute and the Baby Alliance.

Previous to the closing of the schools in the four wards selected, demonstrations were given to girls in the grammar grades on the care of babies. This work was done by the medical inspectors and school nurses through the coöperation of the school authorities. A house-to-house canvass was carried on in the district by the Health Department nurses to instruct mothers in their homes.

At the central office a careful system of record keeping for each case was installed. Day and night telephone service was established for receiving requests for aid in emergency cases. The Police and Fire Departments coöperated by instructing all police stations and fire houses to forward, by telephone, any request for medical or nursing aid. A large number of bulletins, posters, and circulars were distributed, chiefly through the police department.

The Visiting Nurses' Society assumed supervision and care of sick babies. Piers were utilized for receiving and caring for babies and mothers. Special

The following table shows what the deaths would have been had they increased from 1907, the low year up to 1910, at the same rate as the population, 1.94 per cent. per year.

TABLE 68.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED, BASED ON 1907 FIGURES, COMPARED WITH ACTUAL MORTALITY, ST. LOUIS

	1908	1909	1910	1911
Estimated mortality	1748	1781	1814	1848
Actual mortality	1734	1723	1707	1579
Difference	— 14	— 58	—107	— 269
Percentage difference	**—0.8**	**—3.2**	**—5.8**	**—14.5**

Yearly rate of increase in population, 1.94 per cent.

Allowing for the increase in population, then, there has been a steadily decreasing mortality rate, and the percentage difference from the estimate has been greater each year up to and including 1911.

Weather Conditions

Comparing the weather conditions which existed in St. Louis during these years we find the facts set forth in the following tables:

TABLE 69.—NUMBER OF DAYS MAXIMUM AND MEAN TEMPERATURE REACHED OR EXCEEDED CERTAIN FIGURES, ST. LOUIS*

	Maximum Temperature			Mean Temperature	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	5	14	0	6
July	1	6	15	1	9
August	4	18	27	6	23
September	0	2	8	0	1
	5	31	64	7	39
1910					
June	0	7	14	0	8
July	0	5	15	0	11
August	0	5	13	0	6
September	0	0	6	0	1
	0	17	48	0	26
1911					
June	8	13	22	5	15
July	6	13	21	7	15
August	2	8	15	3	11
September	1	5	15	0	4
	17	39	73	15	45

* From Monthly Meteorological Summary, Local Weather Bureau, St. Louis, and Monthly Weather Review, Washington, D. C.

After a Consultation—Future Mothers are Being Taught

TABLE 70.—MONTHLY MEAN TEMPERATURE, PRECIPITATION, AND NUMBER OF RAINY DAYS, ST. LOUIS*

	Average, Thirty-eight Years	1909	1910	1911
June				
Mean	75°	75°	72°	79°
Rain	4.49 in.	2.63 in.	4.24 in.	1.34 in.
Rainy days	..	10+5	11+0	8+1
July				
Mean	79°	77°	77°	79°
Rain	3.63 in.	7.34 in.	4.21 in.	0.64 in.
Rainy days	..	13+4	14+0	5+5
August				
Mean	78°	81°	75°	76°
Rain	2.48 in.	0.66 in.	1.90 in.	3.51 in.
Rainy days	..	4+3	7+3	11+1
September				
Mean	70°	68°	70°	74°
Rain	2.89 in.	4.22 in.	6.09 in.	7.09 in.
Rainy days	..	00+0	10+2	14+5
Total				
Average mean	75.5°	75.2°	73.5°	77°
Rain	13.49 in.	14.85 in.	16.44 in.	12.58 in.
Rainy days	..	00+0	42+5	38+12

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is the number of days there was a trace of precipitation, but less than 0.01 inch.

It will be seen that June, 1911, averaged for the month higher than either of the other years or than the thirty-eight-year average. The same is true for July.

August, on the contrary, is 5° below 1909 and 2° below the mean, but August had some very hot weather, the thermometer registering 95° on two days and the mean for the day being 85°+ on three days. September was hot, the mean being well above either year and the thirty-eight-year average. The rainfall also in 1911 was very scant through June and July, but above the average for August and September, especially in the latter month. Extremely high temperatures were reached during the four summer months of 1911, remained high for longer periods, and the hot weather was continued throughout the summer more evenly than in any of the other years considered.

In spite of very much worse conditions in June and July, the mortality in June was 17 below 1910 and 9 above 1909. In July it was 1 below 1909 and 12 above 1910.

* Monthly Meteorological Summary, Local Weather Bureau, St. Louis, and Monthly Weather Review, Washington, D. C.

The Campaign

In 1904 the St. Louis Pure Milk Commission was incorporated for the purpose of distributing modified milk to poor babies. After two years of work Dr. A. S. Bleyer started consultations at one of the stations of the Commission. This work was founded with the idea of instructing mothers in the care of their babies, and modified milk was dispensed. In the spring of 1911 the "Save the Babies" League was formed, to coöperate with existing agencies for the prevention of sickness and death among the babies of St. Louis. In the previous summer the Pure Milk Commission had carried on some nursing work, but was financially unable to continue it. In 1911 the Visiting Nurses' Association had one nurse in the field. The object of this League was the maintenance of conferences where mothers were advised and instructed by the doctors in charge in the care and feeding of their babies; follow-up work in the homes by the nurses, especially in the case of sick babies; and coöperation with the St. Louis Pure Milk Commission in furnishing safe modified milk for babies.

On June 1st one nurse started in on her work, the number being rapidly increased to 9. Thirteen stations were in operation, 6 of them being opened for five months,—from May 1st to October 1st,—and 729 babies being enrolled. There were 17 doctors, 9 nurses, and 6 assistant workers engaged in the work. Particular stress was laid upon the home work, and during the latter part of the season a considerable number of the mothers were taught home modification of milk. This was the first year that any extensive campaign was carried out. Coöperation between various organizations was extremely good, and plans are in hand for a more extensive campaign in 1912.

The Health Department did very little special work in connection with the campaign. Milk inspection in St. Louis is still far from thorough, owing to lack of available funds.

BOSTON

The following table gives the facts in regard to infant mortality in Boston for the years 1906–1911:

TABLE 71.—MORTALITY UNDER ONE YEAR, BOSTON

	1906	1907	1908	1909	1910	Average Five Years	1911
January	187	177	197	175	163	**179.8**	163
February	168	138	198	157	183	**168.8**	175
March	186	96	208	192	189	**174.2**	196
April	201	156	198	161	163	**175.8**	191
May	197	185	182	146	140	**170.0**	180
June	152	151	150	117	168	**147.6**	129
July	240	172	305	188	225	**226.0**	280
August	357	356	405	313	254	**337.0**	260
September	271	282	300	240	270	**272.6**	224
October	186	229	222	159	225	**204.2**	172
November	165	147	186	124	148	**154.0**	138
December	158	187	191	153	121	**162.0**	137
Year	2468	2276	2742	2125	2249	**2372.0**	2245
Percentage of total deaths	**21.62**	**19.47**	**23.28**	**19.20**	**19.45**	20.62	**19.08**
July, August, September	868	810	1010	741	749	**835.6**	764
Percentage of year's infant mortality	**35.17**	**35.58**	**36.83**	**34.87**	**33.30**	35.22	**33.58**
Percentage of all deaths	**30.62**	**29.88**	**34.04**	**29.25**	**27.18**	30.27	**25.10**
Births	17,284	18,436	18,521	17,728	17,741	**17,942**	1258
Infant mortality rate	142.8	123.4	148.0	119.8	126.7	**132.2**	126.0

It will be noted that, excepting 1908, a very high year, there has been little striking change in the gross figures. In percentages of total mortality 1907, 1909, 1910, and 1911 remain practically the same, differing only in a small fraction of 1 per cent.

In the totals for summer mortality the last three years have been very nearly the same, being slightly higher each year. The infant mortality rate shows an increase in 1910 and 1911 over both 1907 and 1909. The rate for 1911, as furnished by the Registrar of Vital Statistics for Boston, Dr. Davis, is given at 126, practically the same as in 1910.

If we estimate the deaths which would have occurred if they had increased in the same proportion as the population, 1.96 per cent., yearly, taking 1909, the low year for the five-year period, as a basis, and then compare these figures with actual deaths, we find the following:

TABLE 72.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED ON BASIS OF 1909 FIGURES, COMPARED WITH ACTUAL MORTALITY, BOSTON

	1910	1911
Estimated mortality	2166	2208
Actual mortality	2249	2245
Difference	+83	+37
Percentage difference	**+3.8**	**+1.7**

Estimating for the three summer months, taking 34.87 per cent. as the proportion of deaths occurring during these months in 1909, we have the figures shown in the following table:

TABLE 73.—MORTALITY UNDER ONE YEAR IN THREE SUMMER MONTHS WHICH SHOULD HAVE OCCURRED ON BASIS OF 1909 FIGURES, COMPARED WITH ACTUAL MORTALITY, BOSTON

	1910	1911
Estimated mortality	755	769
Actual mortality	749	764
Difference	—6	—5
Percentage difference	**—0.79**	**—0.65**

Boston, therefore, shows almost no improvement in infant mortality for the year compared with three of the five preceding years. The summer mortality has not been reduced in the last three years. The percentage of the year's infant deaths occurring during the three summer months is still fairly high, as is the proportion of all deaths during this period.

Taking the *high* figure, 2742, in 1908, and estimating the deaths which should have occurred on the basis of a yearly increase of 1.96 per cent., there is only a decrease of 22.7 per cent., while New York shows for the year 1911 a decrease of 20.4 per cent. from the *lowest*, allowing for increase in population.

Weather Conditions

The weather conditions in Boston during the last three years are shown in the following tables:

TABLE 74.—NUMBER OF DAYS ON WHICH MAXIMUM AND MEAN TEMPERATURES REACHED CERTAIN FIGURES, BOSTON*

	Maximum			Mean	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	4	9	0	6
July	1	4	8	0	4
August	0	3	6	0	4
September	0	0	0	0	0
Total	1	11	23	0	14
1910					
June	0	1	6	0	2
July	0	6	16	0	5
August	0	0	4	0	0
September	0	0	0	0	0
Total	0	7	26	0	7
1911					
June	0	0	2	0	0
July	8	9	14	7	10
August	0	3	6	0	1
September	0	0	1	0	0
Total	8	12	23	7	11

* Monthly Meteorological Summary, Local Weather Bureau, Boston, and Monthly Weather Review, Washington, D. C.

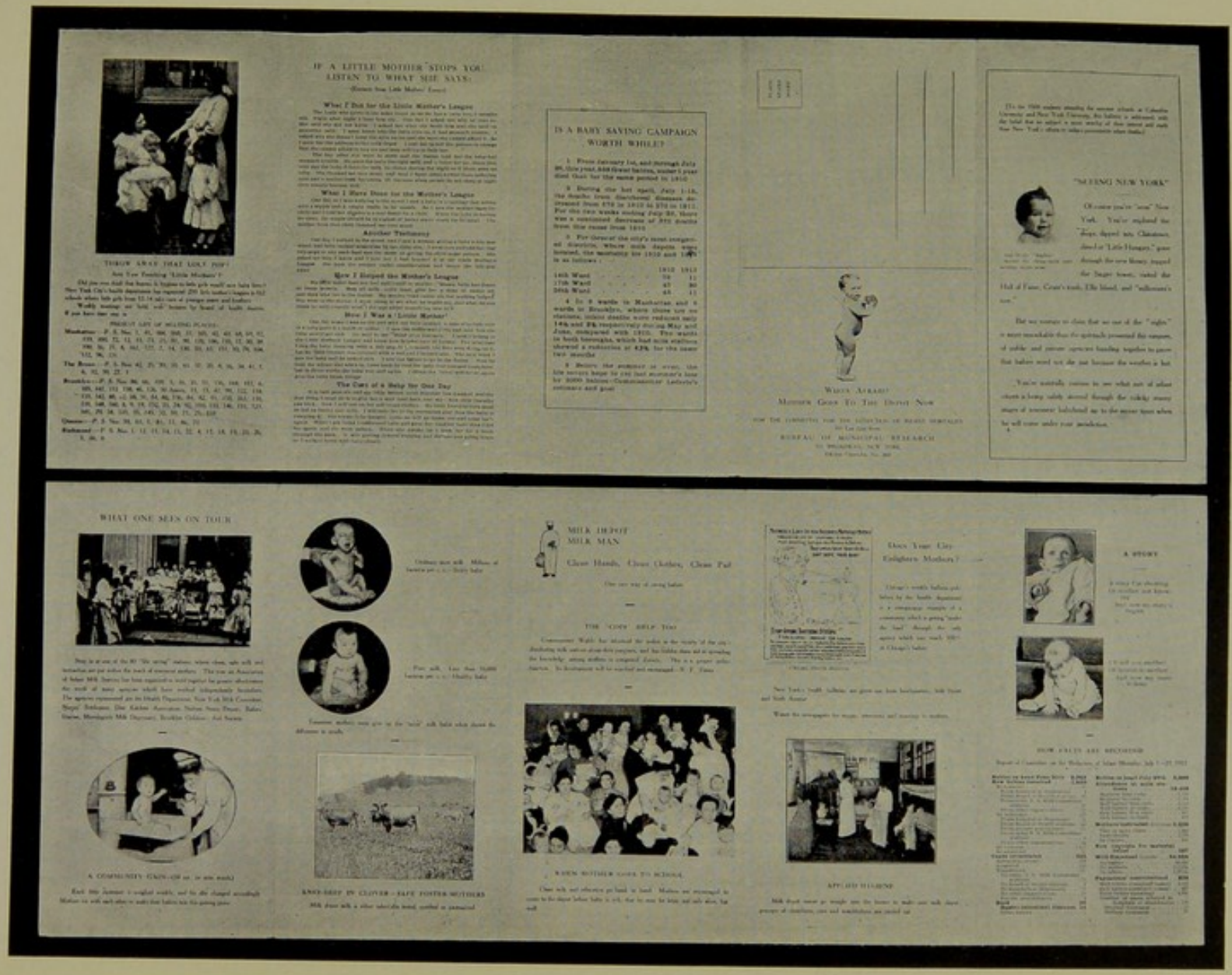


Exhibit 18

Distributed to 3500 Students Attending University Summer School in New York City

TABLE 75.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, BOSTON*

	Normal	1909	1910	1911
June				
Mean temperature	**66°**	69°	65°	66°
Rainfall	**3.08** in.	4.45 in.	4.89 in.	3.67 in.
Rainy days	..	8	12+2	8+7
July				
Mean temperature	**72°**	72°	75°	77°
Rainfall	**3.18** in.	0.97 in.	1.15 in.	4.65 in.
Rainy days	..	5+7	6+1	4+3
August				
Mean temperature	**70°**	69°	69°	69°
Rainfall	**3.84** in.	3.55 in.	0.98 in.	4.18 in.
Rainy days	..	8+3	7+2	9+4
September				
Mean temperature	**63°**	63°	63°	63°
Rainfall	**3.22** in.	5.15 in.	2.14 in.	2.95 in.
Rainy days	..	12+1	11+1	10+1
Totals				
Mean temperature	**68.7°**	68.2°	68.0°	68.7°
Rainfall	**13.32** in.	14.12 in.	9.16 in.	15.45 in.
Rainy days	..	32+11	36+6	31+15

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

Except for the month of July, the conditions are very similar. In this month the temperature reached 95° or over on eight days in 1911, and the mean temperature was 85° or over on seven days. The high figures are all crowded into the first two weeks of July; August was cool. In summing up the monthly figures compared with the normal, June was exactly the same. July was 5° over; August was below; September was the same. The rainfall the first three months is in excess of the normal; September, somewhat below.

Compared with 1910, June was 1° hotter; July, 2° hotter; August and September were the same. In 1909 June was 3° hotter; July, 5° cooler; August and September, the same.

The rainfall in 1911 was less in June, much more in July and August, and less than 1909 in September, but more than in 1910. It was less evenly distributed throughout the summer than either year.

The Campaign

In Boston practically the only organization doing purely baby work, and laying particular stress on prevention, is the Boston Milk and Baby Hygiene Association. In 1905 a group of public-spirited citizens organized a "poor people's" modified milk service. They distributed milk already modified to

* Monthly Meteorological Summary, Local Weather Bureau, Boston, and Monthly Weather Review, Washington, D. C.

various settlements, day nurseries, etc. In 1907 a committee on modified milk stations was organized to take charge of the work. After a year this committee came to the conclusion that its policy was unintentionally encouraging weaning, and a new method was adopted. In 1909 they opened 10 milk stations, under the control of the Committee on Milk and Baby Hygiene. A director was appointed, and consultations were inaugurated, under volunteer physicians, a medical director, and trained nurses.

In 1910 the association was incorporated, and has been carrying on the work since. Twenty volunteer physicians have charge of the 10 stations; consultations are held from once to three times a week; modified milk is dispensed; earnest efforts are made to encourage breast-feeding; mothers receive home instruction; all sick babies are referred to physicians or dispensaries; sick babies are referred also to the Instructive Visiting Nurses' Association, whose nurses care for the babies while sick.

In 1911, 9 stations were maintained; 10 nurses were in the field; 13 volunteer physicians had charge of consultations. Home modification was taught "where possible."

In 1909 and 1910 the Women's Municipal League carried on a demonstration of prenatal and postnatal instruction to mothers. They have since discontinued their postnatal work, which was planned as a demonstration.

The work in Boston in 1911 showed no increase except in efficiency, perhaps, over that done in the three previous years. The work of the Milk and Baby Hygiene Association has been excellent, but it cannot reach more than a small proportion of those who need its aid.

The Health Department had two nurses in the field doing prophylactic work, including prenatal instruction.

CLEVELAND

In considering the mortality returns for Cleveland, it must be remembered that, with the exception of Detroit and the three boroughs of Bronx, Queens, and Richmond in New York, the percentage increase in population during the past decade has been greater than in any of the other cities considered. The following table shows the details of the infant mortality for the years 1906 to 1911 inclusive:

TABLE 76.—MORTALITY UNDER ONE YEAR, CLEVELAND

	1906	1907	1908	1909	1910	AVERAGE 1906-10	1911
January	108	166	153	133	134	**139**	163
February	145	162	144	148	141	**148**	147
March	180	170	171	170	194	**177**	147
April	194	150	135	142	132	**150**	148
May	123	137	119	117	147	**128**	140
June	215	124	104	99	157	**140**	137
July	272	164	240	204	322	**140**	225
August	176	304	209	213	278	**136**	199
September	145	188	142	137	174	**157**	145
October	122	175	142	126	128	**138**	124
November	121	113	128	108	127	**119**	92
December	124	135	114	114	123	**122**	121
YEAR	1925	1988	1801	1711	2057	**1896**	1788
Percentage of all deaths	**26.1**	**25.9**	**25.7**	**24.5**	**25.6**	25.5	**22.4**
July, August, and September	593	656	591	554	774	**634**	569
Percentage of year's infant mortality	**30.8**	**33.0**	**32.8**	**32.4**	**37.6**	33.4	**32.0**
Percentage of all deaths	**30.2**	**30.1**	**33.2**	**30.3**	**35.3**	32.7	**28.5**
Births	11,201	10,700	12,010	13,100	13,456	**12,093**	12,589
Infant mortality rate	171.9	185.8	150.0	130.6	152.9	**156.8**	142.0

During the years 1906–09 inclusive there was a steady diminution in the total number of deaths under one year and in the proportion of all deaths. The year 1910 showed a sharp rise both in the year's total and during the summer months, the proportion of the mortality occurring during the summer months being the highest in any of the years considered.

On the other hand, 1911 had a lower total mortality than any year except 1909. The same is true of the summer mortality, and the percentage of all deaths both for the year and for the summer months; the proportion of the year's deaths occurring during the three summer months is also lower than any year except 1906. The greatest reduction, therefore, occurred during the summer months, but there is a marked fall for the entire year.

In the following table is shown the comparison of 1911's figures with those of other years:

TABLE 77.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN 1911 AND OTHER YEARS, CLEVELAND

	1906	1907	1908	1909	1910
Year	—137	—210	—13	+77	—269
Percentage all deaths	—3.7	—3.5	—3.3	—2.1	—3.2
July, August, and September	—24	—87	—22	+15	—205
Percentage of year's infant mortality	+1.2	—1.0	—0.8	—0.4	—5.6
Percentage all deaths	**—1.7**	**—1.6**	**—4.7**	**—1.8**	**—6.8**

If, now, we compare the results in 1911 with those in 1909, allowing for the increase in population, we find results shown in the following table:

TABLE 78.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED, BASED ON 1909 FIGURES, COMPARED WITH ACTUAL MORTALITY, CLEVELAND

	1910	1911
Estimated mortality	1791	1871
Actual mortality	2057	1788
Difference, actual	+266	—83
Per cent. difference	**+14.8**	**—4.4**

Yearly rate of increase in population, 4.69 per cent.

The year 1910 showed 266, or 14.8 per cent., above 1909's figures, allowing for the increase in population; whereas 1911 was 83, or 4.4 per cent., less.

There was, therefore, a distinct improvement in the infant mortality conditions in Cleveland, although if the registration of births is anywhere near complete, the death-rate is still very high, and there is not the same degree of improvement noted as in a number of other cities.

Weather Conditions

The weather conditions in Cleveland are shown in Tables 79 and 80.

In 1909 in no month was the temperature above the normal. On only one day did it reach 90°, and the mean daily temperature reached 80° only on one day. In 1910 the temperature for the month was 1° higher than the normal in September. The mean for the four months was 0.5° below the normal; and again there was only one day when 90° or over was recorded. The mean was 80° or + on four days.

In 1911 all four months were above the normal, and the mean for four months was 1.3° above. Individual days of high temperature also were more numerous; 95° or over was reached once, 90° or over seven times. Twice the mean daily temperature was 85° or over and 9 times 80° or over. The high temperatures were scattered through the summer, except in July, when on four consecutive days 90° or over was reached (July 2d to 5th). The rest of July was cool.

TABLE 79.—NUMBER OF DAYS ON WHICH THE MAXIMUM AND MEAN TEMPERATURE REACHED CERTAIN FIGURES, CLEVELAND*

	Maximum			Mean	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	0	3	0	0
July	0	1	4	0	0
August	0	0	3	0	1
September	0	0	1	0	0
Total	0	1	11	0	1
1910					
June	0	0	0	0	0
July	0	1	7	0	2
August	0	0	8	0	2
September	0	0	1	0	0
Total	0	1	16	0	4
1911					
June	0	2	6	0	2
July	1	4	7	2	5
August	0	1	6	0	2
September	0	0	1	0	0
Total	1	7	20	2	9

TABLE 80.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, CLEVELAND*

	Normal	1909	1910	1911
June				
Mean temperature	**67°**	67°	64°	69°
Rainfall	**3.54** in.	3.72 in.	2.01 in.	2.88 in.
Rainy days	..	13	9+3	10+5
July				
Mean temperature	**72°**	70°	72°	73°
Rainfall	**3.56** in.	3.12 in.	0.94 in.	1.71 in.
Rainy days	..	9+5	9+3	7+5
August				
Mean temperature	**70°**	70°	70°	71°
Rainfall	**2.87** in.	2.31 in.	1.08 in.	5.18 in.
Rainy days	..	10+3	6+0	11+5
September				
Mean temperature	**64.1°**	62°	65°	65°
Rainfall	**3.33** in.	3.40 in.	4.09 in.	4.67 in.
Rainy days	..	10+3	11+2	11+3
Totals				
Mean temperature	**68.2°**	67.2°	67.7°	69.5°
Rainfall	**13.30** in.	12.55 in.	8.12 in.	14.44 in.
Rainy days	..	42+11	35+8	39+18

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is the number of days there was a trace of precipitation, but less than 0.01 inch.

* Monthly Meteorological Summary, Local Weather Bureau, Cleveland, and Monthly Weather Review, Washington, D. C.

The weather conditions were less favorable for a low infant mortality in 1911 than in 1909 or 1910, except in regard to rainfall, the most marked advantage in this respect in 1911 being in August.

The Campaign

In 1899 a Milk Fund Association was formed, which distributed clean milk in bulk to any one who desired to buy it. In 1906 the Infants' Clinic was established by the Milk Fund Association and the Visiting Nurse Association, to provide, during the summer, medical counsel, nursing care, and instruction in the homes and clean milk for sick babies in its neighborhood. The clinic was so successful that it became evident that a permanent organization was needed. The value of the home nursing was demonstrated beyond question.

In December, 1906, the Babies' Dispensary and Hospital of Cleveland was incorporated. A medical director was appointed, and Dr. Gerstenberger has continued from its founding to devote his time and thought to the undertaking. It is largely due to him and his clear conception of the problem that the work has succeeded as it has. In May, 1907, the dispensary and the milk laboratory were opened. Three visiting nurses were provided, and two dispensary physicians appointed. Milk was modified at the central plant and distributed by hand.

In 1908 an out-physician was added to the staff to visit cases too sick to come to the dispensary. Four nurses were employed, who made 8503 visits. Milk was still delivered to the homes with a wagon. Considerable modification of milk was done at the home by mothers; those incapable of doing so received already modified milk.

Particular stress was laid on the educational side and to the encouragement of maternal nursing.

In 1909 four branch dispensaries were formed. Great coöperation existed between the Milk Fund Association, the Visiting Nurses' Association, the Health Department, and various settlement houses. An outdoor ward was established where sick babies were treated—at first from 8 A. M. to 6 P. M., and later day and night. The Milk Fund Association became amalgamated with the dispensary, thus putting the work on a more rational basis.

In 1910 there were 6 branch dispensaries. A vigorous campaign of education for reduction of infant mortality was carried out, and was participated in by a large number of civic and philanthropic organizations.

In 1911 the New Central Dispensary was built and in operation. The City Council appropriated $10,000 for the reduction of infant mortality, and 5 new stations were opened, making a total of 11 with 60 distributing stations. Two were managed by the Health Department, but, owing to the wonderful coöperation which existed, the Babies' Dispensary and the Health Department worked together. In October, 5 of the branch dispensaries were taken over by the city. A Bureau of Child Hygiene was formed, and in September Dr. Gerstenberger became its head. Cleveland is a fortunate city in the complete, broad coöperation that has marked its infant mortality work, especially in recent years.

Every Station Baby Examined by a Capable Physician

BALTIMORE

In the following tables is set forth the infant mortality by months and groups of months, with the percentage of all deaths occurring under one year of age for the years 1907 to 1911:

TABLE 81.—MORTALITY UNDER ONE YEAR, BALTIMORE

	1907	1908	1909	1910	1911
January	167	180	155	176	143
February	153	160	139	170	138
March	182	166	161	148	165
April	134	157	162	132	141
May	139	157	173	114	152
June	140	201	168	183	125
July	397	399	317	306	280
August	370	233	264	266	254
September	239	184	215	180	182
October	215	138	172	190	132
November	145	123	157	138	109
December	162	117	144	145	137
YEAR	2443	2215	2227	2148	1958
Percentage all deaths	**21.84**	**21.26**	**21.43**	**19.97**	**18.82**
July, August, September	1006	816	796	752	716
Percentage of year's infant mortality	**41.10**	**36.84**	**35.74**	**35.01**	**36.57**
Percentage all deaths	**34.01**	**31.14**	**29.35**	**28.05**	**28.23**

From this table it will be seen that the gross figures for the years have had a steady tendency to diminish, and that this tendency has been increasingly marked in 1910 and 1911. The relation of the deaths under one year to total deaths remained practically constant during the first three years shown in the table, but has steadily fallen in 1910 and 1911.

