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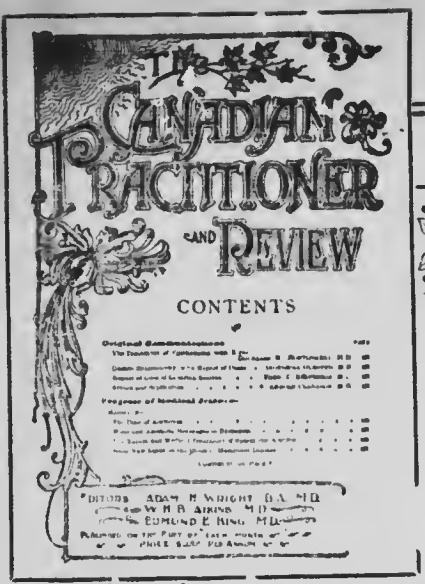

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The National Importance of Pure Milk.

.. BY ..

DR. CHARLES J. C. O. HASTINGS,

TORONTO

THE NATIONAL IMPORTANCE OF PURE MILK.*

By Dr. Charles J. C. O. Hastings.

When we consider that milk constitutes, practically the sole article of diet of infants and invalids and enters into the dietary of all more or less and that it is the most delicate and sensitive food we have, to bacter contamination, it is surely time that we are waking up to the fact that it is at least as deserving of municipal control as is our water supply or light and power.

Some twenty years have elapsed since the appalling tide of infant mortality came home to thoughtful minds in Germany, France, Belgium and the United States of America, and so engrossed their attention as to stimulate a spirit of investigation, in consequence of which it was soon apparent that this enormous mortality was largely from the ranks of hand-fed children (90 per cent.), breast-fed children only contributing about ten per cent. They also observed that there was a marked seasonal fluctuation, having an abrupt upward curve for the mid-summer months and an equally sharp drop in the autumn. The marked increase in months of July and August was found to be largely due to diarrhoeal diseases, there being very little fluctuation in the non-diarrhoeal cases. In Leipzig[1] for instance, the proportion of deaths to births in August were as 571 to 1,000, of these 430 were diarrhoeal. Dr. Emmett Holt[2], in his article on Diarrhoea, says that of 1,943 fatal cases of which he had collected only three per cent. were exclusively breast fed, and that in his experience fatal cases of diarrhoeal diseases in breast fed infants are extremely rare. Dr. Holt goes on to say it is surprising to see how quickly diarrhoea is excited by impure milk. I once saw in the New York Infant Asylum, every one of the twenty-three healthy children, all over two years of age, and occupying the one ward, attacked in a single day with diarrhoea which was traced to this cause. (A woman was complaining on one occasion to Dr. Osler that Providence had seen fit to take her little child, when the doctor interrupted with the remark: "Providence had nothing to do with it, it was dirty milk."). In fact, all nations seem to be waking up to the fact

*Read before the Section on Public Health and Laboratory Workers of the Canadian Medical Association, held in Ottawa, June 9th, 10th and 11th, 1908.

that thousands of lives are being sacrifieed every year as a result of impure milk, to say nothing of the thousands that have survived the contest but are more or less handieapped all through life, having had to use the energies to battle disease that should have been used for the building up of good sound mind and body.

In Berlin (Germany) the infant mortality among hand fed infants during the hot summer months is twenty-one times greater than among those fed from the breast, the maximum being reached in July when the mortality of the artifieially fed ehildren reaehes twenty-five times more than that of the breast fed.

In Franee, of 12,000 deaths among infants under one year of age, 5,660 died in the months of July and August.

In Australia the authorities are gravely eoncerned about this awful infant mortality. In Brisbane[5], says Dr. Turner, during the summer months more than half of the bottle fed babies die. In referring to this matter Musket, of Sidney, made the statement that of 303,070 dying in New Zealand and Australia in 19 years, one-half might have been saved. Dr. Newsholm[6], M.O.H. for Brighton, said in an artiele in the *Lancet*, that breast fed ehildren eontribute but one-tenth of the diarrhoeal infantile mortality. Dr. Tyson[7] states that 75 per eent. of the 150,000 infants dying annually in Great Britain from all eauses are bottle fed. Dr. MeLeary[8], M.O.H., for Hampstead, says that infant mortality, broadly speaking, is a mortality of hand fed infants. Investigation in Munich revealed the faet that (83.3 per eent) of the infant mortality were hand fed.

