AGRICULTURAL

CARE AND CHURNING OF SEPARATOR CREAM.

(By T. C. Rogers, Ontario Agricultural College.)

The cream being at a high temperature as it comes from the separator, it is very necessary that ample provision be made for cooling it to a proper ripening temperature immediately after separation. High ripening and churning temperatures give the butter a soft, oily texture that diminishes its value. Plenty of ice should be securely stored at the proper time for use when needed, and a cream cooler should be made to hold ice and water, over which the cream may flow from the separator to the cream vat. This vat should be deep and narrow with a seven or eight inch space around it for water and ice, so that, for ripening, the cream may be cooled to sixty degrees within one hour after separation, and to a lower temperature in warm weather.

In creameries where the cream cannot be quickly cooled to sixty degrees, the butter-maker should persist in cooling until a temperature lower than sixty degrees is reached before night, especially in warm weather when the lactic acid is already developing in the milk before separating.

If the cream is to be held for two days before churning it should be cooled to fifty-two degrees in winter and to fifty degrees in summer. At these low ripening temperatures, the texture of the butter is better. Cream should be stirred frequently for the first six hours after separation and occasionally afterwards while ripening, to improve the flavor and ripen it more uniformly.

We think that the best results can be attained by using a starter to develop lactic acid in the cream, sufficient to cause it to thicken, or coagulate, about six or eight hours before the time for churning. Our experience is that a good clean flavored starter used in this way improves the flavor and keeping quality of the butter and enables the butter-maker to ripen the cream more uniformly from day to day. The cream should always be carefully examined before retiring at night and the person in charge may arrange to have the temperature gradually lowering somewhat, especially in warm weather, so long as the ripening is not delayed too much.

A STARTER.

Take one gallon of skim-milk or fresh whole milk (having a good flavor) for each ten gallons of cream to be ripened, and warm it to ninety degrees add to it about a gallon and a half of clean water for each ten gallons of milk used in making the starter and set in a clean warm place for twenty to twenty-four hours. Then break up fine by pouring or stirring, and strain into the cream the amount necessary to ripen it properly in the desired time. When a good flavor is got in this way, it is advisable to propagate it by Pasteurizing the milk used in making the starter from day to day. Do this by setting the milk in boiling water and stirring constantly while it is heating to 160 degrees; then remove and let stand for twenty or thirty minutes. Afterwards place in cold water and stir till it cools to seventy-five or eighty degrees; then add about a quart of the old starter (having the good flavor) to each ten gallons of Pasteurized milk, with a gallon and a half of clean water at the same temperature. Mix and set in a clean warm place. Do not stir again until it is wanted; then use from one to four quarts of the starter in each ten gallons of cream to be ripened, varying according to the condition of the cream, the season of the year, and the time allowed for the cream to ripen.

The starter should be put into the cream vat when the separating begins, to fix the flavor of the cream before any desirable bacteria develop in it.

CHURNING.

Separator cream should contain about thirty per cent. of butter-fat and be cooled to fifty-two degrees to fifty-four degrees in winter and fifty degrees to fifty-two degrees in summer, about two hours (and longer if the cream is ripened at high temperatures) before the time for churning. Cream containing a high percentage of butter-fat gives less volume to cool and handle, and it can be churned at a lower temperature which gives the butter a firmer texture. The churn should first be cleaned with hot water, and then cooled with cold water, before straining the cream into it. The churn should not be filled half full; one-third full is better. Add butter color to the cream before starting, if required to give the butter the proper color to suit the market. It may be added at the rate of about half an ounce of coloring to 1,000 pounds of milk. A smaller quantity of coloring is required in the spring; but, in the fall, the amount may be gradually increased to the above figure. Cream containing a high percentage of butter-fat will thicken in churning, and the desired concussion may then cease. At this stage, add to the cream about one gallon of water to each two gallons of cream being churned (at the same temperature), and continue churning until the butter is about half gathered; then add sufficient water at a lower temperature to keep the butter in the granular form until the cream is properly churned—till the granules are even in size and not larger than grains of wheat. The churn should make from sixty to seventy revolutions per minute, and the time required to churn should be from forty-five to sixty minutes. The lower temperature at which cream can be churned in this length of time, the better will be the texture of the butter. If small specks of butter appear on the first buttermilk drawn off, then the churning should be continued a little longer, and more water should be added if there is danger of the butter gathering too much by the additional churning. Always run the churn at a high speed when finishing the churning, and when washing.

