

teriological Contamination of Milk. Milk, he said, is a very favorable medium for the growth and multiplication of bacteria. If it were not for the latter it would keep sweet indefinitely. When sterilized and kept closed from air it does keep sweet indefinitely. A low temperature also helps to check the growth of bacteria.

The bacteria which work in milk are not, however, all harmful. Among them is the lactic-acid bacillus, which the dairyman requires to give a good flavor and odor to butter. Without it milk would not coagulate. Upon the other hand, there are other species which produce changes of a more or less putrefactive nature. Again, the bacteria of diseases in cows may get into milk.

Among sources of contamination he mentioned: (1) Bacteria from the cow, which may amount to from 20,000 to 100,000 in the first few drops. For this reason the first few drawings should be milked into a separate vessel and discarded. (2) Hairs from the cow, bits of manure and straw, all of which are simply teeming with bacteria. Most of this dirt can be kept out by wiping the udder and flanks with a damp cloth. . . . The milker should have clean clothes and hands, and both animal and milker should be free from disease. The air in the stable should be pure, and bedding or feed should not be thrown to the animals while milking is in progress. This should be given after milking, or at least one hour before. In specimens of milk examined from 12,000 to 43,000 bacteria had been found in that milked while feed was being given to the cows, while only from 500 to 2,000 were found when the feeding was done a sufficient time before.

Milk utensils should be washed properly, then well scalded. After scalding they should not be wiped, as bacteria might be communicated from the dish-cloth. . . . When scalding, the water should not be poured from one can into another, but each can should be given its own supply of actually boiling water. . . . Precautions during milking: clean cow, clean milker, clean air, clean utensils, are not only advisable, but imperative.

Dr. MacMurchy, of Toronto, spoke on the "Dangers of Milk." The distressing rate of infant mortality, she considered, was mainly due to impure milk. She considered the answer of a physician to a mother who was disposed to wonder at the dealings of Providence a very sensible one: "Providence had nothing to do with your baby's death, it was dirty milk."

Contaminated milk was also, she said, a prolific source of the "white plague," tuberculosis. She had been called in Toronto to examine the carcass of a cow whose lungs and liver was literally studded with tubercles of tuberculosis, and yet that cow had been giving milk for families the week it was killed,—had not even been suspected of being tuberculous before. We could stamp out tuberculosis here if we went the right way about it, as well as in Denmark, where the Government has arranged that every cow suspected should be slaughtered. This had not been the cause of as much pecuniary loss as appeared evident, because it had been shown that the meat of cows only slightly affected was not harmed for food, the cooking disposing of the few germs present.

Tuberculosis in this country might be greatly prevented by open windows, perfect ventilation for cows, exercise for them in the open air, and good food. She recommended the use of the tuberculin test for cows, stating that the Dominion Government had promised to supply all the tubercle required to veterinary surgeons, free of charge. She thought Government inspectors for cows should be provided.

In addition to the precautions cited by previous speakers, she would recommend whitewashed cow stables, and cheese-cloth covers for the top of the pail, also the immediate cooling of milk to 40 degrees Fahr.

Tuberculosis had, by recent investigation, been proved to go to the lungs by way of the stomach and intestines. It may not develop before eighteen or twenty years. We should see to it that it does not enter our systems through the milk supply.

Mr. James Acton, of Toronto, agreed

with what Dr. MacMurchy had said in regard to the necessity of pure milk for children. When possible, mothers should nurse their children. Cow's milk, being too strong for the stomach of the child, should be diluted in the right proportion. Children are to-day appreciated more than ever before, and yet every year thousands of children die who might be saved by proper care.

FOOD VALUE OF MILK.

Professor Harcourt, of the O. A. C., closed the session by one of his statistically convincing talks on the food value of milk compared with the values of other foods. "If the true value of milk as a food," he said, "were more fully appreciated, it would be used much more freely." To be really valuable, even safe, it must be clean. Being one of the most favorable media for the growth of bacteria, it is particularly subject to contamination, and so must be given the best possible care.

Milk contains all the ingredients required to nourish the body; that is, it furnishes the materials which build up the body and keep it in repair (protein); also those which supply it with fuel to keep it warm, and energy to do its work (carbohydrates and fat).

