THE POLITICAL ECONOMY OF SAVING BABIES’ LIVES: PRACTICAL METHOD OF IMPROVING CITIES’ MILK SUPPLY: BY JOHN SPARGO

From the “over population” cry of Malthus to the “race suicide” cry of President Roosevelt is an astounding transition. Throughout a large part of the nineteenth century the influence of the Malthusian dread of an increase of population beyond the limits of the means of sustenance dominated the political economy of the English-speaking world—and most of the rest of the world included in the category of civilization. The idea was not restricted to the economists, but obsessed the popular mind in a most remarkable manner. Whenever it was proposed to do anything for the improvement of the conditions of the masses, the cry was raised that nothing could be done until means were found to check “the devastating torrent of babies.”

Now, the pendulum has swung to the other extreme. There is universal concern and fear because of a rapidly diminishing birth-rate, and a cry of “race suicide” is the terror of the nations. Of the facts there can be no question: the decline in fertility of the human species in highly civilized countries ranks among the most interesting phenomena which sociologists are endeavoring to explain. There is an increasing tendency to sterility in modern life, but whether we should regard the fact pessimistically, as President Roosevelt does, or optimistically, as Mr. H. G. Wells does, is too big a question for discussion here. It may be that, as Major Charles E. Woodruff and other scientists contend, this is but the beneficent working of a great natural law, universally operative in all species, tending to keep population within the limits of subsistence. The birth-rate diminishes, but so does the death-rate. An increased or even stationary birth-rate with a decreasing death-rate would inevitably lead to over-population. Formerly in civilized countries, the birth-rate was high because the rate of extermination was also high—conditions which obtain still in backward countries. To the holders of this view, the decreased birth-rate is only Nature’s mysterious and wonderful automatic adjustment to conditions.

Whatever the explanation may be, the facts remain. Unquestionably, sterility is almost universally the accompaniment of intellectual and material advance. Polybius attributed the decay of Greece to depopulation by this means, and says, “In our times all
Greece has been afflicted with a failure of offspring, in a word with a scarcity of men . . . though we have not been visited either with a series of wars or with epidemic diseases . . . For when men gave themselves up to ease and comfort, and indolence, and would neither marry, nor rear children born out of marriage, or at most only one or two, in order to leave these rich, and to bring them up in luxury, the evil soon spread imperceptibly, but with rapid growth." He urged the people of Greece to change their habits, "or at all events to enact laws compelling parents to rear their children." Mommsen and Seeley among modern historians attribute the decay of Rome largely to the same cause.

Something of fear lest the experience of these great civilizations of antiquity be ours, whether justly founded or not, has had the effect of awakening attention to the importance of keeping alive the babies that are born. While the decline in the birth-rate is probably not due in any measurable degree to choice and is a socio-biologic question, rather than a moral one as Mr. Roosevelt, like Polybius, believes, there can be no question as to the possibility of largely reducing the infant death-rate, and, consequently, of our collective moral responsibility for the excessive infantile mortality of the present. When England was confronted by a dearth of soldiers, her statesmen turned their attention to the sources of the problem, how to save the children. Because of the narrow margin of births over deaths, France values her babies more highly than ever, more highly than any other country in the world. In the great Australian Commonwealths, the decline in the birth-rate in recent years has caused great anxiety and forced statesmen and men of science to seek ways and means of preventing needless infantile mortality. In this country, our alarm at "race suicide" has given a very noticeable impetus to child study, and especially to the important subject of saving as many as possible of the tens of thousands of babies now needlessly, ignorantly sacrificed every year. Never before in the history of the world, probably—certainly not in modern times—was so much intelligent, serious effort devoted to this important task.

Many factors enter into the stream of causes which make up the great ocean of needlessly sacrificed baby lives, of which the chief are perhaps ignorance and poverty. The ignorance of many mothers—I am almost tempted to say the average mother!—is most appalling. To hear a group of Settlement workers,
visiting nurses and physicians relating their experiences and enumerating the many deleterious things given to young babies, is a tragic experience. Babies a few weeks old given tea, beer, vegetables, bread, fish, candy, ice cream, pickles—the awful list might be extended almost indefinitely. Undoubtedly, ignorant feeding is a prime factor in the problem of infantile mortality.

