

# MILK AS A FOOD.

## An Investigation Into What Constitutes Good Milk.

### ITS RELATIVE FOOD VALUE.

**Diseased Milk—The Discovery of Tyrotoxin as a Specific Poison—Bogus Milk Preservatives.**

The discussion of the milk supply of the city which has been going on in the columns of the Times has not been without interest for the thousands of consumers of the city, many of whom are probably mystified by the contradictory statements put forward by the parties to the controversy. Perhaps an examination into the milk question apart from the special case of our own supply will be useful in enlightening many upon some matters of importance to the public health.

**GOOD MILK.**  
Technically speaking there is no standard of quality of milk in Ontario. The law fixes no arbitrary scale of percentages to which the dairy product must conform, although a penalty is provided for adulteration or dilution. The reason for this apparent lack is to be found in the widely varying results of analytical tests of milk made under circumstances which left no room for doubt as to the honesty of the samples and the correctness of the tests. English tests have shown a range of qualities extending from 2.82 per cent. to 4.30 per cent. of fats in tests extending over a month, while the total solids ranged from 12.1 to 14.3. The United States average official tests, according to the American Public Health Association, show water, 87.5; casein and albumen, 3.5; fats, 3.5; milk sugar, 4.8; ash, 0.7. The average result of analyses of colostrum (the fluid which the cow yields directly after calving) shows water, 73.07; albumen and casein, 19.21; fats, 3.54; milk sugar, 3.00; ash, 1.18. Milk is to be judged as well by the quantity of solids as by the fats it contains in determining its food value. A fairly good milk and one rich in fats and inorganic salts should show water, 87.4; fats, 4.0; milk sugar and soluble salts, 5.0; casein and insoluble salts, 3.6. Milk of this quality is rich in fats and contains all the inorganic salts necessary to the body, especially the alkaline chlorides and calcium phosphates. A litmus test of fresh milk proves nothing as the reaction may be either acid or alkaline, and in many cases good milk gives both reactions, turning blue litmus red; and red litmus, blue.

**INFLUENCE OF FOOD ON MILK.**  
The dairyman should regard his cows as so many machines for the conversion of food into milk. He would not expect a machine to turn out a first-class finished product from poor material; he should not look for more from his cows. They should have kind treatment, generous food, pure water and comfortable quarters. The sanitary conditions should be carefully guarded. Insufficient food or deficiency in quantity means poor milk and little of it. Slop food means poor milk even though the quantity be large. Foul water and improper food, badly ventilated stables, filthy quarters, all show their effects on the milk. Milk has been spoiled for cheese-making by the scent of a dead calf which lay unburied in the field adjoining that in which the cows fed.

**MILKING AND HANDLING.**  
The cow must be kindly treated and gently handled. The natural process of transforming food into milk is not completed until the fluid is expelled from the udder, and any improper treatment of a cow will not fail in having an effect upon the milk. The cow must be in a quiet mood. The milk taken from an animal which has been chased into the barnyard by the dog and milked in a quiver of nervous excitement, probably beaten or kicked to make her "let down," is unfit for food. The milking place should be clean and airy and free from bad odors. Care should be taken to see that the cow's udder and case have been washed thoroughly and dried away. The hands of the milker should be washed in hot water before he begins his work and no dish should be used which has not been thoroughly scalded with water heated to boiling. As soon as the milking is over the milk should be placed in an airy room and cooled. Under no circumstances should it be sealed up in cans or bottles while above 60° Fahrenheit. It should not be loaded into a can for the route until the cooling has been effected. In view of recent demonstrations of science it is a question whether Government should not make the sealing up of newly-drawn milk a crime against the public safety to which a severe penalty should attach. But this will be referred to later. Wherever the milk is placed let the air be pure, the surroundings scrupulously clean, the pans well scalded, use smooth tin or well-glazed earthenware (never use porous dishes) vessels and keep the temperature low. Never use zinc, copper or brass vessels for milk, as the chemical processes always going on act detrimentally upon these metals rendering the milk poisonous.