Comparing the summer mortality, there is the same steady decrease in the gross figures. The decrease, however, has been slow. The proportion of the year's deaths under one occurring during the three summer months in 1911 was higher than in either 1909 or 1910. There is also a slight increase in the proportion of all deaths during the three summer months which are under one year of age. In other words, there was a greater proportionate decrease during the rest of the year than during the summer months.

The population of Baltimore increased 9.7 per cent. in the decade 1900–10, or 0.97 per cent. yearly. If we estimate the deaths which would have occurred had the total increased 0.97 per cent. yearly from 1908, which was the low figure up to 1910, and then note the difference between this estimate and the deaths that did occur, we shall have the results shown in the following table:

TABLE 82.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED, BASED ON 1908 FIGURES, COMPARED WITH ACTUAL MORTALITY, BALTIMORE

	1909	1910	1911
Estimated mortality	2236	2257	2279
Actual mortality	2227	2148	1958
Difference, actual	—9	—109	—321
Per cent. difference	**—0.4**	**—4.8**	**—14.0**

Yearly average increase in population, 0.97 per cent.

The results, as shown by the yearly figures, are therefore good. The reduction in the summer mortality, however, is slight, and there is still a very high proportion of the year's infant deaths occurring during the summer months.

Birth statistics for Baltimore are of no value.

Weather Conditions

The following tables show weather conditions in Baltimore:

TABLE 83.—NUMBER OF DAYS ON WHICH MAXIMUM AND MEAN TEMPERATURES REACHED CERTAIN FIGURES, BALTIMORE*

	Maximum Temperature			Mean Temperature	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	9	13	1	9
July	0	7	16	1	9
August	1	6	13	1	6
September	0	0	0	0	0
Total	1	22	42	3	24
1910					
June	0	4	10	1	6
July	1	15	23	2	16
August	0	1	9	0	3
September	1	2	5	1	3
Total	2	22	47	4	28
1911					
June	1	7	10	1	4
July	7	11	20	7	14
August	2	6	14	2	9
September	0	0	6	0	1
Total	10	24	50	10	28

* Monthly Meteorological Summary, Local Weather Bureau, Baltimore, and Monthly Weather Review, Washington.

TABLE 84.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, BALTIMORE*

	Normal	1909	1910	1911
June				
Mean temperature	**73°**	74.1°	70.4°	73.4°
Rainfall	**3.84** in.	4.38 in.	5.3 in.	5.52 in.
Rainy days	..	13+8	14+1	16
July				
Mean temperature	**77.3°**	76°	78.8°	79.2°
Rainfall	**4.82** in.	1.31 in.	0.95 in.	3.53 in.
Rainy days	..	5+7	7+2	6+4
August				
Mean temperature	**74.7°**	74.4°	74.3°	76.2°
Rainfall	**4.21** in.	0.86 in.	1.37 in.	12.28 in.
Rainy days	..	5+3	11+3	15+4
September				
Mean temperature	**68.6°**	67.6°	71.6°	70.4°
Rainfall	**3.85** in.	3.97 in.	2.13 in.	1.6 in.
Rainy days	..	5+5	4+7	7+1
Totals				
Mean temperature	**73.4°**	73.02°	73.7°	74.8°
Rainfall	**16.72** in.	10.52 in.	9.75 in.	22.93 in.
Rainy days	..	28+23	36+13	44+9

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is the number of days there was a trace of precipitation, but less than 0.01 inch.

For maximum temperatures below 95° and mean temperatures below 85° there is a very close resemblance between the three years. But temperatures of 95° or over were recorded 10 times in 1911, as against twice in 1910 and once in 1909. Mean temperatures of 85° or over were also recorded 10 times in 1911 as against 4 times in 1910 and 3 times in 1909.

The monthly mean temperatures in 1911 were well above the normal in each month, while in 1909 only June, and in 1910 only July and September, exceeded the normal. The year 1911 had a higher monthly mean than 1909 in each month except June, and higher than 1910 in each month except September.

Rainfall, on the other hand, was much greater in 1911 than in either 1909 or 1910, except in September, and exceeded the normal in the months of June and August. August had the remarkable rainfall of 12.28 inches, which is 2.79 inches greater than any recorded in August since the establishment of the Weather Bureau.

The Campaign

The chief agencies engaged in work for the reduction of infant mortality in Baltimore are the Babies' Milk Fund Association and, to a much less extent, the Mothers' Relief Society. The latter society was founded in the early nineties, its purpose being the assistance of the mothers during and after confinement.

The Babies' Milk Fund was started in 1904, when the Thomas Wilson Sanitarium established four milk stations in distant parts of the city. The work was

* Monthly Meteorological Summary, Local Weather Bureau, Baltimore, and Monthly Weather Review, Washington, D. C.

shown to be of such value that, after a few years, the Babies' Milk Fund Association was incorporated. Funds were raised by popular subscription, the Thomas Wilson Sanitarium being the largest contributor.

Babies were referred to the stations from hospitals, dispensaries, and private physicians. Milk modified to set formulæ was dispensed, and special formulæ could be secured. Milk was dispensed by trained nurses, who gave the greater part of the day to visiting at the homes, instructing and demonstrating.

In 1910 the two above-mentioned organizations united to form the Maryland Association for the Study and Prevention of Infant Mortality. It was managed by a committee composed of representatives of both organizations. After one year the Mothers' Relief Society withdrew.

In 1911 the work done increased considerably in efficiency and also in extent. Nine stations are now maintained, open all the year round. They are in charge of a trained nurse. Babies are referred by physicians and organizations, and there is little or no house-to-house canvassing. Milk already modified is supplied from six of the stations. From the other three home modification is practised and taught, tuberculin-tested milk being delivered directly to the mothers' homes, and the modification taught by the nurse. At the first two visits she modifies for the mother, and at the last visit watches the mother do it. This latter work—home modification—was started in 1911.

A weekly clinic is held at each station, when babies are weighed and mothers instructed. Great emphasis is laid on breast-feeding. Instruction is individual, not in classes. Attendance is not compulsory; milk is delivered whether they attend or not. During the year Dr. Henrietta Thomas has been conducting follow-up work for cases discharged from the Johns Hopkins Maternity services. She has had 500 babies under her care. They are also visited by the association nurses from time to time. Milk is not dispensed to these babies.

The work of the association is being widened in its scope by the establishment of welfare clinics at six of the stations, and by prenatal work among expectant mothers referred by three hospitals in Baltimore.

The number of babies supplied with milk by the stations has been as follows:

TABLE 85.—NUMBER OF BABIES FED AT MILK STATIONS IN BALTIMORE AND MORTALITY AMONG SAME

		Deaths	Rate
February, 1908, to February, 1909	1073	103	96.0 per 1000
" 1909, to " 1910	1217	105	86.3 " "
" 1910, to " 1911	1356	188	138.7 " "
" 1911, to " 1912	1194	50	41.9 " "

Of these 1194 babies in 1911–12, 927 were supplied with modified milk; 267 with whole milk modified at home.

The Department of Health has done little active special work, owing to lack of funds. During the last two years considerable interest in the problem has been aroused by the annual meeting of the American Association for the Study and Prevention of Infant Mortality in 1910, and by general exhibits on Baby Hygiene, etc.

PITTSBURGH

The following table shows the infant mortality statistics for the years 1907–11 in Pittsburgh:

TABLE 86.—MORTALITY UNDER ONE YEAR, PITTSBURGH

	1907	1908	1909	1910	1911
January	129	223	177	162	171
February	146	259	157	176	134
March	137	183	120	185	151
April	139	172	131	169	142
May	148	142	140	148	131
June	148	160	153	166	116
July	244	251	273	338	250
August	189	214	184	231	197
September	127	176	164	178	144
October	126	144	143	191	132
November	112	143	134	157	118
December	159	127	147	150	124
YEAR	1804	2194	1923	2251	1810
Percentage all deaths	**24.45**	**24.29**	**23.04**	**23.43**	**22.33**
July, August, September	560	641	621	747	591
Percentage year's infant mortality	**31.04**	**29.20**	**32.29**	**33.18**	**32.65**
Percentage all deaths	**29.82**	**31.08**	**31.19**	**33.33**	**27.75**

It will be seen that in 1911 the year's total is the lowest since 1907, which year was 6 below 1911's figures. The percentage of the total deaths occurring under one year of age is lower than in any year, including 1907.

During the summer months the deaths were 591, the lowest total of the five years except 1907. The percentage of the year's mortality which occurred during these three months was lower than in 1910, but higher than in 1907, 1908, or 1909.

If, now, taking as a basis the figures of 1907, the lowest year up to 1911, we estimate the deaths as increasing at the same rate as the population, and compare the actual deaths with these figures, we find the results shown in the following table:

TABLE 87.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED, BASED ON 1907 FIGURES, COMPARED WITH THE ACTUAL MORTALITY, PITTSBURGH

	1908	1909	1910	1911
Estimated mortality	1836	1869	1902	1935
Actual mortality	2194	1923	2251	1810
Actual difference	+358	+54	+349	—125
Per cent. difference	**+19.5**	**+2.8**	**+18.3**	**—6.4**

Average yearly increase in population, 1.82 per cent.

These figures show that in each of the years 1908, 1909, and 1910 more deaths occurred than the estimate, while 1911 alone shows a decrease of 6.4 per cent. from the estimate.

There has, therefore, been a very decided improvement this year over previous years. The proportion of infant deaths occurring during the three summer months has not, however, fallen as much as in other places.

Weather Conditions

Weather conditions are shown in Tables 88 and 89.

TABLE 88.—NUMBER OF DAYS ON WHICH MAXIMUM AND MEAN TEMPERATURES REACHED CERTAIN FIGURES, PITTSBURGH*

	Maximum Temperature			Mean Temperature	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	0	6	0	0
July	0	0	7	0	0
August	0	2	8	0	1
September	0	0	3	0	0
	0	2	24	0	1
1910					
June	0	2	10	0	0
July	0	1	13	0	3
August	0	1	10	0	0
September	0	0	1	0	0
	0	4	34	0	3
1911					
June	0	4	5	0	2
July	5	8	17	4	9
August	1	6	18	0	7
September	0	0	3	0	0
	6	18	43	4	18

Extremely high temperatures were reached more often in 1911 than in either 1910 or 1909, especially as compared with the latter year. In neither 1909 nor 1910 was 95° recorded. The same general relation is true for the daily means. The hot weather was especially severe in July and August, 1911 (during forty-eight days beginning July 1st the thermometer reached 85° or over on thirty-two days). In neither 1909 nor 1910 did the mean reach 85°, against six and four days in July and August, 1911.

The monthly mean temperatures are very much the same in 1910 and 1911, differing only in August, when in 1911 it was 1° hotter, and June, when it was 4° hotter. All four months of 1911 are above the normal averages. June, 1909 and 1911, were the same, but all other months were much below in 1909.

* Monthly Meteorological Summary, Local Weather Bureau, Pittsburgh, and Monthly Weather Review, Washington, D. C.

The Station Nurse Insists Upon Maternal Nursing Wherever Possible

TABLE 89.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, PITTSBURGH*

	Normal	1909	1910	1911
June				
Mean	**70.7°**	71°	67°	71°
Rainfall	**3.71** in.	4.92 in.	1.94 in.	2.63 in.
Rainy days	..	16	13+3	9+6
July				
Mean	**74.8°**	71°	75°	75°
Rainfall	**4.39** in.	1.22 in.	1.26 in.	2.17 in.
Rainy days	..	9+6	9+4	7+6
August				
Mean	**72.8°**	72°	73°	74°
Rainfall	**3.07** in.	3.33 in.	2.47 in.	6.3 in.
Rainy days	..	9+5	8+1	13+4
September				
Mean	**66.7°**	65°	68°	68°
Rainfall	**2.48** in.	0.76 in.	5.5 in.	6.36 in.
Rainy days	..	8	10+4	13+4
Totals				
Mean	**71.2°**	69.7°	70.7°	72°
Rainfall	**13.65** in.	10.23 in.	11.17 in.	17.46 in.
Rainy days	..	42+11	40+12	42+20

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

The rainfall in August and September, 1911, was above the normal, and also above either 1909 or 1910, especially in August. June and July were below the normal, but in excess of 1910 in June and in excess of both years in July.

It has been impossible to obtain information first hand in regard to the work being done in Pittsburgh.

* Monthly Meteorological Summary, Local Weather Bureau, Pittsburgh, and Monthly Weather Review, Washington, D. C.

DETROIT

In studying the mortality figures for Detroit it must be remembered that the population has increased 63 per cent. in ten years. The following tables give the statistics of infant mortality for the years 1906 to 1911:

TABLE 90.—MORTALITY UNDER ONE YEAR, DETROIT

	1906	1907	1908	1909	1910	Average 1906-10	1911
January	97	124	126	130	148	**125**	160
February	113	107	141	126	132	**124**	154
March	137	153	165	149	200	**161**	138
April	147	114	180	150	196	**157**	104
May	145	119	119	140	141	**133**	150
June	134	103	117	114	198	**133**	133
July	221	186	206	211	275	**220**	244
August	172	198	207	220	251	**209**	215
September	154	166	162	171	182	**167**	179
October	136	133	131	149	125	**135**	130
November	116	100	91	114	118	**108**	121
December	107	95	89	127	129	**109**	134
Year	1679	1598	1734	1801	2095	**1781**	1862
Percentage of all deaths	**28.0**	**26.4**	**29.5**	**28.5**	**28.1**	28.1	**26.1**
July, August, and September	547	550	575	602	708	**596**	638
Percentage year's infant mortality	**32.6**	**34.4**	**33.6**	**33.4**	**33.8**	33.5	**34.3**
Percentage all deaths	**33.3**	**35.8**	**38.5**	**36.0**	**35.3**	35.7	**34.0**
Births	7752	8341	9572	9617	11,509	**9358**	13,373
Infant mortality rate	216.5	191.5	181.1	187.2	182.0	**190.3**	139.2

TABLE 91.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN 1911 AND PREVIOUS YEARS, DETROIT

	1906	1907	1908	1909	1910
Year	+183	+264	+128	+61	—233
Percentage all deaths	—1.85	—0.24	—3.36	—2.42	—1.99
July, August, and September	+91	+88	+63	+36	—70
Percentage year	+1.32	—0.16	+1.10	+0.84	+0.47
Percentage all deaths	**+0.74**	**—1.82**	**—4.51**	**—2.02**	**—1.26**

It will be seen that from 1907 through 1910 there has been a slowly increasing gross total infant mortality. The proportion of total deaths which occurred under one year of age was higher than in 1907 during the three years following it, although it has slowly fallen each year after 1908. The year 1911, however, shows the lowest percentage of all deaths of any of the six years, being even lower than 1907.

Comparing the summer mortality, the total has slowly increased, but not in

proportion to the population. The year 1911 shows a lower total than 1910, but higher than the four previous years. The percentage of the year's mortality which occurred during these three months is also higher than in any year except 1907. In other words, the summer mortality is not reduced quite so much as that for the rest of the year. The percentage of all deaths occurring during the summer months is, however, lower than any since 1906. If we take deaths in 1907, the low year, as a basis, and estimate the increase on the same basis as increase in population, the mortality should have been:

TABLE 92.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED ON BASIS OF 1907 FIGURES, COMPARED WITH ACTUAL MORTALITY, DETROIT

	1908	1909	1910	1911
Estimated mortality	1698	1799	1900	2000
Actual mortality	1734	1801	2095	1862
Difference	+36	+2	+195	—138
Per cent. difference	**+2.1**	**+0.1**	**+9.3**	**—6.9**

Average yearly increase in population, 6.3 per cent.

Applying the same method to the summer mortality we find:

TABLE 93.—MORTALITY UNDER ONE YEAR DURING THREE SUMMER MONTHS WHICH SHOULD HAVE OCCURRED ON BASIS OF 1907 FIGURES, COMPARED WITH ACTUAL MORTALITY, DETROIT

	1908	1909	1910	1911
Estimated mortality	584	619	654	688
Actual mortality	575	602	708	638
Difference	—9	—17	+54	—50
Per cent. difference	**—0.15**	**—2.7**	**+8.2**	**—7.3**

The summer reduction has, therefore, kept pace with the yearly reduction, allowing for increase in population. The infant mortality rate also shows a very marked fall to 139.2, but it must be remembered that the great increase in births during 1910 and 1911 is probably partly due to a more efficient registration.

Weather Conditions

Weather conditions in Detroit are shown in Tables 94 and 95.

The most striking differences occur in 1909 and 1911. August was hotter in 1909 than in either 1910 or 1911. The mean for the month was higher, and also above the normal. In the other three months 1911 was in excess of 1909 by from 2° to 3°. Ninety-five degrees was never reached in 1909, while it was reached three times in 1910 and five times in 1911. The daily mean was never 85°, and only 80° or over three times in 1909, while in 1911 it was 85° three times and 80° or over thirteen times.

TABLE 94.—NUMBER OF DAYS ON WHICH THE MAXIMUM AND MEAN TEMPERATURE REACHED CERTAIN FIGURES, DETROIT*

	Maximum			Mean	
	95° or +	90° or +	85° or +	85° or +	80° or +
1909					
June	0	0	3	0	0
July	0	1	5	0	0
August	0	2	8	0	3
September	0	0	2	0	0
	0	3	18	0	3
1910					
June	1	3	8	0	3
July	2	3	15	2	3
August	0	1	7	0	1
September	0	0	0	0	0
	3	7	30	2	7
1911					
June	2	3	6	0	3
July	3	8	12	3	8
August	0	1	7	0	2
September	0	0	2	0	0
	5	12	27	3	13

TABLE 95.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, DETROIT*

	Normal	1909	1910	1911
June				
Mean	**67.4°**	67°	66°	69°
Rainfall	**3.80** in.	4.95 in.	1.47 in.	1.48 in.
Rainy days	..	13	9+0	9+7
July				
Mean	**72.1°**	71°	74°	74°
Rainfall	**3.50** in.	5.94 in.	1.48 in.	0.79 in.
Rainy days	..	9+2	6+5	9+0
August				
Mean	**70.1°**	72°	71°	71°
Rainfall	**2.73** in.	3.75 in.	1.11 in.	1.31 in.
Rainy days	..	9+5	7+3	9+6
September				
Mean	**63.5°**	61°	63°	64°
Rainfall	**2.55** in.	0.75 in.	2.02 in.	4.32 in.
Rainy days	..	8+2	10+2	14+4
Totals				
Mean	**68.2°**	67.7°	68.5°	68.5°
Rainfall	**12.58** in.	15.39 in.	6.08 in.	7.9 in.
Rainy days	..	39+9	32+10	41+17

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

* Monthly Meteorological Summary, Local Weather Bureau, Detroit, and Monthly Weather Review, Washington.

June, 1910, was cooler than 1911 by 3°, and September by 1°. The other two months had the same mean, 1911 being above the normal in all four months.

Except in September the rainfall in 1911 was scanty, being well below the normal in each month. The first three months were drier than in 1909. July was much drier than 1910, and had very slightly greater rainfall in June and August.

It is in the months of July and August that the greatest reduction in infant deaths occurred.

The Campaign

Until 1910 very little was done in Detroit for preventing infant mortality outside of the ordinary relief work done by charitable organizations. The Babies' Milk Fund distributed good milk, whole or modified, to patients referred by the various clinics and hospitals. No attempt was made to follow up these babies, nor was any home instruction given.

In 1910 the Health Department began a "mothers' clinic" under the charge of Dr. Duffield. The Visiting Nurses' Association assigned one nurse to this clinic, which attempted to secure proper feeding for babies and instruction for their mothers. The milk was distributed unmodified, and was prepared at home under supervision.

The "Children's Bureau" was organized this same year, composed of representatives of 18 different organizations; a trained social worker was employed, and coöperation and greater efficiency resulted.

In 1911 the Babies' Milk Fund started two milk stations in charge of a Medical Director, Dr. Cooley, with nurses in attendance. The Milk Fund gave up the modification of milk except in very exceptional cases, teaching home modification instead. Home visiting by the nurses is made a great feature of the work, and coöperation exists with the Visiting Nurses' Association. Consultations are held at the stations, attendance by the mothers being demanded. Classes have been started for mothers and young girls in infant hygiene, making of clothes, etc. Obstetric clinics are being started in connection with the stations, and promise to be valuable additions to the work.

The Mothers' Clinic of the Health Department increased its activities very largely in 1911. The school nurses were detailed to its work in the summer months. Births reported by midwives were visited, and the mother instructed.

A campaign of publicity was started to try to improve the milk supply. A milk exhibit was held under the auspices of the Board of Commerce and the Health Department, which resulted in greatly improving the supply through the raising of the standards required.

A considerable amount of work has been done, and very nearly all of it during the years 1910 and 1911. The educational *prevention* of infant mortality is being emphasized.

BUFFALO

The mortality under one year for Buffalo is shown in the following table:

TABLE 96.—MORTALITY UNDER ONE YEAR, BUFFALO*

	1906	1907	1908	1909	1910	Average 1906-10	1911
January	84	39	107	110	109	**90**	96
February	85	118	110	101	76	**96**	82
March	92	114	96	77	111	**98**	94
April	97	109	100	70	135	**102**	97
May	80	100	77	89	123	**94**	88
June	77	79	73	64	67	**72**	104
July	130	290	154	136	139	**170**	97
August	221	242	174	192	254	**216**	103
September	67	152	141	117	173	**130**	90
October	99	92	144	98	109	**108**	70
November	93	73	77	85	91	**84**	63
December	121	87	74	114	95	**98**	66
Year	1246	1495	1317	1253	1482	**1358**	1050
Percentage all deaths	**19.6**	**22.5**	**21.1**	**19.8**	**21.3**	20.9	**20.7**
July, August, and September	418	684	469	445	566	**516**	290
Percentage of year	**33.5**	**45.7**	**35.6**	**35.5**	**38.2**	38.0	**27.6**
Percentage all deaths	**23.7**	**38.8**	**29.9**	**27.5**	**32.0**	30.5	**20.0**
Births	8075	8891	9171	9027	10,008	**9272**	10,546
Infant mortality rate	154.3	168.1	143.6	138.8	148.1	**146.5**	99.5

The difference between 1911 and the other years is shown in the following table:

TABLE 97.—DIFFERENCE BETWEEN MORTALITY UNDER ONE YEAR IN 1911 AND PREVIOUS YEARS, BUFFALO

	1906	1907	1908	1909	1910
Year	—196	—445	—267	—203	—432
Percentage all deaths	+1.1	—1.8	—0.4	+0.9	—0.6
July, August, and September	—128	—394	—179	—155	—276
Percentage of year's infant mortality	—5.9	—18.1	—8.0	—7.9	—10.6
Percentage all deaths	—3.7	—13.8	—9.9	—7.5	—12.0
Infant mortality rate	—54.8	—67.6	—44.1	—39.3	—48.6

It will be seen at once that there was a most phenomenal decrease in the infant mortality in 1911. Only January and June are above the five-year average. The decrease is all in the second half of the year. The figures for the first and second half-years are:

* These figures are taken from the monthly bulletin of the State Department of Health. They will be found to differ considerably in some cases from the Census Bureau figures, and from those of the Buffalo Department of Health Annual Reports, owing apparently to different methods in tabulating still-births.

TABLE 98.—MORTALITY UNDER ONE YEAR BY HALF-YEARLY PERIODS, BUFFALO

	1906	1907	1908	1909	1910	Average 1906-10	1911
First half-year	515	559	553	511	621	**552**	561
Second half-year	731	936	764	742	861	**806**	489

The striking situation exists of the second half of the year having a lower mortality than the first half; even more striking are the figures by trimesters:

TABLE 99.—MORTALITY UNDER ONE YEAR BY TRIMESTERS, BUFFALO

	1906	1907	1908	1909	1910	Average 1906-10	1911
First trimester	261	271	303	288	296	**284**	272
Second trimester	254	288	250	223	325	**268**	289
Third trimester	418	684	469	445	566	**516**	290
Fourth trimester	313	252	295	297	295	**290**	199

The percentages of the year's total deaths occurring in each of the four trimesters in 1911, as compared with the average for five years, are:

TABLE 100.—MORTALITY UNDER ONE YEAR BY TRIMESTERS, IN PERCENTAGES, BUFFALO

	First	Second	Third	Fourth
1911	25.91	27.52	27.62	18.95
Average	**20.91**	**19.73**	**38.00**	**21.36**

A difference of one-tenth of 1 per cent. is shown between the second and third quarters in 1911, as against 18.27 in the average. The third quarter in 1911 is 10.38 less than the average.

The percentage of all deaths for the year, however, is only 0.6 lower than 1910, and is 1.1 per cent. higher than 1906. For the summer months it is 12 per cent. lower than 1910, and 3.7 per cent. lower than 1906.

The infant mortality rate is from 39.3 to 67.6 lower than the preceding years, being 99.5, a very low figure.

If we estimate the deaths that would have occurred if the mortality had increased at the same rate as the population, based on the figures of 1906, the low year, we find:

TABLE 101.—YEAR'S MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED, BASED ON 1906 FIGURES, COMPARED WITH ACTUAL MORTALITY, BUFFALO

	1907	1908	1909	1910	1911
Estimated mortality	1271	1296	1321	1347	1372
Actual	1495	1317	1253	1482	1050
Difference	+224	+21	—68	+135	—322
Percentage difference	+17.6	+1.6	—3.1	+10.0	—23.5

Average yearly increase in population, 2.02 per cent.

Estimating in the same way the summer mortality we find:

TABLE 102.—MORTALITY UNDER ONE YEAR, DURING THREE SUMMER MONTHS, WHICH SHOULD HAVE OCCURRED, BASED ON 1906 FIGURES, COMPARED WITH ACTUAL MORTALITY, BUFFALO

	1907	1908	1909	1910	1911
Estimated mortality	426	435	443	452	460
Actual	684	469	445	566	290
Difference	+258	+34	+2	+114	—170
Percentage difference	**+60.6**	**+7.8**	**+0.5**	**+25.2**	**—36.9**

There has been a most phenomenal decrease in infant deaths in Buffalo. The infant mortality rate has fallen to 99.5, and the actual figures for births are only 546 more than 1910, so that there cannot have been a very greatly increased reporting of births, in all probability.

Weather Conditions

Weather conditions in Buffalo are shown in the following tables:

TABLE 103.—NUMBER OF DAYS ON WHICH MAXIMUM AND MEAN TEMPERATURES REACHED CERTAIN FIGURES, BUFFALO*

	Maximum Temperature				Mean Temperature		
	95° or +	90° or +	85° or +	80° or +	85° or +	80° or +	75° or +
1909							
June	0	0	1	2	0	0	1
July	0	0	0	7	0	0	3
August	0	0	2	10	0	0	6
September	0	0	1	3	0	0	1
Total	0	0	4	22	0	0	11
1910							
June	0	0	1	6	0	0	1
July	0	0	2	9	0	0	3
August	0	0	5	12	0	0	7
September	0	0	0	0	0	0	0
Total	0	0	8	27	0	0	11
1911							
June	0	0	0	2	0	0	0
July	1	2	6	11	1	3	10
August	0	2	6	11	0	3	9
September	0	0	0	1	0	0	0
Total	1	4	12	25	1	6	19

* Monthly Meteorological Summary, Buffalo, and Weather Review, Washington, D. C.