In Germany 41.37 per eent. of the entire mortality for the year occurred in the months of July and August. On the other hand, in Prague, Austria, where nearly every woman nurses her own babe, the hot summer months do not show any inerease in infant mortality.

It is quite obvious that eholera infantum is but another name for milk poisoning.

However, I presume there is no other problem in preventive medieine or state medieine so engaging the attention of all civilized nations to-day, as that of the ways and means by whieh they ean best seeure a pure milk supply. Unfortunately, in the Provinee of Ontario, and we may add in the Dominion of Canada, there has been no systematie inspection of milk supplies or baeteriologieal examination only from a commereial

standpoint, except in Ottawa, but the marked similarity of conditions found by dairy inspections and bacteriological examinations in Germany, France, England and the United States of America is quite sufficient to establish a prima facie case upon which we should take prompt action.

Inspection in the United States has revealed spectacles of a most revolting character. The filthy condition of the cow, stables, utensils, and the milkers, and in fact at every turn from the cow to the consumer, the milk is exposed to reinforcements of myriads of bacteria. The conditions in England as reported by some of the officers of health are as follows:—

Dr. Groves[9], Medical Officer of Health in England, referring to many reports from the inspectors, said: "The conditions under which milk is procured in many parts of the country, especially among small dealers, is too awful to describe." Dr. Hime[10], M. O. H., describing conditions which he found on the farms which supplied Bradford with milk, states that he found children's napkins washed in milk cans, and once he saw article more foul being washed in milk cans that were to be used in an hour later for dairy purposes. The report of the Health Officer for Derbyshire, Staffordshire and Cheshire[11] stated that the great majority of the dairies and farms visited were in a filthy condition and totally unfit for the production of pure milk. In fact, cumulative evidence of the unfitness of English dairies might be quoted almost indefinitely. Almost identical reports are handed in in all countries in Europe where inspections have been made. In most instances both the stables and the cows were found in a most unsanitary condition; the cows were milked and the milk handled by those who were absolutely ignorant of hygiene or sanitation.

In June last, by invitation of the Great Ormond St. Children's Hospital[12], representatives of the various London children's Hospitals met to discuss their milk supply, the unsatisfactory milk supply having been a matter of concern for some years, but they were deterred from action on the grounds that a better milk supply would entail increased expenditure (human life placed in the scales with dollars and cents, or rather, pounds, shillings and pence, and found wanting). Having been invited to inspect the various sources of milk supply, Dr. Carpenter, of the Northern Hospital for Children, related his experience, revealing as startling a condition and as grave a scandal as did the condition of the Chicago slaughter houses. The cows were huddled together in ill-ventilated, dark, dingy sheds and a foul

atmosphere, all of them besmeared with their own excretions, standing on filthy floors. A batch of dirty men, with dirty hands and filthy aprons, were milking. The strainers through which the milk had been strained were found to contain a plentiful supply of stable refuse. The churns and utensils were washed with water taken from a trough in the yard which was smeared over with manure both inside and out. There was not the slightest evidence of any regard for ordinary cleanliness.

As a result of similar revelations in the United States, milk commissions have been appointed in various States, or, rather, in the principal cities, twenty-seven in all. A conference of these commissions was held at Atlantic City last June, when they merged into a national association for the purpose of adopting uniform methods of procedure to fix on chemical and bacteriological standards and to determine the scope of medical and veterinary inspections. This, of course, to be done in conjunction with the Health Department. Out of samples taken from thirty-one dairy wagons in Washington, only thirteen were fit for food, and of one hundred and seventeen samples examined in one year, only fifty contained less than 50,000 bacteria per c.c.; in fact, some of the samples contained a larger number of bacteria than did the sewage water of the city. In Boston fifty-seven samples showed over 2,000,000 per c.c. The conjoined Milk Commission has advised that all milk containing more than 50,000 per c.c. be destroyed by the Health Department.

Dr. Leslie Mackenzie, medical member of the Local Government Board for Scotland, in the *Edinburgh Medical Journal*, described the method of milking as follows: "To watch the milking of cows in most rural districts is to watch a process of unscientific innoculation of a pure, or almost pure, medium with unknown quantities of unspecified germs. To one who knows the meaning of asepsis it makes the blood run cold to watch, even in imagination, the thousand chances of germ inoculation; rarely is even the precaution taken of washing the udder, which is ofttimes besmeared with excretion from the cow.

