

THE CARE REQUIRED TO PRESERVE MILK AND CREAM

It is a common impression that milk and cream require little or no care in winter. This is a mistaken idea. While the atmospheric conditions outside are very favorable in cold weather, we need to remember that at this time of year the cows and milk are subjected to inside conditions which are unfavorable for good results in the quality of milk or cream produced in the winter dairy. Lack of cleanliness in the stable, air vitiated with the breath and excretions of the animal, lack of hot water for proper cleansing of the dairy utensils—all these make it imperative that care shall be exercised in the handling of the milk and cream at a time when the unthinking person may consider it wholly unnecessary to cool milk or cream, or take any precautions to prevent contamination.

To all who are producing dairy products in winter we would like to say:

1. The air in the stable is laden with bacteria (small plants) which when they drop into the warm milk multiply very rapidly. One bacterium becomes a million in a very short time when conditions are favorable for their multiplication, and we have these in milk. However, it is not so much the number of bacteria in milk that we need to fear as the kind. Many of these are helpful to mankind and it is important that we should be able to distinguish the harmful from the helpful. In practice, however, we assume that all bacteria are harmful and treat the milk or cream accordingly. As bacterial diseases are better able to distinguish the good from the bad and thus in a better position to care for milk and cream in winter, the best agents for controlling bacteria, that we know of at present, are heat and cold. These two apparently so different phenomena—heat is the absence of cold; cold is the absence of heat.

If milk or cream be reasonably free from bacteria when fresh, all we have to do is to cool the product to a temperature of 50 deg. F., or below, thus making an unfavorable condition for the development of bacteria, and if we maintain the product at this comparatively low temperature, we shall have good milk and cream under ordinary conditions. On the other hand, if the raw material be laden with bacteria, the remedy is to pasteurize, by which we understand the heating of milk or cream to a temperature of at least 150 deg. F. for a shorter time, after which the heated product is immediately cooled to 50 deg. F., when we have a product free from germ life, and which will keep for an indefinite length of time if not exposed to the air.

In ordinary farm practice, however, pasteurization is not followed—the product is simply cooled. This leads to the second point, we should emphasize.

2. Air is not so good a medium for cooling as water.
- Many persons think that in cold weather all that is to be done is to set the pail or can of milk in a cold air and it will cool satisfactorily. This is not the case, because air is a non-conductor of heat. We make use of this principle when building a cold storage—we use air spaces in the wall to prevent warm air entering the building, or to prevent the cold air passing to the outside.
- A can or pail of warm milk or cream, set in the air to cool, gives off its heat very slowly, hence the bacteria present multiply very rapidly while the slow cooling is taking place. Substances cool by giving off their heat, or to express it more scientifically, they cool by having their heat rendered latent. It is for this reason that cold water is a better cooling medium than is cold air. The heat in the milk passes into water much more quickly than into air—both at the same temperature.

Another advantage of cooling milk or cream in water is that they are not frozen, so long as the cans are protected from cold air. Milk cannot freeze in water, but may become frozen solid in air. The reason that milk cannot freeze in water is, that water is never lower in temperature than 32 deg. F.—so soon as it is cooled below 32 deg. F., it is no longer water, but ice.

Some difference of opinion exists as to the effects of freezing upon milk and cream. Some authorities claim that frost is very injurious to both, but in our own experience we have not noticed any very unfavorable effects of freezing upon milk for direct consumption or for cheese and butter-making. Neither have we observed any bad results from frozen cream used in the manufacture of butter. The chief difficulty is in weighing and sampling, and the labor involved in getting the frozen material out of the cans.

We should advise not allowing the milk or cream to freeze, but we do not think any serious harm will result if these products are frozen, which can scarcely be prevented at times in our cold climate.

3. Where cream is produced for direct consumption or for the manufacture of butter, the following points should receive careful attention:
1. Cream the milk preferably with a centrifuge or what is commonly called a cream separator. Good cream can be produced by settling milk in cans and pans, but the danger of contamination by allowing milk to set 24 to 36 hours for the cream to rise, is so great that a farmer with 5 to 10 cows or more, and in some cases less, can scarcely afford to be without a separator. There are several reliable manufacturers of these machines, and the purchaser runs little risk in buying from a reliable firm.

2. Set the separator on a firm foundation of floor, preferably in a room near the cow stable, but separate from it. This room should have

a cement floor, be lined with building paper and matched lumber, be kept clean and used for nothing but milk and cream. In this room should be located the water-box for cooling milk or cream, and the ice-house should be near by for summer cooling. The room should be light, well ventilated and so constructed that dust from the barn and stable cannot get into the room to injure the bearings of the machine or seed the milk and cream with bacteria.