Where Home Instruction is Needed

TABLE 104.—MONTHLY MEAN TEMPERATURE, RAINFALL, AND NUMBER OF RAINY DAYS, BUFFALO*

	Normal	1909	1910	1911
June				
Mean	**65°**	64.6°	62.8°	66.3°
Rainfall	**3.03** in.	1.05 in.	1.05 in.	2.23 in.
Rainy days	..	5+7	8+5	12+6
July				
Mean	**70°**	68.6°	70.1°	71.6°
Rainfall	**3.32** in.	2.49 in.	5.33 in.	4.41 in.
Rainy days	..	10+3	8+4	8+7
August				
Mean	**69°**	69.4°	69.4°	69.8°
Rainfall	**2.95** in.	1.69 in.	2.72 in.	4.61 in.
Rainy days	..	8	8+3	11+4
September				
Mean	**63°**	61.7°	62.0°	62.2°
Rainfall	**3.09** in.	2.61 in.	2.16 in.	3.81 in.
Rainy days	..	11+4	10+4	11+6
Total				
Mean	**66.7°**	66.07°	66.07°	67.4°
Rainfall	**12.39** in.	7.84 in.	11.26 in.	15.06 in.
Rainy days	..	34+14	34+16	42+23

Note.—Two figures are given for number of rainy days—the first, in front of the plus sign, is the number of days precipitation was 0.01 inch or more; the second, after the plus sign, is number of days there was a trace of precipitation, but less than 0.01 inch.

Temperatures above 90° are unusual in Buffalo. They were not recorded during the years 1909 and 1910. Figures for a maximum of 80° and a mean of 75° are, therefore, included in the table.

The year 1911, therefore, stands out as a year when there were periods of extreme heat, 90° or more being recorded on two days in both July and August. A mean temperature of 80° or more was also recorded in both July and August, which did not occur in either 1909 or 1910. A mean temperature of 75° was reached nineteen times in 1911 as against eleven times in the two previous years. The monthly means show 1911 above the normal in each month except September, and higher than either 1909 or 1910 for each month.

The rainfall except in June was above the normal in each month, and was greater than the corresponding months in 1909 and 1910, except in July, when less rain fell than in 1910.

Except in rainfall, weather conditions were unfavorable for a low infant mortality.

The Campaign

It has been difficult to obtain exact information in regard to the activities being carried on in Buffalo. In a general way everybody seems to be agreed that during the last year some very active work has been done by the Health Department and social organizations. The problem of the milk supply is being very actively handled by the Health Commissioner, Dr. Fronczak. The Children's Welfare Society and the Babies' Milk Dispensary are both very active in their campaign. Considerable coöperation exists between the various agencies, and the Health Department is doing all in its power to increase this coöperation.

* Monthly Meteorological Summary, Buffalo, and Weather Review, Washington, D. C.

CHAPTER VII

General Summary

For convenience in reference the mortality in the various localities studied is summarized in the following tables.

Table 105 shows the highest, lowest, and difference between same, for the years 1906–10 inclusive, in the year's actual mortality under one year; the percentage of all deaths, and the infantile mortality rate; the actual deaths, percentage of all deaths, and proportion occurring in this period for the third quarter; and the relation of the 1911 figures to the highest, lowest, and 1910 figures in each of these groups.

Table 106 shows the same thing expressed in percentages. By "Extremes" is meant the difference between highest and lowest in the period 1906–10 expressed in percentage of the highest. The yearly average increase in population is also noted.

A consideration of these tables shows that:

1. In actual yearly deaths—
   - Manhattan, Brooklyn, City of New York, Philadelphia, St. Louis, Baltimore, and Buffalo show a decrease in 1911 from the lowest actual mortality recorded in the previous five-year period.
   - In the amount of this decrease from lowest figures, expressed in percentages, the figures for Manhattan are exceeded only by Baltimore and Buffalo.
   - "Rest of City," Chicago, Boston, Cleveland, Pittsburgh, and Detroit show an increase in 1911 from this lowest figure.
2. In the ratio of infant deaths to total deaths for the year, in 1911—
   - All but Buffalo show a decrease from the lowest figure recorded.
   - In actual figures the proportion of decrease is greater in Manhattan than in any of the other localities except Cleveland, Pittsburgh, and Detroit.
   - In the percentage decrease from the lowest previous figure, Manhattan is exceeded only by Philadelphia and Cleveland (8.8 and 8.6 respectively, as against 7.8 for Manhattan).
3. In infant mortality rate for 1911—
   - Manhattan is higher than any other city in actual figures except Boston, Cleveland, and Detroit.
   - A decrease from the lowest previous rate is noted in all except Boston, which is 6.2 higher than its lowest previous figure, and Cleveland, which is 11.4 higher. These figures, however, are of little real value in most cases, as birth registration has only within the last year or two received any attention from the authorities.

TABLE 105.—INFANT MORTALITY. COMPARATIVE TABLE BASED ON STATISTICS FOR YEARS 1906–11.—ACTUAL CHANGES

Extremes, 1906–10	Manhattan	Brooklyn	"Rest of City"*	City of New York	Chicago	Philadelphia	St. Louis	Boston	Cleveland	Baltimore	Pittsburgh	Detroit	Buffalo
Year													
Actual:													
Highest	9602	5503	2332	17437	6888	5781	1814	2742	2057	2443‡	2251‡	2095	1495
Lowest	8914	4923	2139	15976	6114	4870	1707	2125	1711	2148‡	1804‡	1598	1246
Difference	688	580	193	1461	774	911	107	617	346	295‡	447‡	497	249
Percentage all deaths:													
Highest	23.9	21.8	20.4	22.5	22.6	21.1	17.9	23.3	26.11	21.8‡	24.4‡	29.5	22.6
Lowest	23.1	19.7	17.7	21.1	20.5	19.3	15.7	19.2	24.5	19.9‡	23.0‡	26.4	19.6
Difference	0.8	2.1	2.7	1.4	2.1	1.8	2.2	4.1	1.6	1.9‡	1.4‡	3.1	3.0
Infant mortality rate:													
Highest	150.2	157.8	159.6	153.7	§	166.2	§	148.0	185.8	§	§	216.5	168.1
Lowest	134.9	118.4	110.0	125.6	§	129.7	§	119.8	130.6	§	§	181.1	138.8
Difference	15.3	39.4	49.6	28.1	§	36.5	§	28.2	55.2	§	§	35.4	29.3
July–August–September													
Actual:													
Highest	3278	2191	1034	6502	2209	1777†	663	1010	774	1006‡	747‡	708	684
Lowest	2640	1733	781	5154	1923	1645†	548	741	554	752‡	560‡	547	418
Difference	638	448	253	1348	286	132†	115	269	220	254‡	187‡	161	266
Percentage all deaths:													
Highest	33.1	32.5	32.4	32.3	29.2	28.4†	25.7	34.0	35.3	34.0‡	33.3‡	38.5	38.8
Lowest	30.9	28.5	25.7	29.4	23.8	27.9†	21.4	27.2	30.1	28.0‡	29.8‡	33.3	23.7
Difference	2.2	4.0	6.7	2.9	5.4	0.5†	4.3	6.8	5.2	6.0‡	3.5‡	5.2	15.1
Percentage years deaths under one:													
Highest	34.1	39.8	45.1	37.3	32.2	33.9†	38.2	25.9	37.6	41.1‡	33.2‡	34.4	45.7
Lowest	29.6	34.9	36.5	32.3	30.7	33.7†	31.6	21.3	30.8	35.0‡	29.2‡	32.6	33.5
Difference	4.5	4.9	8.6	5.0	1.5	0.2†	6.6	4.6	6.8	6.1‡	4.0‡	1.8	12.2

* "Rest of City" means Boroughs of Bronx, Queens, and Richmond combined.

† Based on figures 1909–11. ‡ Based on figures 1907–11. § Not accurate enough for any use.

TABLE 105.—INFANT MORTALITY. COMPARATIVE TABLE BASED ON STATISTICS FOR YEARS 1906–11.—ACTUAL CHANGES.—(*Continued.*)

Extremes, 1906–10	Manhattan	Brooklyn	"Rest of City"*	City of New York	Chicago	Philadelphia	St. Louis	Boston	Cleveland	Baltimore	Pittsburgh	Detroit	Buffalo
1911													
Year													
Actual, 1911	8192	4629	2196	15017	6309	4616	1579	2245	1788	1958	1810	1862	1050
Difference from highest	—1410	—874	—136	—2420	—579	—1265	—235	—497	—269	—485‡	—441‡	—233	—445
Difference from lowest	—722	—294	+57	—959	+195	—254	—128	+120	+77	—190‡	+6‡	+264	—196
Difference from 1910	—762	—430	—6	—1198	—532	—616	—128	—4	—269	—190	—441	—233	—432
Percentage all deaths, 1911	21.3	18.9	17.5	19.9	19.3	17.6	14.5	19.1	22.4	18.8	22.3	26.1	20.7
Difference from highest	—2.6	—2.9	—2.9	—2.6	—3.3	—3.5	—3.4	—4.2	—3.7	—3.0‡	—2.1‡	—3.4	—1.9
Difference from lowest	—1.8	—0.8	—0.2	—1.2	—1.2	—1.7	—1.2	—0.1	—2.1	—1.1‡	—0.7‡	—0.3	+1.1
Difference from 1910	—1.8	—0.8	—0.2	—1.2	—1.2	—1.7	—1.2	—0.3	—3.2	—1.1	—1.1	—2.0	—0.6
Infant mortality rate, 1911	123.1	101.3	98.6	111.6	§	112.5	101.6	126.0	142.0	§	§	139.2	99.5
Difference from highest	—27.1	—56.5	—61.0	—42.1	§	—53.7	..	—22.0	—43.8	§	§	—77.3	—68.6
Difference from lowest	—11.8	—17.1	—11.4	—14.0	§	—17.2	..	+6.2	+11.4	§	§	—41.9	—39.3
Difference from 1910	—11.8	—17.1	—11.4	—14.0	§	—23.8	..	—0.7	—10.9	§	§	—42.8	—48.6
July–August–September													
Actual, 1911	2294	1499	800	4593	1904	1537	699	764	569	716	591	638	290
Difference from highest	—984	—692	—234	—1909	—305	—240†	—124	—246	—205	—290‡	—156‡	—70	—394
Difference from lowest	—346	—234	+19	—561	—19	—108†	—9	+23	+15	—36‡	+31‡	+91	—128
Difference from 1910	—658	—269	—54	—981	—305	—240	—27	+15	—205	—36	—156	—70	—276
Percentage all deaths, 1911	25.7	25.9	24.3	25.4	24.7	25.0	20.5	25.1	28.5	28.2	27.7	34.0	20.0
Difference from highest	—7.5	—6.5	—8.1	—6.9	—4.6	—3.4†	—4.6	—8.9	—6.8	—5.8‡	—5.6‡	—4.5	—18.8
Difference from lowest	—5.3	—2.5	—1.4	—4.0	+0.8	—2.9†	—0.3	—2.1	—1.6	+0.2‡	—2.1‡	+0.7	—3.7
Difference from 1910	—5.8	—2.5	—2.2	—4.3	+0.8	—2.9	—1.2	—2.1	—6.8	+0.2	—5.6	—1.3	—12.0
Percentage years deaths under one, 1911	28.0	32.3	36.4	30.6	30.2	33.2	34.1	33.6	31.8	36.6	32.6	34.3	27.6
Difference from highest	—6.1	—7.4	—8.7	—6.7	—2.1	—0.7†	—4.1	—1.9	—5.8	—4.5‡	—0.6‡	—0.1	—18.1
Difference from lowest	—1.6	—2.5	—0.1	—1.7	—0.6	—0.5†	+2.5	+2.7	+1.0	+1.6‡	+3.4‡	+1.7	—5.9
Difference from 1910	—4.9	—2.5	—2.3	—3.8	—2.1	—0.7	+0.9	+2.7	—5.8	+1.6	+0.4	+0.5	—10.5

* "Rest of City" means Boroughs of Bronx, Queens, and Richmond combined.

† Based on figures 1909–11. ‡ Based on figures 1907–11. § Not accurate enough for any use.

TABLE 106.—INFANT MORTALITY. COMPARATIVE TABLE BASED ON STATISTICS FOR YEARS 1906–11.—PERCENTAGE CHANGES

	Manhattan	Brooklyn	"Rest of City"*	City of New York	Chicago	Philadelphia	St. Louis	Boston	Cleveland	Baltimore	Pittsburgh	Detroit	Buffalo
YEAR													
Actual:													
Extremes	7.1	10.5	8.3	8.3	11.0	15.7	5.9	22.5	16.8	12.1‡	19.8‡	23.7	16.6
1911 from highest	—14.6	—15.9	—5.8	—13.9	—8.4	—21.8	—12.9	—18.1	—13.1	—19.8‡	—19.6‡	—11.1	—29.8
" lowest	—8.1	—6.0	+2.6	—6.0	+3.1	—5.2	—7.5	+5.6	+4.5	—8.8‡	+0.3‡	+16.5	—15.7
" 1910	—8.5	—8.5	—0.3	—7.4	—7.7	—11.7	—7.5	—0.2	—13.1	—8.8	—19.6	—11.1	—29.2
Percentage all deaths:													
Extremes	3.3	9.9	12.8	9.3	9.2	8.5	12.3	17.6	6.1	8.7‡	5.7‡	10.5	13.3
1911 from highest	—10.9	—13.3	—13.8	—11.5	—14.6	—16.5	—19.0	—18.0	—14.2	—13.8‡	—8.6‡	—11.5	—8.4
" lowest	—7.8	—0.4	—1.1	—5.7	—5.8	—8.8	—7.6	—0.5	—8.6	—5.1‡	—3.0‡	—1.1	+5.6
" 1910	—7.8	—0.4	—1.1	—5.7	—5.8	—8.8	—7.6	—1.5	—12.5	—5.1	—4.7	—7.1	—2.8
Infant mortality rate:													
Extremes	10.2	25.0	31.1	18.3	§	21.9	§	19.0	29.7	§	§	16.3	17.4
1911 from highest	—18.0	—35.8	—38.2	—27.4	§	—32.3	§	—14.9	—23.5	§	§	—35.7	—40.8
" lowest	—8.7	—14.4	—10.4	—11.1	§	—13.2	§	+5.2	+8.7	§	§	—23.1	—28.3
" 1910	—8.7	—14.4	—10.4	—11.1	§	—17.5	§	—0.5	—7.1	§	§	—23.5	—32.8
JULY–AUGUST–SEPTEMBER													
Actual:													
Extremes	19.4	20.4	24.6	20.7	12.9	7.5†	17.3	26.6	28.4	25.2‡	25.0‡	22.7	38.9
1911 from highest	—30.0	—31.6	—22.8	—29.3	—13.8	—13.5†	—18.7	—24.3	—26.5	—28.8‡	—20.9‡	—9.9	—57.6
" lowest	—13.1	—13.5	+2.4	—10.9	—0.9	—6.5†	—1.6	+3.1	+2.7	—4.8‡	+5.5‡	+16.6	—30.9
" 1910	—22.3	—15.2	—6.3	—17.6	—13.8	13.5	—4.7	+2.0	—26.5	—4.8	—20.9	—9.9	—38.8
Percentage all deaths:													
Extremes	6.6	12.3	20.7	9.0	18.4	1.7†	16.7	20.0	14.7	17.6‡	10.5‡	13.5	38.9
1911 from highest	—22.6	—20.0	—25.0	—21.3	—15.7	—11.9†	—17.9	—26.2	—19.2	—17.0‡	—16.8‡	—11.7	—48.4
" lowest	—17.1	—8.8	—5.4	—13.6	+3.3	—10.3†	—1.4	—7.7	—5.3	+0.7‡	—7.0‡	+2.1	—15.6
" 1910	—18.4	—8.8	—8.3	—14.5	+3.3	—10.3	—5.4	—7.7	—19.2	+0.7	—16.8	—3.7	—37.5
Percentage year's deaths under one:													
Extremes	13.1	12.3	19.2	13.4	4.6	0.6†	17.3	17.7	18.1	14.8‡	12.0‡	5.2	26.7
1911 from highest	—17.8	—18.6	—19.5	—17.9	—6.5	—2.0†	—10.7	—7.3	—15.4	—10.9‡	—0.2‡	—0.3	—39.6
" lowest	—5.4	—7.2	—0.3	—5.3	—1.9	—1.4†	+7.9	+12.7	+3.2	+4.6‡	+11.6‡	+5.2	—17.6
" 1910	—14.9	—7.2	—5.9	—11.0	—6.5	—2.0	+2.7	+12.7	—15.4	+4.6	+1.2	+1.5	—27.6
Yearly increase population	2.602	4.01	9.038	3.87	2.87	1.97	1.94	1.96	4.69	0.97	1.82	6.3	2.02

* "Rest of City" means Boroughs of Bronx, Queens, and Richmond combined.

† Based on figures 1909–11. ‡ Based on figures 1907–11. § Not accurate enough for any use.

The percentage decrease in Manhattan is the smallest of any which show a decrease. The real value of this is also small, as stated above.

4. In actual deaths during the third quarter of the year 1911—
   Manhattan, Brooklyn, New York City, Chicago, Philadelphia, St. Louis, Baltimore, and Buffalo show a decrease from the lowest previous year.
   "Rest of City," Boston, Cleveland, Pittsburgh, and Detroit show an increase from the lowest previous figure.
   Manhattan shows a greater percentage of decrease from the lowest previous figures than any locality except Brooklyn and Buffalo.
5. In ratio of infant deaths to total deaths occurring in third quarter of 1911—
   There is a decrease from the lowest previous figures in all save Chicago, Baltimore, and Detroit.
   In actual decrease from lowest previous figure Manhattan is exceeded only by Cleveland, Baltimore, Pittsburgh, and Detroit.
   Manhattan shows the greatest percentage decrease from lowest previous figure—17.1 per cent. as against 15.6 per cent. for Buffalo.
6. In percentage of year's infant mortality occurring in third quarter of 1911—
   There is a reduction from the lowest previous figures in Manhattan, Brooklyn, "Rest of City," New York city, Chicago, Philadelphia, and Buffalo.
   An increase is noted in St. Louis, Boston, Cleveland, Baltimore, Pittsburgh, and Detroit.
   Manhattan shows the lowest actual figure of any locality except Buffalo—28 as against 27.6 per cent.
   The percentage of decrease from lowest previous figure in Manhattan is exceeded only by Brooklyn and Buffalo.
7. Leaving out of consideration the infant mortality rate which is absolutely unreliable for comparative study over a period of years—
   Manhattan shows a greater percentage reduction than Chicago, St. Louis, Boston, Pittsburgh, and Detroit in every respect. Philadelphia and Cleveland have a better showing only in the ratio of infant deaths to total deaths for the year. Baltimore exceeds only in the percentage decrease of actual deaths for the year.
   Buffalo has a better showing in each respect except in the ratio of infant deaths to total deaths for the year and for the third trimester.
   The percentage reduction in mortality for the third trimester is greater in Manhattan than in any other region studied. Compared with the "Rest of the City," Manhattan makes a better showing in reduction in every point.

There is still another method of estimating results based upon the method of comparison with previous low records, allowing for increase of population. The following tables are constructed to put the 1911 mortality figures to as severe a test as possible.

Taking the low record total for the year in each city and allowing for increase in population, we have the following:

TABLE 107.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED IN 1911, BASED ON LOW FIGURE PREVIOUS TO 1910, ALLOWING FOR INCREASE IN POPULATION, COMPARED WITH ACTUAL MORTALITY IN 1911 IN VARIOUS LOCALITIES

	Lowest Previous Year's Total	Year	Increase in Population	Estimated Mortality	Mortality, 1911	Difference	Per Cent. Difference
Buffalo	1246	1906	10.10	1371	1050	— 321	—23.5
St. Louis	1715	1907	7.76	1848	1579	— 269	—14.5
Baltimore	2215	1908	2.91	2279	1958	— 321	—14.0
Philadelphia	4597	1903	15.76	5321	4616	— 705	—13.2
Chicago	6114	1906	14.35	6991	6309	— 682	—10.1
Detroit	1598	1907	25.20	2000	1862	— 138	— 6.9
Pittsburgh	1804	1907	7.28	1935	1810	— 125	— 6.4
Cleveland	1711	1909	9.38	1871	1788	— 83	— 4.4
Boston	2125	1909	3.92	2208	2245	+ 37	+ 1.7
Brooklyn	*4601*	*1903*	*32.08*	*6077*	*4629*	*—1448*	*—23.8*
"Rest of City"	*1631*	*1903*	*72.30*	*2810*	*2196*	*— 614*	*—21.8*
New York City	*14413*	*1903*	*28.56*	*18529*	*15017*	*—3512*	*—20.4*
Manhattan	**8184**	**1903**	**20.81**	**9884**	**8912**	**—1692**	**—17.1**

Of the first nine cities in the list, Buffalo alone has a greater reduction from this estimated mortality than Manhattan. Brooklyn, the "Rest of the City," and New York as a whole had a greater reduction than Manhattan.

If, now, we compare the mortality during the three summer months in the same way, we see the following results:

TABLE 108.—MORTALITY UNDER ONE YEAR WHICH SHOULD HAVE OCCURRED DURING THE *THREE SUMMER MONTHS* OF 1911, BASED ON PREVIOUS LOW FIGURES, AND ALLOWING FOR INCREASE IN POPULATION, COMPARED WITH ACTUAL MORTALITY IN 1911 IN VARIOUS LOCALITIES

	Estimated Mortality	Mortality in 1911	Difference	Per Cent. Difference
Buffalo	502	290	— 312	—63.9
Chicago	2198	1904	— 294	—13.4
Detroit	719	638	— 81	—11.3
Philadelphia	1709	1537	— 172	—10.1
Cleveland	606	569	— 37	— 6.1
Baltimore	759	716	— 43	— 5.7
St. Louis	740	699	— 41	— 5.5
Pittsburgh	600	591	— 9	— 1.5
Boston	770	764	— 6	— 0.8
Brooklyn	*2185*	*1499*	*— 686*	*—31.4*
City of New York	*6576*	*4593*	*—1983*	*—30.1*
"Rest of City"	*1120*	*800*	*— 320*	*—28.6*
Manhattan	**2787**	**2294**	**— 493**	**—17.9**

From this estimated summer mortality, Buffalo again alone has a greater percentage difference than Manhattan, except for the city of New York as a

whole, Brooklyn, and the "Rest of the City." It is this summer mortality which has been most influenced by the campaign against infant mortality.

Another even more severe test of results may be applied. If we take the lowest recorded proportion of the year's deaths occurring in the third quarter and apply it to the lowest year's total, we should in most cases have still lower figures for a basis. For example in 1903 in Manhattan the year's total under one year was 8181, the lowest recorded in the ten-year period 1901–1910. In 1909 the proportion of the year's mortality falling in the third quarter was 29.6, the lowest recorded. Taking then 29.6 per cent. of 8181, we get the optimum figures for comparison. The following table shows these figures:

TABLE 109.—INFANT MORTALITY IN THE THIRD QUARTER OF 1911 COMPARED WITH ESTIMATED MORTALITY BASED ON OPTIMUM FIGURES FOR PERCENTAGE OF YEAR'S MORTALITY AND TOTAL YEAR'S MORTALITY

	Estimated Mortality	1911 Mortality	Difference	Per Cent. Difference
Buffalo	459	290	— 179	—39.0
Philadelphia	1793	1537	— 256	—14.3
Chicago	2146	1904	— 242	—11.3
Baltimore	797	716	— 81	—10.2
Detroit	652	638	— 14	— 2.1
Cleveland	576	569	— 7	— 1.2
Pittsburgh	565	591	+ 26	+ 4.6
St. Louis	583	699	+ 116	+19.8
Boston	470	764	+ 294	+62.5
Brooklyn	*2120*	*1499*	*— 621*	*—29.2*
New York City	*6096*	*4593*	*—1503*	*—24.6*
"Rest of City"	*1025*	*800*	*— 225*	*—21.9*
Manhattan	**2925**	**2294**	**— 631**	**—21.5**

Only six of the cities outside of New York can show a decrease; Pittsburgh, St. Louis, and Boston show an increase—Boston, of 62.5 per cent. Manhattan again exceeds all but Buffalo, which again ranks first.

A study of charts shown in Exhibits 3 to 7, comparing daily deaths with temperatures in Manhattan and Brooklyn, is of interest in connection with the theories of Liefmann and Lindemann, as mentioned in Chapter I. Their theory is that the summer mortality among babies is due to two chief causes. The first of these is the directly fatal effect of high atmospheric temperature, which results in sharp rises in the mortality curve following twenty-four to forty-eight hours after the rise in temperature. These rises, followed by sharp falls to the "normal," occur chiefly in early summer. In late summer another factor is added. The basal line, so to speak, is continually high, and represents practically the diarrheal deaths. On this basal curve occur the rapid rises and falls in the mortality curve immediately following hot periods.

These conditions are very plainly seen in plates showing the temperature and mortality in Manhattan in 1909 and 1910 and Brooklyn in 1910. In 1911, however, the mortality curve is a very different one. Sharp rises and falls do occur, but the diarrheal element is markedly diminished. Heat deaths occur, but the

Teaching Home Modification of Milk

high basal line representing diarrhea is down nearer the normal. Also the sharp rises are not so great, which tends to show the absence of the predisposing element resulting in great susceptibility to high temperature.

Briefly summarizing weather conditions in 1911 in a general way, temperature was decidedly unfavorable for a low infant mortality throughout the country in July and early August. In St. Louis heat was excessive and continued throughout the summer. Detroit and Buffalo especially are unused to such temperatures as occurred in 1911.

Rainfall was not so uniformly unfavorable as temperature. In Chicago, Philadelphia, and Baltimore, while below the normal, it was not nearly so scanty as in other places. In Boston and Buffalo it was above the normal. In New York and the other cities studied it was very scanty during July and early August, especially in St. Louis.

It is rather difficult to gage the activities of health departments and private organizations. In a general way all the cities discussed, except Boston, were more active in 1911 than ever before. In Greater New York, Manhattan and Brooklyn were very decidedly more active. Never in their history has so great and general an effort been put forth, and these boroughs were fairly well cared for. Chicago and Philadelphia profited by previous experience, and their campaigns were more efficient and extensive. St. Louis also extended its campaign, as did Detroit. Baltimore added home instruction as an important feature of its work.

Buffalo made the most remarkable showing of any city studied. The Health Department had begun a vigorous campaign for pure milk, and the milk stations of the Babies' Milk Dispensary were active.

Boston is the striking exception to the general rule of reduction. Considerable effort has been made to find out conditions existing there in 1911, and apparently there has been absolutely no increase in effort nor expansion of the work over past years. The weather conditions were no worse comparatively than in other places, and in rainfall they were better than most others. With these conditions went a stationary infant mortality compared with 1910, and a poorer showing compared with previous years than most of the other cities record.