**CONTAMINATED AND DISEASED MILK.**  
Never allow milk to stand exposed in a living or sleeping room. Milk absorbs impurities readily, and the colder the milk the more rapidly the absorption of foul odors goes on. Milk that has been exposed in a sick room should never be drunk by any person. Nothing more readily takes up specific germs or is so well adapted to spreading disease. Our Health Act wisely prohibits the sale of milk from premises upon which infectious diseases exist.

Unfortunately disease may exist in the dairy cow, even to an extent destructive to the health of those who drink her milk, without the knowledge of the proprietor; and indeed in some cases it may only be discoverable upon dissection. There is as present a growing opinion among investigators in that field of scientific research that to the milk of unhealthy cows the modern scourge consumption is traceable. However that may be, it has been simply demonstrated that the milk of a cow suffering from disease of any kind is unfit for food. The milk of cows suffering from simple inflammation of the udder has produced inflammation of the stomach in infants. As soon as a cow shows symptoms of sickness of any kind, the milk should

not be used. Unfortunately it is impossible to detect all cases from the cow's appearance until the unhealthy milk has been drawn for food. Sometimes the first intimation of anything abnormal is given by the appearance of the milk itself. Milk which looks "ropy," and which sours in a few hours, should be eschewed. The animal has been over-driven or worried or suffers from udder disease or indigestion affecting the nerve centres. Milk whose cream "blisters" and has a bitter taste; "slimy" milk, and milk which becomes covered with a blue-colored scum of micro-organisms should not be used as food. No matter how rich in fat or how high in percentage of total solids the milk may be, the knowledge that it comes from a sickly cow should condemn it. Even boiling, useful in some cases, should not be relied on.

**SPECIFIC POISONS IN MILK.**  
Toxicologists have but recently turned their attention to the study of lactic poisons, and the field is found to be one of special difficulty. The lay reader will probably be able to recall cases in which mysterious instances of poisoning by ice-cream and poisoning by cheese have been reported. In some instances considerable numbers simultaneously developed symptoms of poisoning. The rapidity with which decomposition progressed and the absence of appropriate analytical formulae for the discovery of the toxic constituent, even when a part of the supposed poisonous food was obtainable, baffled for a time the efforts of investigators and often the soda water fountain suffered vicariously. Science, however, is not always baffled, and repeated failures never occlude her followers in the belief that a problem has no solution; only that the particular experiments have not been conducted on the right theory, or have been inefficiently made. They persevered, and they have in a measure succeeded in throwing light upon some hitherto mysterious poisonings. Our food swarms with bacilli many of them defying the most powerful microscopes which science produces in her endeavors to define them. These bacilli are not always productive of disagreeable changes, but there is sometimes a remaining alkaloid or ptomaine as the result of their work, which is a source of danger to health. This ptomaine is formed from the food product by the exercise of the organism's life functions, and contains whatever may remain of the bacteria itself. The *Bacterium aceti* (or *lactis*), which converts milk or sugar into lactic acid, and the *Bacillus subtilis*, which brings about the production of butyric acid, are in effect but innocuous. But there is a third fermentator, *Bacterium coli*, which declines to feed on milk sugar alone, but thrives on it when white of egg is added, developing lactic, formic and acetic acids, and whose presence may account for some of the mysterious ice cream poisonings of the past. It has also been discovered that a germ is sometimes found in milk which produces a disease similar to anthrax.

In 1883-4 the Michigan Health Board reported 300 cases of cheese poisoning, which, although not fatal, were in some instances sufficiently serious. Samples of the cheese were secured. A dog was offered a piece, among some other samples, and rejected it, eating the non-poisonous pieces. Prof. Vaughan after elaborate analyses, fixed the poison in alcoholic extract as a fatty acid, but on resolving it to an aqueous solution for evaporation study to fix it in crystals, as tyrotoxin. In 1886 a Long Branch poisoning was investigated and tyrotoxin fixed as the cause. In three fatal cases at Milan, Mich., the poison's presence was traced to decaying vegetable matter in the milk cellar. In the other cases mentioned and in many which space forbids reference to, the canning up of the milk while hot led to the development of the poison. No milk should be canned up before it has been ventilated in a free, pure atmosphere, and cooled to below 60°; and it should never be exposed to contamination of decaying or foul vegetable or animal matter.