And here a strange, almost frightful development of the nature of the human mother enters, a truly wonderful phenomenon. The best, indeed, almost the only safe, food for a baby is the milk of its mother. Anything but maternal milk is foreign to the digestive tract of the infant, as Dr. Chapin, one of our most distinguished authorities upon infant feeding, points out. While physical separation takes place at birth, there is a very real physiological connection between mother and infant, under normal conditions, for many months afterward, until the child is weaned. It depends upon the mother for life just as directly as it depended in the womb. Dr. Chapin states the matter clearly when he says, “From a physiological standpoint, the artificially-fed baby is a premature child.” And the modern mother is growing more and more unable to nurse her child at her breast. For some subtle reason, this function of maternity is being atrophied in civilized women; and the higher their civilization, the less able are they to nurse their own offspring.

There is not in existence, so far as I am aware, any considerable body of statistical testimony which can be cited in support of this assertion. The fact is admitted, however, by most of the leading medical authorities. Hundreds of physicians of large experience have assured me that they have found it to be so in their practice. It is not, as is very generally supposed, that modern mothers are unwilling to nurse their offspring; setting social pleasures above maternal duties. This may be true of a very small number of women, abnormal types. With the vast majority of women the trouble is physiological, nothing less than an absolute decay of the function. While among savages and primitive people the inability of mothers to suckle their offspring is rarely or never encountered, among the well-to-do classes in the most progressive countries it is so common as to almost become the rule. In this country, Dr. L. Emmet Holt, a well-known authority upon all that relates to infant feeding, finds this incapacity to nurse infants at the breast to be increasing, mainly among the well-to-do classes, but also among the poorest. Of the former, he tells us, not more than twenty-five per cent. of those who have earnestly and intelligently attempted
to nurse have succeeded in doing so satisfactorily for as long as three months. "An intellectual city mother who is able to nurse her child successfully for the entire first year is almost a phenomenon," he says.

Professor von Bunge, a famous German authority, with the assistance of over a hundred German, Austrian and Swiss physicians, who had been his pupils, and were selected because of their reliability as observers, gathered particulars concerning two thousand families in those countries. His researches have convinced him that by far the largest number of mothers who do not nurse their offspring are physiologically unable to do so. He believes that more than half of the mothers in the cities of central Europe are physically unable to suckle their infants. A famous Japanese physician wrote me from Tokyo that breast-feeding tends to become more and more difficult among well-to-do Japanese women. In the language of an eminent English physician, "The human infant tends more and more to become a parasite of the milch-cow."

IN CONSEQUENCE of this critical failure of the maternal function, artificial feeding for infants is on the increase and becomes more and more important. It is not impossible, nor even very unlikely, that in the course of a few generations artificial feeding will be the rule in civilized countries and breast-feeding practically unknown. What the causes of this strange phenomenon are no one as yet knows. It appears likely that the complexity of life in our modern cities has something to do with it, though it exists in rural communities also, its prevalence in Ireland, for instance, being the matter of much comment. Is there some connection between the development of woman's intellect and her failure as a mother? Why is it that the domestic animals, living under much the same conditions, do not appear to be affected in this way? Why is it that the Jewish mother succeeds in nursing her infant while the Gentile mother fails? These are questions which science is not yet able to answer.