CONCLUSIONS

From the information gained through experience and study of the work of reducing infant mortality the following conclusions seem to be justified:

1. The reduction of infant mortality in 1911 in the cities studied was very marked, especially during the summer months. During the first part of the summer meteorological conditions was not favorable to a low mortality.

2. This reduction was not due to chance, but bears a close relation to the activity of the campaign for the reduction of infant mortality. The difference between cities in infant mortality rates is probably more a matter of public conscience and quality of official endeavor, than weather and character of population.

3. The full effects of any campaign will not be seen immediately. Dr. Robertson, Health Officer of Birmingham, England, said at the conference at Caxton Hall that he would be satisfied if he got results after ten years' work.

4. In the education of the mother in the care of herself and her baby we have the strongest weapon for fighting infant mortality.

5. The results in the milk stations, as shown by the detailed histories of 3182 babies, has proved the usefulness of the milk station in the reduction of infant mortality. It is one of the most efficient forces in the educational prevention of sickness and deaths among babies.

6. Its field of usefulness can be very greatly extended into other branches of infant and child welfare, such as prenatal work; the care of children under school age; follow-up work in inspection of school-children; supervision of boarded-out babies and midwives, etc. Stations should be maintained all the year round in order to make their value cumulative.

7. The sphere of influence of a milk station is limited, so that many are needed in a large city.

8. One nurse for every 100 babies is the limit for the maximum of efficiency, and probably 300 babies the limit for any one station.

9. Compulsory attendance under penalty of stopping milk supply should be insisted on.

10. When efficiently managed, the milk station is an economical means of forwarding the movement for infant welfare.

11. The results of the methods employed at the Committee's milk stations prove conclusively the entire feasibility of teaching home modification of milk, thus not only doing away with expensive laboratory plants, but making the mother eventually independent of the station.

12. The milk station can and should be a valuable means of encouraging and making possible maternal nursing. It need not be an encouragement to artificial feeding.

13. Private agencies are warranted in initiating milk station work, but their program should provide for having the municipality assume charge as soon as practical. The activities which are possible for the stations are proper functions for the municipality. Close coöperation between health authorities and private organizations is entirely feasible and necessary.

14. The education of the "little mothers" in the care of the baby will insure not only immediate results, but will pave the way for better motherhood.

CHAPTER VIII

Extension of Relief Through Milk Stations

Because ignorance, poverty, squalor, and sickness in the home lessen the chance of the baby to survive a heated summer, it is obvious that a well-organized campaign to reduce infant mortality must provide ways and means for doing a great deal more than giving advice in the homes where these conditions exist. If the campaign is confined to babies living under average home conditions with mothers anxious for instruction, only a moderate reduction in the death-rate can be expected, because it is not the baby in the average home who is most likely to die. The mother who comes to a milk station of her own accord with the well baby to learn how to keep it well is not the mother most likely to lose her baby. The mother most needing the influence of the milk station is the one with whom the nurse has to work hard to have her baby enrolled because of ignorance and bad home conditions. When these mothers are visited, the station nurse must be prepared to solve the problem of the home; she must be able to suggest the proper solution for each problem presented to her. To do this, the nurse must know the facilities available, be they private or public, and act. If she acts wisely, she gains the mother's confidence and coöperation in giving the baby a chance to live; visits and advice where substantial relief is needed avail nothing if the relief is not to be obtained. If the father needs hospital care, it must be provided; if out of work, he must be brought in touch with the proper agency dealing with such cases; if the children are undernourished and sickly, an agency prepared to provide the necessities must be found.* While the station nurse may be particularly solicitous for the welfare of the infant member of the family, yet she must of necessity deal with the whole situation. Parents so destitute that they are unable to buy milk for the baby are not cases for free milk alone, but for general relief.

Provision for extending relief to needy cases coming under the supervision of the milk station was recognized as an important factor in the demonstration. Relief in the form of milk, medical attendance, nurse service, ice for properly keeping the milk, hospital accommodations, and outings for sick mothers and babies are needed in addition to the general relief; of these, free milk for babies of poor mothers was considered most vital to the success of the demonstration.

At first it was planned to raise a large relief fund to supply free milk to all worthy cases. This was abandoned because it was thought best to make the demonstration under conditions which might be expected to exist another year if the work of conducting a large number of milk stations should be undertaken by

* Attention is called to Table 116, showing the living conditions of 2156 families having babies enrolled at the Committee's stations.

the city. As the city could hardly be expected to give free milk, its stations would have to rely upon the organized relief agencies to provide milk for the poor. Another reason for abandoning the original plan of supplying free milk was the attitude of many of the Committee's larger contributors, who urged that they were also substantial contributors to established relief agencies better prepared not only to investigate the needs of applicants, but to extend all the relief necessary.

A APPLICATION FOR RELIEF

From To 5435

Date 1911

B TO BE RETURNED BY RELIEF AGENCY TO HEADQUARTERS OF REFERRING AGENCY.

5435

Date 1911

C APPLICATION FOR RELIEF

From To 5435

Date 1911

Surname	Address	Floor	No. Rooms	Rent

FIRST NAME	AGE	OCCUPATION	INCOME	HEALTH
Man				
Woman				
Children				

Amount of milk now purchased by family Price

Relief needed

Form No. 114 K. (Signed) Nurse

EXHIBIT 19

In April letters were addressed to the superintendents of the various established relief organizations, in which the position of the Committee and its contributors was made known. This brought about several conferences between relief-giving organizations and the agencies conducting milk stations. The relief organizations agreed to make special provision for the prompt handling of cases brought to their attention and furnish free milk to babies wherever necessary. A

uniform system of reporting cases was adopted in order to avoid delay in extending milk relief and to eliminate duplication of effort in the investigation of home conditions of applicants.

Milk relief cases were divided into two classes:

1. Mothers having babies registered at the station who were unable to pay the difference in price between loose milk sold at the grocery and the bottled milk dispensed at the station; in such cases the organization extending the relief agreed to pay the difference in price of the two grades of milk—these were termed "partial relief" cases.

2. Mothers having babies registered at the station and unable to bear any part of the cost of the milk required by the baby—these were designated "whole relief" cases.

It was agreed in both instances that the period during which relief would be extended should depend upon the emergency. Exhibit 19 for reporting applications for milk relief was adopted.

This record and reporting form is divided into three parts, each part bearing the serial number of the case. Whenever an application for relief was made through the milk station, the part marked "C" was filled out at the station from the information obtained by the nurse; wherever possible the information reported on this form was verified by a personal visit of the nurse to the home of the applicant. If the mother applying for relief had already registered her baby at

YOU ARE.....AUTHORIZED TO CHARGE.....

FOR.....QUARTS OF MILK DAILY FROM.....

.....FOR.....

NEW YORK MILK COMMITTEE

DATE:

.....PER.....

EXHIBIT 20

the station, the information recorded upon this application was verified by consulting the case history card described in a previous chapter. After completing this record the nurse forwarded the form to the Committee's central office; here the application was handled by a special relief agent formerly connected with one of the organized relief societies. If, in the opinion of the central office, the case was one requiring relief, form "A" was made out and forwarded, together with the form "B," to the agency which was expected to furnish the relief. Applications from Hebrew families were invariably sent to the United Hebrew Charities, and all other applications reported upon this form were forwarded to the Joint Registration Bureau, maintained by the Association for Improving the Condition of the Poor and the Charity Organization Society, where it was determined to which society the case properly belonged. The action taken by the agency was recorded on form "B" and returned to the central office of the Committee, where it was filed with the copy of the application, form "C." The station nurse was then notified as to extending relief to the cases on the postal card form shown in Exhibit 20.

Character of Cases Referred

The character of cases referred to organized agencies for relief were those principally of mothers having ill-nourished or sick babies, due largely to their inability to pay the price of a pure, clean milk, and who, because of their poverty, were endeavoring to rear their babies on either condensed milk or milk purchased from the "corner grocery," which, through an investigation made by the Committee, was found to be entirely unfit for use in the feeding of infants. In some instances families were already receiving relief in other forms, but nothing had been done toward supplying the baby with the right kind of food.

Even where the family income was sufficient to supply the baby with the cheap "dipped" milk of uncertain quality, it was difficult for the nurse immediately to bring the mother to recognize the danger in giving her baby this milk; however, once an improvement was shown in the baby's health, it was easier to persuade the mother to purchase the milk from the station. If the milk relief could be extended for a certain period in such cases, to the extent of paying the difference between the price of loose milk (5 cents a quart) and the price of the milk dispensed at the station (7 cents a quart), the baby would be brought under the influence of the station, and upon its showing improvement the mother would consent to economize in other ways so as to continue giving good milk to the baby. No cases of this character were referred for relief excepting where extreme ignorance existed in the homes, and the baby, undernourished or sick, required immediate action by the nurse in order to save its life; these were termed "emergency relief" cases and were given either partial relief or entire milk relief.

Cases requiring the attention of a relief organization, where the home conditions were deplorable, but where the baby, in spite of a bad milk supply, was in no immediate danger, were referred, and the report of the agency awaited before any relief in the form of milk was given. It might be stated that in the "emergency relief" cases the nurse was authorized to extend temporary relief until the applica-

tion had been acted upon by the relief agency. If, however, the relief agency refused to act, the station was reimbursed by several individuals particularly interested in emergency cases found by the milk station.

Cases which the relief organizations rejected were thoroughly investigated by the special relief agent of the Committee, and if new facts were brought to light, the cases were again presented to the relief agency with a full statement of the conditions. If, after reopening a case, no aid could be obtained and the facts were still found to justify the extending of relief, the case was brought to the attention of persons sufficiently interested to supply it. Our only purpose in doing this was to save the baby even at the expense of breaking some of the established rules of dealing with the extension of relief in case of unworthy parents.

Owing to the most excellent coöperation existing between the milk stations and the relief agencies, comparatively few cases considered worthy by the Committee were refused aid. The following is an example of a case refused relief in the form of milk for the baby, although considered worthy by the Committee:

Case No. 766.—An Italian family consisting of father, mother, and two children, one aged twelve years and the other four months, came to the notice of the Mulberry Street milk station nurse; it was regularly reported through the central office to the Charity Organization Society. The father, a laborer, earns enough to cover the rent of three rooms shared with another family; rental, fourteen dollars; mother sews on pants whenever able; had been ill four months from heart trouble; father able to obtain employment only two days a week, and under medical treatment for skin disease. The mother receives six cents a pair for finishing trousers—a maximum earning of two dollars per week; father's earnings two and a half dollars per week; baby in poor physical condition, suffering from malnutrition and marasmus, artificially fed, and using grocery milk.

An investigator of the relief agency reported that the father was earning six to eight dollars a week and the mother three dollars a week, and there seemed no reason why the family should not manage without outside help; but further investigation by the Committee confirmed the report rendered by its station nurse, and milk relief was furnished through other sources until the case was finally reconsidered by the relief agency and aid extended.

On the other hand, we have a station nurse forwarding an application (Case No. 781) from a woman who had been deserted by her husband and who had her only baby registered at the station. Investigated by the relief agency, it was discovered that the woman was already receiving free milk from a diet kitchen, and she acknowledged that in wanting another free quart from the milk station she had misrepresented her circumstances.

To illustrate the effectiveness of close supervision over relief work done this summer the case of a Bohemian family who begged for milk relief but two weeks after their admittance to the country might be cited. At that time the man was earning four dollars a week. The case was reported in the usual way to a relief agency, which brought the matter to the attention of the Commissioner of Immigration. Investigation from that quarter aroused the head of the family to greater efforts. He soon began to earn twelve dollars a week, and the family was made self-supporting.

The care and good judgment exercised by the station nurse in investigating home conditions in the case of applicants for relief are shown by the fact that out of 648 cases referred to three relief agencies during the period May 1st to November 1, 1911, 482, or 74.3 per cent., were accepted by them as proper cases for relief.

Naturally, it might be expected that, by establishing a large number of milk stations throughout the city, many mothers would take advantage of the situation to obtain a free supply of milk for their babies during the summer, even though they were able to pay for it. However, such was not the case; in spite of continued canvassing by nurses who repeatedly urged the mothers to bring their babies to the station for supervision, the number of babies receiving free milk in relation to the enrolment was even less during the demonstration than had been the experience of the Committee's stations during the previous year. In three stations operated by the Committee during the year 1910 the number of registered babies receiving free milk amounted to 16.3 per cent. of the total enrolment, while during the period of the demonstration,—May 1 to November 1, 1911,—out of a total registration of 7919 different babies, only 724, or 9.1 per cent., received free milk. The comparatively small number receiving milk relief is due mainly to the care exercised by the nurse in handling applications for relief in a quiet manner, and not letting it become generally known among the mothers that some were being aided. The willingness of relief organizations to grant relief in worthy cases was not taken advantage of as a means of increasing the station enrolment.

Table 110, giving by stations and nationalities the number of cases applying for free milk, in relation to enrolment, shows that the number of applicants for free milk at the different stations varied from 1.5 to 35.8 per cent. of the total enrolment.

This statement also shows that the percentage of cases applying for free milk varied considerably among the different nationalities. Of 1149 American parents having babies enrolled, 15.4 per cent. applied for relief; of 2422 Italian parents having babies enrolled, 12.5 per cent. applied; while the applicants of 1995 Hebrew, 256 Bohemian, 666 Irish, and 164 German babies enrolled represent 9.9, 17.7, 12.8, and 4.2 per cent. respectively. It is also clear that the percentage of enrolment applying for milk relief varied considerably among the different stations dealing with babies of the same nationality. Taking, for instance, Station No. 24, with a total enrolment of 310 Italian babies, 15.1 per cent. applied for free milk, while in Station No. 12, with an enrolment of 358 Italian babies, only 6.9 applied. The same variation is true as regards other nationalities. This would seem to show either a more liberal policy to be enforced by the relief agency working in those particular districts, or a difference in the activity of the station nurse in seeking out babies of families in destitute circumstances and bringing them into the station.

Table 111 shows the monthly increase in enrolment as compared with the new application for free milk.

The Nurse Has Many Friends in Each Tenement

TABLE 110.—SHOWING BY STATIONS AND NATIONALITIES COMPARISON OF NUMBER OF CASES APPLYING FOR MILK RELIEF TO ENROLMENT.—PERIOD MAY 1 TO NOVEMBER 1, 1911

Station Number	Total Enrolment	Applying for Relief		Americans			Italians			Hebrews			Bohemians			Irish			German			Other Nationalities			Nationality not Given		
		No.	Per Cent.	E.*	A.	P.	E.	A.	P.	E.	A.	P.	E.	A.	P.	E.	A.	P.	E.	A.	P.	E.	A.	P.	E.	A.	P.
1	329	58	17.6	..	..	..	322	58	18.1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
2	210	29	13.8	1	..	..	..	..	..	202	29	14.3	..	..	..	..	..	..	..	..	..	4	..	..	3	..	..
3	289	36	12.4	7	..	..	106	22	20.7	149	12	8.0	..	..	..	..	..	..	1	..	..	24	2	8.3	2	..	..
4	412	43	10.4	3	..	..	19	14	73.6	371	26	7.0	..	..	..	..	..	..	..	..	..	19	3	15.7	..	..	..
5	268	24	8.9	8	..	..	2	..	..	180	22	12.2	..	..	..	..	..	..	4	..	..	74	2	2.7	..	..	..
6	229	19	8.2	1	..	..	1	1	100.0	210	11	5.2	..	..	..	..	..	..	1	..	..	16	..	..	..	..	..
7	215	22	10.2	12	..	..	8	..	..	60	19	31.5	..	..	..	1	1	100.0	3	..	..	131	2	1.5	..	..	..
8	261	22	8.4	9	..	..	..	..	..	67	22	32.8	..	..	..	..	..	..	3	..	..	182	..	..	..	..	..
9	280	42	15.0	30	5	16.6	112	15	13.3	31	..	..	..	..	..	47	12	25.5	6	5	83.3	52	5	9.6	2	2	100.0
10	306	36	11.7	35	7	20.0	4	2	50.0	5	2	40.0	225	17	7.5	4	..	..	11	1	9.0	16	3	18.7	6	4	66.6
11	440	48	10.9	19	3	15.7	301	31	10.3	24	10	41.6	..	..	..	2	1	50.0	4	1	25.0	87	2	2.2	3	..	..
12	393	31	7.8	13	1	7.7	358	25	6.9	8	3	37.7	..	..	..	2	..	..	..	..	..	12	2	16.6	..	..	..
13	202	16	7.9	39	5	12.8	39	1	2.5	13	..	..	..	..	..	40	6	15.0	11	..	..	53	4	7.5	7	..	..
14	276	42	15.2	69	20	28.9	150	14	9.3	3	..	..	..	..	..	16	5	31.2	7	1	14.2	31	2	6.4	..	..	..
15	248	21	8.4	79	7	8.9	88	6	6.8	1	..	..	..	..	..	38	7	18.4	4	..	..	35	1	2.8	3	..	..
16	205	23	11.2	45	10	22.2	3	..	..	35	5	14.2	31	1	3.2	12	3	25.0	19	..	..	55	3	5.4	5	1	20.0
17	193	16	8.2	107	12	11.2	7	..	..	9	1	11.1	..	..	..	19	2	10.5	18	1	5.5	33	..	..	..	..	..
18	411	33	8.0	140	6	4.2	54	5	9.2	158	12	7.5	..	..	..	16	9	56.2	15	..	..	28	1	3.5	..	..	..
19	285	19	6.6	7	..	..	245	19	7.7	6	..	..	..	..	..	1	..	..	3	..	..	21	..	..	2	..	..
20	195	3	1.5	39	3	7.6	2	..	..	126	..	..	..	..	..	4	..	..	5	..	..	16	..	..	3	..	..
21	172	13	7.5	3	..	..	11	3	27.2	55	9	16.3	..	..	..	..	..	..	..	..	..	101	1	0.9	2	..	..
22	153	14	9.1	76	4	5.2	11	3	27.2	9	4	44.4	..	..	..	18	..	..	6	3	50.0	33	..	..	..	..	..
23	307	15	4.8	13	1	7.7	1	..	..	254	11	4.3	..	..	..	3	3	100.0	8	..	..	27	..	..	1	..	..
24	330	52	15.7	2	2	100.0	310	47	15.1	1	..	..	..	..	..	6	3	50.0	1	..	..	3	..	..	7	..	..
25	199	28	14.0	9	7	77.7	117	12	10.2	3	..	..	..	..	..	52	7	13.4	2	1	50.0	15	..	..	1	1	100.0
26	173	62	35.8	59	35	59.3	22	8	36.3	5	1	20.0	..	..	..	67	15	22.3	6	..	..	7	3	42.8	7	..	..
27	290	45	15.5	63	9	14.2	31	5	16.1	2	..	..	..	..	..	132	18	13.6	9	5	55.5	50	5	10.0	3	3	100.0
28	140	30	21.4	32	11	34.3	76	10	13.1	1	..	..	..	..	..	18	7	38.8	1	..	..	11	2	18.1	1	..	..
29	199	15	7.5	5	..	..	7	1	14.3	..	..	..	..	..	..	33	2	6.0	3	1	33.3	151	11	7.2	..	..	..
30	197	25	12.7	147	17	11.5	9	..	..	5	..	..	..	..	..	19	6	31.5	8	1	12.5	9	1	11.1	..	..	..
31	224	26	11.6	77	12	15.5	6	2	33.3	..	..	..	..	..	..	116	11	9.4	5	1	20.0	20	..	..	..	..	..
Total	8031	903	11.2	1149	177	15.4	2422	304	12.5	1995	199	9.9	256	18	7.0	666	118	17.7	164	21	12.8	1316	55	4.2	63	11	17.4

* E = Enrolment. A = Applicants for relief. P = Per cent. of enrolment applying for relief.

TABLE 111

Month	Added to Enrolment	Number of Applicants for Relief	Per Cent.
May (enrolled May 30, 1911)	894	66	**7.3**
June	1263	124	**9.8**
July	1892	230	**12.1**
August	1949	268	**13.7**
September	1242	126	**10.1**
October	791	89	**11.2**
	8031	903	**11.2**

From the above it will be seen that out of an enrolment of 894 babies in May, 66, or 7.3 per cent., applied for free milk, and out of 1263 new babies added to the enrolment during the month of June, 124, or 9.8 per cent., applied for free milk. The percentage of the new babies added to the enrolment applying for free milk reached its highest point in August, when 1949 babies were added to the enrolment, and 268, or 13.7 per cent., applied for free milk.

The following tabulation gives the number of instances in which whole or partial relief was extended and the authorizing agency. In the partial relief cases the agency paid the difference between the price of the store milk and the price of the bottled milk supplied by the station:

TABLE 112.—CASES GIVEN WHOLE AND PARTIAL MILK RELIEF

Relief Agency	Cases Given Relief		Whole Relief		Partial Relief	
	Number	Per Cent. of Total	Number	Per Cent.	Number	Per Cent.
A. I. C. P.	335	35.4	288	**85.9**	47	**14.0**
C. O. S.	157	16.5	153	**97.4**	4	**2.5**
U. H. C.	119	12.5	117	**98.3**	2	**1.6**
Hudson Guild	58	6.1	40	**68.9**	18	**31.0**
Union Settlement	6	0.6	6	**100.0**	..	..
N. Y. Foundling Hospital	19	2.0	1	**5.2**	18	**94.7**
Other agencies	12	1.2	12	**100.0**	..	..
Individuals (through Mr. Thos. S. McLane)	243*	25.7	209	**86.0**	34	**13.9**
	949	100.0	826	**87.0**	123	**12.9**

The above statement shows that out of 949 cases in which relief was extended, 826, or 87 per cent., were given entire relief, and 123, or 12.9 per cent., were given partial relief. Of the 949 cases furnished milk relief 335, or 35.4 per cent., were aided by the Association for Improving the Condition of the Poor; 157, or 16.5 per cent., by the Charity Organization Society; 119, or 12.5 per cent., by the United Hebrew Charities, and the remainder received relief through other sources.

* Includes 225 cases given temporary relief until they were taken over by relief agencies.

The following tabulation shows the number of cases in which relief was extended on the initiative of the workers of the different relief agencies:

TABLE 113.—ORGANIZATIONS EXTENDING MILK RELIEF ON THEIR OWN INITIATIVE

Relief Agency	Total Number of Cases Given Relief	Given Relief on the Initiative of the Agency	
		Number	Per Cent.
A. I. C. P.	335	103	**30.7**
C. O. S.	157	26	**16.5**
U. H. C.	119	20	**16.8**
Hudson Guild	58	58	**100.0**
N. Y. Foundling Hospital	19	19	**100.0**
Union Settlement	6	6	**100.0**
Other agencies	12	12	**100.0**
Individuals	243	12	**4.9**
Total	949	256	**26.9**

In 30.7 per cent. of the cases granted relief by the Association for Improving the Condition of the Poor the initiative was taken by that organization, while cases given relief by the Charity Organization Society and the United Hebrew Charities, 16.5 and 16.8 per cent. respectively were given relief on the initiative of these societies. Of a total of 949 cases receiving milk relief during the demonstration, 256, or 26.9 per cent., were given relief upon the initiative of the relief agency.

The following tabulation shows, for the three main relief agencies, the number of cases referred by the Committee for milk relief and the action taken:

TABLE 114.—CASES REFERRED FOR MILK RELIEF AND RESULT

Society	A. I. C. P.	C. O. S.	U. H. C.	Total
Number of cases referred	275	209	164	648
Number given milk relief	232	131	99	462
Per cent	**84.4**	**62.6**	**60.4**	**71.2**
Number aided in other ways	7	8	5	20
Per cent	**2.5**	**3.8**	**3.0**	**3.1**
Total number aided	239	139	104	482
Per cent	**86.9**	**66.4**	**63.4**	**74.3**
Number refused relief	28	64	54	146
Per cent	**10.1**	**30.6**	**32.9**	**22.6**
Number of cases withdrawn	8	6	6	20
Per cent	**2.9**	**2.8**	**3.6**	**3.0**

From the foregoing it appears that out of 275 cases referred to the Association for Improving the Condition of the Poor, 232, or 84.4 per cent., were granted milk relief, and 7, or 2.5 per cent., were aided in other ways, giving favorable action in 86.9 per cent. of the total cases referred; of 209 cases referred to the

Charity Organization Society, 131, or 66.4 per cent., were given milk relief, and 8, or 3.8 per cent., were aided in other ways, while out of 164 cases referred to the United Hebrew Charities 99, or 63.4 per cent., were given milk relief, and 5, or 3 per cent., were aided in other ways, showing that out of a total of 648 cases referred to the three relief agencies through the central office of the Committee, favorable action was obtained in 482, or 74.3 per cent., of the total cases referred.

Below is given a tabulation showing the number of cases receiving milk relief through the different agencies and the amount of money expended during the demonstration on account of relief given in the form of milk and nursing supplies, such as bottles, nipples, barley, etc.

TABLE 115.—COST OF RELIEF

Name of Society, Etc.	Amount Expended	Number of Cases Given Relief	Average Amount Expended per Case
A. I. C. P.	$1645.55	335	$4.91
C. O. S.	1004.99	157	6.40
U. H. C.	525.17	119	4.41
Other agencies	372.84	95	3.92
Individuals	487.44	243	2.01
	$4035.99	949	$4.25

The total amount of relief extended by the Association for Improving the Condition of the Poor amounted to $1645.55; $1004.99 was extended by the Charity Organization Society; $525.17 by the United Hebrew Charities, and $860.28 by all other agencies. The average amount of money expended per case by all the agencies was $4.25. During the period of the demonstration the total value of milk and nursing supplies dispensed amounted to $30,860.98, of which, as shown by the foregoing statement, $4035.99, or 13.0 per cent., was given as relief. This does not include a loss sustained by the Committee of one-half cent upon each quart of milk dispensed at its stations.

Relief in other forms was extended to needy families through the efforts of the station nurses independently of those formally reported for milk relief. No attempt was made to maintain complete records where the station nurse acted on her own initiative in helping poor mothers to solve their economic problems, but numerous cases came to the attention of the central office which evidenced the earnestness and the good sense of the nurse. The efforts to save some of the babies' lives and to straighten out home conditions frequently required a great deal of personal sacrifice on the part of the nurses; an example of a case by no means uncommon was reported by the nurse at Station No. 29 as follows; in this case what was done by the station nurse is best described in her own words:

"On the evening of May 10th, just as I was closing the station at 5 P. M., a poor, frail little girl, about six years old, came to the door of the station and said: 'My mother wants a bottle of milk.' I immediately went to the home, and there

A Lesson in Bathing

found five children, of which this little girl was the eldest. There were twin babies, about three months old, in the family. The poverty and squalor are almost indescribable. The mother was a tall, sickly looking woman, sitting on the floor with the twins in her arms; there was absolutely no food in the home. I returned to the station, sent them some milk, and reported the case to the central office, requesting that the relief be extended for a time. The father, I afterward learned, was a longshoreman out of work and addicted to drink. The babies were under-nourished and suffering from marasmus—one of them was developing pneumonia. Through the generosity of a member of the committee who visited the station a nurse, medicine, and doctor were obtained, but the baby having pneumonia died. I obtained sufficient money in the neighborhood and from my friends to bury the little mite. Conditions in the home did not improve, and the family was soon dispossessed. The mother and children came to the milk station, where they stayed until night, when the father returned. He obtained a room on Clarkson Street and removed the furniture there.