**HOW CHILDREN ARE KILLED.**  
The specific action of tyrotoxin upon children has been proven experimentally to be similar to, if not identical with, that of cholera infantum. The post mortem condition of children dying of this disease is said by Prof. Vaughan to agree exactly with that caused by tyrotoxin poisoning. In view of the fact, then, that thousands of children die of this disease annually, and the other fact that thousands (and among them those in whom the death rate from cholera infantum is the highest) are fed on cow's milk, much of which is put up in bottles or cans at the dairies, is not the professor's statement startlingly suggestive? Dr. Booker, Baltimore, reports that twenty-three varieties of bacteria were found in the intestines of infants suffering from what had been supposed to be "summer complaint."

**MILK "PRESERVATIVES."**  
There is no milk preservative. People who add bicarbonate of soda, salicylic acid, and other salts to milk with a view to preventing decomposition should be aware that the micro-organisms work on just the same. True, the bicarbonate of soda neutralizes the acid, but the breaking down of the constituents goes on, while a product dangerous to health—particularly to the health of children—lactate of soda, is formed by the chemical reaction. There is no safe milk preservative save pure air and a low temperature.

To recapitulate: Good milk is the product of healthy, well-fed cows, cleanly stabled. It must be drawn from a cow while she is in a quiet mood; the udder, teats, milker and vessels must be clean. The milk must then be placed in a clean, well-aired, cool place for ventilation and cooling, and under no circumstances must it be bottled while warm. It must never be exposed to a bad atmosphere, or allowed to stand in a sick room or living room. Should it have been exposed to contamination of any kind it should not be used as food.

**MASQUETTE.**  
One of the anomalies of modern civilization is the man who persists in shutting the office door in summer and leaving it ajar in winter.

A girl has been hugged to death at Salem, Ohio. It may be an easy death to die, but it looks like a wasteful use of material.

# NORTHWEST NOTES.

It has been decided not to hold an inquest into the case of Henry Kern, an aged Swiss, who committed suicide in this city last night.

E. J. Chapman, one of the contractors of the old Souris & Rocky Mountain Railroad, which was gobbled up by the Great Northwest Central, has commenced suit against McDonald & Preston, contractors for the latter road, claiming that a large balance is due him for grading done on the Souris & Rocky Mountain Road in 1885.

The contract or grading thirty miles of the Manitoba & Southwestern Railway, which will run from Winnipeg to the international boundary in a southeasterly direction, has been awarded to Sinclair & Flanagan. It is said that the Grand Trunk is one of the companies with which the Southwestern Company will connect at the boundary. The company say they mean business.

It is estimated that the Government will have at least a majority of nine or ten, and probably thirteen or fourteen, in the Legislature when it introduces its proposed legislation respecting dual languages and separate schools.

Mr. McGaw, proprietor of the Queen's Hotel, Toronto, is in town.

A petition is in circulation among the municipal councils asking the Dominion Government to provide national schools for Manitoba.

Attorney-General Martin has been heard from at Victoria, where he is examining the educational system of British Columbia. He is expected back within a week.

Lord Stanley and party left Lethbridge today for the Blood Reserve and McLeod. Archbishop Tache, who is in Ottawa, nominally attending important papal ceremonies there, is believed to have undertaken the trip in connection with the projected Manitoba school legislation.

A deputation of St. Peter's Indians have left for Ottawa in charge of Mr. Jones, Anglican missionary. They will probably extend their trip to England.

Manitoba and the Northwest are enjoying Indian summer. The weather at the present time is simply delightful. The vice-regal party could not have selected a more favorable time in which to make their trip.

The election contest for Kildonan, the seat held by the late Mr. Norquay, is now in full blast. Mr. Alexander Taylor announces himself as the Conservative candidate and endorses the Norquay platform. Mr. John Gunn is out in the Liberal interest. The name of Mr. Hugh Sutherland has also been mentioned as that of a possible candidate.

The Town Hall, Montcalm municipality, has been destroyed by fire. It is believed to have been of an incendiary origin.

The friends of Mr. W. D. Smith, Portage la Prairie, are becoming very uneasy about his continued absence from home. He went to Duluth about three weeks ago with the intention of disposing of a quantity of wheat and returning in a few days. As it was generally expected he would bring home a large sum of money from the sale of his wheat, it is feared that he may be the victim of foul play. His landed interests in the town are large and valuable.

