

THE DAIRY.

An Up-to-date Creamery at Dunnville, Ontario.

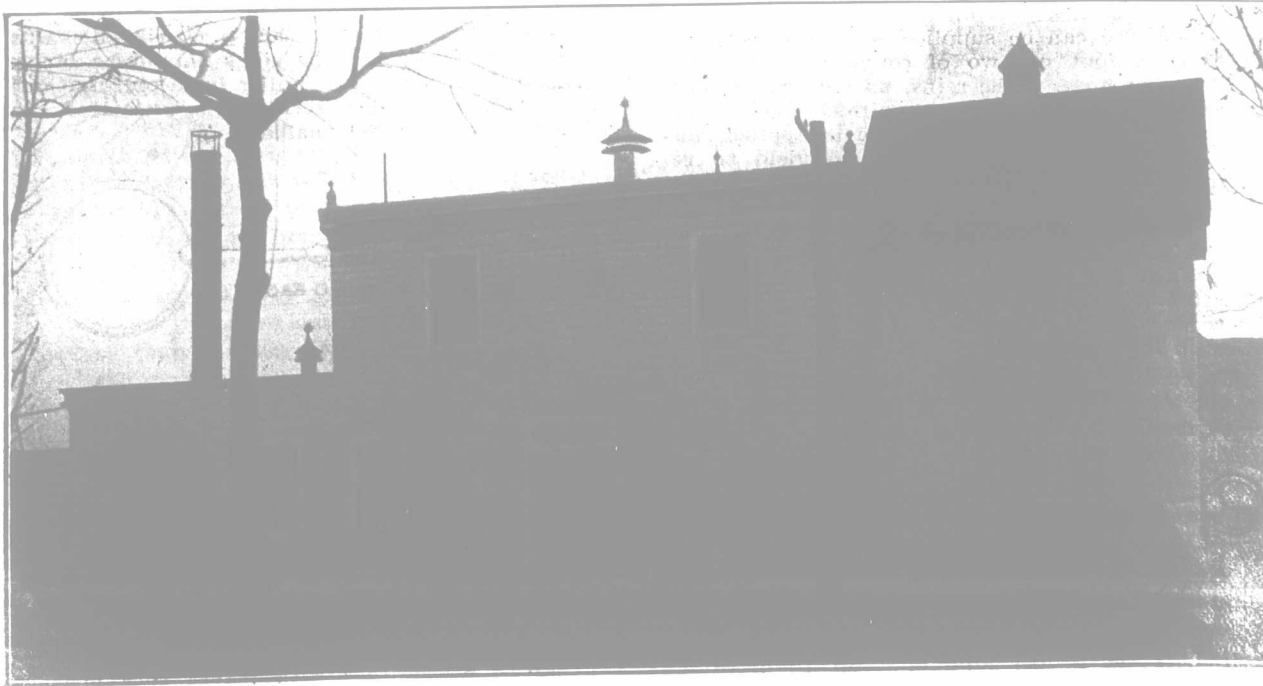
Early this spring Mr. Wm. Parkinson, the creameryman in Jarvis, Haldimand Co., Ont., received a letter asking him to come over to the neighborhood of Dunnville, and organize a cream route, cream to be shipped to Jarvis by rail. A large number of farmers becoming interested, inquiries were made to see what could be done towards having a special car fitted up. The local freight agent, on application at headquarters, discovered that it was against the principles of the Grand Trunk Railway Co. to handle cream by freight. As express rates on cream for buttermaking would be virtually prohibitive, there was nothing for it but to establish a creamery at Dunnville. Mr. Parkinson went there a total stranger on March 6th. On May 15th cream was received, and butter made on the 17th.

A COMPACT AND ECONOMICAL PLANT.