The protein, fat, and carbohydrates may be oxidized or burned in the body, and the heat which they will produce is frequently used as a basis for comparison of foods. Unfortunately, this does not give us an entirely satisfactory basis for comparing the nutritive value of foods, for the protein is absolutely essential for the formation of flesh, and yet has a low fuel value. . . . Taking all things into consideration, however, possibly a statement of the amount of energy a food is capable of producing is the best basis upon which to compare the nutritive value of foods; and in order that we may have some measure for expressing the amount of heat a given substance is capable of producing, the "calorie" is taken as the unit. Roughly speaking, a calorie is the amount of heat required to raise the temperature of one pound of water 4 degrees Fahr.

It has been found that a man requires a certain amount of protein, fat, and carbohydrates in his daily food, and that these ingredients combined should furnish approximately a certain number of calories of heat. Any food which will furnish all the nutrients in the right proportion to supply the needs of the body in a digestible and palatable form, that is not too bulky, and at a moderate cost, is a complete food. Milk is frequently spoken of as a complete food. It is to the infant, but for the adult it does not contain enough carbohydrates, and is too bulky. Wheat bread more nearly fulfils the requirements, but it is a little deficient in protein. Possibly oatmeal comes the nearest to being a complete food for the adult.

A varied diet is, of course, necessary, but we should know which of our common foods furnish the most protein, fat, and carbohydrates for the least money. The following table will give some idea of food values. It will also be seen that certain combinations of food are very valuable for nutrition and energy, e.g., milk combined with bread forms a very valuable food; to use butter with bread is also reasonable; while rolled oats and cream form one of the very best dietaries. Considering its food value, we could afford to pay much more for milk than we do. It is, in fact (in combinations), one of the very cheapest foods for daily use:

	Price.	Refuse.	Protein.	Fat.	Carbo- hydrates.	Fuel value in calories.
Milk	6c. qt.	—	1.38	1.69	2.21	13.80
Milk	8c. qt.	—	1.04	1.27	1.66	10.402
Skimmed milk	10c. gal.	—	3.40	0.30	5.10	17.070
Buttermilk	10c. gal.	—	3.00	0.50	4.80	17.362
Butter	25c. lb.	—	0.04	3.40	—	14.422
Cheese	17c. lb.	—	1.63	2.16	0.24	12.593
Beef, front quarter	6c. lb.	18.7	2.41	2.91	—	16.762
Beef, hind quarter	8c. lb.	15.7	2.12	2.37	—	13.944
Beef, sirloin	18c. lb.	12.8	0.92	0.90	—	5.509
Veal cutlets	15c. lb.	3.4	1.34	0.50	—	4.612
Mutton chops	16c. lb.	16.0	0.84	1.80	—	9.158
Lamb, hind quarter	18c. lb.	15.7	0.92	0.90	—	5.509
Ham, smoked	18c. lb.	13.6	0.79	1.85	—	9.276
Ham, cooked	30c. lb.	—	0.67	0.75	—	4.405
Eggs	25c. doz.	11.2	0.71	0.56	—	3.853
White bread, 24 lbs.	10c.	—	2.16	0.50	12.2	28.710
Rollod oats, 7 lbs.	25c.	—	3.50	1.90	20.0	51.730
Farinas, 6 lbs.	25c.	—	2.30	0.24	18.7	40.070
Potatoes	90c. bag	20.0	2.18	0.10	15.6	33.492

In concluding, may we pause to congratulate the ladies on the marked improvement as regards ability to speak, which was evident throughout the convention. One after another the delegates (we do not refer at all to the professional speakers) got up as though they had something to say; and invariably they said it, calmly, logically, without wasting words, without the slightest indication of mere "showing off," or talking for talk's sake. The Women's Institute, in short, seems to have gripped the fact that it has a work to do, and come to the determination that it will do it.

Upon one or two other points, however, the convention was open to criticism,—first in the lack of precautions to ensure ventilation. As a man who came in near the end of one of the sessions remarked, the air was "thick enough to cut with a knife" most of the time. It is to be hoped that next year the windows may be kept open an inch or so at the top.