L. A. Hamilton, C. P. R. Land Commissioner, says the company's lands are pretty well sold out in the Glenboro, Holland and Trebrone districts.

E. M. Gastiff's general store at Letellier, together with all his stock and book accounts, was burned the night before last. No insurance.

Mr. Burgess, Deputy Minister of the Interior, who is here, on being asked as to the condition of the Halfbreeds around St. Laurent, Prince Albert and other points, said it was not very encouraging.

The price of wheat has fallen somewhat throughout the Province and 60 cents per bushel is the average price now being paid. A good deal of wheat is being shipped over the Northern Pacific to Duluth.

Transatlantic immigration to Manitoba and the Northwest so far this year has only amounted to about 1,200 souls, exclusive of Britisheers, and is made up of 703 Germans, 197 Belgians and French and 300 Scandinavians.

Work on the Manitoba & Southwestern Railway has actually begun. The road is staked and ready for the graders to within a mile of St. Anne. Thirty teams with the necessary grading implements are engaged on the road. Grading was begun this morning at a point just east of the Provincial Exhibition buildings, and will be continued until the advent of cold weather.

The Manitoba Gazette contains notice of application for the incorporation of the Western Lumber Company, with head-quarters in Winnipeg, and a nominal capital of \$50,000. The applicants are Messrs. W. B. Search, M.P., W. E. Macara and A. Burrows, Winnipeg; A. Shields and John Montgomery, of Toronto.

The Northwest Council will meet tomorrow.

A shooting accident took place at the Bernardo Home. The boys were out playing soldiers, one boy was drilling the other, and gave fire, with the result that he shot his playmate, the bullet passing just an inch above the heart and through the lung. The boy now lies in the hospital at the Home and may probably recover.

James McKee, engineer, and Jas. Miller, section foreman, were badly injured by the explosion of a boiler in the engine house at the C. P. R. station at Regina.

James Ross, contractor for the Regina & Long Lake Railway, is in the city. He says 120 miles of road have been graded and work will be pushed on as vigorously as possible until the frost sets in. It is not the intention of the company to stop the work at Saskatoon this fall, as has been stated, unless the weather prevents them from proceeding further. There are 1,300 horses and mules and nearly 1,000 men employed in connection with the construction of the road.

McLaughlin, the prisoner who escaped with a fellow convict named Lamb from Negamoo, Huron County, Michigan, some months ago, was arrested here by the city police this afternoon. Sheriff McCarty, of Huron County, who was in pursuit of the prisoner, had given up the search and returned home.

In the Northwest Legislature yesterday, the Standing Committee for the session were appointed. Mr. Neff, of Moosomin, criticised the Governor's speech as being a very fine literary effort, but containing not a word about prospective legislation. Mr.

Haultain said the Advisory Board had nothing to do with the speech. After adjournment Justice McLeod made a proposal that the Assembly adjourn for a few days and take in the ball at Banff. After a great deal of good-humored banter it was decided to go.

A despatch from Spokane Falls, Washington Territory, says W. H. McDougall, a well-known newspaper man, nephew of Horace McDougall, of this city, is dying. McDougall was at one time connected with newspapers here. He also started the Vancouver News-Advertiser.

Large consignments of American oats have been received from St. Paul. Local dealers say that the cereal can be brought from that point and sold here cheaper than oats purchased at Forage la Prairie.

John Charlton, M.P., has written Premier Greenway that he will be in Winnipeg on Nov. 8th.

The Northwest Assembly opened today. The Separate school and dual language question will come up for discussion.

Separate Schools and the French language must go—at least so say nearly all Northwest legislators. Messrs. Cayley, Richardson and Neff have already given notice of motions on these two questions.

Twelve carloads of cattle from the Cochrane ranch passed through the city to the east yesterday.

At a meeting of the Winnipeg Presbytery the call from Fort William Congregation to Rev. Mr. Simpson, of Toronto Presbytery, was sustained.