"I continued to visit them in their new home and did everything possible for the other baby, instructing the mother how to care for it; but she, like her husband, had become discouraged, and I not infrequently found her intoxicated and the children sitting around her on the floor, stupid from hunger. The baby was very frail, weighing only about four pounds, and it looked as if she too would die; but by visiting the home every day, making the milk formula, and not trusting the mother, the baby started a slow but steady gain in weight. During all this time the other three children came to the station twice daily, where I gave them a glass of milk and shared with them the lunches intended for the matron and myself.

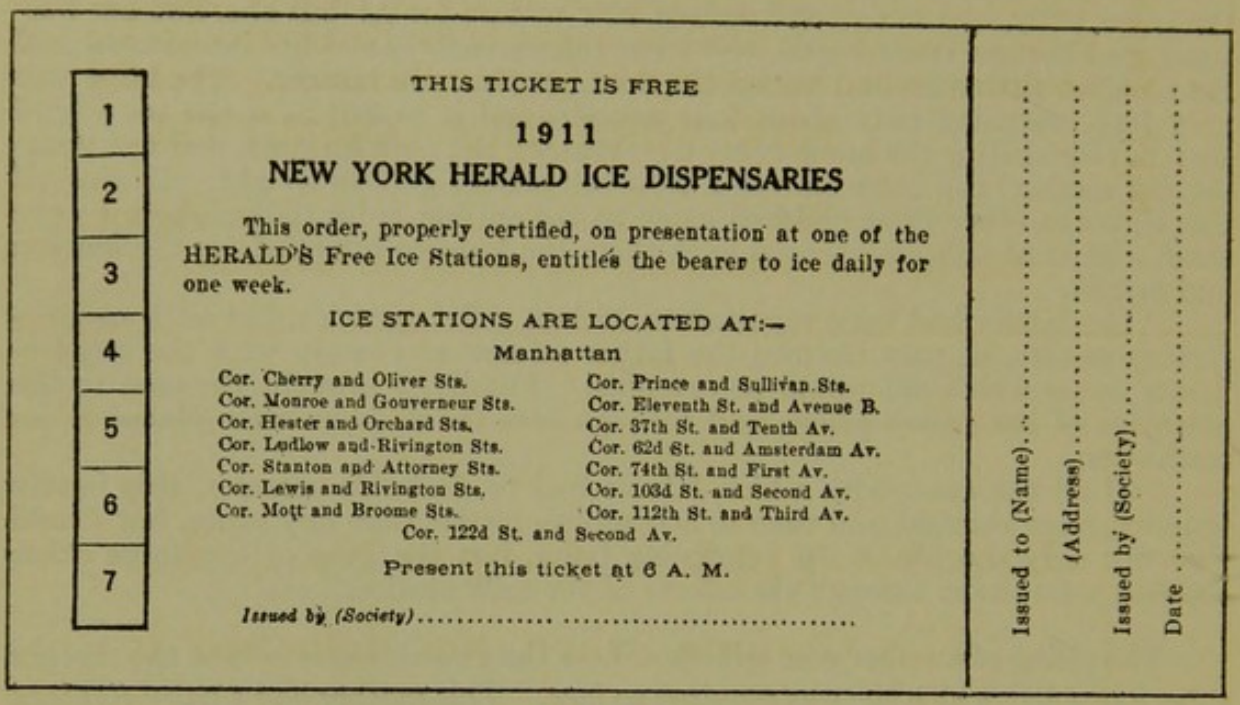
"The family had been reported to various relief agencies, but with unsatisfactory results, as they claimed the father refused to comply with the requirements under which aid would be extended. Finally, I brought the case to the attention of the parish priest, and through him the children were placed in an institution.

"Of all the cases with which I have had to deal this summer, this family required more thought and time to accomplish results than any other, but I hold that not only the life of the remaining baby, but the lives of the three other children were saved through the efforts of the milk station."

The citing of another case will show how the station nurse helped the mother solve a problem which she was required to face. This mother had a baby eighteen months old, suffering from gastro-intestinal trouble, and a nursing baby ten days old. Her husband had died ten days before the baby was born, leaving the mother, a girl of seven, and two little babies without any support. The mother reported that a relief agency had advised her to place the children in an institution and to obtain employment for herself; but the station nurse felt that every endeavor should first be made to prevent the breaking up of the home and the separating of the mother from her children, especially from the nursing baby. After the decision of the relief agency the nurse called at a maternity hospital, where applications for wet-nurses are often received, and was given the address of a lady who wanted a wet-nurse, with the result that the mother was engaged and secured a good home in the country for herself and her nursing baby. The problem of providing for the remaining children was solved by the station nurse's hunting up relatives of the family who were willing to take the children until the mother could otherwise make provision for them.

Case after case could be cited, showing the many ways in which the station nurse helped distressed mothers with whom she came in contact. Too much cannot be said of the enthusiasm and keen interest manifested by the nurses during the demonstration, and it was their untiring efforts that made the milk stations real live social service organizations for the districts in which they were located. Mothers soon learned to appreciate the character of the service and the spirit manifested by the station nurses and their assistants. That they came to the station for advice and help is an indication of the possibilities of such centers and the decided influence which they exert.

The milk stations coöperated with various other agencies furnishing help in forms other than milk relief. Those milk stations located in the vicinity of distributing points for free ice through the Free Ice Fund of the "New York Herald" were provided with tickets in the form shown below:



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THIS TICKET IS FREE

1911

NEW YORK HERALD ICE DISPENSARIES

This order, properly certified, on presentation at one of the HERALD'S Free Ice Stations, entitles the bearer to ice daily for one week.

ICE STATIONS ARE LOCATED AT:—

Manhattan

Cor. Cherry and Oliver Sts.
Cor. Monroe and Gouverneur Sts.
Cor. Hester and Orchard Sts.
Cor. Ludlow and Rivington Sts.
Cor. Stanton and Attorney Sts.
Cor. Lewis and Rivington Sts.
Cor. Mott and Broome Sts.
Cor. Prince and Sullivan Sts.
Cor. Eleventh St. and Avenue B.
Cor. 37th St. and Tenth Av.
Cor. 62d St. and Amsterdam Av.
Cor. 74th St. and First Av.
Cor. 103d St. and Second Av.
Cor. 112th St. and Third Av.
Cor. 122d St. and Second Av.

Present this ticket at 6 A. M.

Issued by (Society).....

Issued to (Name).....
(Address).....
Issued by (Society).....
Date .....

EXHIBIT 21

The numbers in the squares indicate the days of the week the ticket has been used by the holder. These tickets were given out only to mothers unable to purchase a sufficient amount of ice to insure the keeping of the daily supply of milk at a low temperature. The name, address, agency issuing the ticket, and the date of issuance were reported on the perforated stub. The stub was detached by the agent dispensing the ice when the ticket was first presented at the distributing place.

It has formerly been the custom of the "New York Herald" to distribute free ice during the months of July and August. During last year the distribution began early in June, and the distributing points were selected after a careful study of the locations of milk stations. An early morning scene, showing mothers waiting at one of the depots for ice, is shown in this report.

In addition to the coöperation of the "New York Herald" in furnishing ice the Knickerbocker Ice Company issued coupon books containing 31 coupons, each good for 10 pounds of ice if presented to any of their 14 ice depots; the form of this coupon is shown below:

NOT TRANSFERABLE

Book No. 1144 New York, ... 1911

The Bearer, ...

.....

is entitled to receive Ten Pounds of Ice for each of the attached coupons when this book is presented to the Weighmaster of any of the Ice Depots named on back of book, or to the Driver of any retail ice wagon of the Knickerbocker Ice Company when countersigned by an authorized agent of the

NEW YORK MILK COMMITTEE.

By ..... Agent

Only one coupon will be honored each week day and two Saturday.

EXHIBIT 22

Book No. 1144 Coupon No. 1

This Coupon when not detached is good for

TEN POUNDS OF ICE

according to terms stated on front cover of this book.

NEW YORK MILK COMMITTEE.

EXHIBIT 23

The ice-box problem has already been solved, as very few homes visited by the station nurse during the demonstration were found not to have facilities for

keeping the ice. The education of mothers as to the importance of keeping the babies' milk cold, and the established custom of the agencies, already mentioned, of distributing free ice, has caused the poor mothers to solve the ice-box problem satisfactorily. To the ice-distributing agencies much credit is due for their efforts to aid the mothers in keeping the babies' milk supply sweet and wholesome.

Relief in the Form of Hospital Care

The relief extended in the form of hospital and dispensary care of the sick babies during the period of this demonstration contributed in no small way to its success. However, the difficulties in placing sick babies in hospitals seriously lessen the effectiveness of the hospitals. During the summer a careful canvass of the hospitals in New York city was made, and the result shows that, for the care of infants under two years suffering from general diseases, there are approximately 800 beds which are not restricted by requiring a legal commitment or a permit from the Department of Charities. These beds are not all available for the use of infants under two years because of the requirements for admission—none will receive cases complicated by mild contagion; some do not receive babies under one year of age; some require mothers to accompany babies; others have no accommodation for nursing mothers, while some receive no cases during the summer and others receive cases only during the summer; most of these beds are for what are known as pay or part-pay patients. Only 21 per cent. are reserved exclusively for free patients. Again, these 800 beds are not available at all times, as often a hospital is in quarantine with some contagious disease.

The existing facilities, though inadequate, cannot be properly utilized under the present system, as no one knows the total number of available beds at any given time, and to place a case one must telephone from hospital to hospital until accommodations are found. A central hospital bureau prepared to give prompt information as to available beds at any time would make possible a better utilization of the present hospital facilities, which are generally known to be woefully inadequate.

Because of the difficulty in placing sick babies under proper hospital care comparatively few of those registered at the Committee's stations were sent to hospitals. Junior Sea Breeze, which has special facilities for the treatment of gastro-intestinal diseases, responded promptly and satisfactorily in every case brought to its attention.

Relief in the Form of Outings

Through the coöperation of various agencies maintaining seaside and country homes for sick mothers and children the station nurses were liberally provided with tickets to distribute to those in need of this kind of relief. In the case of the St. John's Guild Floating Hospital, tickets were good only for sick children or mothers recommended by either the family or station physician.

In very few instances did the station nurses encourage mothers to take their babies to seashore and country homes if the baby was well and gaining in weight under the station supervision. This is particularly true of babies artificially fed,

GIVING ADVICE AS TO THE DIET OF THE OLDER CHILDREN. THE NURSE COMES IN CONTACT WITH THE WHOLE FAMILY

because the change in milk and feeding formula had been found in a number of instances to prove detrimental, at least for a time.

However, special effort was made by the station nurses to obtain for the mother a rest in her own home by having relief agencies provide a country or seashore outing for the older children. This plan proved far more beneficial to all concerned, and was keenly appreciated by the overworked mother.

TABLE 116.—SHOWING FOR 2156 FAMILIES HAVING BABIES REGISTERED AT MILK STATIONS, RENTAL, INCOME, AND LIVING CONDITIONS

Number of Persons in Family	Total Families	Total Number of Persons	Total Number of Rooms	Total Number of Dark Rooms	Average Yearly Rental per Family	Average Yearly Income per Family
2	1	2	1	..	$108	$260
3	541	1623	1627	408	145	641
4	379	1516	1182	355	145	621
5	429	2145	1398	372	147	633
6	304	1824	1019	300	151	631
7	205	1435	720	250	156	599
8	143	1144	499	137	164	626
9	76	684	270	92	151	546
10	45	450	177	39	183	678
Over 10	33	396	141	50	196	740
Total.....	2156	11219	7034	2003	$150	$628

Number of Persons in Family	Number of Families Living in							
	1 Room	2 Rooms	3 Rooms	4 Rooms	5 Rooms	6 Rooms	7 Rooms	8 Rooms
2	1	..	..	..	..	..	..	..
3	7	118	297	104	13	2	..	..
4	6	70	199	82	21	1	..	..
5	8	74	195	111	35	4	2	..
6	4	39	131	112	13	4	1	..
7	..	15	100	67	18	3	2	..
8	1	10	71	45	13	1	2	..
9	..	4	38	25	6	3	..	..
10	..	2	12	22	7	1	..	1
Over 10	..	..	6	20	4	..	1	2
Total families.....	27	332	1049	588	130	19	8	3
Total number of persons.....	119	1479	5250	3381	778	120	58	34
Total number of rooms.....	27	664	3147	2352	540	114	56	24
Total number of dark rooms.....	10	227	920	640	160	19	19	8
Average yearly rental per family*...	$82	$124	$138	$171	$211	$258	$229	$384
Average yearly income per family*..	$433	$516	$602	$678	$852	$918	$921	$1716

* Cents omitted in amounts given.

In conclusion:

1. The milk stations can be successfully conducted without making the distribution of free milk a prominent part of the work.
2. The organized relief agencies should be called upon to handle every case needing free milk. If a family is too poor to buy milk for the baby, the case is not one for free milk alone, but for general relief, and as such should be dealt with by an agency prepared to deal with the situation.
3. Whatever relief is extended in the way of free milk should be given in a quiet way. The desire for free milk is contagious with milk-station mothers.
4. Arrangements should be made to have some agency undertake to furnish needy cases with the necessary ice to keep the baby's milk sweet and wholesome. The mothers can and will solve the ice-box problems.
5. Hospitals with many so-called free or part free beds do not mean available hospital service for sick babies. The standardizing of requirements for admission and the establishment of a Central Hospital Bureau for information will insure a better utilization of exisiting hospital facilities.
6. The older children may be sent away for a country or seashore outing, but the baby should be left at home with its mother. Travel and change of milk and feeding formula may be disastrous to the bottle-fed baby.
7. The milk station should be made a place where mothers will come with their troubles. The nurse should be prepared to know what to advise; if she shows good judgment, she will win the confidence and friendship of the mother.

CHAPTER IX

Establishment and Operation of Milk and Health Stations

Survey to Determine the Needs of Each Locality

A preliminary survey was made in 1910 to determine how many milk stations would be necessary to carry on an intensive demonstration in Manhattan. Information and experience obtained in operating six milk stations during 1909 and census figures served as the basis for this study. The records of these milk stations were analyzed, a map of the district in which the stations were located was made, and in each block was indicated the number of babies registered at the station. The number of babies was then considered in relation to area and density of baby population.

As the six stations were located in different sections of Manhattan it was thought that their experience could be taken as an index of what might be expected if additional stations were opened in similar districts. Accordingly, it was estimated that the average sphere of influence in acres of a station on the lower East Side was 16; on the upper East Side, 24, and on the West Side, 22.

By considering station enrolment in relation to baby population it was estimated that in districts with more than 25 children per acre 25 per cent. might be expected to come under the supervision of milk stations; in districts with 15 to 25 children per acre, 10 per cent.; and in districts with less than 15 children per acre, 5 per cent.—might be expected to come under the supervision of stations. Allowing 100 babies as a maximum enrolment for a milk station, it was estimated that, to provide for the entire number of babies needing milk-station supervision in Manhattan, 60 stations in addition to those already in operation would be required.

In April, 1911, after the Committee had secured sufficient funds to begin a demonstration, another survey was made to determine the number of babies under two years who might be brought under the influence of the milk stations. This study was made by wards or parts of wards, in which the block population was used as the basis for estimating the number of children under two years of age. From this, together with the experience of the stations already in operation, it was estimated that a minimum of 13,137 babies under two years could be brought under the influence of milk stations if these were properly located. Information from organizations already conducting milk stations showed that 4500 of the total estimated number were already under the supervision of established stations, leaving 8637 babies to be provided for. After a thorough canvass of the districts not covered by milk stations it was decided that if 28 stations were established by this Committee in addition to the 5 to be maintained in Manhattan by the Department of Health and 22 by other agencies, it would be pos-

sible, by employing extra nurses, to care for the remaining 8637 babies needing supervision.

With the tentative locations for new stations indicated on a map of Manhattan, a careful inspection of each district was made. The clergy of all denominations, as well as social workers and representatives of hospitals and dispensaries in the locality, were interviewed, and many valuable suggestions were obtained relative to the proposed location of the station in their district.

Once having determined the vicinity in which the station was to be opened, a canvass was begun for suitable quarters; in selecting these, an endeavor was made to have the stations placed on streets which were most used by the mothers of the neighborhood.

Kind of Quarters Selected

In all but five instances stores were selected for quarters for the milk station, and an effort was made in each case to obtain at least 600 square feet of floor space, although in certain districts this was not possible, as nearly all the stores were the so-called single stores, having a width of 10 feet and extending back 40 to 45 feet. Wherever possible stores were obtained having partitions so arranged as to give one large room in front with two smaller rooms in the rear. (See Exhibit 24.)

Free quarters were provided for five of the stations by different organizations—two of these were in settlement houses; one in an industrial school; one in a dispensary, and one in the room adjoining the vestibule of a chapel. It became necessary, however, to remove the station from the chapel after occupying the quarters for six weeks, owing to the refusal of mothers to bring their babies to a station located in a church not of their religion. No difficulty was encountered in obtaining a large enrolment at stations located in settlements; in fact, with one exception, the settlement stations had the largest enrolment throughout the summer of any of the Committee's stations.

Equipment and Cost

A careful list of the equipment necessary for the station was compiled, taking into consideration the economy of floor space and the amount of money available. The following is a complete list of the furniture and equipment purchased for each station, as well as the cost of same:

LIST OF EQUIPMENT OF STATIONS

Folding chairs (24) wooden	$15.50
Stool (1), white enamel, wooden	.87
Cabinet (1), white enamel, wooden	16.25
Mirror (1), white, size 12½ x 16 inches	.60
Blackboard (1), size 24 x 36 inches	.32
Chairs (2), white enamel	3.90
Table (1), size 24 x 30 inches, white enamel, wooden	3.75
Table (1), size 20 x 48 inches, white enamel, wooden, with drawer 21½ x 19 inches	6.50
Table (1), size 24 x 60 inches, white enamel, wooden, 5 drawers—4 side, 1 long	7.75
Desk (1), size 24 x 40 inches, white enamel, wooden, 5 drawers—4 side, 1 long	10.25

Wash-stand (1)	$ 3.50
Refrigerator (1), size 27 inches x 5 feet, oak	34.00
Linoleum (to measure), 65 cents per yd., made and laid	
Pan for refrigerator	.55
Folding screen, enamel, wooden, muslin filling, size 5 ft. 8½ inches x 19½ inches	5.00
Howe scales with special pan (1)	9.00
Pad for scales	.22
Double boiler (1), 1 quart, enamel	.57
Strainer (1), large, to fit quart measure, enamel	.25
Quart measure (1), enamel	.30
Spoon (1), enamel, white, size 14 inches	.10
Jars (4), glass, 1 quart, with tops	.88
Funnel (1), glass	.09
Bath-tub (1), baby's	1.05
Graduate glass (1), 16 ounce	.20
Kettle (1), 1 quart, enamel	.80
Tea-kettle (1), 4 quarts, enamel	.78
Pitcher (1), gallon, enamel	.65
Saucepan (1), gallon, white enamel	.80
Dishpan (1), size 16 x 5 inches, enamel	.60
Mop (1) and handle	.30
Boiler (1), No. 6 Kramer	1.12
Irons (2), 6 pounds, each	.44
Ironing-board with cover, size 4½ feet	.80
Scrub-pail (1) and wringer (1)	1.00
Washboard (1)	.32
Bottle-cleaners (2) for small nursing bottles	.50
Bottle-cleaner (1), large, with wooden handle	.25
Nail-brush (1)	.04
Scrub-brush (1)	.11
Soap-dish (1), enamel	.15
Towel-rack (1), nickel	.42
Clothes-line (1)	.45
Broom (1)	.30
Ice-pick (1) and hammer (1)	.25
Dust-pan (1) and brush (1)	.31
Slop-pail (1), enamel	.63
Hand-basin (1), enamel	.24
Bowl and pitcher for wash-stand, enamel	.97
Window-screening	.25
White dotted muslin (20 yards)	1.90
Towels (12), hand, 1 yard each, hemmed	1.38
Towels (12), dish, 1 yard each, hemmed	1.32
Floor-cloths (6), ½ yard each, hemmed	.66
Scrap-basket (1), wire	.35
Clock (1), New Haven alarm	.60
Inkstand (1), with 2 bottles and pen-holder	.75
Cash-box (1), tin, size 7 x 9 x 2 inches, 6 compartments	.55
Thermometer for refrigerator	.48
Dairy thermometer	.17
Tongue depressors	.60
Clinical thermometer (two-minute)	.50
Breast-pump (1)	.30
Pyoscope (1)	.45
Letter-index, files (2) for charts, at $1.40	2.80
Card-drawer files (daily record cards), at 80 cents	1.80

The average cost of equipment was $184.72 per station. All the furniture was white enamel, with the exception of the folding chairs, and was made to order for the Committee. With the exception of the refrigerators, the equipment selected proved well adapted to the needs of the milk station. The refrigerators, although of well-known make, did not prove satisfactory, as it was impossible to keep the temperature of the milk below 55° F. unless the bottles were placed

in direct contact with the ice. It is doubtful if any refrigerator will give as satisfactory results in keeping milk at a low temperature as an ice-chest in which the bottles can be buried in cracked ice.

Arrangement of Interior of Station

Wherever possible, as has been said, stores with three rooms were obtained for milk stations—the front room, being the largest, was used for a class-room and for the dispensing of milk. In the exhibit showing floor plan of a three-room station the milk-dispensing table is in the fore part of the front room. In some places a rail and gate, together with the table, separated the remaining part of the room used for class purposes from the milk-dispensing portion. A three-paneled screen is utilized to separate the class-room from the view of the street. The refrigerator, with a capacity of 200 quart bottles of milk, is placed alongside of the cabinets. These cabinets contained nursing bottles of various sizes, barley, milk-sugar, nipples, borax, and other supplies which were sold to the mothers at cost. A portion of the front room utilized for class work or as a waiting-room for mothers on consultation day with the physician is provided with 24 to 36 folding camp-chairs and a table for the use of the nurse or physician conducting class work.

The adjoining room is known as the "demonstrating room"—this is the smallest of the three; here mothers were instructed in the modification of milk, bathing and dressing of babies, etc. It is provided with a large demonstrating table, a sink with running water, wall shelves on which were kept the utensils used in demonstrating the modification of milk, a cabinet for supplies, and a cloak closet.

The third or rear room is nearly twice as large as the demonstrating room, and is known as the "consultation room," in that it is used almost exclusively for individual consultation work with mothers. The station physician and nurse are each provided with a desk. At the side of the room nearest the nurse's desk is a table holding the scales used in weighing babies, and on the opposite side is the cabinet containing medical supplies used in the station work.

The arrangement, as per the plan outlined, makes it possible for a station with apparently small quarters to handle quite conveniently a great many cases. The use of that part of the front room nearest the street door for receiving mothers or older children coming for milk, without interfering with the work carried on in the other part of the station, is particularly advantageous. The class-room makes it possible for the general lessons in hygiene and care of the baby by the station nurse and the special talks by the station physician to be given without interruption from persons coming in for the sole purpose of obtaining the day's supply of milk. By having the consultation room in the rear, a good light is assured for the examination of babies by the physician. The room affords a certain amount of privacy, and the mother feels that the station is giving her baby individual attention and that she is being granted a personal consultation, rather than being instructed as one of a group. The character and amount of individual attention given to each baby and mother by the station physician and nurse determine largely the influence which the station is to have upon that mother.

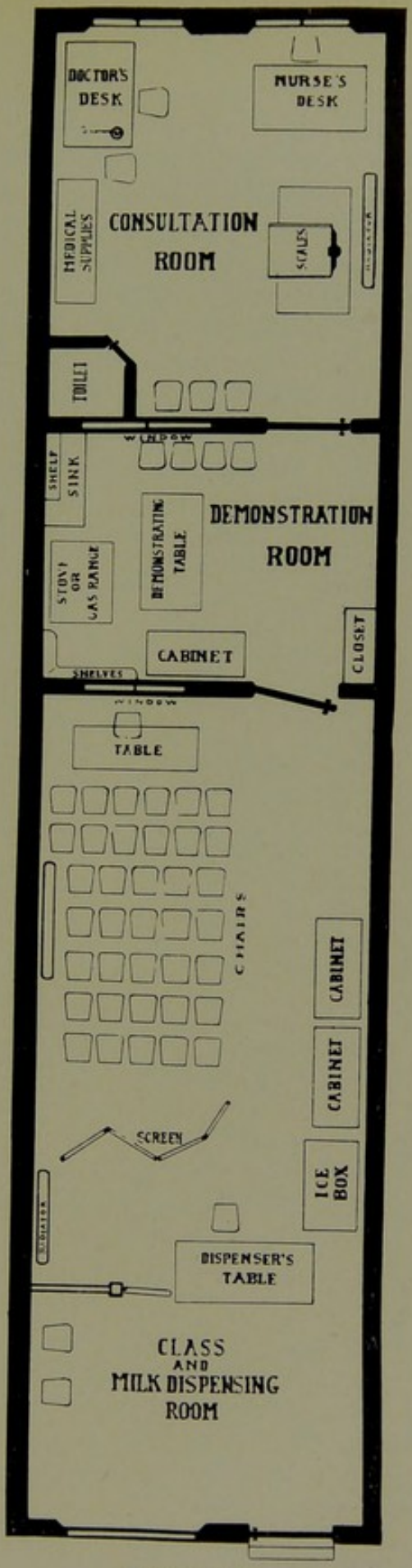


EXHIBIT 24
FLOOR PLAN OF MILK STATION
STORES ARE USED FOR MILK STATIONS

After making this announcement of the opening of the stations, the nurse began canvassing systematically the tenements on each street of her district. From the janitors she obtained information as to the families having babies under two years of age, and these homes were visited and the mothers urged to come to the stations with their babies. They were told the purpose of the station and the kind and price of the milk dispensed. As the babies became registered the mothers were given circulars to distribute among their neighbors and friends; they were asked to bring with them other mothers whose babies were sickly, to get them well; and those whose babies were well, to learn how to keep them well.

Each home having a baby under two years of age needing supervision was visited, and the following card form was filled out:

NEW YORK MILK COMMITTEE
Form L—7-10-11—5000

BORN 4/1/11 **ELIGIBLE BABY** Flight 2 frt. bk. rr. lft. rr. house

Name L L Address 75 Cornelia St.

BREAST FED..... PARTLY BREAST FED..... ARTIFICIALLY FED ✓.....