Again, much annoyance must have been given to some of the speakers on the last afternoon, by the continual trooping out of women—in the very middle of some of the addresses—to catch trains. Now, this does not seem exactly kind. It might be misinterpreted. Indeed, I heard one of the speakers—a very interesting speaker, too—remark after the convention that he noticed he had made a very "moving" speech. . . . Next year, ladies, please be so good as to leave, if you have to, between the addresses, and if a clock is not provided in full view to enable you to be easy about the time, clamor for one; it will be given you if you ask for it.

D. D.

Re Held-over Letters.

Several letters are, of necessity, held over again. Now that the convention report is off the tapis, we shall be able to attend to these next week.

Current Events.

Thirty families of Hebrews have been ordered to leave Finland.

Plans are being made to hold a great Centennial Fair at Winnipeg in 1912.

The Grand Trunk Pacific Elevator Company has been incorporated, with a capital of \$1,000,000.

An antitoxin against hog cholera has been discovered by experimenters at the Missouri Agricultural College.

The Social Democrats left the Duma in a body recently because of the suspension of two of their members.

A blizzard which seriously blocked traffic for a time swept over the British Isles and Western Europe last week.

Tom Longboat, the noted Onondaga runner, was married Dec. 28th to Miss Lauretta Maracle, of the Deseronto Reserve.

It is estimated that 4,000,000 Christmas trees were used in the United States for the Christmas that has just passed.

The Canadian Northern Railway Company has given notice of application to Parliament for the construction of a number of new branch lines in Northern Ontario.

A sea-fight has occurred off the coast of Venezuela between adherents of the former President Castro and the crew of a gunboat working in the interests of the new President, Gomez. About twenty were killed and fifty wounded.

The British steamer Tai On was captured recently by two Chinese cruisers. The reason for the capture is believed to lie in the fact that the steamer some time ago ran down a junk and drowned a theatrical company on board.

A conference, looking toward the conservation of the natural resources of all North America, to be held at the White House, on Feb. 18th, has been proposed by President Roosevelt, who addressed letters in regard to the subject to Earl Grey, Sir Wilfrid Laurier, and President Diaz, of Mexico. Canada has agreed to the proposal, and will send representatives.

Owing to disquieting criticisms in regard to bringing the Panama Canal to a successful completion, Mr. Taft will proceed to the Isthmus to make a personal investigation at an early date. Much dissatisfaction is expressed at the under-estimation of the total cost, which was at first placed at \$145,000,000, but which is now estimated by engineering experts at a minimum of \$550,000,000.

It is now known that considerably over 300,000 lives were lost in the terrific earthquake which occurred last week in Southern Italy and Sicily. Notwithstanding the fact that enormous sums of money were immediately sent, the King of Italy himself subscribing \$400,000, and the Pope \$200,000, the sufferings of the people have been intense. British, French and Russian ships have done good service in carrying refugees and injured away, but the course of the Straits of Messina has been so altered and deflected that navigation has become exceedingly dangerous. There are indications to show that the vicinity of Mount Etna was the center of the disturbance. Mount Etna itself is quiet, but Stromboli is in violent eruption.

Not Atheists Now.

At one of the posts of the British army where a number of recruits were temporarily stationed, an old sergeant was ordered to ascertain to what religious sect each man belonged, and to see that he joined the party told off for that particular form of worship.

Some of the men had no liking for church, and declared themselves to be atheists. But the sergeant was a Scotsman and a man of experience. "Ah, weel," said he, "then ye hae no need to keep holy the Sabbath, and the stables hae na been claned out lately."

And he ordered them to clean out the stables. This occupied practically the whole day, and the men lost their usual Sunday afternoon's leave.

Next Sunday a broad smile crept over the face of the sergeant when he heard that the atheists had joined the Church of England.

"Dolan," said Mr. Rafferty, as he looked up at the city post office, "what does them letters 'MDCCC-XCVII' mean?"

"They mean eighteen hundred and ninety-seven."

"Dolan," came the query after a thoughtful pause, "don't yez think they're overdooin' this spellin' reform a bit?"—[Woman's Journal.