WASHING.

The quantity of water used for washing the butter should be equal to the quantity of cream churned, and should be at a temperature of from 54 degrees to 58 degrees in winter and 48 degrees in summer, if the butter is to be salted on the worker; and at 45 degrees, or lower, when it is to be salted in the churn. If the water which you have in summer is too warm, use about two quarts of salt in the water and let it stand for ten minutes before drawing off. Avoid using water at high and low temperatures on the same lot of butter, as it has a tendency to cause white specks and an uneven body in the butter. When the butter is to be packed for export, or held for some time, wash it twice, but only once when it is going into consumption within about a month. Unwashed butter, from cream churned at a low temperature, gives good satisfaction, if it is put up in pound prints and forwarded to market as soon as it is made. This method works well in fall and winter and where water is scarce. When not intending to wash the butter, the maker will find it an advantage to add an extra quantity of very cold water to the contents of the churn when the granules are the proper size, and revolve the churn quickly for a few turns before drawing off the buttermilk. This will cause the buttermilk to run off the butter more freely and give less trouble when working the butter. It is also well to use a little water to wash the buttermilk from around the butter when near done working, but none on the butter.

SALTING.

The butter should remain in the churn to dry for twenty or thirty minutes before salting. Salt for butter should have a fine even grain, and be kept in a clean, cool place, free from bad odors. The salt should be fresh and clean. Use about one and one-eighth ounces of salt to each twenty-five pounds of milk, separated, or to the number of pounds of milk required to make a pound of butter. Sift on about half of the salt; then tip the churn gradually to turn the salted portion under. Sift on some more, and turn the churn the opposite way till the remainder of the unsalted portion is exposed; then sift on the remainder of the salt. Use a long wooden fork or spade to mix the butter and salt evenly. If the work is done properly, it will not be necessary to revolve the churn. The butter should remain in the churn, if the room is cold enough; if not, it should be removed to the cold storage room for from two to four hours before working. Salting in the churn is the most perfect method of salting butter, as by that method a more even color is obtained and the texture of the butter is preserved in consequence of less working being necessary. When salting butter on the worker, use about one ounce of salt to one pound of washed butter, and one and a quarter ounces per pound of unwashed butter, varying the quantity to suit the taste of the market. About one-half to three-quarters of an ounce per pound suits the English market when the butter is shipped fresh.

WORKING THE BUTTER.

Work carefully and evenly all parts of the butter alike, turning in and out and doubling alternately on the revolving worker. When the butter is salted on the revolving worker, the worker should be turned twenty-four times to finish the butter at one working. When the butter is to be worked twice, about eight turns the first time will be sufficient, and say ten turns, or just enough to make the color even, the second time. We prefer working butter twice when packing for export, as in this way we get less moisture, a closer body and a more even color. It is also preferable to the one-working method for the inexperienced butter-maker.

When the butter is salted in the churn, ten to fourteen revolutions of the worker will be sufficient, the aim being to remove the excess of moisture and get an even color. This should be done in every case. The butter, when working, should in no case be colder in winter or warmer in summer than fifty-five degrees.

PACKAGES.

Ash or spruce tubs should be soaked for twenty-four hours with a strong, hot brine, or for two days with a cold brine; then be washed clean and lined with parchment paper. Tubs or boxes lined with paraffin wax should also have parchment paper inside. Pack the butter in the tubes or boxes close around the sides and corners. Fill to within half an inch of the top of the tub and finish off level without giving the butter a greasy appearance. Cover the butter with parchment paper or butter-cloth and put on a paste made of salt and water. Then put into cold storage at fifty-six degrees, or as much lower as the temperature can be kept uniform. Changes in temperature have an injurious effect on the keeping of butter. Fresh brine should be added occasionally to keep the paste on the top of the tub in a moist condition.