A bewildering array of artificial foods, most of them cunningly advertised, tempt the mother who is unable to nurse her own baby as Nature intended. Of the great majority of these foods it is safe to say that they are little better than poisons whose sale should be forbidden. Of the remaining minority, few can be given with perfect safety to every child, or with the expectancy of good results. In Germany there is a law which provides that whenever a child
dies in the first year of life the death certificate must state not only the cause of death, but the mode of feeding adopted from birth. The records show that of children fed upon artificial food fifty-one per cent. die in the first year, while only eight per cent. of those fed naturally, at their mothers’ breasts, die in the same period. In attempting to secure a satisfactory substitute for mother’s milk the aim should be, it is universally agreed by the medical profession, to secure a food as closely resembling human milk as can be devised. But, while milk is an animal substance, most of the patent infant foods are composed wholly or in large part of vegetable matter, such as wheat flour. Many of them contain a large percentage of starch, a substance which is indigestible by the infant and highly injurious. Moreover, milk, especially as it comes to the child from the mother’s breast, is a living biological fluid, while the prepared foods consist of inert matter.

The best substitute for human milk is without question the milk of the cow. Upon that there is an overwhelming consensus of medical opinion. It much more nearly resembles human milk than do any of the artificial foods containing vegetable matter, and is for that reason desirable. Cow’s milk therefore becomes the staple diet of a large proportion of the world’s babies—the infant human animal becomes a parasite upon the cow. But while cow’s milk is the one substitute which resembles human milk in so many ways as to lead to its general adoption, it differs from the human lacteal fluid in many important particulars. It is, through much handling and almost inevitable exposure, more liable to bacterial contamination. More important even than this, is the fact that it has a hard curd, difficult for the single infantile human stomach to digest, which is not to be wondered at when one remembers that Nature intended it for an animal with four stomachs, while for the human infant with its single stomach a soft-curdled milk was Nature’s wise provision.

IN A SENSE, the milk of one species is poison to any other species. When an animal is attacked by poisonous bacteria, they seem of themselves to form in the blood certain protective, neutralizing qualities, called in the technology of the laboratory “antibodies.” It is contended by many experts that mother’s milk contains these useful anti-bodies and carries them into the infant’s body. They point to the immunity of breast nurslings from infectious diseases. Mothers with typhoid suckle their offspring
without infecting them. Professor Rogers, an eminent French authority, has published a list of forty-nine cases of nursing mothers admitted with their infants to an isolation hospital. Fifteen had measles, nineteen scarlet fever, eight tonsilitis, one diphtheria, five erysipelas and one mumps. With the exception of one debilitated infant who contracted erysipelas, no child contracted disease, notwithstanding that all were suckled by their mothers.

Whether bovine diseases can be transmitted to the human infant through the milk of the cow is a question which the foremost medical and bacteriological experts of the world have affirmed and denied with equal emphasis. Dr. Koch, the discoverer of the tubercular bacillus, asserted with striking emphasis in London, six years ago, that bovine and human tuberculosis were essentially different and that it was impossible to transmit human tuberculosis to cattle by inoculation. Therefore, said he, we have no need to fear infection from cattle by ingestion. He pointed out the fact that infants, who depend in an increasing proportion wholly upon cow's milk, do not suffer as much as might be expected from intestinal tuberculosis. As against this sweeping assertion of Koch, there is the undoubted fact that many experiments in this country and Europe have beyond doubt accomplished the transmission of human tuberculosis to cattle, and that bovine tuberculosis has been accidentally contracted by human beings. The evidence adduced by Dr. Ravenel, of the Pennsylvania State Live-Stock Sanitary Board, upon these two points seems to be fairly conclusive. There is a celebrated case, familiar to most physicians, placed upon record by Gosse, a famous physician of Geneva. His own daughter was infected by drinking the milk of a cow upon his own farm which, unknown to him, suffered with tuberculosis of the udder. That she died of tuberculosis of the bovine variety, and that inoculation was by ingestion, was abundantly shown by the post-mortem examination which, with rare courage, he performed himself. Professor von Behring, after the most careful investigation, has announced positively that bovine tuberculosis is transmissible to human beings and is even more dangerous than the human variety. This is the opinion, too, of the British Royal Commission appointed to investigate the subject.