The building consists of three sections, extending east and west. On the west end is the cold-storage building; the main and central part is a two-story, 33x46 foot structure, and on the east end of it is the one-story 18x24 foot annex, containing the 20 h.p. boiler and 12 h.p. engine. The lower story of the main part is the making room. It has an 11-foot ceiling, and is floored throughout with Portland-cement concrete, sloping from each side, north and south, to a central gutter. The engine room has likewise a cement floor on the same level, and has also an 11-foot ceiling. In the second story of the main part is the buttermilk tank and storage room for boxes. The walls of the main part and of the engine room consist of inch boards nailed over studding, the boards being covered with felt paper and sheathed with galvanized iron siding; inside the studding is lined with another layer of inch boards covered with paper, and ceiled up with tongued-and-grooved inch stuff, painted a drab white. The roof is a four-ply felt, tar and gravel, only the cold-storage part being shingled. Two twenty-inch ventilators open at the ceiling of the working-room, and one from the engine room; the two from the making-room are carried up 18 feet, extending about 8 feet above the roof. The draft is controlled by dampers, and the ventilators have given excellent satisfaction.

The cement floor is 4 to 4½ inches thick. A three-inch coat of rough concrete was laid on over a thin layer of rammed gravel, and the finishing coat was put on an inch and a half thick. The drain is a two-foot sewer pipe arched over with cement, laid under the floor and provided with a trap.

For compact and convenient arrangement the making-room is well-nigh a model. There is no running up and down steps, everything is convenient, and the machinery is all run from a central shafting. The front door faces the street on the north. The cream is received (on certain gathering days) at the south side, run into the cream vat, then (when making for export) through the Reid's pasteurizer at a temperature of 180° to 190°, thence through the cooler, and thence into the ripening vats, where it is kept till noon, ripened in the afternoon at 60° to 65°, and cooled down through the night to 52°. Next morning it is pumped into the churn (a Success Combined), and after churning the buttermilk is drawn off and pumped to the tank upstairs, whence it is hauled away by a man who takes the whole supply at 13¢ per 100 lbs. He pays for the buttermilk on a basis of the amount of cream delivered per month, minus the butter turned out. He thus pays for none of the washing or rinsing water mixed with the buttermilk.



Creamery at Dunnville, Ont.

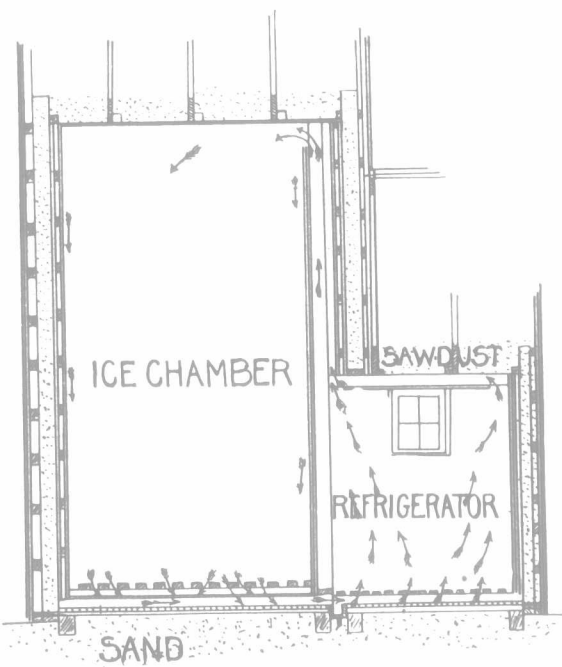
COLD STORAGE.

As mentioned above, the Hanrahan system of refrigeration is used, the plant being constructed on the same plan as that at the Ontario Agricultural College, a description and cut of which are appended. The ice compartment of the Dunnville plant is 14x16 feet, by 18 deep. The storage room is 12x6 feet inside dimensions, but one end is partitioned off as an ante-room, in which butter is sometimes placed to lower its temperature before putting into the inner chamber. This latter is 9x6 feet, and holds 240 56-lb. boxes of butter. The insulation of floors and walls is very thorough, and the temperature is kept down by circulation of air around and under the ice in the adjoining ice-chamber, the capacity of which is 70 tons. They have had no difficulty in keeping the temperature at 34 degrees all summer, and the cost of plant was very moderate, only about \$350 in the contract, although \$400 would, perhaps, be a fairer estimate.