SHIPPING.

The tubs or boxes should be clean and the lids fastened on properly; the weight of butter in all the tubs or boxes should be the same, and it should be marked plainly on the outside of each; about half to three quarters of a pound extra should be added to each, when filling, to make the butter hold out in weight. When the butter is shipped in one-pound prints, it should be securely protected from the sun in warm weather by the use of ice in the shipping box. A piece of clean brown paper laid over the top of the butter will protect it from the sun and heat.

CREAM-GATHERING CREAMERIES.

Only competent, honest, courteous men should be employed in or about creameries. It would be of very great advantage to the patrons, if the cream-gatherers had a good knowledge of cream-raising, so as to give instruction where needed. There is enough cream, or butter-fat, lost in the skim-milk through carelessness and neglect and ignorance, to pay the entire cost of manufacturing the butter in most of these creameries. The cream-gatherer should be accurate and just in measuring the cream, taking samples properly, and doing all in his power to promote harmony between the patrons and managers of the creamery.

The waggons should be covered to protect the tanks or cans from the sun, that the cream may be delivered at the creamery as cool as possible. After the cream is strained into the cream vat, the buttermaker should examine its condition regarding temperature and lactic acid. A safe rule in warm weather is to cool the cream immediately to fifty-six or fifty-eight degrees, hold at this temperature over night, and churn at about fifty-eight degrees in the morning. When the cream is delivered cold and sweet in the fall, the temperature should be raised to sixty degrees to ripen. Some fresh buttermilk may be used to hasten the ripening process. The cream may be churned at sixty degrees in the fall. Perfect cleanliness and fresh air are extremely important factors in a creamery—so important that, without them, success is impossible.

PEARLS OF TRUTH.

As it addeth deformity to an ape to be so like a man, so the similitude of superstition to religion makes it the more deformed.—Bacon.

Power exercised with violence has seldom been of long duration, but temper and moderation generally produce permanence in all things.—Seneca.

The smaller the drink, the clearer the head and the cooler the blood; which are great benefits in temper and business. —William Penn.

There is no thought in any mind, but it quickly tends to convert itself into a power and organizes a huge instrumentality of means.—Emerson.

Whatsoever situation in life you ever wish or propose for yourself, acquire a clear and lucid idea of the inconveniences attending it.—Shenstone.

Terror itself, when once grown transcendental, becomes a kind of courage; as frost sufficiently intense, according to the poet, Milton, will burn.—Carlyle.

One telling Socratee that such a one was nothing improved by his travels, "I very well believe it," said he, "for he took himself along with him."—Montaigne.

It requires a great deal of boldness and a great deal of caution to make a great fortune; and when you have got it, it requires ten times as much wit to keep it.—Rothschild.

O, guard thy roving thoughts with jealous care, for speech is but the dial plate of thought; and every fool reads plainly in thy words, what is the hour of thy thought.—Tennyson.

All travel has its advantages. If the passenger visits better countries, he may learn to improve his own; and if fortune carries him to worse, he may learn to enjoy his own.—Johnson.

It is the same with understanding as with eyes; to a certain size and make, just so much light is necessary and no more. Whatsoever is beyond brings darkness and confusion.—Shaftesbury.

God often lays the sum of his amazing providences in very dismal afflictions; as the limner first puts on the dusky colors on which he intends to draw the portraiture of some illustrious beauty.—Charnock.

Flowing water is at once a picture and a music, which causes to flow at the same time from my brain, like a limpid and murmuring rivulet, sweet thoughts, charming reveries, and melancholy remembrances.—Alphonse Karr.

FILLED CHEESE.