When it is remembered that a very large percentage of cattle—even in the most select herds—suffer from tuberculosis, the udders and milk ducts being often diseased, the important relation of this subject of bovine diseases to infant feeding will be readily apparent.
Not long ago, a wealthy New Yorker, hoping to secure a safe and pure milk supply for his child, had a new cow barn built at his country place. He secured eight fine young Alderney cows, all registered animals. Soon afterward one of the cows became very sick and died; and a post-mortem revealed the fact that the disease was tuberculosis. Of the remaining seven cows, five were pronounced to be tubercular by a representative of the State Agricultural Department. It was an experience similar to this which led Mr. Nathan Straus, the man to whom the mothers of America will some day erect a monument when they realize what he has done, to enter upon the work which has resulted in saving thousands of baby lives. He was living in the Adirondacks, about fifteen years ago, and to insure a pure milk supply for his family kept a cow. One day the cow died suddenly and Mr. Straus thought she had been poisoned. He sent for a veterinary surgeon who found that the animal’s lungs had been eaten away by consumption. From that time, no more raw milk was used by the Straus family.

The danger of infection by tuberculosis or other bovine diseases is, however, not the only one attendant upon the consumption of milk. As a culture medium for bacterial life, milk is hardly surpassed by any substance, and the result of carelessness in the various processes of milk production and distribution, from the milking stool in the cow barn to the pail in the grocery store or the can on the vendor’s wagon, and thence to the consumer’s table, means contamination and the supply of milk to infants containing a dangerously high percentage of bacterial life. While Professor von Behring, arguing from the frequency of gastro-intestinal diseases in young children, has proclaimed that milk containing more than one thousand bacteria per cubic centimeter, or about sixteen drops, should never on any account be given to an infant, it is generally regarded as reasonably clean and pure milk which does not contain more than from twenty thousand to thirty thousand bacteria per c.c. But in most of our cities there is no bacterial standard at all, while in the great majority of cases where there is such a standard it is absurdly and awfully high. Thus, in Milwaukee the standard of “purity” is two hundred and fifty thousand bacteria per cubic centimeter! In Boston it is five hundred thousand—a standard worse, in many ways, than none at all! In many of our cities the average bacterial counts run well into the millions. Five millions, or about twice as many as average sewage, is not
uncommon. In one New York store samples of milk bought on thirteen successive days, by members of the British Health Committee appointed to investigate the milk conditions in various large cities throughout the world, an average of more than one hundred and thirty-three million bacteria per cubic centimeter was discovered! Of course, such milk is poison to infant life.

To many persons the word bacteria calls up visions of terrible unseen dangers. It may be well, therefore, to explain that relatively few of these bacteria are harmful in any sense, and fewer still dangerous. Were it otherwise, we should, of course, be poisoned in very short order. The kind of bacteria in the milk is thus quite as important as the number. Milk having relatively few bacteria may have more dangerous ones than milk having an enormous number. That is, however, not common. The larger the number of bacteria in the milk, the greater the possibility of there being dangerous ones among them. How real this danger is we may see in the recent experience of Chicago and its suburbs. Many thousands of cases of diphtheria and scarlet fever occurred, being directly traceable to the milk supplied by one of the greatest milk companies in the United States, the source of infection being some Wisconsin dairies. Chicago, like a good many other American cities, has had no adequate inspection of its milk supply and no bacterial standard. It has paid the penalty in an awful epidemic.

A hundred and fifty years ago, Smollet, the English novelist, wrote a terrible description of the milk supply of his time. It is too disgusting to be printed here, but it is valuable to students of the subject because of the vivid picture it gives of the almost unbelievably foul conditions that prevailed in the distribution of milk. Fortunately, things are not so bad to-day, but there is still much carelessness and neglect of ordinary hygienic precautions in milking and vending the milk. To see cows with filthy udders, milked in still filthier barns, by men and women with dirty hands and clothing; to see lumps of manure drop into the milk pail, often followed by a dirty hand, and to see in the retail store the open milk can exposed to all the dust, or the germ-covered dipper thrust into the milk and then allowed to lie upon the counter collecting more germs while it awaits the next customer—these are not unusual sights to-day. Even the staid, conservative old British Medical Journal in an article describing the condition of the milk supply a century and a half after Smollet’s terrific arraignment, uses the awful caption, “Pus as a Beverage.” And when, last November, I attended the Milk
Conference in the New York Academy of Medicine, and listened to the reports of sanitary inspectors and others, I could not but feel the appropriateness of this description to much of the milk which is placed upon the market in many of our cities and towns to-day. No one at all familiar with the subject doubts for an instant that a frank description of the milk supply in many of our cities would far outdo “The Jungle” in horror.