3. Unless a steam boiler, or other means for producing hot water, be convenient, it will be most satisfactory to separate the cream twice a day, while the milk is fresh and warm, as this is the most favorable time for complete separation of the cream from the skim-milk. The machine should be washed after each time of using, where a large quantity of milk is separated as the separator "slime" or "mud," tends to clog the machine, preventing "close separation." The effect upon the cream is detrimental where the separator is not properly cleaned.

4. Cool each lot of cream immediately after separating and before mixing with the cream from previous separations. Warm cream placed in old cream starts undesirable fermentations which give a bad flavor to the whole lot.
5. Ship to the manufacturer, dealer or consumer as often as possible, bearing in mind the fact that the longer cream is kept, the less likely is the consumer to be pleased, and consequently the less likely, willing to pay an extra price for your goods.

We should like to impress upon readers the fact that milk and cream require care in winter.

2,062,200 MICROBES.

TORONTO, April 14.—Talk about over-crowding. On a Canadian dollar bill, which a local newspaper submitted to Dr. A. R. Pyne, provincial analyst, the doctor found 2,062,200 microbes. The bill has been much handled. That huge number was made up of 243,290 bacteria, 454,400 non-liquifiers and 1,377,600 moulds. Liquifiers, the doctor explained, can make gelatine melt. They used to be regarded as disease-producing, but they are not now regarded as necessarily so. The moulds are such infectious little microbes as produce the mould on bread.

The doctor also examined a twenty-five cent piece, a five cent piece and a copper. All were made several years back and all looked dirty, but the quarter showed no microbes, and the other coins showed only three each. Apparently that dollar bill was "filthy lucre," Dr. Pyne said that some of the microbes might be harmful, but he declined to hazard an opinion as to the disease the microbes represent.

"Metal is not a good thing to adhere to and I think that is the chief reason why there were so few microbes on the coins," said the doctor. "No, I don't think that the fact of the coins being colder than the bill has anything to do with the difference in the number of microbes." "Children shouldn't handle money, especially paper money," he said. "They put money in their mouths and in that way disease is spread." "Coppers freshly taken from a child having scarlet fever are liable to give the fever to other children. I believe that in many fever cases the origin of which we can't trace are caused in this way."

WHAT THE GOVERNORS SAW AT HEWSON MILLS

(Continued From Page One.)



His Honor Lieutenant Governor Fraser of Nova Scotia.

The Governors were next taken up to the Spinning Room where over 3,000 whirling spindles turn with lightning speed. This room has a capacity of 10,000 to 20,000 pounds of yarn per week. The yarn spun in one minute would make a single thread 12 miles long—over 700 miles an hour. This room is bright and airy and affords most comfortable quarters for the men and boys who do this interesting work.

Stepping on the elevator the notable party were conducted to the yarn room where they were much interested to find so many operations necessary in preparing the yarn for weaving. It is first wound on spools, then doubled and twisted (for Hewson's famous Banockburns) then re-spooled, wound on the warpers thence to the loom team where skilled females draw the threads, hundreds of them, through the delicate wire needles and reels on its way to the loom. In this room (53,200 feet) is the designing department in charge of an expert whose duty it is to bring out the latest styles and fabrics for ladies' and gentlemen's suitings. He and his staff of assistants are constantly engaged in this year-round, and many new handsome patterns are now under way. From this room the distinguished guest were taken to the weaving and finishing room (63,200). The process of weaving is familiar to most persons, but what strikes the visitor to Hewson Mill is the powerful new fast looms which heat up the yarn into solid firm cloth with such apparent ease, and it was easy for the Governors to understand why Hewson Tweeds wear so well. They are pure wool and woven up hard in the loom, the threads must be strong to stand the strain of weaving in that fashion.

With due apologies to His Excellency and the others for leading them such a long way, the party was next shown to the filling and scouring room where the goods are put through the shrinking and scouring process. A most rigid, careful treatment and inspection is given them here before they are taken up again to be further treated to drying, steaming, brushing, shearing, heading, mending, pressing, final inspection, measuring, rolling and weighing where they are ready to be received by the stock keeper.

His Majesty's representatives were thinking by this time they were about "through the mill" but were respectfully informed that they had only seen one section of the Hewson Mill. On being reminded of the knitting mill they thought it would never do to miss that as they had heard so much of the goods, so on they went to the knitting rooms. Here were new developments and sights of which they had never dreamed.