A "filled cheese" bill has been passed by the United States House of Representatives, and is likely to become law. It does not prohibit the manufacture or sale of filled cheese, but handicaps that business by heavy taxes. It provides that makers must pay a license fee of $400 a year, and an excise tax of a cent a pound on their product; that wholesale dealers in it must pay a license tax of $250 a year; and retailers one of $12 a year. Even this stiff scheme of taxation might fail to kill the industry, as similar imposts have failed to put a stop to the manufacture of oleomargarine. But so heavy a burden, along with the requirement to sell the article for what it actually is, would drive a good many makers of bogus cheese out of the business, and perhaps into that of producing honest cheese. Hence a certain effect would be to raise the average quality of United States offerings on the British market. Our cheese makers should note this, and rather redouble than relax their care to keep their product up to the highest standard of excellence.

BEE STATISTICS.

The following calculations have been made in regard to the work done by the honey bee; When the weather is fine, a worker can visit from 40 to 80 flowers in six or ten trips and collect a grain of nectar. If it visits 200 or 400 flowers, it will gather 5 grains. Under favorable circumstances, it will take a fortnight to obtain 15 grains. It would, therefore, take it several years to manufacture a pound of honey, which will fill about 3,000 cells. A hive contains from 20,000 to 50,000 bees, half of which prepare the honey, the other half attending to the wants of the hive and the family. On a fine day, 16,000 to 20,000 individuals will, in six or ten trips, be able to explore from 30,000 to 1,000,000 flowers, say several hundred thousand plants. Again, the locality must be favorable for the preparation of the honey, and the plants that produce the most nectar must flourish near the hive. A hive inhabited by 30,000 bees may, therefore, under favorable conditions, receive about two pounds of honey a day.

PAPER TELEGRAPH POLES.

Paper telegraph poles are the latest development of the art of making paper useful. These poles are made of paper pulp, in which borax, tallow, etc., are mixed in small quantities. The pulp is cast in a mold, with a core in the center, forming a hollow rod in the desired length, the crosspieces being held by key-shaped wooden pieces driven in on either side of the pole. The paper poles are said to be the lighter and stronger than those of wood, and to be unaffected by sun, rain, dampness, or any of the other causes which shorten the life of a wooden pole.

MARCH OF SCIENCE.

Ardent Lover—If you could see my heart, Belinda, you would know how fondly—"

Up-to-Date Girl (producing camera)—I intend to see it, Hiram. Sit still, please.

THE HOME.

THE SHIRT-WAIST.

The woman will be poor indeed who will not have a shirt-waist the coming summer. A few summers ago they were considered stiff and mannish-looking, but now they are universally worn by young and old and are deemed so comfortable that they cannot be dispensed with. The materials used for them range from the common calicoes to the handsomest silks. The favorite materials this summer will be grass linens and Madras cloths. Many shirt-waists are made of beautiful organdies, some of dotted swisses, others of dimity; great numbers are made of percale because of its good wearing qualities and because it launders very easily.

A new idea, and a splendid one, is the adjustable cuffs and collar. It rarely happens that the body of a waist is soiled when the cuffs and collar are. Now one may have three or four sets of collars and cuffs for one shirt-waist. Then too, cuffs and collars of a material different from that of the waist are to be worn. Cuffs and collar of plain white are often seen on shirt-waists of ecru linen or striped or figured material. With this fashion one may have as plain or as fancy collars and cuffs as one wishes. Turn-down collars edged with a ruffle of embroidery or lace, with cuffs to match are very pretty. Embroidered or hemstitched ones of white linen will look extremely pretty with figured or striped dimity or batiste. Now that the Persian craze is upon us many of the materials suitable for these waists will show this pattern.

The belts to be worn this summer are very narrow, few being more than an inch wide. Leather, gold or silver braid spangles sewed on elastic bands, heavy ribbons, some of solid colors, others striped, barred or plaid—all are used for belts. They are fastened with small buckles or clasps, plain or elaborate as the wearer's purse will allow. Some very handsome ones are in the forms of metal ropes and chains. In neckties, small bow ties of bright, gay checks and small plaids are the favorites at present, but other styles may develop as the summer advances.