In New York City the whole subject of the milk supply is at present receiving a great deal of attention. While conditions are bad, awfully bad, there has been much improvement during the past few years. And this result is attained in spite of great obstacles. The great city needs for each day’s supply one million six hundred thousand quarts of milk. This immense sea of milk comes from over thirty thousand dairies, some of them four hundred miles away. From remote corners of Pennsylvania and from Ohio milk is sent into New York. Much of the milk is from twenty-four to forty-eight hours old on arrival in the city, offering numerous inducements for the use of “preservatives.” It is sold from about twelve thousand places, offering many inducements for the use of water or baser adulterants, and unlimited facilities for contamination. The fact is that the science of milk production and distribution is as yet in its infancy. We are beginning to learn.

When Mr. Nathan Straus was brought to such a dramatic realization of the perils of an infected milk supply, he determined to pasteurize his family milk supply. Later, oppressed by the awful infantile mortality rate, he decided to establish an Infants’ Milk Depot as an experiment. After a most pain-taking study of the subject, and conference with scores of physicians in this country and Europe upon the respective merits of “raw,” “sterilized,” “pasteurized,” “whole,” and “modified” milks, he decided upon pasteurization and modification. The highest standard of milk obtainable was procured, a little depot set up on a pier at the foot of East Third Street, and pasteurized milk in sealed bottles, both full strength and modified, sold at a very low price. The results were unquestionably beneficial, both directly and indirectly. Not only were the lives of many sick babies preserved by its direct use, but the depot became at once an educative factor and spread, through its appeal to maternal curiosity, a wonderful amount of information about infant hygiene and feeding. This experiment has grown into a world-famous philanthropy. At the
present time there are about twenty Straus depots in the city of New York, supplying nearly two million bottles of milk. Mr. Straus himself says that the movement has outgrown the limits of private philanthropy and should now be undertaken by the community. It would be impossible to even guess at the number of baby lives saved by the Straus depots, but the number certainly runs into several thousands—a glorious record for any citizen!

Perhaps no better concrete example of the influence of the Straus depots in lowering the infant death-rate can be cited than the following, given in the philanthropist’s own modest words

“I will cite the case of a public institution where the death-rate of the children was so high that it became a public scandal. This was on Randall’s Island. Though the city had their own herd of cows, which were kept on the Island, carefully tended and apparently in perfect health, they did not succeed in reducing the death-rate below forty-four per cent. At that time I was President of the Health Board, and the institution came under my direct charge. I had a chance to study the appalling conditions that still prevailed there. After I had resigned from this office, encouraged by the results I had already obtained in the city, I installed on the Island a complete plant for the pasteurization of milk. In the very first year of its operation, the death-rate of the children made the astonishing drop of from forty-four per cent to twenty per cent. Remember, there was no other change made either in diet, hygiene or management of the institution. The rate was later reduced to the still lower figure of sixteen and five-tenths per cent.

“Just think of the enormous saving of lives if pasteurization were generally adopted.

“I have done as much as one man could to establish and promote the use of pasteurized milk everywhere, but all that has been accomplished is merely a fraction of the good that could be done were the supply of pure milk made a municipal function as much as the supply of pure water. There can be no question but that the supply of milk everywhere should be pasteurized, not only that intended for infants, since the use of raw milk for adults is almost equally fraught with danger.”