Mr. G. W. Yarker, General Manager of the Federal Bank, leaves for Toronto tomorrow, after a week's stay in Winnipeg. During his stay here he sold about \$18,000 worth of property for the bank, and also wound up the business here.

The Winnipeg delegates to Ottawa are the improvement of Red River navigation and to the meeting of the flour and grain examiners left for Ottawa today. The cost of the necessary improvements to the river is placed at \$800,000.

Henry Short, a railway employee at Rat Portage, was killed by falling beneath the wheels of a moving train, from which he had jumped.

## The People's Foot Dead.

An exchange says: At a ripe old age, after years of the most secluded retirement, Eliza Cook has passed away. She was the people's poet, the "woodland robin," whose songs were sung for the masses. She was not peculiarly a temperance poet, yet her lays contain some beautiful thoughts on this theme:

Traverse the desert, and then ye can tell,  
What treasures exist in the cold, deep well.  
And the picture of Melanin, in his fearful flight,  
Writing by "maddening thirst," conjuring up "dissempered visions," how true to nature!

I saw the crystal fountain play  
In leaping sheets of snowy spray;  
I heard the undulating wave  
Of the swift river gush and lave;  
I heard the dashing waterfall—  
Oh! it was cruel mockery all!

How like to this description are the words of one who recounts his night's experiences on the battle-field after the fearful carnage of Gettysburg: "From the wounded and the dying arose one ceaseless, far-reaching hum of groans, amid which but one word was audible. Dying men reached out wounded arms, tore up the dewy grass that they might suck the moisture. I noted that no man called for beer or brandy then. But one cry burst from gory lips—it was nature's cry for 'Water!'"

Into the silly error of shallow minds—an error which mistakes as "natural" the habit-born appetite for alcohol—Eliza Cook never fell. Her moralizing, however, is not always so correct as her knowledge of nature, for, though she can sing, in her "Song of the Goblet," of liquor imbibers that—

The swine in the dust, or the wolf on its prey  
Gave less of sheer disgust than they.  
—yet she could regard the goblet as that which "can cheer or kill." We need no poet to show us the latter, and it would take quite a number of them to convince us of the former. But Eliza Cook gave the world beautiful, pure thoughts; and her words were words of freedom. She sang for the masses, and, by her death, the people will be moved to turn again to her living words. As she herself sang, so we—  
Mourn not for the dead—'tis they alone  
Who are the peaceful and the free.

## An Ingentious Trick.

One of the puzzling tricks performed by so-called public mind-readers or clairvoyants is an extremely simple deception. The performer standing on the stage asks several persons in the audience to write each a sentence on a slip of paper and seal it in an envelope. Of course the stationery is furnished and afterward collected. One of the audience is a confederate and writes a sentence agreed upon beforehand. When the assistant goes through the house gathering up the envelopes the confederate's contribution is carefully put where it will be the last one of the lot to be taken up.

The performer picks out an envelope and after feeling of it with much ceremony pronounces the sentence agreed upon, and the confederate in the audience acknowledges that he wrote it. To confirm this the performer tears open the envelope and repeats the sentence as though he found it on the inclosed paper, which is in reality another man's sentence, which he reads, and then, picking up another envelope and fumbling it over, he calls out the sentence he has just read. The one who wrote it says it is right, the performer tears open the envelope, reads what is in it, and proceeds in that way through the lot.—New York Star.

## Was a good Boy.

Mother—Did you break any of the rules to day, Tommy?  
Tommy (first day at school)—No'm; I was a good boy. Teacher broke two, though; one on little Harry Fletcher and another on me.—Time.

## A Difference in Degree.

"There was a regular cyclone up at our house this morning. Pop was mad as a hatter."  
"Well," said Johnny, ruefully, "we had a disturbance at our house, too. It wasn't a cyclone, though—sort of a spanking breeze."

—Letter carriers ought to make the best elocutionists; they have such good ideas of delivery.

## Would I Were a Widow.

Young maids, you know, are voted slow,  
And set aside completely,  
While sprightly dames assert their claims  
And smile on men too sweetly.  
Who cares for youth and beauty blended?  
This is the married woman's day;  
The "bud's" bright reign, alas, is ended,  
And only maids hold full sway.