The marvellously delicate winding and knitting machines, the lightning-like speed of the seamers, the busy machines making buttonholes, sewing on buttons, two needle stitching, humming merrily along under the care of the bright faced happy girls in such clean light work rooms, all combined to make a picture of modern industrial life under ideal conditions which satisfied the Governors that wonderful progress had been made. His Excellency showed particular interest in the industry in regard to matters of growth, management, its relation to the tariff, etc., indicating a keen interest in learning all he could regarding the woolen business as carried on in Amherst. Before leaving the mills, His Excellency selected for his own use some of the finished products of the mills, while some of the other distinguished visitors were specially measured for underwear of certain fine lines which strongly appealed to their sense of quality and fine appearance.

ONLY ONE AMERICAN CITY.

(London Daily Mail.) In a new book about the United States lately published in Paris, the Abbe Felix Klein tells of a Parisian lady who asked quite seriously of an American visitor: "Do you live in New York or in the Country?"

A NEWSPAPER MAN TO STUDY CONDITIONS IN THE EAST

In order to study social and political conditions in the East of today, Hamilton Fyle is carrying out a prolonged journey in that country as special commissioner of the Daily Mail. Since his arrival in Egypt there have appeared in The Daily Mail his description of the Heliopolis aviation week and analysis of the situation with regard to the Suez Canal. Today we publish the first of the more general impressions of his survey. Other articles will appear at brief intervals.

At half-past five there is a peremptory tapping on my cabin door and the steward's voice says we are close to Port Said. I tumble up to the deck. It is still dark. We are steaming dead slow through the grey-green water. Ahead is a constellation of many colored lights. The air is warm and woolly, it was cold all the way from Marseilles until we got under the lee of Crete. Now we can feel the hot breath of Africa on our cheeks.

Half an hour later and we cast anchor. Instantly the boats which have been hovering round (like vultures waiting for some huge beast to drop) come clinging to the ship's side, with similar agility, scores of villainous-looking, petticoated Arabs clamber up by the ropes and swing themselves over the gunwale. They might be pirates boarding us to steal and prey. But they look like thieves. They are gentle creatures. Their intent is no more harmful than to carry ashore our baggage and sell us such things as no sane man could want to buy at six o'clock in the morning. Meantime we snatch a hurried breakfast in the half light.

Before we land the barges are ordered, and from the barges a crowd of blackened natives, clothed chiefly in cool dust, are rushing up planks and hauling fuel in. They work with the energy of men possessed. At night, lit up by flares, they flicker like demons in an inferno of hard labor. In the high morning they rest it even harder, though. The overseer's eye gleams craftily upon them. He can see exactly when there is a chance to speed them up.

An Impression of Port Said

Port Said is not the place one would choose for a honeymoon. Yet even its sailor has a well-to-do air. Its streets seem to say, "Don't think we are poor. We are dirty because we like it better." It has a very decent hotel or two, and when you get to the railway station you may well be surprised. Here order and cleanliness reign. Smart officials, dishing out severely businesslike in their European uniforms, point the way in a comfortable corridor train. After the usual squabble among a dozen Arabs, Sudanese, Syrians, and other picturesque bare-footed ruffians in blue or white shirts, who all claim to have carried four bags, we settle down for our four and a half hours' journey to Cairo, and the train starts punctually.

For an hour we run alongside the Suez Canal, through the desert sand. Recollect what Egypt really is—the midst of sand a fertile triangle with a fertile ribbon running up from its apex, won from the wilderness by the Nile water on its way to the Mediterranean. Here we are on the edge of the triangle. Across the canal the Arabian desert shimmers in the hot sun. Gradually on the other side of the line cultivation spreads, until at last we are running through a fat country that it does not seem the heart good to see. Year by year the fellahen, the peasants have found their labor yield them more and more increase. Under settled govern-

ment on western lines, instead of a system depending on the unchecked whims of incompetent wildly spendthrift rulers, the fellah knows where he is. He can make profits for himself not only for the tax gatherer. He exports vegetables to Europe. His cotton crop, vastly increased by economy of Nile water, is a source of great wealth to the land. He can harvest two or three crops a year of the same field. Never has the delta, the triangle, been more prosperous than it is today.

The Road to Cairo.

In the warm scented air we see Bible pictures all along the line. There is the sower. There are Rachel and Leah at the well, balancing their earthen pitchers on their well-set heads. There is Balaam riding on his ass, and there is David minding his flock of long-haired sheep. These wooden ploughs are the same as Abraham used, and very likely he yoked together a camel and a buffalo to trace his furrows as this farmer does near Abu-Hammad. Beside one plough squats a negro in white, with a tall turban in brilliant blue gown and scarlet turban standing motionless. They are taking a minute's rest. Along the roadway through the velvet green fields a herd of sheep, goats, kine, and donkeys is driven by a half dozen fat children in fluttering cotton shirts.