Pasteurization, which is heating to a temperature of one hundred and sixty-five degrees Fahr. for twenty minutes and the French method of sterilization, which is heating to a temperature of two hundred and twelve degrees Fahr. for one hour or one hour and thirty minutes, are both strongly objected to by many physicians.
American physicians almost unanimously reject the French method on the ground that "it cooks the curd with the germs," makes the milk hard to digest, destroys some of its nutritive qualities, and specifically causes constipation and scurvy. Most of these same objections are urged, with less force, against pasteurization. It is further urged that neither method is necessary; that if care is taken to secure clean milk it can be kept so clean as to require no "cooking." All the opponents of pasteurization concede that if milk is contaminated it should be pasteurized, while all the advocates of pasteurization admit that if pure milk, free from disease, could be secured, there would not be the slightest need of pasteurizing it. The issue, then, is simply, "can means be devised whereby the milk supply of the average American city can be brought up to this high level of cleanliness?" Mr. Straus regretfully answers this question in the negative and goes on his way pasteurizing and advocating the universal pasteurization of all milk, pointing to wonderful results in support of his claims.

IN ROCHESTER, N. Y., there is a man who takes a much more hopeful view. He believes in the practicability of securing a clean milk supply for our cities as thoroughly as he believes in America, or in himself. He is no visionary, this man who affirms that "the pasteurization of milk is a grave error," whose name is synonymous with clean milk. If he were not a successful physician and public official, this shrewd, practical American would be a successful man of business. The work of George W. Goler, Health Officer of Rochester, is perhaps even better known to the leaders of the medical profession in Europe than in this country—to the great mass of his fellow-countrymen he is unknown. Yet, he has been doing wonderful things, revolutionizing the methods of dealing with the milk problem of cities, and, incidentally, saving priceless baby lives.

Rochester is a city of about one hundred and eighty-five thousand inhabitants. There is something of the free dom and progressiveness of the West about it, shot through with the conservatism of New England. With about five thousand births per annum there must be at all times nearly twenty thousand children under five years of age in the city. Its daily milk supply of seventy-five thousand quarts is drawn from something like seven hundred farms, all lying within a radius of fifty or sixty miles. It is distributed by two hundred and twenty-five retailers, each of whom is licensed and
pays an annual fee of two dollars. Its milk problem, therefore, is radically different from that of our greatest cities, like New York or Chicago, and is much more typical of the average American city. The lessons drawn from its experience, therefore, are lessons for the average city.

Prior to eighteen hundred and ninety-seven the infantile death-rate in Rochester was, as in most cities, very heavy, notwithstanding the many physical advantages of the city. In the nine years, eighteen hundred and eighty-eight to eighteen hundred ninety-six, inclusive, there were six thousand six hundred and twenty-nine deaths among children under the age of five years. There was a system of milk inspection, it is true, but it was woefully inadequate and inefficient. There were one or two inspectors with whom sobriety was not a strong point, and they were known to “borrow” money from milkmen. That they should protect the milkmen in return for these favors was a natural result. Just ten years ago Dr. Goler established an Infants’ Milk Depot for two months, July and August, in which the tide of infant mortality always rises. The work began in a very primitive way, and the total cost to the city was three hundred dollars. A store was rented in a thickly populated district and fitted with running water, gas stoves, counters and shelves. Two nurses were placed at the disposal of Dr. Goler by two of the hospitals of the city, and they pasteurized and cooled the milk and sold it at cost to the mothers who came for it. A little pamphlet, a model of wisdom, brevity and lucidity, entitled “How to Take Care of Babies,” was printed in four languages and freely distributed. We know now how the three hundred dollars was expended; the results are roughly indicated, but not scientifically measured, by figures which point out that the infantile death-rate in the worst period of the year has been reduced to nearly one-half. Lest it be thought that the basis of comparison is an unfair one, a comparison of the figures for eighteen hundred and ninety-seven with the average death-rate for a period of nine years shows just about the same percentage of decrease in the annual death-rate.

It is not likely that this result was entirely due to the milk actually distributed. Possibly, that was of less importance than the education indirectly accomplished through the interest roused in the city by the establishment of the milk station. That this was so seems to be the natural inference from the fact that during the next two summers, though there were four stations in place of one, and the quantity of milk distributed was vastly increased, the re-
sults were practically the same. Some wiseacres made the prediction that Dr. Goler had reached the irreducible minimum of infant mortality and that further progress could not be expected. Perhaps most men would have been satisfied with such an accomplishment, but not so Dr. Goler. While satisfied with the return made for the ridiculously small amount of money invested, he would not, could not, believe that the limit had been reached.