MILK—RAW.... PASTEURIZED.... MODIFIED.... BOTTLED... LOOSE ✓ CONDENSED.... SUPPLIED BY Grocery PAT. FOOD TABLE FOOD

DATE	CONDITION	ACTION TAKEN—REMARKS	N. VISIT
8/15	Poor	Urged to attend clinic — Instructed	8/19
8/19	"	No improvement — will attend clinic	8/23
8/23	"	Not as well — Instructed	8/27
8/27	Well	Advised to see doctor — Will register baby	8/31
8/31	"	Called to bring mother to clinic	

EXHIBIT 27

This is a salmon-colored card, 3 x 5 inches, punched so as to carry in a loose-leaf cover, and is known as the "Eligible Baby" record. The term "eligible babies" refers to those babies who live within the district which the station is supposed to serve, and who, in the judgment of the nurse on visiting the homes, need the care and supervision of the milk station. In other words, every home visited in which conditions were unfavorable, due either to poverty, ignorance, or neglect, the baby was considered a candidate for registration at the milk station.

The above record shows that this particular baby lives on Cornelia Street, second flight, back hall, and apartment to the right. The baby was born on April 1, 1911, and artificially fed on "loose" (dipped) milk purchased at a grocery store. The date of the first visit to the home was August 15th; the condition of the baby indicated was "poor." The nurse urged the mother to attend the clinic, and instructed her in the care of bottles, nipples, and milk. The nurse revisited the home on August 19th, 23d, 27th, and 31st; the last was for the pur-

pose of bringing the mother to the station to have the baby examined by the station physician.

A Registered Baby

Once a mother brings a baby to the station and the baby is examined by the station physician, and the mother promises to follow the instructions given to her by the physician and nurse and attend the consultations as directed, the baby becomes a "Registered Baby," and the following card record is made:

NEW YORK MILK COMMITTEE Form M—10-2-11—5000

Born 4-1-'11 REGISTERED BABY Flight 2 frt. bck. rt. lft. rr. house

Relief Case ✓ Case 141

Name S L Address 25 Cornelia St.

Attendance at Medical Consultation			Home Visits		Next Visit
Date	Condition	Action	Date	Action Taken	
8/31	III	Castor oil 1/2 oz B.W. diet 36 hrs	8/31	Instructed mother	
9/7	Improved	"		how to make B.W.	9/1
9/14	"		9/1	Irrigated bowel	9/2
9/21	Very Ill	Saline 8 oz	9/2	Taught milk modification	
Murphy installation			9/19	Baby has dia. gave oil.	
once daily				and B.W. diet	
			9/22	Saline.	

Attendance at Medical Consultation			Home Visits		Next Visit
Date	Condition	Action	Date	Action Taken	
9/18	Improved	Saline discontinued	9/23	Saline irrigation	9/24
10/5	good	None	9/24	" "	9/25
10/12	"	"	9/25	" "	9/26
10/19	"	Changed Formula	9/26	" "	9/27
10/26	"	None	9/27	" "	"
			10/19	Taught milk	
				modification	

Exhibit 28

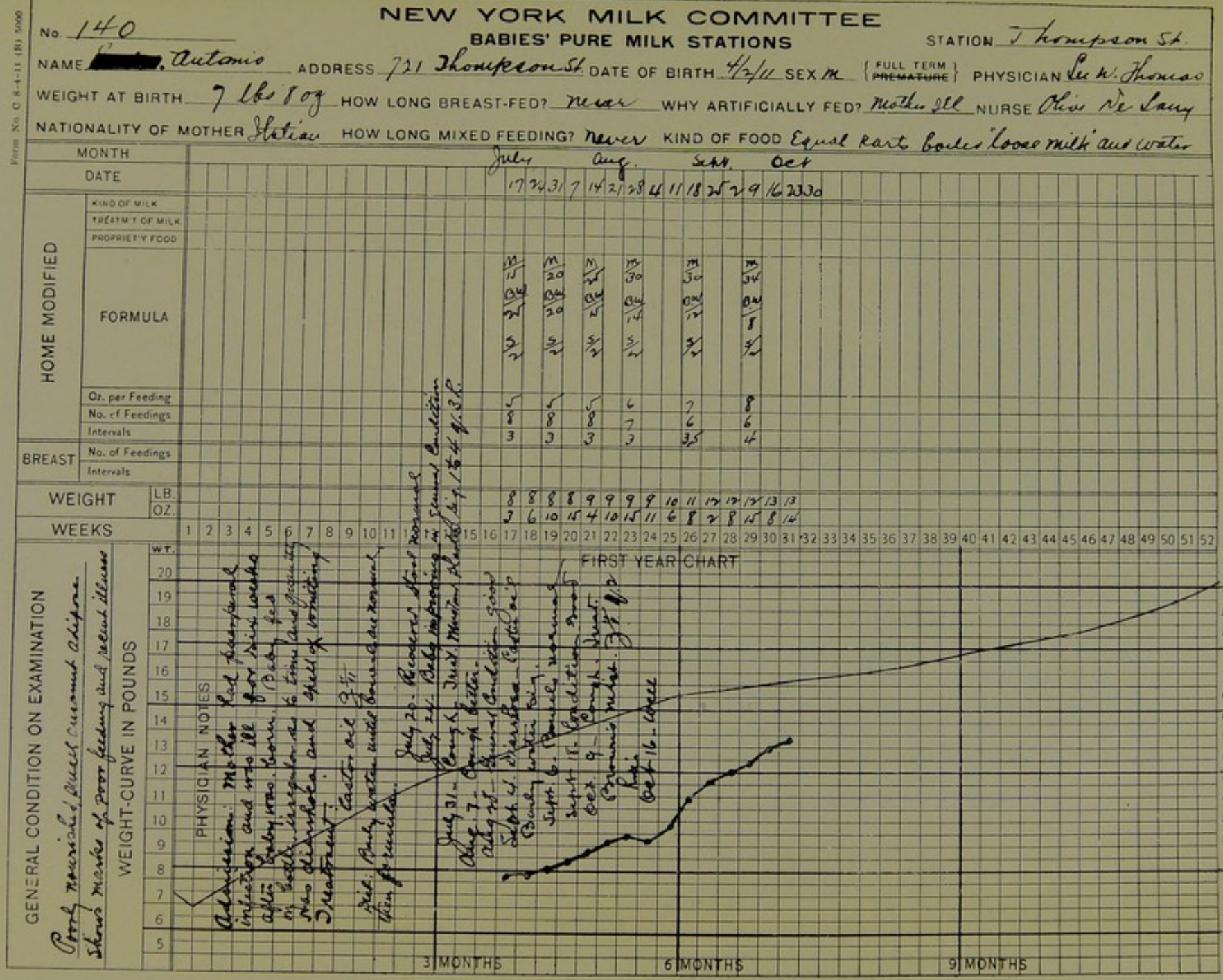

NEW YORK MILK COMMITTEE
BABIES' PURE MILK STATIONS
No. 140
STATION Thompson St.
NAME [redacted], Antonio
ADDRESS 721 Thompson St
DATE OF BIRTH 4/2/11
SEX M
{FULL TERM / PREMATURE}
PHYSICIAN Lee K. Thomas
WEIGHT AT BIRTH 7 lbs 8 oz
HOW LONG BREAST-FED? Never
WHY ARTIFICIALLY FED? Mother ill
NURSE Alice De Lany
NATIONALITY OF MOTHER Italian
HOW LONG MIXED FEEDING? Never
KIND OF FOOD Equal parts boiled "loose milk" and water
MONTH
DATE
July
Aug.
Sept.
Oct
HOME MODIFIED
KIND OF MILK
TREATM'T OF MILK
PROPRIET'Y FOOD
FORMULA
Oz. per Feeding
No. of Feedings
Intervals
BREAST
No. of Feedings
Intervals
WEIGHT
LB.
OZ.
WEEKS
PHYSICIAN NOTES
FIRST YEAR CHART
WT.
3 MONTHS
6 MONTHS
9 MONTHS
GENERAL CONDITION ON EXAMINATION
WEIGHT-CURVE IN POUNDS
GENERAL HEALTH CONDITION INDICATED BY PERCENTAGE
Perf. Excellent
Good
Fair
Poor
Bad

EXHIBIT 29

This card contains the important information shown on the "Eligible" card of the baby, and the current information as to the clinic consultation, the action taken by the station physician, the home visits, and notes of the station nurse. It forms the working memorandum which can be conveniently used by the nurse in exercising supervision and control over the case. This card form also has punched holes for carrying in the loose-leaf binder whenever the nurse makes her home visits upon the case.

Both the "Eligible Baby" and the "Registered Baby" card forms are filed at the station in a tickler file, under the date on which the case is to receive further attention. When the "Eligible Baby" becomes a "Registered Baby," the "Eligible" card record is then filed alphabetically, in a terminated record file, and the "Registered" baby card beomes the active record. When the registered baby is attending clinic regularly, with no unusual conditions prevailing which would require home visiting and special work on the part of the nurse, this record is filed by street and numerically by the house number. If home visiting, etc., is necessary, the card is filed in a tickler file according to the date on which further action regarding the case is to be taken. Upon termination of a case by removal, transfer to hospital, or other agency, etc., the record is then filed alphabetically in a file for terminated cases. The registration card gives information as to the name of the baby, the address, date of birth, whether the case is one in which relief is extended, and the case number. The form also provides for recording the attendance of the baby at the medical consultations, its conditions, and the action taken as a result of the medical examination. It further provides for recording the home visits made by the nurse by giving the date of the visit, the action taken, and the date of the next visit, if such is necessary. The date indicated for the next visit determines the date under which the card is to be filed in the tickler file by the nurse upon her return to the station.

Individual Weight Chart and Medical Record of Baby

In addition to the foregoing card record maintained for each registered baby, a weight chart and medical record is kept in each case. This record is a 9⅜ x 12¼ inch card, printed on both sides. One side is used for recording information relating to the baby if under one year of age; the other side, if over one year of age. This record is made up at the time the baby is first examined by the station physician, and the mother agreed to follow the instructions of the physician and nurse. (See Exhibit 29.)

This record provides for recording the name and address of the case, the date of birth, the number of the case, the station at which the baby is registered, sex, whether full-term or premature birth, reported weight at birth, length of time breast-fed, length of time mixed fed, the reason for artificial feeding, the kind of food given, nationality of mother, and the names of the station physician and nurse. All this information relates to conditions existing at the time the baby is registered.

The major part of the form provides for recording information relating to the case, as noted by the station physician, and the kind of action taken. In the

upper part of this space provision is made for recording the month and the date the case comes under the observation of the station physician, the kind of formula for home modification if artificially fed, instructions regarding the number and intervals of feeding if breast-fed, and the weight of the baby in pounds and ounces for the age in weeks.

The lower part of the chart records the general condition upon medical examination at entry, the physician's notes regarding the case, the average weight curve for normal babies, and the weight curve of the particular baby under observation. The reverse side of the card records similar information for the baby in its second year, the main difference being in the normal weight curve. These chart records are filed alphabetically, according to the clinic or the consultation day on which the mother is instructed to bring her baby to the station.

Whenever a case is transferred to another station, the chart record, together with the other records pertaining to the case, is forwarded to the station to which the baby is being transferred. If the case is terminated for whatever cause, the chart is filed alphabetically under terminated cases, and the reason for termination is reported to the central office.

Case History Card

In addition to the registration card and weight chart and medical record, a case history card is made out for each baby registered. This gives information concerning conditions which prevailed previous to admittance to the station, and takes the character of a social record of the case. This is a 5 x 8 inch card, printed on one side; the following shows the form of this record:

Form R-6-5-11—5000 WARD NUMBER 9th BABY'S NAME S L

NEW YORK MILK COMMITTEE STATION NUMBER 25 CASE NUMBER 141

CASE HISTORY CARD (CONDITIONS PREVIOUS TO ADMITTANCE)

ADDRESS 25 Cornelia St.

Residence: Tenement	✓	Baby	M	F	Cows' milk	✓	Mother's Name	Mary	
Floor	2d	Birth: Number	3		Raw		Nationality	Italian	
Front		Birth: Normal	✓		Boiled	✓	Occupation	Housework & Embroidery	
Rear	✓	Birth: Abnormal			Pasteurized		Born in U. S.	no	Intemperate: No
No. of rooms	4	Born at: Hospital			Milk used: Certified		Color: White	✓	Can read: ✓
No. of light rooms	2	Born at: Home	✓		Condensed		Color: Black		Cannot read
Rental	17.00	Attendant at Birth: Physician			Loose	✓	Number of days before confinement mother did not work	0	Number of days after confinement mother resumed work: 21
Home		Attendant at Birth: Midwife	✓		Bottled				
Boarding		Attendant at Birth: Nurse			Modified (Home)		Kind of work	Embroidery	Kind of work: House
Average weekly income	$12 to 15	Attendant at Birth: Other			Already modified		General health: Good	Fair	Poor ✓
Family consists of: Father	✓	Cared for by: Mother	✓		Other Foods or Beverages: Patent food		Father's Name	Frank	
Mother	✓	Cared for by: Other adult			Table food		Nationality	Italian	
Adults	2	Cared for by: Older child	✓		Raw fruit		Occupation	Pastry-work	
Children	3	Cared for by: Neighbor			Coffee		Born in U. S.	no	Intemperate: no
Boarder		Present Medical Supervision: Hospital			Tea		Color: White	✓	Can read: ✓
Roomers	1	Present Medical Supervision: Dispensary			Soda water		Color: Black		Cannot read
General Cleanliness of Premises: Clean	✓	Present Medical Supervision: Private	✓		Beer		Children living	3	Ages 7 yrs. 5 yrs. 4 mos.
Dirty		General Health Condition: Good			Wine		Remarks:		
Very dirty		General Health Condition: Fair			Daily Outing: Hours	1	Baby never breast fed. Thin and ill nourished. Feeding irregular as to quantity and intervals		
Ventilation: Good		General Health Condition: Poor	✓		Daily Outing: Regular				
Ventilation: Fair	✓	Sleeping Condition: Regular			Daily Outing: Irregular	✓			
Ventilation: Poor		Sleeping Condition: Irregular			Baby carriage used				
Bath tub		Sleeping Condition: Sleeps alone	✓		Baby carriage not used	✓			
Bath tub used	✓	Breast fed: Mother			Name and address of milk dealer: Besser 31 Cornelia				
Toilet: Flush	✓	Breast fed: Wet-nurse							
Toilet: No flush		Partially breast fed					Nurse	B. E. Schofield	
Toilet: Privy		Artificially fed	✓				Date compiled	9-11-11	

Exhibit 30

The information relates largely to a history of the baby and its home conditions. The record is compiled as soon as possible after the baby becomes registered, generally on the first visit of the nurse to the house after registration. The arrangement of items provides a convenient way for recording data by checking the items upon which information is desired. The purpose of this history card was to ascertain the character of the homes which the milk station was able to reach, and the previous history of cases coming under their influence. It greatly facilitated matters in looking up a case whenever application for relief was made.

Artificially Fed Babies

When artificial feeding is prescribed for a registered baby, the mother receives the daily supply of milk from the station. If it is not a case of extreme poverty, she is required to pay seven cents for a quart bottle and four cents for a pint bottle of milk. If the case deserves relief, milk is furnished upon instruction from the central office after the case has been investigated and some organization or individual has agreed to reimburse the station for the amount of the value of the milk dispensed in the form of relief.

For the purpose of control over mothers coming to the station for their milk supply a ledger, providing a page for recording information relating to each case, is maintained; the case is identified by the case number given the registered baby. The quantity of milk dispensed each day, also the feeding formula, as prescribed by the station physician, is here recorded. All this affords an important means of control over mothers having babies registered at the station and artificially fed, as the matron dispensing the milk promptly reports to the nurse cases where the mother fails to come for her daily supply. These are immediately followed up by the station nurse, to determine the cause; usually, if the baby is well, mothers are apt to be negligent or careless in making their station purchase, and, through motives of economy, substitute cheap grocery milk.

The ledger has column-rulings with the following headings:

Date
Milk Dispensed
  Quarts
  Pints
Cash Received
Relief charged to
Formula prescribed (oz.)
  Whole Milk
  Oatmeal Water
  Lime Water
  Barley Water
  Boiled Water
  Plain Water
  Milk Sugar
  Cane Sugar
  Feeding Intervals

By having recorded the feeding formula of the baby receiving the milk, the nurse and the matron have conveniently at hand information as to the feeding and the quantity of milk the mother should buy for her baby. It is further used for

questioning the mother in regard to the feeding formula prescribed. If no change has been made in this for several weeks, it is an additional means of bringing to the nurse's attention the failure of the mother to bring the baby to the consultations for the purpose of having any necessary changes made in the feeding formula, as no formulas are supposed to be written for a longer period than three weeks.

Character of Reports Rendered by Station Employees

During the demonstration daily reports were made out at the close of each day's work, by both physician and station nurse, and mailed to the central office, where daily tabulations were made and the results used for general supervision and control.

Nurse's Daily Report Card

The nurse made her daily reports on the card form, 4 x 6 inches, as shown in Exhibit 31.

This report provides for reporting the name of the nurse, the date, station number, hour of arrival, and hour of her departure; information relating to changes in the station enrolment by giving the cases brought forward from the previous day; the new babies received, and from where they were received; the registered cases terminated, and the reason for termination, with the total number of active cases carried forward to the next day; the first visit, and revisits of well babies and sick babies to the station; the number of first visits and revisits made by the station nurse to homes of well babies, sick babies, babies not found; the number of visits and revisits of coöperation to dispensaries, hospitals, settlements, private practitioners, charitable organizations, etc., and the total number of first visits and revisits, and total for all visits.

The form also provides for recording the number of mothers instructed individually, once or more than once, in the modification of milk or other matters relating to the care of the baby; the number of mothers instructed in classes for the first time and for two or more times, and the total number instructed.

In the lower right-hand corner of the report is recorded the number of babies fed, the number of mothers fed, and the others fed, and the total individuals to whom milk was dispensed; the number of requests for relief, the number of cases where instruction had been received to extend entire relief, partial relief, or to refuse or to discontinue relief.

Space is also given to the daily accounting of milk received and dispensed by the station, recording the number of quarts and pints carried forward from the previous day's supply; quantity received on the date to which report relates, and the total amount to be accounted for; the quantity dispensed to babies, mothers, and to others; quantity transferred to other stations, spoiled, or left over, and the total quantity accounted for.

The reverse side of the report provides for recording the name, address, time of visit, and recent action taken, and the date of the next visit for each home. Information is also recorded relating to cases transferred to hospitals by giving the name, home address, reason for transferring, name of hospital, and the date on which the case entered the hospital. For deaths among station babies the

form provides for the name, the home address, the cause, the place where the death occurred, and the date of death.

Form N—10-5-11—3000

NEW YORK MILK COMMITTEE
NURSE'S DAILY REPORT

DATE Aug. 7, 1911 STATION NUMBER 10 E.
ARRIVAL 8:30 am.
DEPARTURE 5:45 pm. A. F. Clarke NURSE

CASES BROUGHT FORWARD 159

Cases	Received: Ref.	Received: Trans.	Received: Other	Received: Total	Terminated: Trans.	Terminated: Other	Terminated: Total
Re-admitted							
Hos. or Disp.					2		2
Board of Health							
Other Organization		1		1			
Other N. Y. M. C. Station							
Private Practitioner	1			1			
Canvass			4	4			
Removed							
Refused to Attend							
Dead							
Total	1	1	4	6	2		2

CASES CARRIED FORWARD 163

Attendance	First Visit	Re-visit	Total
Mothers	4	9	13
Babies, well	4	7	11
Babies, sick		2	2
Visits to well babies	1	4	5
Visits to sick babies		4	4
Visits to babies not found	1		1
Visits of co-operation			
Total visits			10
Mothers Instruct. Indiv.		5	5
Mothers Instruct. Classes			

		Milk	Qts.	Pts.
Babies Fed	138	Carried forw'd	2	
Mothers Fed	3	Received	145	
Others Fed	2	Total to be accounted for	147	
Total Fed	143	Disp. to babies	137	
Request for Relief		Disp. to mothers	3	
Entire Relief		Disp. to others	3	
Partial Relief		Transferred		
Refused Relief		Spoiled		
Discontinue Relief		Left Over	4	
		Total acc'd for	143	

Name	Address	Time	Reason	Action Taken	Next Visit
1 Walter Wenzel	511 E. 78 St	10:00	Sick	Advised	8/8
2 Jerome Morris	435 E 77 "	11:30	Follow up	Out	8/8
3 Florence Friedle	431 E 74 "	10:45	Sick	Advised	8/8
4 George Koska	503 E. 73 "	11:10	Infant Clinic	Mother Sick—Will Come	—
5 Lily Russ	436 E. 73 "	2:30	Follow up	Will attend Clinic	—
6 Jennie Liska	414 E. 73 "	2:00	Sick	Advised—Baby better	8/10
7 Frank Forsdorff	420 E. 70 "	3:15	New	Instructed—Will come	—
8 Thos. Lenhardt	506 E. 70 "	3:45	Follow up	Will attend clinic	—
9 Jos. Gahora	1372 1st Ave	4:15	Change Formula	Demonstrated New Formula	—
10 Frank Jera	1431 Ave A	4:45	Sick	Baby better—Instructed	8/10

Sent to Hospital	Home Address	Reason	Name of Hospital	Date
Chas. Hayes	404 E. 73 St.	Enteritis	Junior Sea Breeze	8/7
Jos. Bastuni	424 E. 75 "	"	" " "	8/7

Deaths	Home Address	Cause	Place	Date
—	—	—	—	

Exhibit 31
Nurse's Daily Report

Daily Report of Physician

The stations' physicians were required to make a report each day on which services were rendered; the form of this report is shown below:

Form P—6-1-11—1500

NEW YORK MILK COMMITTEE

PHYSICIAN'S DAILY REPORT

DISTRICT West. DATE Sept 12th. 1911

Station Number	8 W.			1 W	
Hours	10 12.			2 4.30	
Individual Work					
Mothers Instructed	33			50	
Well Babies Examined	30			45	
Sick Babies Examined	3			5	
Total Babies Examined	33			50	
Class Work					
No. of Classes Held					
No. Mothers Present					
No. Little M. Present					
Cases Referred					
Hospital { Surgical				2	
Hospital { Medical	1				
Dispensary { Surgical					
Dispensary { Medical					
Board of Health					
Outing				3	
Central Office					
Total	2			5	

REMARKS

Surgical case referred for removal of tonsils.

Lee W. Thomas

Signature of Physician

Exhibit 32

It gives the district served by the physician and the date of the report. The column rulings at the right of the items shown in the first column are provided for recording separate information for each station to which services were rendered by the physician. The information called for relates to work performed by the physician, showing the hour of arrival and departure, the individual work performed by recording the number of mothers instructed and babies examined; the number of mothers and "little mothers" or older girls present at consultations. The physician also reports the action taken in referring cases, by giving the number of cases referred to hospitals and dispensaries and the reason for referring; the number referred to the Department of Health, to private practitioners, and to the central office, together with the total number of cases referred. To the right of the column rulings space is provided for remarks intended to be brought to the attention of the central office.

In addition to the foregoing, special reports were rendered by physicians and nurses when requested. No other regular report except a weekly financial statement as to the milk and supply sales was required.