Everywhere throughout the whole process of milking the perishable, superbly nutrient liquid receives its repeated sowings of germinal and non-germinal dirt. The hands of the milker are rarely washed and are usually smeared over with excretion from the cow liquified by the milk used by the milker in the filthy habit of wet-milking. In a word, the various dirts of the civilized human are reinforced by the inevitable dirts of the domestic cow."

That milk is being consumed by us every day that is procured under similar conditions cannot be questioned. How would we like to have bread and pastry prepared by similar hands and in similar environments? And yet we could do so with infinitely less danger to health and life, as the bread and pastry have to be submitted to a temperature that would destroy all pathogenic germs, while milk is used with all its bacterial contamination in activity, and, furthermore, milk constitutes an excellent culture medium for the rapid reproduction of these bacteriæ. Let us contrast this for a moment with the milking of cows under the municipal milk supply of Rochester, N.Y., established in 1899.

The central station, at which the milk is prepared, is organized in a farm outside the city, where a trained nurse and assistant have full control of the cows, bottles, utensils, etc. Everything coming in contact with milk is thoroughly sterilized in steam sterilizers. The milk itself is not subjected to any pasteurizing or sterilizing.

At the milk station on the farm the milk is taken from clean, well-fed, tested cattle into sterile cans, which are carried to the barn in sterile linen bags. Just before milking the cow's udder is well washed. A sterile cheesecloth fly cover is placed over the cow. The first portion of the milk is rejected. As soon as the cans are filled they are immedately covered by a layer of cheesecloth, held in position by a rubber band. The cans of milk, thus covered, are immediately taken from the barn into the laboratory, about two hundred yards away, where the milk is properly diluted, sweetened and turned off into sterile nursing bottles. The bottles are corked with sterile rubber corks, placed in racks, covered with cracked ice, and immediately transferred to the city for use. Of the milk prepared in this way forty-three samples daily were found to average not more than 14,000 bacteriæ per cubic centimetre, while the city milk at the same time approximated 235,000 per c.c.

We must remember, however, that there are some 200 varieties of bacteriæ in milk that produce practically no harm, many of them only affecting the commercial value of the milk by souring, coagulating, etc. But these, as Prof. Vaughan expresses it, should constitute the red lantern or danger signals (others are excreting or secreting toxic substances). The most common and most virulent of the pyogenic series present is the streptococcus, which is always associated with that most common of all bovine diseases, mammitis or garget, and also in "yellow galt,"

and what lends a greater degree of danger to the presence of streptococcus is the fact that milk at the temperature of the ordinary living room affords an excellent culture medium for it, laboratory experiments having demonstrated that at the temperature of a living room milk containing 300 per c.c. will increase in 24 hours to 10,000,000; while, if kept at a temperature of 40 there is practically no increase. (Prof. Conn states that in nearly all milk the streptococcus is present, as it is present in the milk ducts and teats even when no inflammatory process was going on. Bergy[13], of the University of Pennsylvania, studied the milk of several cows during the entire period of lactation, and concluded that once the udder becomes infected with pyogenic bacteria the infection persists through several periods. Bergy, in his report to the State Department of Agriculture, Pennsylvania, of a large number of samples drawn in sterile tubes more than two-thirds contained bacteria, more particularly the streptococcus; he found them in half the samples examined from the Philadelphia supply.) The specimens examined in Germany averaged about 75 per cent. infected, except in Leipzig, where Brunning[14] found 26 out of 28 samples containing all the way from 100 to 1,000,000 per c.c. (93 per cent.). Leipzig having the largest infant mortality from diarrhoeal causes of any city with reliable registration outside of Russia. In London, of the specimens examined by Eastes[15], 186 in all, 75.2 per cent. contained streptococci. While these pyogenic bacteriæ are largely responsible for the infantile diarrhoea, they are not entirely so. We have the proteus vulgaris and the various dysenteric types, the bacillus pyocanus, etc.

While infant mortality is the most important factor in determining the necessity of a pure milk supply, the danger as a medium for the spreading of communicable diseases is not much less important. Scarcely a month passes that we have not instances cited of outbreaks of the various infectious diseases traced to the homes of the dairies or vendors. This was especially emphasized by Prof. Kober in the section on Hygiene of the International Medical Congress at Paris in 1900, in a report of 330 outbreaks of infectious diseases through the milk supplies, made up as follows: Outbreaks of typhoid fever, 195; scarlet fever, 99; diphtheria, 38. Dr. Harrington, Secretary of Massachusetts State Board of Health, in a recent address stated that within the past two years, in the five cities, Boston, Cambridge, Lynn and Everett, there have been eighteen outbreaks of typhoid fever, fourteen of which have been traced directly to milk.