Then came the thought, "pasteurization is good for dirty milk—dead disease germs are less harmful than living ones; but why have filthy milk at all—why not aim at clean milk which needs no pasteurization?" That simple idea of cleanliness has made Rochester famous wherever men and women are seriously trying to keep the babies alive. It is the essence of the political economy of saving babies.

So, in nineteen hundred, instead of pasteurized milk for the infants Dr. Goler tried clean raw milk. A contract was made with a farmer for all his milk at so much per quart, upon condition that he would observe the hygienic directions of Dr. Goler and his assistants. A portable laboratory, consisting of a discarded election booth, was set up on the farm selected. Outside the house, under canvas, a sink and running water were set up where the bottles were washed. Then there was a tent with sterilizers, each sterilizer holding two gross of nursing bottles—for here instead of sterilizing the milk, they sterilize the bottles and cans. Another tent was provided for the nurse in charge to sleep in—the entire "plant" costing between five and six hundred dollars. With the introduction of new methods of simple cleanliness, the infantile death-rate began to decline again, though the decline was not as great as before. In spite of the rapidly increasing population of Rochester a careful comparison of the infantile death-rate shows a decrease of more than fifty per cent. In spite of the great increase of population in a comparative estimate covering the whole period of nine years, eighteen hundred and eighty-eight to eighteen hundred and ninety-six, when there were no Infants' Milk Depots as against the succeeding nine years after the establishment of the Infants’ Milk Depots and the insuring of a better supply. Not only have the good results obtained by pasteurization been maintained, through taking care to obtain clean milk and then doing away with the pasteurizing process, but actually improved upon. And, as we shall see, the latter method is more economical.

When it was demonstrated that practically pure milk could be
had if proper care were taken to keep it clean at all stages, Dr. Goler and his assistants began a campaign of education among the farmers and a more rigid system of inspection. Thus they attacked the general milk supply of the city. In their inspections and tests they very wisely paid more attention to the percentage of dirt and bacteria than to the percentage of fats—a reversal of the usual custom. The farmers at first were accustomed to sneer at the “fads” of this man who pooh-poohed their silver-plated centrifugal machines, which gathered balls of dung and hair from the milk; who said that pasteurizing killed the good germs as well as the bad—and a little more effectively. They were not impressed when he said that it was better to keep the cow barns clean, to cleanse the cows’ udders and their own hands and clothing; that sterilizing the cans was better than tampering with the milk and making it harder for babies to digest. But persistence wins, and Rochester to-day has the purest milk supply in America. Dr. Joseph Roby, one of Dr. Goler’s assistants, says that before this campaign it was practically impossible to find a dealer whose milk could be depended upon to contain less than one hundred thousand bacteria per e.c. A great many dealers would have samples containing seventy-five thousand, fifty thousand, or even ten thousand one month only to jump to five hundred thousand, or higher, the next month. The average monthly counts for the city ranged from one hundred thousand per e.c. in winter to five hundred thousand per e.c. in summer. But the milk produced under the supervision of the city—and a different farm has been chosen each year as an educational feature of the campaign—gives an average count of three thousand eight hundred and fifty-three bacteria per cubic centimeter, or quarter teaspoonful. Only one sample has gone above twenty thousand (twenty-nine thousand), twenty-one have been below one thousand—an almost unprecedented thing. One sample gave only two hundred and forty, establishing a record for purity. Under this system there is practically no chance whatever for the spread of infectious diseases through an infected milk supply.

And this work costs the city of Rochester less than one thousand dollars a year! Dr. Goler says, and points to the actual experience of several years to prove it, that for a trifle over one thousand dollars a year the system can be carried out in any city of two hundred thousand inhabitants, and in larger cities at a proportionate cost.