TABLE 117.—SHOWING STATEMENT OF COST OF OPERATING THE COMMITTEE'S MILK STATIONS DURING THE MONTH OF SEPTEMBER, 1911

Station Number	Number of Babies Enrolled	Number of Baby Days	Supervision and Central Administration Expenses												Station Operation Expenses																						Educational Expenses						Grand Total, Central Administration Station Expense, Educational
			Salaries		Stenography		Rent and Telephone		Postage, Printing, and Stationery		Incidental Expenses		Total		Salaries—Matrons		Rent		Gas		Ice		Cleaning		Postage, Printing, and Stationery		Telephone		Carfare		Incidental Expenses		Total		Salaries—Physicians		Salaries—Nurses		Printers, Bulletins, Circulars		Total		
			Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day	Amount	Average per Baby Day
1	193	3,790	$41.38	$.0011	$5.57	$.0010	$5.16	$.0009	$2.92	$.0005	$7.22	$.0012	$62.25	**$.0107**	$79.45	$.0137	$35.09	$.0061	$2.96	$.0005	$14.90	$.0026	$17.50	$.0030	$1.22	$.0002	$1.90	$.0003	$ .25	$.0000	$5.09	$.0008	$158.36	**$.0273**	$20.50	$.0035	$160.48	$.0277	$1.31	$.0002	$182.34	**$.0314**	$402.95	**$.0696**
2	201	6,030	43.04	.0071	5.79	.0010	5.36	.0009	3.04	.0005	7.51	.0012	64.74	**.0107**	45.00	.0074	38.09	.0063	1.20	.0002	6.83	.0011	5.00	.0008	.56	.0000	3.00	.0005	1.40	.0002	2.22	.0004	103.30	**.0171**	22.00	.0036	75.00	.0124	.58	.0000	97.58	**.0161**	265.62	**.0440**
3	150	4,500	32.15	.0071	4.32	.0010	4.01	.0009	2.27	.0005	5.61	.0012	48.36	**.0107**	51.00	.0113	45.09	.0100	7.52	.0016	4.41	.0010	4.75	.0011	.46	.0001	3.00	.0007	.30	.0001	8.53	.0018	125.26	**.0278**	25.00	.0055	153.63	.0341	1.23	.0002	179.88	**.0399**	353.50	**.0786**
4	193	5,790	41.38	.0071	5.57	.0010	5.16	.0009	2.92	.0005	7.22	.0012	62.25	**.0107**	45.00	.0077	32.39	.0056	1.66	.0003	21.80	.0038	9.20	.0016	.45	.0000	3.00	.0005	1.00	.0002	1.92	.0003	116.62	**.0201**	22.00	.0038	150.00	.0259	.38	.0000	172.38	**.0297**	351.25	**.0607**
5	139	4,170	29.77	.0071	4.00	.0010	3.71	.0009	2.10	.0005	5.19	.0012	44.77	**.0107**	45.00	.0107	35.09	.0084	1.76	.0004	5.35	.0013	5.40	.0013	.95	.0002	3.00	.0007	1.25	.0003	4.56	.0010	102.36	**.0245**	19.06	.0045	75.00	.0179	1.05	.0002	95.11	**.0228**	242.24	**.0581**
6	109	3,270	23.34	.0071	3.14	.0010	2.91	.0009	1.65	.0005	4.07	.0012	35.11	**.0107**	79.50	.0243	25.09	.0077	.88	.0003	4.40	.0013	4.00	.0012	.30	.0000	3.10	.0009	.80	.0002	1.40	.0004	119.47	**.0365**	25.00	.0076	75.00	.0229	.45	.0001	100.45	**.0307**	255.03	**.0780**
7	143	4,290	30.60	.0071	4.12	.0010	3.81	.0009	2.16	.0005	5.34	.0012	46.03	**.0107**	45.00	.0104	23.09	.0054	.72	.0002	4.25	.0010	5.75	.0013	.54	.0001	3.00	.0007	.40	.0000	3.49	.0008	86.24	**.0201**	26.00	.0060	75.00	.0174	1.97	.0004	102.97	**.0240**	235.24	**.0548**
8	186	5,580	39.83	.0071	5.36	.0010	4.96	.0009	2.81	.0005	6.94	.0012	59.90	**.0107**	58.50	.0104	27.09	.0049	1.36	.0002	4.80	.0009	3.75	.0007	.97	.0002	3.30	.0006	.20	.0000	.05	.0000	100.02	**.0179**	25.00	.0044	125.00	.0224	.41	.0000	150.41	**.0269**	310.33	**.0556**
9	174	5,220	37.23	.0071	5.01	.0010	4.64	.0009	2.63	.0005	6.49	.0012	56.00	**.0107**	91.00	.0174	35.09	.0067	.80	.0002	5.20	.0010	.20	.0000	1.02	.0002	2.95	.0006	1.30	.0002	1.21	.0002	138.77	**.0266**	32.00	.0061	150.00	.0287	1.00	.0001	183.00	**.0350**	377.77	**.0724**
10	195	5,850	41.80	.0071	5.62	.0010	5.21	.0009	2.95	.0005	7.29	.0012	62.87	**.0107**	45.00	.0076	25.09	.0043	1.76	.0003	9.00	.0015	4.75	.0008	.50	.0000	3.00	.0005	.20	.0000	2.10	.0004	91.40	**.0156**	32.75	.0055	150.00	.0256	1.10	.0001	183.85	**.0314**	338.12	**.0578**
11	240	7,200	51.34	.0071	6.91	.0010	6.40	.0009	3.63	.0005	8.95	.0012	77.23	**.0107**	67.00	.0093	32.50	.0045	1.67	.0002	4.04	.0006	..	..	.30	.0000	3.00	.0004	.40	.0000	2.26	.0003	111.17	**.0154**	32.75	.0045	150.00	.0208	.82	.0001	183.57	**.0254**	371.97	**.0517**
12	242	7,260	51.86	.0071	6.97	.0010	6.46	.0009	3.66	.0005	9.04	.0012	77.99	**.0107**	40.00	.0055	40.10	.0055	1.20	.0002	4.15	.0006	8.25	.0011	1.58	.0002	3.05	.0004	3.75	.0005	12.64	.0017	114.72	**.0158**	28.50	.0039	146.62	.0201	.56	.0000	175.68	**.0241**	368.39	**.0507**
13	116	3,480	24.79	.0071	3.33	.0010	3.09	.0009	1.75	.0005	4.32	.0012	37.28	**.0107**	45.00	.0129	25.10	.0072	.72	.0002	5.10	.0015	4.00	.0011	1.00	.0003	3.00	.0009	.30	.0000	1.22	.0003	85.44	**.0246**	22.00	.0063	75.00	.0215	1.08	.0003	98.08	**.0281**	220.80	**.0634**
14	157	4,710	33.60	.0071	4.52	.0010	4.19	.0009	2.37	.0005	5.86	.0012	50.54	**.0107**	45.00	.0096	45.10	.0096	2.00	.0004	3.75	.0008	4.00	.0008	1.54	.0003	3.00	.0006	.50	.0001	.99	.0000	105.08	**.0223**	23.00	.0048	162.42	.0344	.36	.0000	185.78	**.0394**	341.40	**.0725**
15	147	4,410	31.43	.0071	4.23	.0010	3.91	.0009	2.22	.0005	5.48	.0012	47.27	**.0107**	45.00	.0102	45.10	.0091	.88	.0002	3.40	.0008	3.25	.0007	.36	.0000	3.00	.0007	.20	.0000	.30	.0001	96.49	**.0219**	30.50	.0069	105.00	.0238	1.11	.0002	136.61	**.0309**	280.37	**.0636**
16	117	3,530	25.10	.0071	3.37	.0010	3.13	.0009	1.77	.0005	4.38	.0012	37.75	**.0107**	32.27	.0092	20.10	.0057	1.60	.0005	10.30	.0029	9.20	.0026	1.12	.0003	3.00	.0009	.40	.0002	3.18	.0009	81.37	**.0232**	22.00	.0062	112.50	.0320	.60	.0001	135.10	**.0384**	254.22	**.0724**
17	112	3,360	23.96	.0071	3.22	.0010	2.98	.0009	1.69	.0005	4.18	.0012	36.03	**.0107**	40.50	.0121	37.10	.0111	.88	.0003	6.20	.0018	7.00	.0021	.62	.0002	3.00	.0009	1.40	.0004	2.63	.0007	99.33	**.0296**	25.00	.0074	80.00	.0238	.80	.0002	105.80	**.0315**	241.22	**.0717**
18	252	7,560	53.93	.0071	7.25	.0010	6.72	.0009	3.81	.0005	9.40	.0012	81.11	**.0107**	48.00	.0063	14.10	.0018	.72	.0000	18.48	.0024	5.50	.0007	.80	.0001	3.00	.0004	1.75	.0002	6.50	.0008	98.85	**.0131**	33.00	.0043	147.50	.0195	.50	.0000	181.00	**.0239**	360.96	**.0477**
19	194	5,820	41.49	.0071	5.58	.0010	5.17	.0009	2.93	.0005	7.23	.0012	62.40	**.0107**	45.00	.0077	35.10	.0060	3.84	.0007	5.20	.0009	6.00	.0010	.20	.0000	3.00	.0005	.10	.0000	6.40	.0019	104.84	**.0180**	25.50	.0043	150.00	.0257	1.40	.0002	176.90	**.0303**	344.14	**.0591**
20	119	3,570	25.51	.0071	3.43	.0010	3.18	.0009	1.80	.0005	4.45	.0012	38.37	**.0107**	42.50	.0119	33.10	.0093	1.04	.0003	12.90	.0036	4.15	.0012	.49	.0001	3.00	.0008	1.20	.0003	.60	.0001	98.98	**.0277**	25.00	.0070	75.00	.0210	.20	.0000	100.20	**.0280**	237.55	**.0665**
21	137	4,110	29.35	.0071	3.95	.0010	3.66	.0009	2.07	.0005	5.12	.0012	44.15	**.0107**	40.00	.0097	22.10	.0054	.80	.0002	14.10	.0034	4.00	.0010	.60	.0001	3.00	.0007	..	..	.30	.0001	84.90	**.0207**	21.31	.0051	75.00	.0182	..	..	96.31	**.0234**	225.36	**.0548**
22	104	3,120	22.30	.0071	3.00	.0010	2.78	.0009	1.58	.0005	3.89	.0012	33.55	**.0107**	45.00	.0144	25.10	.0084	3.84	.0012	4.40	.0014	4.75	.0015	1.32	.0004	3.00	.0010	.30	.0000	1.05	.0003	88.76	**.0284**	32.50	.0104	75.00	.0240	.62	.0001	108.12	**.0346**	230.43	**.0738**
23	184	5,520	39.41	.0071	5.30	.0010	4.91	.0009	2.79	.0005	6.87	.0012	59.28	**.0107**	48.87	.0089	40.50	.0073	1.12	.0002	8.92	.0016	5.25	.0010	.30	.0000	3.00	.0005	.20	.0000	2.50	.0005	110.26	**.0200**	23.50	.0042	151.86	.0238	.48	.0000	155.84	**.0282**	325.38	**.0590**
24	179	5,370	38.37	.0071	5.16	.0010	4.78	.0009	2.71	.0005	6.69	.0012	57.71	**.0107**	67.00	.0125	32.10	.0060	.72	.0001	4.28	.0008	.70	.0001	.80	.0001	3.00	.0005	.20	.0000	.14	.0000	108.94	**.0203**	20.50	.0038	125.00	.0232	1.01	.0001	146.51	**.0273**	313.16	**.0583**
25	113	3,390	24.16	.0071	3.25	.0010	3.01	.0009	1.71	.0005	4.21	.0012	36.34	**.0107**	66.25	.0195	23.10	.0068	1.12	.0003	5.15	.0015	2.00	.0006	.30	.0000	3.00	.0009	.70	.0002	.55	.0000	102.17	**.0301**	20.50	.0060	80.00	.0235	.81	.0002	101.31	**.0298**	239.82	**.0707**
26	115	3,450	24.58	.0071	3.31	.0010	3.06	.0009	1.74	.0005	4.29	.0012	36.98	**.0107**	45.00	.0130	40.10	.0116	1.60	.0005	4.68	.0014	1.00	.0003	.65	.0002	3.00	.0009	.20	.0000	.30	.0000	96.53	**.0280**	20.50	.0059	75.00	.0217	.50	.0001	96.00	**.0278**	229.51	**.0665**
27	194	5,820	41.48	.0071	5.58	.0010	5.17	.0009	2.93	.0005	7.23	.0012	62.39	**.0107**	62.50	.0107	40.10	.0069	.80	.0001	12.80	.0022	3.25	.0006	.46	.0000	3.00	.0005	.10	.0001	.90	.0001	124.41	**.0214**	32.50	.0055	150.00	.0257	.40	.0000	182.90	**.0314**	369.70	**.0635**
28	104	3,120	22.30	.0071	3.00	.0010	2.78	.0009	1.58	.0005	3.89	.0012	33.55	**.0107**	45.00	.0144	32.50	.0104	1.65	.0005	11.59	.0037	1.50	.0005	.73	.0002	3.00	.0010	1.30	.0004	1.25	.0004	98.32	**.0315**	15.75	.0050	87.18	.0279	.51	.0001	103.44	**.0331**	235.31	**.0754**
29	106	3,180	22.71	.0071	3.05	.0010	2.53	.0009	1.61	.0005	3.96	.0012	34.16	**.0107**	45.00	.0142	42.60	.0134	1.68	.0005	5.16	.0016	3.00	.0009	.68	.0002	3.00	.0009	1.05	.0003	.82	.0002	102.99	**.0324**	23.58	.0074	122.50	.0385	.41	.0001	146.69	**.0461**	283.84	**.0892**
30	114	3,420	27.37	.0071	3.28	.0010	3.03	.0009	1.72	.0005	4.25	.0012	36.65	**.0107**	65.00	.0190	32.50	.0095	1.66	.0005	5.01	.0015	..	..	1.34	.0004	3.00	.0009	.10	.0000	.65	.0001	109.26	**.0319**	23.00	.0067	132.50	.0387	1.01	.0002	156.51	**.0457**	302.42	**.0884**
31	115	3,450	24.58	.0071	3.31	.0010	3.06	.0009	1.74	.0005	4.29	.0012	36.98	**.0107**	45.00	.0130	40.10	.0116	1.36	.0004	8.15	.0024	3.85	.0011	.90	.0003	3.00	.0009	.40	.0001	6.98	.0020	109.74	**.0318**	22.00	.0063	150.00	.0434	.63	.0001	172.63	**.0500**	319.35	**.0926**
	4844	145,320	$1037.14	$.0071	$139.50	$.0010	$129.23	$.0009	$73.26	$.0005	$180.86	$.0012	$1559.99	**$.0107**	$1609.34	$.0111	$1014.20	$.0069	$51.52	$.0004	$238.70	$.0016	$140.95	$.0010	$23.06	$.0002	$92.30	$.0006	$22.45	$.0001	$81.83	$.0006	$3274.35	**$.0225**	$772.20	$.0053	$3597.19	$.0247	$23.62	$.0001	$4393.01	**$.0302**	$9227.35	**$.0634**

The Cost of Operating Milk Stations

The cost of conducting the milk-station work may be divided into four divisions of expenditures as follows:

1. Supervision and central administration.
2. Maintenance of milk-station plants.
3. Medical and educational work.
4. Loss on milk sales and cost of relief.

Under expenditures on account of "supervision and central administration" may be properly included the salaries of the administrating official or officials, the salaries of supervisors, and the salaries of the central office force, including chief clerk, relief agent and clerks, the cost of stenographic service, rent of central office, telephone service, postage, printing, stationery, office supplies, and incidentals.

The "maintenance of milk-station plants" would also include wages of matrons and interpreters, rental of stations, gas, ice, cleaning, when not performed by station matron, postage, printing, stationery, carfare, supplies, and incidental expenses.

The "medical and educational work" carried on at the station would include salaries of nurses and physicians; cost of printing and circulating posters, bulletins, and circulars; medical and educational supplies, carfare, and incidental expenses.

"Loss on milk sales and cost of relief" represents the difference between the purchasing and the selling price of the milk if it is sold below cost, and the cost of milk dispensed in the form of relief.

Table No. 117 is a statement giving the distribution of the expense of operating 31 of the Committee's milk stations during the month of September, 1911; this month is taken because it represents very nearly the average monthly expenditures during the period of demonstration. This analysis will give an idea of the system employed by the Committee in arriving at the cost of operating the various stations.

The statement is divided into three parts—*i. e.:* (*a*) Supervision and administration; (*b*) maintenance of milk station plants; (*c*) medical and educational expenses. Inasmuch as the "loss on milk sales" is a constant factor, and the relief in the form of milk was extended through other agencies, these expenditures are not shown in this statement.

Expenses on account of "supervision and central administration" are charged to the different stations on the basis of their enrolment, consequently the amount shown as the average expenditure per baby day under this item is the same for all the stations, although the actual amounts charged against the stations vary by reason of the difference in the average daily enrolment of babies.

The total amount expended during the month of September, as shown by the statement on account of "supervision and central administration," was $1559.99, or an expenditure of $0.0107 per baby day. These amounts are made up as follows:

	Total	Average Cost per Baby Day
Salaries	$1037.14	$0.0071
Stenography	139.50	0.0010
Rental and telephone	129.23	0.0009
Postage, printing, and stationery	73.26	0.0005
Incidental expenses	180.86	0.0012

The expense of "maintenance of milk station plants," exclusive of the cost of "medical and educational work" during this month, was $3274.35, or an average of $0.0225 per baby day, made up as follows:

	Total	Average Cost per Baby Day
Salaries of matrons	$1609.34	$0.0111
Rental	1014.20	0.0069
Gas	51.52	0.0004
Ice	238.70	0.0016
Cleaning	140.95	0.0010
Postage, printing, and stationery	23.06	0.0001
Telephone	92.30	0.0006
Carfare	22.45	0.0001
Incidental expenses	81.83	0.0006

Maintenance of Milk-Station Plants

The cost varied considerably among the different stations. The amount spent for rent varied from $14.10 to $45 per month. The expense incurred for cleaning the stations varied because at some of the stations the matrons did this work, while at other stations it was deemed advisable to employ outside help, either because the matron could be used to better advantage in other ways, or because she was not strong enough to do scrubbing and cleaning. The amount expended for wages of matrons varied from $32.27 to $91 per station. In some stations only one matron was required, while in others the character and size of the enrolment necessitated two and sometimes three matrons.

The cost for "medical and educational work" represents expenditures of maintaining the staff of physicians and nurses and expenditures incidental to their work. The amount expended under this heading during the month of September was $4393.01, or an average of $0.0302 per baby day, made up as follows:

	Total	Average Cost per Baby Day
Salaries of physicians	$772.20	$0.0053
Salaries of nurses	3597.19	0.0247
Posters, bulletins, and circulars for distribution	23.62	0.0001

The expenditures, therefore, for the month of September may be summarized as follows:

	Total	Average Cost per Baby Day
Supervision and central administration	$1559.99	$0.0107
Maintenance of milk station plants	3274.35	0.0225
Medical and educational work	4393.01	0.0302
	$9227.35	$0.0634

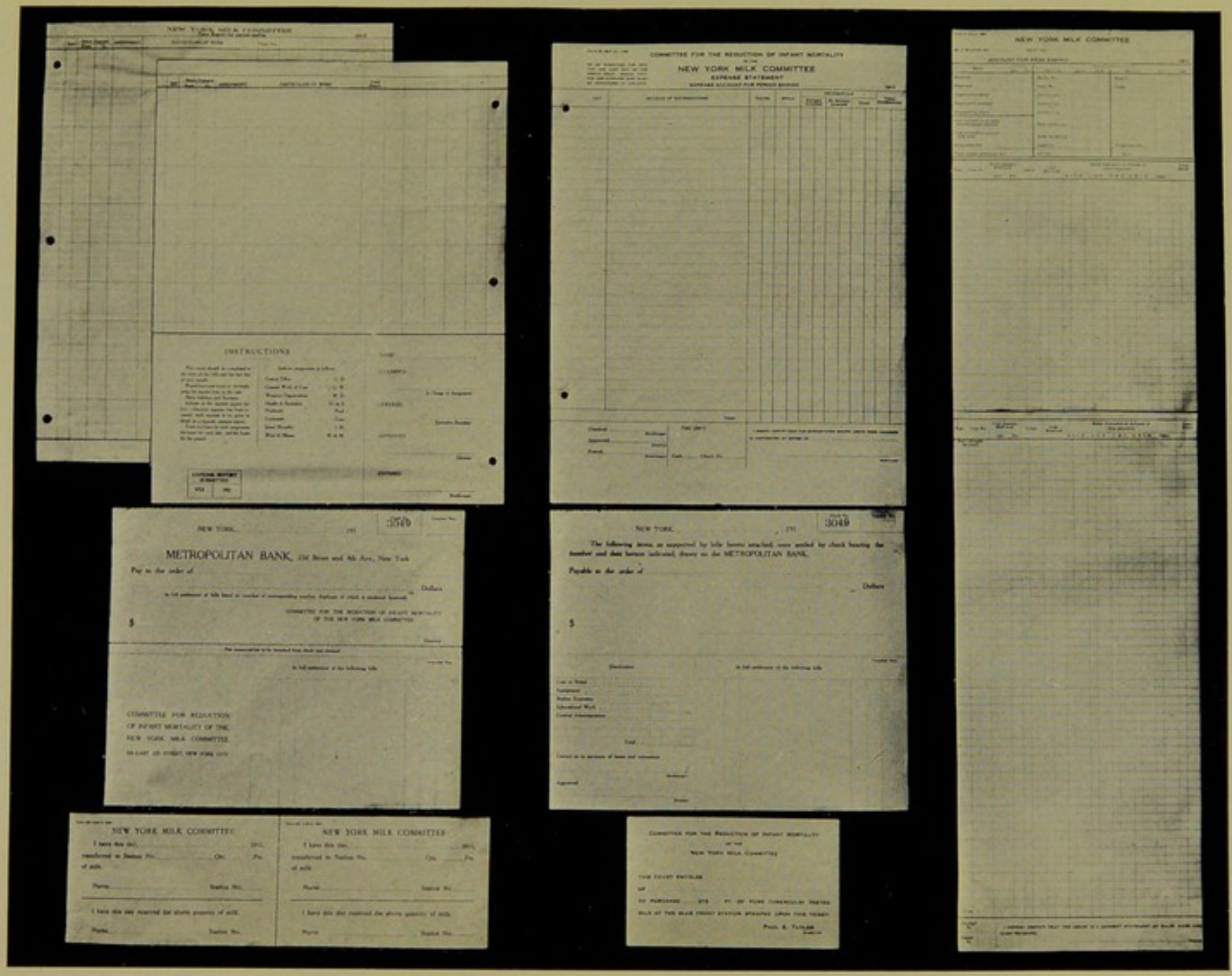


EXHIBIT 33

FORMS USED IN THE BUSINESS ADMINISTRATION OF MILK STATIONS

Upon the basis of the foregoing statement the yearly cost for each baby supervised by the milk stations may be estimated as $23.14, made up as follows:

Supervision and administration	$3.90
Maintenance of milk station plants	8.22
Medical and educational work	11.02
	$23.14

Physicians

Ten physicians were placed in charge of the medical consultation work of the milk stations, two of whom served as volunteers at one consultation per week; the others were paid according to the number of consultations held, their salaries varying from $50 to $100 a month.

The Committee was fortunate in that it could pay for this service, as it placed its relations to the physicians upon a business basis. Their work was inspected by the supervising physician, and they were required to conform to a uniform scheme of procedure in discharging their duties. Daily reports were required, and punctuality in attendance was made obligatory. Failure to conform to instructions and inaptitude for the consultation work demanded several changes in the staff during the demonstration.

The milk station work calls for physicians possessing not only the technic of infant feeding, but the ability and personality which will enable them to reach, benefit, and hold the most ignorant mother. It also requires patience to do the systematic routine and painstaking tasks incidental to intelligent and scientific record keeping.

The quality of the service rendered by the medical staff is evidenced by the facts set forth in the chapter dealing with the results achieved.

Nurses

All the nurses appointed, with one exception, were graduates from recognized training-schools for nurses. The nurse appointed without training-school experience proved unsatisfactory after several weeks' trial. Of the 63 nurses appointed, 17 gave up the work during the six months' demonstration, either because they received appointments to civil-service positions or could not adapt themselves to the milk-station work. Only six of the nurses appointed were familiar with any language other than English, although a large proportion of the station enrolment was drawn from non-speaking English homes. It has been the experience of the Committee that, with an interpreter or a matron familiar with the language of the district, better results could be obtained by employing a station nurse of a different nationality than that comprising the station enrolment. Both the Italian and the Jewish mothers seem to have more confidence in the American nurse than in one of their own nationality. A case in point is our experience at the Third Street station. This station was opened during the month of July, in a locality largely made up of Polish Jews. A nurse of the same nationality was appointed, and began an active canvass to build up the station enrolment. For nearly four weeks comparatively little progress was made,

although the district is densely populated. The nurse reported that in spite of all she could do the mothers would not consent to bring their babies to the station. As the experience of this nurse was unusual, special aid was given her by the central office in advertising the station in the neighborhood. At the end of four weeks a change was decided upon, and an American nurse with no knowledge of the neighborhood or its language took charge of the work, with the result that within two weeks a full enrolment of babies was obtained, and this became one of our most successful stations. Her personality, enthusiasm, and tact were sufficient to more than overcome any handicap caused by lack of familiarity with the language of the neighborhood. In this case the new nurse soon found several interpreters from among the "little mothers" of the neighborhood, and one of them accompanied her on her daily rounds.

Out of a total of 6684 nurse days served, only sixty days' absences were due to illness. When it is considered that this service was rendered during the six months of the most tedious and trying season of the year, the absence on account of illness is remarkably low, and can be attributed only to the keen interest and sense of responsibility of the nurses, which made them feel that absences from their stations might mean disaster to some of the lives intrusted to their care. Their devotion to the work is further manifested by the fact that the time record shows the nurses to have given 2441 hours, or 349 nurse days, in overtime and Sundays, without extra remuneration.

Matrons

The matrons or nurses' assistants were chosen from a list of 185 applicants. Of these, 68 appointments were made during the period of the demonstration. Preference was given to capable applicants residing in the locality of the station and speaking the language of the prospective station enrolment.

The duties of the matron were so varied that it was a problem to obtain the right kind of women. They were required to be able to keep a record of milk sales, to attract mothers to the stations, to be neat in their work, which included mopping, dusting, and keeping ice-box and utensils scrupulously clean, and to render general assistance to the physician and nurse in the instruction of mothers. Some of the older matrons with personal maternal experience proved unsatisfactory because they persisted in instructing the mothers in their own language according to their own ideas, and otherwise undermining the influence of the physician and nurse.

Only 15 of the 68 appointments made for matrons were given to American-born women; the other appointments were given to Italian, Hebrew, German, Hungarian, Polish, and Bohemian applicants.

Out of 6614 days served by matrons, only 49 absences were due to illness. As a rule, the same devotion and enthusiasm which prevailed among the nurses marked the work of the matrons.

CHAPTER X

Extension of Milk Station Activities

The milk station has demonstrated what can be done in preventing sickness and useless waste of infant life through the education of mothers in the feeding of their babies. As the station organization and methods become perfected greater results may reasonably be expected.

This chapter will show how the milk station can be made the basis for—

1. The prevention of deaths of early infancy due to the lack of proper prenatal care.
2. The official supervision and control of midwives.
3. The official supervision and control of foster mothers having boarded-out babies.
4. The education of mothers in the care of children under school age.

All these activities may be properly carried on by the milk stations established and maintained by the city, while stations conducted by private agencies may eventually be expected to make the education of expectant mothers and the supervision of children under school age a regular feature of their work.

The following table shows the main causes of deaths among infants before they reached one year of age, and the rate per thousand in each case:

TABLE 118.—INFANT DEATHS, CAUSES, AND PROPORTION (NEW YORK CITY, 1909)

Congenital debility, malformations, and ill-defined causes of early infancy	326 Out of 1000 deaths
Diseases of digestive system	282 " " " "
Diseases of respiratory system	232 " " " "
Infection, contagion, and tuberculosis	94 " " " "
Diseases of nervous system	42 " " " "
All other causes	25 " " " "

The first three main causes account for 85 per cent. of the total infant mortality in New York city. It is not comforting to know that these deaths are largely preventable; that out of every 1000 infant deaths 326 are due in a great measure to the lack of prenatal care as a result of ignorance and social sins; 282 are largely due to ignorance and bad food, and 232 are mainly due to ignorance and bad air. In all these causes ignorance must be given the first place; hence the solution of the problem lies in education.

The systematic instruction by which the expectant mother will come to act intelligently and wisely in the care of herself will not only enable her to produce a better and healthier baby, but will help her to nurse the baby as nature intended. The fact, therefore, of starting the education of the mother before the baby arrives will not only reduce the infant death-rate from congenital diseases, but will afford an additional means of reducing the death-rate from enteritis

The following table shows the reasons for terminating breast-feeding in the case of 1656 milk-station babies artificially fed before they reached the age of nine months:

TABLE 119.—REASONS FOR ARTIFICIAL FEEDING

	Number	Per Cent.
Artificially fed under nine months	1656	100.0
Insufficient milk	330	19.9
Mother ill	258	15.5
Weaned, mother not willing to nurse	210	12.8
Mother working	204	12.3
Abnormalities of breasts	176	10.6
Mother dead	170	10.2
Mother's milk "does not agree"	159	9.7
Mother pregnant	149	9.8

The resorting to artificial feeding because of lack of milk, ill health, and abnormalities of breasts constituted 46 per cent. of the reasons for depriving the baby of its right to nurse, and thereby lessening its chances to live through the first year of life.

The milk station offers a means of not only reaching the expectant mother several months prior to confinement, but affords facilities by which she may be successfully instructed in the hygiene of pregnancy.

This Committee began an experiment during the early part of last summer which would cover several thousand expectant mother cases, to determine the best working method by which the milk station could be utilized in educating the expectant mother. The nurses were enthusiastic over this feature of the work, and within a few weeks nearly 1000 cases were regularly registered at the stations and were receiving instructions. The milk station gives the nurse and physician the best and most delicate means of approaching the mother on the subject. Nearly 15 per cent. of the expectant mothers registered was made up of primipara cases, showing that even the young married woman was interested and came to confide her secret to the station nurse and receive advice. The following popular little letter was distributed with good effect to 10,000 mothers, and read by them in their native tongues. (Exhibit 34.)

The leaflet containing this letter gave a list of milk stations, as also a list of hospitals receiving maternity cases and hospitals and dispensaries maintaining outdoor departments. Furthermore, 5000 circulars on the "Prevention of Blindness" (published by the Society for the Prevention of Blindness) were distributed through the milk station in order to warn mothers of the danger of improper care at confinement.

Expectant Mothers Registered at Milk Stations

The 31 stations of the Committee were used as centers where expectant mothers were registered, many of them already having a baby under the supervision of the milk station. Those not having babies registered at the station were brought under its influence by the nurse while visiting the home, and by being referred to the station by mothers already registered. For each expectant mother with whom the nurse came in contact a special card was made out. (Exhibit 35.)

Waiting for Ice

A LETTER TO EXPECTANT MOTHERS

Dear Mothers:

Last year fully five thousand babies died in New York before they were one month old. They died because they were born too weak to combat the diseases of babyhood. They were born weak because their mothers did not properly care for themselves during the period of pregnancy; overwork, lack of exercise, insufficient or improper nourishment, irregularity in eating and sleeping, worry and nervousness were some of the many causes.