The shirt-waist on the woman who knows how to wear it is a dainty article of apparel, but it is an exception, rather than the rule, to see it properly put on. To begin with the waist should be drawn down tightly in the back and pinned securely to the corset before the skirt is placed over it. The skirt should then be pinned carefully to the waist, a little above the waist line at the back. The skirt band should be pushed well down in front and pinned, so that the round of the belt will be perfect, and the line from chin to waist will not be several inches shorter than the line from waist to neck. If one is the owner of a fancy belt-pin it can be placed at the back, fastening belt, skirt and waist together. With such attention, there is no danger of a woman's clothing falling apart.

PRACTICAL SUGGESTIONS.

Variety of diet is not necessarily more expensive than that dreary sameness which is only too often the order in so many homes. Of course one must often have what is most quickly and easily prepared, but even for this meal one need not have the same menu three hundred days in the year.

A good breakfast dish requiring but little time to prepare, is "hash on toast." Any kind of cold meat chopped fine, moistened well with cream, seasoned with butter, pepper and salt, and heated thoroughly, is heaped on well browned and buttered slices of toast. Send to the table on a hot platter. The cream in the hash softens the toast so do not have the meat too dry. Cold chicken is very nice used in this way. This dish, with good coffee, some plain cookies or fried cakes, and oatmeal porridge with sugar and cream, makes a very satisfactory breakfast.

Apropos of fried cakes—some one says the only wholesome portion is the hole in the middle. Possibly and even probably true; however, if properly made (and we do not have them too often) w erelish them with our coffee, especially cold mornings. I have used the same recipe for years, doubling it sometimes. Let the lard be smoking hot, turn carefully to avoid pricking them. (I use knitting needles); cook until nicely browned and thoroughly done. Drain on brown paper. If the fat is hot enough and the paper is used, you will find little superfluous fat in them.

So many palatable dishes may be made from cream—sweet or sour. Cream biscuits are always relished, particularly by the men, and are more easily made than any other kind. These with fresh berries, canned fruit or carefully cooked dried fruit, according to the season or the larder's resources, are "good enough" for any one. Or take the same kind of dough, bake as a crust over some kind of fruit and you may have a delicious pudding which may be eaten with cream and sugar or any kind of pudding sauce. A very good pie is made by using this crust rolled thin to line a deep pie tin—filling with fruit and covering as for any pie. To be eaten fresh with cream if desired.

Whipped cream is not difficult to prepare while the weather is cool (or at any other time if one is so fortunate as to have ice) and is nice served in individual sauce dishes with a little dot of crimson jelly on top of each to be eaten with pie for the Sunday dinner dessert, or with cake for luncheon. A one crust pie becomes something rather better than ordinary pie if covered to the depth of an inch with the whipped cream just before cutting for the table. Tapioca is no more expensive than rice, makes a good pudding and is a desirable change.

Don't forget to sow some parsley seed this Spring. The crisp, curly leaves form a pretty garnish for cold meats salads, pickled eggs, etc., and are also fine for flavoring chickens, stews and soups.

Cottage cheese either in soft little balls or in one round mold looks cool and appetizing surrounded by a parsley border. It takes only a moment to use in this way and adds very much to the appearance of the food, which often means adding to the relish of it.

LAUGHABLE INCIDENT.

A Man Bleeds Quarts of Oil When a Cab Runs Over Him.

Moralists will find it difficult to draw a satisfactory lesson from an incident which all Paris is laughing over to-day. A very corpulent individual was knocked down in the street by a cab near one of the gates of the city. The vehicle passed over his body to the consternation of the spectators. A crowd gathered round the victim, who lay on the ground, not in a pool of blood, but in one of oil. He was only slightly stunned by the shock, and soon arose with profuse thanks for the sympathy of the crowd. Disregarding the offers of assistance, he began to shuffle off as fast as his legs could carry him. Eyewitnesses went to an employee of the octroi (the tax levied upon commodities carried into the city) and gave an account of the episode, upon which that official, running after the victim, extended to him a polite invitation to rest in his office.