The married belle is vased quite well  
In what we term flirtation;  
Her honeyed smiles and artless wiles  
Drive girls to desperation!  
No wall flower is she, nowadays,  
Nor treads the sober Lancers,  
But joins the waltzer's giddy maze,  
The merriest of the dancers!

A maid may be most fair to see,  
And robed in daintiest dress,  
Know how to talk and dance the York,  
Yet failure she confesses.  
She murmurs: "Would I were a widow,  
How delightful it would be:  
In widow's weeds there's many a bidder  
Would surely bid on me."

She sighs in vain, and it is plain,  
Can ne'er or have her desire,  
For how can she, last wedded be,  
To widowhood aspire?  
Her chances now are very small,  
Quite slim the prop of hope beneath her,  
For wiles and widows have it all,  
And she, poor thing, cannot be either.  
—Kate A. Carrington.

## Manufacture of Catsup.

One of the most wonderful manufactures of recent growth is that of catsup. A great number of factories have originated in the past ten years, and competing brands are as plentiful as those in any line of manufactured articles. Tomato catsup has conquered the world. In our younger days our mothers used to put up a supply about this time every year for winter use, and it was a condiment occasionally served at the table. Now it has taken its place with salt and pepper in daily use. Some people eat it three times a day, and many millions of gallons are required to supply the annual demand. This popularity of the catsup has made tomatoes as profitable a crop as wheat, and many farmers plant acres of vines every year just to supply the catsup factories. At 20 cents a bushel an acre of tomatoes is always profitable. The farmer simply fills his wagon bed with the ripe fruit and hauls the load to town. There is no waste, for the riper the fruit the better for the catsup, and the trade is always on the increase.

## A Mathematical Puzzle.

A furniture dealer has on hand at the beginning of the year furniture valued at \$4,935.55. He bought during the year \$7,428.40, and sold during the year \$8,420.90. Fire destroyed furniture costing \$1,049, and he recovered insurance \$625. His stock book at the close of the year showed furniture on hand \$5,620. What was his gain or loss?—Wade's Fibre and Fabric.

## Sweet Flowers.

The fairest buds are often the first to wither, and the ravages of disease make havoc with the beauty, as well as the strength and happiness of the fair sex. The prevalent disorders among American women are those of a most distressing description. These "weaknesses," as they are suggestively termed, insidiously sap the health, and the patient becomes pale and emaciated, the appetite grows fickle and feeble; she loses strength as the attacks increase in severity, and is in despair. There is relief for all such sufferers in Dr. Pierce's world-famous Favorite Prescription, which cures all "female complaints." Its use is followed by cessation of the "dragging-down" pains, return of appetite, and in due course, vigorous health.

## A Disagreeable Man.

"Are you still taking painting lessons, Mamie?"  
"No; I quit yesterday. I don't like my teacher."  
"Why not?"  
"He has such a disagreeable way of talking. He told me that if I keep on for some time longer I might be able to whitewash a fence."

## Effects of Climate.

We hear a great deal said about the beneficial effect upon invalids of the climate of Colorado and other western localities, but when a man changes his place of residence in the hope of improving his health without first trying Dr. Pierce's Golden Medical Discovery, he makes a great mistake. In nine cases out of ten he might save his time and money. This great remedy owes its power over all affections of the throat and lungs, bronchitis, asthma, catarrh and even consumption, which is lung scrofula, to the simple fact that it purifies and enriches the blood and invigorates the debilitated system. It is guaranteed to cure in all cases of disease for which it is recommended, or money paid for it will be refunded.

## The Proof Was Complete.

He—Do you know, Miss Brewster that I had made up my mind that you were from Boston? You have an almost perfect eastern accent.  
She—Yes, and when did you discover that I was from Chicago, may I ask?  
He—Just five minutes ago when you lifted your skirts out of the mud at the last crossing.

## No mortal yet has e'er forecast.

The moment that shall be his last,  
but Dr. Pierce's Pleasant Pellets have forever settled the question of a comfortable existence until that moment does arrive, and put to flight the melancholy forebodings of sufferers from biliousness, headache, indigestion, constipation, and kindred ailments.

Stranger—What in connection with bicycle riding strikes you most forcibly?  
Bicycle Rider—The road.

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