Every mother desires to have her baby born healthy and strong. Every baby has a right to be so born. You can do much at this time to insure your baby being born well and strong. Prepare yourself in advance—be regular in your habits; build yourself up by eating wholesome food; avoid beer, whiskey and drugs; talk to your doctor about yourself, or go to any BABIES' PURE MILK AND HEALTH STATION for advice.

When the time comes for the baby to be born, you must use special care so as not to have your own health or that of your baby impaired. Remember that one-half of all the blindness in this world is due to improper care of the baby's eyes immediately after birth.

To avoid having your own health and that of your baby impaired at the time of birth, you will need special care. Obtain the best. It will be worth while. If you can go to the hospital, do so by all means; there you will receive proper medical and nursing care for yourself and baby. Select from the list of hospitals given in this circular the one to which you desire to apply for admission, and make arrangements at least two weeks in advance of the date of confinement. If you cannot leave your home because of other children, go to a "Blue Front" BABIES' PURE MILK AND HEALTH STATION for advice; there the nurse will be glad to tell you of hospitals and settlements which will provide medical treatment and nurse services in your own home. Many agencies will furnish women physicians if desired. These services can be obtained at a small charge, or free if you cannot afford to pay.

Do not forget you owe it to your unborn babe to bring it into the world well and strong. This you can do if only you are willing to learn how.

EXHIBIT 34

This card is a distinctive blue color, and was filed at the station under the month in which the confinement was expected to take place.

Two nurses were employed especially for following up these cases and giving the expectant mothers the proper instruction—this was in addition to the general instruction given by the station nurse. When the special nurse visited the home, a more detailed history of the case was obtained. The form of this record is shown in Exhibit 36.

These were then forwarded to the central office, where they were classified as to the necessary attention which the case would require, and filed under date of next visit for the purpose of instruction or for the completion of the record.

NEW YORK MILK COMMITTEE Form K—4-28-12—2000

EXPECTANT MOTHER

Name..... *Age*.....

Address.....Flight.....frt. bck. rt. lft. rr. house

By Whom Referred.....

Date Expected Confinement.....Hospital.....Home.....

Medical Supervision.....Other Supervision.....

Family consists of Husband.....Children.....Ages.....

Home Conditions: Good....Fair....Bad.....Mother's Health:....Good....Fair....Bad.....

Referred to .....

Remarks.....

.....

Dates Visited.....By Whom.....

EXHIBIT 35

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
OF THE
NEW YORK MILK COMMITTEE
EXPECTANT MOTHER

Name of Mother | Address | Age

Where Born | Kind of Work | Place (Factory, Store, Home, etc.)

History of **Previous** Pregnancies Indicated by
M—Miscarriage
P—Premature
N—Normal Birth
S—Still Birth
T—Twins

	1st	2nd	3rd	4th	5th	6th
Age at Death						
	7th	8th	9th	10th	11th	12th
Age at Death						

Date Stopped Work before present Confinement | Date Began Work after present Confinement

Date of Birth | Normal (Yes or No) | Place (Hospital or Home) | Attendant at Birth (Check) Physician___ Midwife___ Nurse___

Date of Death | Cause | Baby's Health after 1 Month old. Good___ Poor___

Breast Fed | Bottle Fed | Date Registered at Station

Date of Report | NURSE

EXHIBIT 36

A careful canvass was made to ascertain the requirements for admittance at lying-in hospitals, and facilities available for rendering service at confinement in the homes. Dispensaries were visited and arrangements were made for sending patients for preliminary examinations. The card form shown below was used in referring cases to the various agencies rendering services to pregnant women:

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
OF THE
NEW YORK MILK COMMITTEE

_____ 191

To _____ .

_____

The bearer Mrs. _____

living at _____ is hereby referred to you

for _____

_____

(Station stamp here) _____

NURSE

EXHIBIT 37

Much valuable assistance was given by district nurses from various settlements. Relief agencies came to the rescue where the home conditions were deplorable and mothers sick or undernourished by reason of poverty.

CHARACTER OF INSTRUCTION TO EXPECTANT MOTHERS

Every endeavor was made to obtain the enrolment of the cases before the sixth month of pregnancy; this was not always possible, yet essential if the instruction was to be thorough and effective.

The character of the instruction varied according to existing conditions. The improperly nourished were especially advised as to diet, while the sick were placed under medical care. The health of the mother was given first consideration, and all possible means were employed to improve her general health; this included instruction as to her habits, daily routine, exercise, diet, condition of bowels, clothing, etc. In every case the kind and amount of instruction were dependent upon the difficulties which the case presented. This of necessity left much to the discretion of the nurse, and in order to have the cases handled as

uniformly as possible, the special nurses visited each case in the home after the preliminary instruction had been given by the station nurse.

The special nurses were selected for their tact and ability to instruct the mothers. They continued the visiting and instructing until the baby had reached one month of age, when the case was referred to the nearest milk station. The results obtained in this work with 500 expectant mothers are encouraging. They are not given because the number is too small to prove conclusively the value of prenatal instruction in reducing infant mortality in New York. Furthermore, this work was merely preliminary to determine the best working organization methods and records for an intensive study and experiment along this line during 1912.

The Milk Station as a Basis for Official Control Over Midwives

The midwife has been condemned as incompetent and dangerous to both mother and baby by her slovenly and ignorant ways. She has had many accusers and few loud defenders. Attempts have been made to bring her under rigid official supervision. She is required to have a permit to practise, and she must comply with certain regulations, one of which is to have a proper outfit for caring for her cases. She is visited occasionally in her home by an inspector from the Health Department, just for what purpose it is difficult to understand, unless it is to see if she still has her license and outfit. At first these official visits caused her not a little concern, but she soon began to see that they were merely formal; the possession of a clean outfit, license, and ready answers to routine questions are now rarely lacking.

The milk station offers a medium for exerting adequate control over the midwife. Her license or permit should be issued through the milk station nearest her home; she should be made to feel that a renewal of the permit depends largely upon her ability to demonstrate to the station nurse and physician that she has not only performed her own work well, but has actively coöperated in advancing the municipal milk station work. The mutual advantage in bringing the midwife in touch with the station nurse and her work is apparent.

The Milk Station as a Basis for Supervision of Boarded-out Babies

The relation of the foundling and boarded-out baby to the infant mortality rate is an important one. The official supervision of these babies is intrusted to the Health Department, and is part of the work of the Division of Child Hygiene. Foster mothers are required to take out permits from the Department, which are issued after inspection of the premises, and visits are supposed to be made at regular intervals by inspectors. At best these inspections can be only at considerable intervals, and it is doubtful if the supervision can be adequate. It is also undoubtedly true that a considerable number of babies are living with foster mothers of whom the Health Department has no record, and over whom it can exert no supervision.

The majority of these babies come from two institutions in this city which maintain their own inspection service in addition to that maintained by the

Under School Age. A Problem to be Solved

Health Department. That the mortality among the charges of these institutions is high may be gathered from the following figures, published by one of them. In 1908, among 2190 admissions under one year, there were 1097 deaths, or a mortality of 49.2 per cent.; in 1909, 2237 admissions, with 1253 deaths, or 56.5 per cent. mortality. In fairness it must be remembered that a very large proportion of these babies are illegitimate, and have already been deprived of the breast on admission. Figures recently published show that in certain European institutions of a similar character the mortality is high, and in some cases higher,* but this does not mean necessarily that it cannot be lowered.

The establishment of municipal milk stations throughout the city opens the way for bringing boarded-out babies under a more thorough and effective system of supervision, by making the milk station the headquarters in each district for officially dealing with such babies and their foster mothers. A record of foster mothers in the district could be kept at each milk station, and the home supervision carried on by the nurse. It could also be made mandatory for the foster mother to bring her baby to the milk station at regular intervals for examination by the station physician. The control could be made even more effective if the agency at whose expense the baby is being boarded out were to demand a record of attendance before payment for board is made.

During the summer of 1911 a number of babies placed out by the two large institutions were referred to the milk stations for supervision, and the results showed that this can be carried on without interfering with the authority of the institutions over their charges. Both institutions require that babies who become sick shall be returned for treatment, and this relation with the milk station should insure their return before they become desperately sick, and should also give the institution valuable information as to the care being given its charges. It would save the Health Department much time and labor expended by its inspectors in following up the cases all over the city, and make the supervision more thorough and economical.

The Milk Station as a Basis of Supervision for Children Under School Age

Once a child reaches school age and is enrolled in a public school, its mental and physical development becomes a matter of public concern. Modern school plants with every facility for safeguarding its life are provided. Trained teachers undertake its education; physicians employed by the city examine the child at regular intervals to discover any physical defect that may endanger its health or retard its progress in school. Whenever necessary, municipal nurses go to the home to advise the parent as to its care and to bring about the proper treatment to remove any physical defect. Municipal playgrounds and public baths are maintained for the children's use and enjoyment; but little, if anything, has been done by the municipality to safeguard the lives and promote the health among

* "Der gegenwärtige Stand der Frage über die Kindersterblichkeit in Russland und deren Bekämpfung," Hubert, "Archiv f. Kinderheilkunde," 1912, Bd. lvii, p. 351.

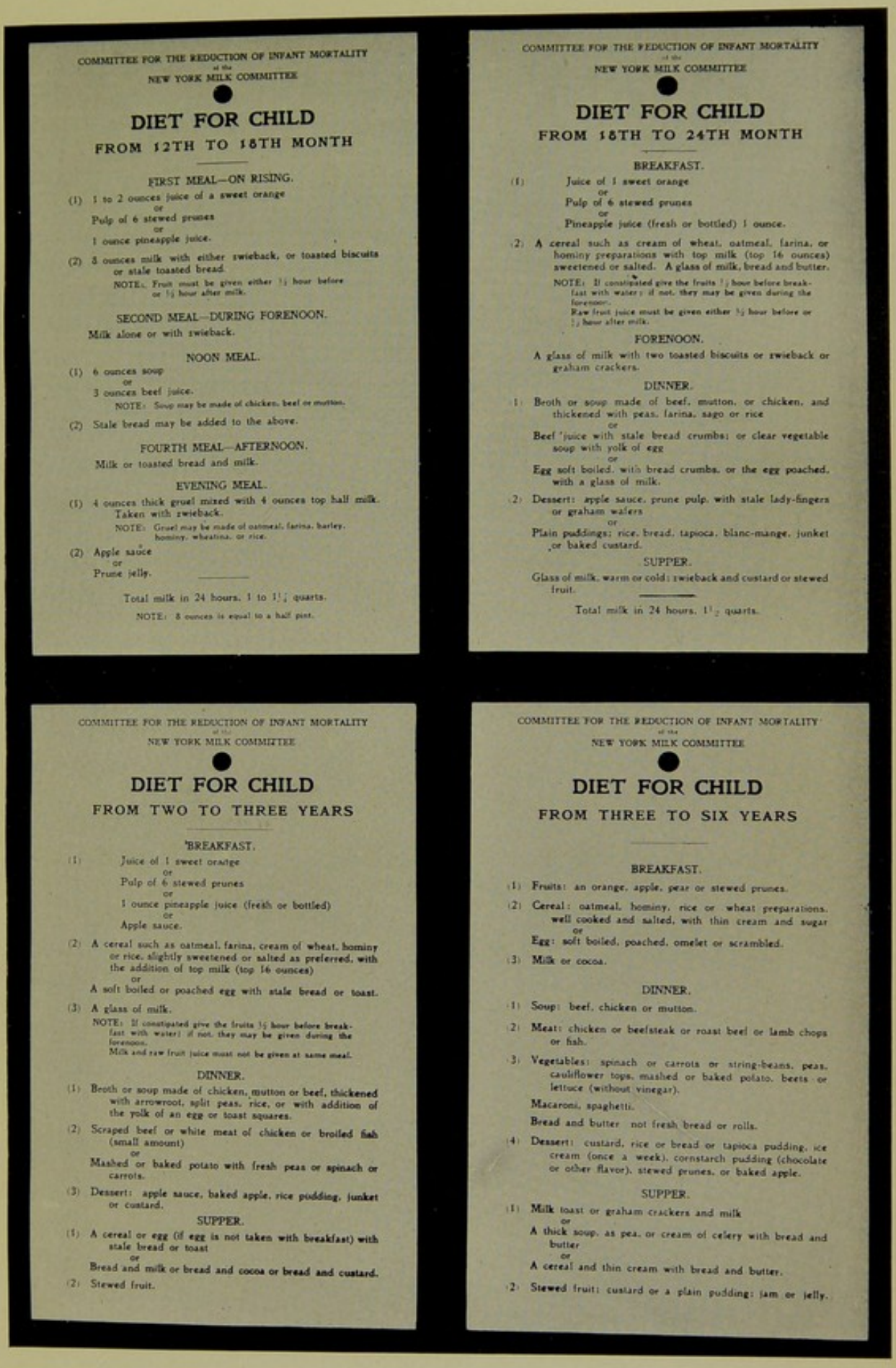
that portion of our population represented by children between the second and sixth years of life.

A beginning has already been made to exert official supervision of the infant population by establishing municipal milk stations with physicians and nurses to educate mothers in the care and feeding of their babies, but no comprehensive plan has been adopted by the city to make certain that the child coming to the public school for the first time is not handicapped by unnecessary physical and mental defects. Wherever careful physical examinations have been made of the first-year pupils in our public schools, one child out of every three has been found to have some physical defect needing attention. In many instances these defects have already impaired the general health of the child and have acted as a serious handicap to its proper development. It is certain, therefore, that if the condition of the child had been made known to the parents before it reached school age and the defect treated or removed, it would not only make possible a better first-year pupil, but in all probability would insure against its becoming a repeater in the grades.

Milk stations offer the basis for officially reaching and supervising the child under school age, not only to bring about the correction of physical defects, but to educate the mothers in those things which will enable her to rear a healthy and well-developed child. During the past year a start was made to ascertain what could be done through the milk stations with this class of children, but no attempt was made to make this a prominent feature of the work of the milk station. According to information obtained by the Association of Infant Milk Stations, about 1200 of these older children came under the supervision of the milk station physicians and nurses, largely from homes having babies registered at the stations. In most of the stations the older children given attention were those in poor health or seriously in need of special care. In such cases suggestions were given to the mothers as to their care and treatment. Nearly 150,000 quarts of milk were dispensed by the various milk stations to this class of children.

In the Committee's stations children between two and six years of age, who were in poor physical health, were carried on a separate register from the station babies. The total number of cases which came under the attention of the station nurse were 541. Of these, the diet of 432 was supplemented by milk furnished by the station and paid for by the mothers or by relief agencies to whose attention some of the cases were brought. The medical examination of these children has shown that 248, or 46 per cent., of the number registered were in need of medical attention, and were referred to the proper agency for treatment; 6 cases were sent to hospitals for surgical operations; 18 entered hospitals for medical care. In most instances children receiving hospital or dispensary care were later referred by the station nurse to agencies prepared to furnish country outings. Of the 541 children registered, 284 were sent to the country through the coöperation of these agencies.

The mothers were carefully instructed as to the care of the older children during the visit of the nurse to the home. A special diet card was prepared by Dr. Godfrey R. Pisek during the early part of the summer, and a large number



COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
of the
NEW YORK MILK COMMITTEE

DIET FOR CHILD
FROM 12TH TO 18TH MONTH

FIRST MEAL—ON RISING.

(1) 1 to 2 ounces juice of a sweet orange
or
Pulp of 6 stewed prunes
or
1 ounce pineapple juice.

(2) 8 ounces milk with either zwieback, or toasted biscuits or stale toasted bread.

NOTE: Fruit must be given either ½ hour before or ½ hour after milk.

SECOND MEAL—DURING FORENOON.

Milk alone or with zwieback.

NOON MEAL.

(1) 6 ounces soup
or
3 ounces beef juice.

NOTE: Soup may be made of chicken, beef or mutton.

(2) Stale bread may be added to the above.

FOURTH MEAL—AFTERNOON.

Milk or toasted bread and milk.

EVENING MEAL.

(1) 4 ounces thick gruel mixed with 4 ounces top half milk. Taken with zwieback.

NOTE: Gruel may be made of oatmeal, farina, barley, hominy, wheatina, or rice.

(2) Apple sauce
or
Prune jelly.

Total milk in 24 hours, 1 to 1½ quarts.

NOTE: 8 ounces is equal to a half pint.

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
of the
NEW YORK MILK COMMITTEE

DIET FOR CHILD
FROM 18TH TO 24TH MONTH

BREAKFAST.

(1) Juice of 1 sweet orange
or
Pulp of 6 stewed prunes
or
Pineapple juice (fresh or bottled) 1 ounce.

(2) A cereal such as cream of wheat, oatmeal, farina, or hominy preparations with top milk (top 16 ounces) sweetened or salted. A glass of milk, bread and butter.

NOTE: If constipated give the fruits ½ hour before breakfast with water; if not, they may be given during the forenoon.
Raw fruit juice must be given either ½ hour before or ½ hour after milk.

FORENOON.

A glass of milk with two toasted biscuits or zwieback or graham crackers.

DINNER.

(1) Broth or soup made of beef, mutton, or chicken, and thickened with peas, farina, sago or rice
or
Beef juice with stale bread crumbs; or clear vegetable soup with yolk of egg
or
Egg soft boiled, with bread crumbs, or the egg poached, with a glass of milk.

(2) Dessert: apple sauce, prune pulp, with stale lady-fingers or graham wafers
or
Plain puddings; rice, bread, tapioca, blanc-mange, junket or baked custard.

SUPPER.

Glass of milk, warm or cold; zwieback and custard or stewed fruit.

Total milk in 24 hours, 1½ quarts.

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
of the
NEW YORK MILK COMMITTEE

DIET FOR CHILD
FROM TWO TO THREE YEARS

BREAKFAST.

(1) Juice of 1 sweet orange
or
Pulp of 6 stewed prunes
or
1 ounce pineapple juice (fresh or bottled)
or
Apple sauce.

(2) A cereal such as oatmeal, farina, cream of wheat, hominy or rice, slightly sweetened or salted as preferred, with the addition of top milk (top 16 ounces)
or
A soft boiled or poached egg with stale bread or toast.

(3) A glass of milk.

NOTE: If constipated give the fruits ½ hour before breakfast with water; if not, they may be given during the forenoon.
Milk and raw fruit juice must not be given at same meal.

DINNER.

(1) Broth or soup made of chicken, mutton or beef, thickened with arrowroot, split peas, rice, or with addition of the yolk of an egg or toast squares.

(2) Scraped beef or white meat of chicken or broiled fish (small amount)
or
Mashed or baked potato with fresh peas or spinach or carrots.

(3) Dessert: apple sauce, baked apple, rice pudding, junket or custard.

SUPPER.

(1) A cereal or egg (if egg is not taken with breakfast) with stale bread or toast
or
Bread and milk or bread and cocoa or bread and custard.

(2) Stewed fruit.

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY
of the
NEW YORK MILK COMMITTEE

DIET FOR CHILD
FROM THREE TO SIX YEARS

BREAKFAST.

(1) Fruits: an orange, apple, pear or stewed prunes.

(2) Cereal: oatmeal, hominy, rice or wheat preparations, well cooked and salted, with thin cream and sugar
or
Egg: soft boiled, poached, omelet or scrambled.

(3) Milk or cocoa.

DINNER.

(1) Soup: beef, chicken or mutton.

(2) Meat: chicken or beefsteak or roast beef or lamb chops or fish.

(3) Vegetables: spinach or carrots or string-beans, peas, cauliflower tops, mashed or baked potato, beets or lettuce (without vinegar).
Macaroni, spaghetti.
Bread and butter not fresh bread or rolls.

(4) Dessert: custard, rice or bread or tapioca pudding, ice cream (once a week), cornstarch pudding (chocolate or other flavor), stewed prunes, or baked apple.

SUPPER.

(1) Milk toast or graham crackers and milk
or
A thick soup, as pea, or cream of celery with bread and butter
or
A cereal and thin cream with bread and butter.

(2) Stewed fruit; custard or a plain pudding; jam or jelly.

EXHIBIT 38

SUGGESTIONS FOR DIET FOR THE OLDER CHILDREN, DISTRIBUTED THROUGH MILK STATIONS

of these were distributed by the milk station nurses. (See Exhibit 38.) These special diet cards gave suggestions for each meal for children of different ages; for example, the diet card relating to children from twelve to eighteen months gave suggestions for the first meal on rising; the second meal during the forenoon; the noon meal; the fourth meal during the afternoon, and the evening meal, and the total amount of milk which should be given during the twenty-four hours. Similarly, the diet is prescribed for children from the eighteenth to the twenty-fourth month, two to three and three to six years of age. For the child of two to three years the mother is told that the breakfast should consist of fruit, cereal, and milk, or fruit with soft-boiled or poached egg, with stale bread or toast and milk. She is told that if the child is constipated, to give fruits one-half hour before breakfast with water, and if not, the raw fruit may be given during the forenoon, and that milk and raw fruit-juice must not be given at the same meal. That the diet of the midday meal should consist of broth or soup, meat or fish, vegetable, and dessert. The kinds of soup or broths are given, as is also suggested the kind of meat, vegetable and dessert. For the evening meal, a diet of cereal or eggs with stale bread or toast; or bread and milk; or bread and cocoa; or bread and custard and stewed fruit are prescribed. It is difficult to estimate the amount of good the distribution of these diet-cards did, but the mothers seemed glad to receive them, and in many instances followed the directions explicitly, particularly in those cases where the children were in delicate health. The influence of the milk station in promoting the health and welfare of the older children cannot be overestimated.

Appendix

COMPARISON BETWEEN THE BACTERIA CONTENT OF MILK DISPENSED BY THE MUNICIPAL MILK STATIONS AND THAT DISPENSED BY THE NEW YORK MILK COMMITTEE STATIONS

PERIOD, AUGUST 22 TO SEPTEMBER 9, 1911

The municipal stations dispensed pasteurized milk and the New York Milk Committee dispensed raw milk from tuberculin-tested herds. In both cases samples were collected and examined by the same laboratory.

Date	NEW YORK MILK COMMITTEE STATIONS Bacteria content per c.c.	MUNICIPAL MILK STATIONS Bacteria content per c.c.
Aug. 22	28,500	15,000
" 22	8,900	
" 22	12,500	
" 22	12,000	
" 22	6,200	
Sept. 1	8,000	12,500
" 1	37,000	
" 1	16,000	
" 1	17,000	
" 2		22,000
" 2		25,000
" 2		14,000
" 2		9,500
" 5	6,000	24,000
" 5	8,300	10,000
" 5	5,500	15,000
" 5	10,500	6,000
" 5	5,800	
" 5	5,500	
" 6		12,000
" 6		40,000
" 6		15,000
" 6		12,000
" 6		135,000
" 7	150,000	8,300
" 7	22,000	7,500
" 7	60,000	6,000
" 7	24,000	12,500
" 7	15,000	6,500
" 8	7,000	24,000
" 8	10,000	70,000
" 8	7,200	26,000
" 8	12,000	45,000
" 8	8,500	50,000
" 9	20,000	11,000
" 9	12,000	12,000
" 9	23,200	25,000
" 9	15,000	10,000
" 9	20,000	24,500

STATEMENT SHOWING BACTERIA CONTENT OF SAMPLES OF MILK TAKEN FROM NEW YORK MILK COMMITTEE STATIONS AND EXAMINED BY DR. NORTH'S LABORATORY AND DEPARTMENT OF HEALTH

(Samples taken four to ten hours after delivery of supply to station and two to three hours after the mothers had received their day's supply.)

1911	Number of Samples	Under 5000	Bacteria Content per c.c.						
			5000 to 10,00 0	10,000 to 20,000	20,000 to 30,000	30,000 to 50,000	50,000 to 75,000	75,000 to 100,000	over 100,000
May	11	6	4	1	..	..	..	..	..
June	23	10	6	4	1	1	1	..	..
July	23	..	3	7	7	2	1	2	1
August	35	1	12	5	5	2	1	..	9
September	37	1	14	12	5	1	2	..	2
October	9	2	3	2	1	..	..	..	1
	138	20	42	31	19	6	5	2	13

STATEMENT SHOWING A SUMMARY OF THE WORK OF NEW YORK MILK COMMITTEE STATIONS, AS PER TABULATION OF DAILY REPORTS

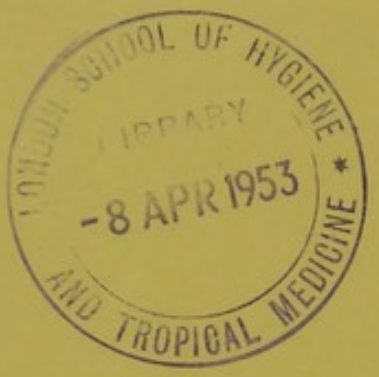
Period, May 20 to October 31, 1911

Number of babies on hand May 20th			634
Number of babies received			7,951
Received by transfer		291	
Hospital or dispensary	24		
Board of Health stations	35		
Other New York Milk Committee stations	180		
Other organizations	52		
Received by reference		636	
Hospital or dispensary	80		
Board of Health stations	216		
Private practitioners	193		
Other New York Milk Committee stations	27		
Other organizations	120		
Received by canvass		6,538	
Readmitted		486	
Number of cases terminated			3,648
Refused to continue to attend	1,657		
Removed	1,053		
Transferred	780		
To other New York Milk Committee stations	367		
To Board of Health stations	24		
To hospital or dispensary	218		
To other organizations	92		
To private practitioners	79		
Died	158		
Gastro-intestinal diseases	79		
Other causes	79		
Total number of babies on hand October 31st			4,937

STATEMENT SHOWING A SUMMARY OF THE WORK OF NEW YORK MILK COMMITTEE STATIONS, AS PER TABULATION OF DAILY REPORTS.—(*Continued.*)

Attendance at milk stations for advice		43,739
Mothers' first visits for advice	7,921	
Mothers' revisits for advice	35,818	
Well babies' first visits	5,876	
Well babies' revisits	28,500	
Sick babies' first visits	1,785	
Sick babies' revisits	3,425	
Home visits		39,586
To well babies' first visits	7,463	
To well babies' revisits	12,803	
To sick babies' first visits	1,551	
To sick babies' revisits	3,778	
To babies' (not found) first visits	1,572	
To babies' (not found) revisits	2,060	29,227
Visits of coöperation, first visits	318	
Visits of coöperation, revisits	206	524
Number of mothers instructed first time	12,401	
Number of mothers instructed two or more times	9,964	
Total number of mothers instructed individually	21,471	
Total number of mothers instructed in class	894	22,365
Total new requests for free milk (relief)	903	
Number given free milk (relief)		
Milk dispensed (quarts)		420,451
To babies	344,694	
To mothers	36,377	
To others	33,275	
*Milk dispensed (quarts) from May 20th to May 31st	6,105	
Total number of physicians' consultations		1,243
Total number of babies examined		27,095
Well babies examined (cases)	23,788	
Sick babies examined (cases)	307	
Number of cases referred to hospital or dispensary		562
Surgical treatment	138	
Medical treatment	424	

* Not itemized.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