There is plenty of live stock in evidence. In many of the queer brown villages of flat-roofed mud houses new mosques have sprung up, and solid building with brick or stone is going on. Green fields a herd of sheep, women, dotted with workers, men and women, side by side. Open turn the water-wheels which irrigate the land. Once or twice a steam plough is seen, marvellous for Egypt—as it is used to be. A fellow-traveller speaks heartily of the difference between now and ten years ago. At the stations which are being built up more substantially there are more signs of change. Peasant passengers are waiting on all the platforms. They wear stout, side-spring boots which have a comical air beneath their cotton robes. Perhaps a European overcoat will complete the costume, with turban finishing it off at the top. I wonder whether the advertisement of "Breezy Bognor" in one of the stations is meant to tempt them. There may be stranger things in the future than that.

FRENCH AND BRITISH GENIUS.

pondering all these things I heard an English voice from the wearer of a turban or fez—an English official in the government service. And presently a handful of British soldiers in khaki tumble into the train. Here are the creators of the new spirit. Then I think of the statue of De Lesseps which I saw in the dim dawn at the entrance of Port Said. Was French genius contributed, too, French genius which pierced the isthmus and put Egypt on the high road to India and Australia and the Far East; British love of order, which took the financial tangle in hand and straightened out its threads, which gave the native army a backbone, which introduced method and reduced chaos to common sense—these are the dominant note in the new chord which vibrates through the green triangle and the green ribbon which runs up from the triangle's apex along the great river.

Here is one result of the vibration—the railway station of Cairo, with its wide-spreading single arch, next minute we are driving through

the spacious square outside with its crowds of loafing Orientals, its strings of camels, its hurrying throng of redefezed Egyptian effendi in European clothes. So into the world-famous Kamel-street and down we get at Sheppard's Hotel.

THE "BRISTOL" LAUNCHED

IN FEBRUARY LAST

Every person in Canada will naturally be interested in the launching of the Bristol, which took place recently at Clydebank, Scotland. The main portion of Canada's fleet will consist of four Bristols. Two of these will be placed on the Atlantic and two on the Pacific and they will soon be familiar objects to all the people resident along the two seaboard. Of course the Niobe and the Rainbow will arrive earlier, and the training of Canada's first naval force will take place on these vessels. Nevertheless, the greatest interest of the future will be in the four Bristols. It is not yet decided whether they shall be built in Canada or Great Britain, but it is probable they will be built in this country.

Some time ago we published a picture of the Bristol on the docks. Now by the kindness of the builders, John Brown & Co., we are able to publish the first photograph of the Bristol after the launching. The launching ceremony was quite a pretentious affair and the christening was done by the Marchioness of Bristol. Lady Bristol was presented with diamond pendant, enclosed in a silver and tortoise-shell casket, as a souvenir of the occasion. Among the speakers at the subsequent luncheon were the Marquis of Bristol, Sir Charles MacLaren, M. P., chairman of John Brown & Co., Lord Iverleyde, Captain Dudley R. de Chair, representing the admiralty, and Thos. Bell, director John Brown & Co.

The Bristol has a displacement of 4,800 tons and her designed speed is 25 knots. Her armament consists of two 6-inch and ten 4-inch guns. She is one of the five second-class protected cruisers which were built under the 1908 estimates. She is the last of five to be launched as a number of new features are being introduced. The other four vessels of this class have quadruple screws and Parsons turbines. The Bristol has Curtis turbines, but only twin screws. It is expected that as much power can be got from these twin screws with a Curtis turbine as with quadruple screws with a Parsons turbine. The Bristol is 453 feet in length, 47 feet in breadth, and 26 feet 9 inches in depth. The total development of the turbines will be 22,000 horsepower. One of the six-inch guns is placed on the high forecastle forward and the other at the aft end of the upper deck. When completed the cruiser will show two masts, four funnels, a high forecastle and a long afterpart.

It is interesting in this connection to note that John Brown & Co., who built the Bristol, are also building one of the two cruiser battleships of the Indefatigable type which have been ordered by the governments of Australia and New Zealand. The other will be built by the Fairfield Shipbuilding and Engineering Co., Govan. These vessels will cost about nine millions dollars each. In addition Australia will have three cruisers of the Bristol type, six torpedo-boat destroyers and a fleet of submarines. Of the destroyers, three are at present under construction in Scotland. The total cost of the Australian fleet unit will be twenty million dollars and it will involve an annual charge of \$3,750,000.

Canada's navy will cost a little less, perhaps, but it will be accompanied by a naval college. (Canadian Courier.)

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