"I assure you I am not hurt," exclaimed the old gentleman, who displayed great anxiety to take himself off.

"So much the better," replied the employee, "but I want to have a little talk with you."

Some gentle force was required to induce the corpulent one to enter the office, but once there he was made to undress, when he was found to be almost a skeleton. He had between his waistcoat and his shirt a skin receptacle which was capable of containing fourteen or fifteen quarts of liquid. On this occasion it had been filled with oil, and while it saved the bearer from injury it had betrayed him, and he was removed to the Perfecture of Police, amid the laughter of the people who witnessed the incident. A quantity of receptacles of the kind described was found in his dwelling, and another individual has been arrested on suspicion that he was an accomplice. Of course the object of the scheme was to evade the octroi dues.

MILLIONS OF BRILLIANT SUNS.

Within the twenty-four hours which elapse from one sunrise until another, the astronomers of the world have not less than 20,000,000 stars within the range of their powerful telescopes, which to-day point out in all direction towards the "blue canopy which overahngs the earth." Those bright, shining, silvery disks are not infinitesimal points of light, as they were formerly supposed to be, but each is now known to be a burning central sun, surrounded with its own colony of planets, each of these 20,000,000 "communities of the skies" having their allotted part to perform in the economy of nature. When we consider that the nearest of these is 250,000 times as far away from us as our own light and life giver, and that each of those planetary colonies is from 10,000,000 to 50,000,000 miles from some other family of swinging worlds, we begin to get some light conception of the grandeur and magnificence of the universe. Another thought in this connection: Each of these 20,000,000 suns is known to be moving somewhere through illimitable space, taking its brood of worlds with it, some of them traveling upwards of 200,000 miles an hour. It is such stupendous facts as these that have caused the writer to often remark that no brain can conceive of what is meant by "space," "universe" or "eternity."

EUROPEAN LIBRARIES.

Austria possesses more libraries and books than any other country in Europe. It has 577 libraries had 6,475,748 books, besides manuscripts. Next comes France, with 500 libraries, 4,538,100 books and 135,800 manuscripts; Italy, with 495 libraries, 4,339,281 books and 350,570 manuscripts; Germany, with 398 libraries, 2,640,250 books and 59,000 manuscripts; England, with 200 libraries, 2,871,494 books and 26,000 manuscripts; Bavaria, with 169 libraries, 1,368,500 books and 23,000 manuscripts; Russia, with 145 libraries, 952,000 books and 26,800 manuscripts.

The largest national library is in France. It has 2,080,000 books. The British Museum has over 1,000,000 books; the Munich Museum, 800,000 books; the Berlin Museum, 700,000 books; Dresden, 500,000 books; Vienna, 420,000 books. The Oxford University has 300,000 books; the Heidelberg University, 300,000 books. The Vatican Library contains 30,000 books, and is the richest in manuscripts, reaching 25,000 in number.

AN UNBREAKABLE MIRROR.

A German genius fills a long-felt want by providing mirrors which will not break. He simply employs celluloid where glass was heretofore used. A perfectly transparent, well-polished celluloid plate receives a quicksilver backing like that of a glass mirror. This backing is in turn protected by another celluloid plate which also mirrors, so that practically a double mirror is furnished, lighter, cheaper and more lasting than glass.

PRETTY WELL WORN OUT.

Weariness will sometimes make a man go lame.

What's the matter, Uncle Rufus? asked Mr. Hindhand, facetiously, as the old man came limping in. Got the gout?

No, sah. I'se got de bill for dat whitewashin' what I did for you last yeah."

NO CAT NEEDED.

Bridget—Sure, now, yez don't mane ter say yer livin' in a family where there an't no cat. Who kin ye blame things on?

Ann—The childer'.

Oh, it's foolin' ye are.

They aren't her own childer'; they're the master's.