Of still greater significance, however, is "The Second Interim Report of the Royal Commission on Human and Animal Tuberculosis[16]," in which their conclusion was to the effect that a large proportion of tuberculosis contracted by ingestion is due to bacilli of bovine source, and that a very considerable amount of disease and loss of life, especially among children, must be attributed to cows' milk containing tubercle bacilli.

The presence of tubercle bacilli in cows' milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food. There is far less difficulty, however, in recognizing clinically that a cow is suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk procured from such a cow ought not to form a part of human food, and, indeed, ought not to be used as food at all. "Our results clearly point to the necessity of measures more stringent than those at present in force being taken to prevent the sale or consumption of such milk."

In January last the Health Committee of Birmingham[17] issued to the City Council the report of the Medical Officer of Health (Dr. Robertson) and the Veterinary Superintendent (Mr. Malcolme) upon the investigations which had been made in regard to the infection by tubercular bacilli of the milk supplied to Birmingham. The collection of the samples of milk was undertaken by the assistant veterinary surgeon of the corporation, and the subsequent examinations were made by Prof. Leith and his staff in the bacteriological department of the University. Between September 13th, 1906, and July 31st, 1907, in 175 samples taken from the churns at the railway stations and other places tubercle bacilli were present in 14 per cent.

Dr. McCaw[18], senior physician to the Belfast Hospital for Sick Children, after twenty years' careful observations and study of tuberculosis in children in connection with his hospital work, in his own hospital, and a careful examination, on exactly the same basis, of the returns of the Ulster Hospital for Sick Children; Great Ormond Street, London; Royal Edinburgh Hospital for Children, Manchester Children's Hospital, East London Children's Hospital, Glasgow Children's Hospital, presents the following significant report:

TUBERCULOSIS.

1906—Belfast Hospital for Sick Children—
No. intern. patients, 827; No. tuberculous, 26.10 %.

1906—Ulster Hospital for Sick Children—
No. intern. patients, 247; No. tuberculous, 30.36 %.

1906—Great Ormond Street, London—
No. intern. patients, 2,876; No. tuberculous, 27 %.
1906—Royal Edinburgh Hospital—
No. intern. patients, 1,968; No. tuberculous, 21.3 %.
1906—Manchester Children's Hospital—
No. intern. patients, 1,999; No. tuberculous, 21.3 %.
1906—East London Children's Hospital—
No. intern. patients, 2,054; No. tuberculous, 24.3 %.
1906—Glasgow Children's Hospital—
No. intern. patients, 1,177; No. tuberculous, 27.95 %.

One cannot help but be impressed with the similarity in the percentage of tubercular cases in all these hospitals.

The conditions found were as follows: Surgical—Tubercular joints, lymphadenitis, chronic abscess, chronic ulcers, lupus, spinal caries, etc. Medical—Phthisis, meningitis and general tuberculosis, in the proportions of about 6 to 1.

This surely demonstrates beyond question the existence of tuberculosis to an appalling degree among children, and at an age when milk constitutes the principal article of diet.

Let us couple with this the views of Professor Von Behring and his followers—that tuberculosis in children is principally disseminated through the alimentary canal, the chief source being tuberculous milk.

For confirmatory evidence, let us revert again for a moment to the findings of the Royal Commission, who, in summarizing their results, concluded with the following statement: "The bacillus of bovine tuberculosis is not so constituted as to act on bovine tissues alone, for it can give rise to tuberculosis in many animals other than bovine. Furthermore, it is not so constituted as to act on bovine tissue with a special energy, for it can give rise to tuberculosis in many other animals as readily, or even more readily, than in bovine animals themselves. (We call it the bacillus of bovine tuberculosis merely because we find it most frequently in the bovine body, it being the cause of bovine tuberculosis.)

"The fact that the bacillus of bovine tuberculosis can readily by feeding as well as by subcutaneous injection, give rise to generalized tuberculosis in the anthropoid ape—so nearly related to man—and, indeed, seems, so far as our few experiments go, to produce this result more readily than in the cow itself, has an importance so obvious that it need not be dwelt on."

However, with such indisputable evidence of the danger to human life by ingestion of bovine tubercle bacilli, and the fact

that 43.51 per cent. of the cattle slaughtered in Leipzig in one year were tuberculous, and, according to reports of the late Professor McFaygden, 30 per cent. of the milk cows in England are tuberculous and 2 per cent. suffering from tuberculosis of the udder, the latter yielding 100,000 quarts of milk daily teeming with tubercle bacilli, to be consumed by the people of Great Britain, one doesn't require to look long for a solution of the startling statement made recently by Sir William Broadbent, when addressing the Council of the Invalid Children's Aid Association, in which he said: "It is a remarkable fact that, while pulmonary consumption has steadily diminished during the past thirty years, there has been no corresponding diminution in the death rate from other tuberculous affections which were especially incident to infancy and childhood; on the contrary, they had distinctly increased."

What, then, is the remedy? For an answer to this question we must look to other nations where close observations have been made and remedial measures applied, which have in every instance been based on state and municipal control of all milk supplies and the establishment of infants' milk depots in all cities of 30,000 and over.

For demonstrations of the value of these methods of securing a pure milk supply we are indebted in the first place to Drs. Variot and Leon Defour of Paris, they having established the first "Gouttes de Lait" in Paris in 1892 and 1894, and there are now more than 100 throughout the country, and have made their influence felt, and now nearly all civilized countries have adopted them. The system has been carefully studied and pretty universally adopted in the British Isles. However, on the Continent of America we are more especially indebted to the American Association of Medical Milk Commissions, the pioneer work of which has been done by Dr. Henry L. Coit, of Newark, N.J.

Our neighboring city to the south (Rochester, N.Y.), under Dr. Goler, has done most creditable pioneer work in demonstrating to the world the role played by dirty milk in infant mortality. They have in operation for two months in the year, July and August, four milk stations, at which milk is handed out to the poor, containing not more than 20,000 bacteriæ per c.c. These milk depots are in charge of a trained nurse, who, in addition to handing out the pure milk properly diluted for the age of the child, also hands a pamphlet to the mother, instructing her in how to care for her children, with the following results: For

the months of July and August, in the ten years preceding the establishing of the milk depots, the deaths under five years of age from *all causes* totalled up 2,297, as against 1,143 in the ten years following the establishing of the milk depots, showing a saving of life for these two months of over 50 per cent. In these reports deaths from all causes are included, as they have very properly concluded that dirty milk as a food necessarily affects the results of all diseases in children. This is accomplished at a cost of $1,000.00 per annum.

Where an absolutely pure milk supply cannot be secured, all milk should be Pasteurized before being fed to babies in the hot summer, as was demonstrated at the New York Foundling Hospital, on Randal's Island: The year before the introducing of the Straus system of Pasteurizing the milk there were 1,181 babies in the hospital, of which 524, or 44.36 per cent. died from all causes. In the year following, during which the system was in operation, the number of children in the hospital was 1,284, and the number of deaths only 256, or 19.80 per cent.

Pasteurizing, like tuberculin, has been condemned by a few because it has been abused by many. Dr. R. Godfrey Freeman, Lecturer on Pedriatics in the University and Bellevue Hospital, in an article on the "Advantages and Disadvantages of Pasteurized Milk," quotes some thirty or forty authorities on the thermal death point of the tubercle bacilli, which is the most resistant of all pathogenic germs infecting milk, and finds in conclusion that a temperature of 155 degrees F. for twenty minutes will destroy the t.b. and all other pathogenic germs, and, in fact, 99 per cent. of all germs found in milk, but will not destroy spores or the toxines that may have already been formed in the milk. All authorities, however, agree that if the temperature of the milk be lowered to 45 immediately after Pasteurizing it will remain absolutely unaltered for 24 hours, but after this time it is not safe, and after 36 hours should be re-Pasteurized before being fed to infants. Dr. Freeman refers to the three methods of Pasteurizing—the commercial method, the home method and the milk depot method. The commercial method cannot be too strongly condemned. It consists in raising the temperature of the milk to 155 for 15 seconds, which is absolutely useless in destroying pathogenic or disease germs, while it arrests the lactic acid ferment, which, when uninterfered with, constitutes such a valuable danger signal. Then there is the home method, in which the Pasteurizing may be carefully carried out, but with want of proper knowledge or proper

means of refrigeration the Pasteurization is practically useless if the milk is not used within a few hours.

On the other hand, the danger of Pasteu ing is that it may cause some relaxation of the eternal vigilance which seems to be so necessary in order to secure anything like clean milk.

A bill providing for the Pasteurization of all milk sold in New York City[19] has been introduced before the New York State Legislature. It would provide that every quart of milk brought into New York City must be put through the process of Pasteurization. The penalty for selling milk which has not been Pasteurized is imprisonment for not less than six months or a fine of $500.00, or both. Provision is also made for the appointment of a large number of milk inspectors.

Mr. Nathan Strauss, who has recently introduced his method of Pasteurizing into Germany, has received the following statement from Prof. Feer, of Heidelburg: "I have recently inoculated five guinea pigs with milk, raw, from tuberculous cows. All five pigs are suffering from a most virulent form of tuberculosis and are sure to die. At the same time I inoculated five others with Pasteurized milk from the same cows, and all of them are in perfect health. There can be no questioning the advisability of all hospitals and public institutions using milk as an article of diet having milk Pasteurized and refrigerated at a temperature of not higher than 45 if possible."

A deputation[20], headed by Prof. W. R. Smith of King's College, Principal of the Royal Institute of Public Health, recently waited on the Board of Agriculture, to whom they emphasized a report of the Committee of the Institute that the time had arrived when active steps must be taken, in the interest of the nation, to protect the public from the dangers of impure and contaminated milk, and requested that they secure such legislation as would warrant them in adopting more stringent measures in their efforts to secure a pure milk supply. Replying to the deputation, Sir E. Strachy, Parliamentary Secretary to the Board of Agriculture, said that the Board is of the opinion that every possible precaution will be taken to protect the public, and that anything reasonable, which will not harass the trade, will be done.

"A Committee of the National League for Physical Education[21] was formed last year by Sir Lauder Brunton. This committee has now formed a joint committee with the National Health Society, the Infants' Health Society, and the Liverpool Life Preservation Committee, with Sir Frederick Treves as chairman, the object being to secure a universal supply of milk,

pure from the cow and free from disease germs—'clean milk.' An annual system of licenses to dairymen is recommended, renewable only if their premises are kept in a sanitary condition. The corporations of great cities such as Manchester, Liverpool and Sheffield have already obtained special parliamentary powers to enable them to exclude from their districts the milk of cows suffering from tubercuious udders, but as such milk can be sold elsewhere it is proposed that such power be extended to the whole country."

Sir Thomas Barlow, referring to the milk supply to London, said: "It may be stated with emphasis that most American cities are far in advance of British cities in regard to their milk supply. The medical profession and the general public of Great Britain are commencing to recognize this fact, and it will not be long till steps are taken to remedy existing conditions."

We in Canada are already fifteen years behind, but in that fifteen years other nations have done the pioneer work, and it is only left for us to step into the procession and press rapidly to the front, but we must do it now. From the statistics I have already quoted, of Rochester especially, a neighboring city, with conditions identical with our own, what they have saved by securing a pure milk supply we are justified in saying we can save; and from the statistics of this city for the past ten years impure and disease-laden milk has cost the Dominion of Canada in the past year 15,000 lives under five years of age, to say nothing of the thousands that have survived but have been crippled more or less in the contest and the thousands of adults that have had the various transmissible diseases communicated by milk, and the numerous invalids, with whom milk constitutes the main article of diet, at a time when their vitality is low and their powers of resistance weak. In how many of these may not contaminated milk have turned the tide to a fatal issue?

The national importance of this problem is too apparent to necessitate any further comment or justify any further delay.

The solution of the problem is a simple one—Education and Legislation. The education must come largely from the medical profession. The best results have been accomplished through milk commissions acting in conjunction with the various health authorities in educating the dairy authorities and all producers of milk as to the precautions necessary to be taken in order to produce clean milk, and the consumer of the dangers of contaminated milk. The demand will create the supply. However, until we can secure an absolutely pure milk supply our only safeguard lies in proper Pasteurizing and proper refrigerating.

Children that could not digest modified poisoned milk or germ-laden milk will, in the vast majority of cases, be found capable of digesting modified pure milk. But we must secure such legislation as will warrant the necessary steps being taken by the various health authorities that will bring to a successful issue this all-important life-saving problem. We must have a co-operation of federal, local and municipal legislation, and thereby secure complete control of our milk supply, with rigid medical and veterinary inspection, including tuberculin tests of all herds. What other national question could compare in importance with the safeguarding the lives and securing the best physical development of those in whose hands the destinies of the nation must be placed?

At the conclusion of the discussion on this subject, on recommendation of the joint sections on Public Health and Laboratory Workers, a Milk Commission was appointed by the Association, to be known as the Milk Commission of the Canadian Medical Association, with representatives from all parts of the Dominion.

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