The total cost of this plant was:

Site	\$ 550 00
Building and machinery	3,450 00
Total	\$4,000 00

The building struck us as being exceedingly con-



Vertical plan of Hanrahan's cold storage, showing insulation and air circulation. Plan followed in building the cold-storage plant of the Dunnville creamery.

venient and well adapted to the purpose. Two men have done the work all summer, and for the last two months Mr. Parkinson's son has taken care of things alone.

The creamery, which is cream-gathering entirely, started this spring with 154 patrons, running up to 202, while at the time of our visit, in late November, they had 180. Next summer they expect 300. Cream is hauled as far as 12 or 13 miles. There are 17 haulers in all, but only 9 come to the creamery. Gathering is done four times a week in summer, and usually twice, though sometimes only once, in winter. Mr. Parkinson's contract price for hauling and making was 4c. a pound of butter, but, as at the Jarvis Creamery, he has done much better than he agreed, the charge for the summer averaging only 3c. He doubts, however, whether all the patrons appreciate the concession.

The cost of hauling he estimates at 1c. per pound of butter. Fifty-five tons of butter had been made in the six months, commencing May 15th, and the price paid the patrons per pound of fat, averaged by months, was 21c. Had they been running since January 1st, the average price, figured at the basis of that paid at Jarvis, would have been 27c.

In the two creameries this year, both cream-gathering, they expected the total make would be 140 tons of butter, and they have never had a bad lot. Mr. Parkinson thinks that by the use of the pasteurizer and regular gathering of cream in separate cans, as good butter can be made as from gathered milk, and the patrons have the great advantage of warm, sweet skim milk for feeding their young stock.

The patrons are paid monthly by check, accompanying which goes a monthly statement filled out in the following form:

No. — ; Patron — ; Month ; No. lbs. cream ; Per cent. butter-fat ; Lbs. butter-fat ; Price per lb. butter-fat ; Amount, \$ cts. ; Butter sold to patron, No. of lbs., \$ cts. ; Amount due patron, \$ cts.

INSULATION OF THE HANRAHAN SYSTEM OF COLD STORAGE.

Following is a description of the insulation of the Hanrahan system of cold storage at the Ontario Agricultural College, after which the Dunnville creamery's cold-storage plant was patterned:

The outside of the studding to be first strapped with 2x2-inch, put on horizontally and spaced as shown, then 10x1-inch matched boards, well and tightly nailed, and each joint covered with a 2-inch beveled batten; the inside of studding to be first sheeted with 1-inch matched boards, then with paper on walls around corners. In fastening paper on wall with tacks about 4-inch long, do not drive the tacks home, let them project about half their length, then take a ball of twine, No. 8 cotton if procurable, or something similar to a ball of thick yarn, not too hard; run this twine over the heads of the tacks, which must be placed so as to have a line of twine directly under the 2x1-inch battens to be put on. When the twine is on, then drive tacks home on the paper, and over the twine place vertically 2x1-inch dressed battens, about 18-inch centers; between these battens fix similar ones horizontally over the twine, and about 36 inches apart. These horizontal battens must be cut true and fitted in tight between vertical pieces, using a mitre-box for the purpose. Over these battens lay another layer of paper and twine, put on the same as before, over vertical and horizontal battens, then sheet with matched lumber fixed vertically. Over this inside sheeting place 2x1-inch battens vertically, about 18-inch centers from floor to ceiling.

Ceiling.—The ceiling joists to have matched boards nailed to the underside thereof, having three nails to each joist, and the joints to have a batten on the top to prevent the sawdust from working through.

Division.—The partition between the two chambers to be made with 6x2-inch studs, and resting on a sill of one piece of 6x2 inch. These studs to be well dressed, as the side next to the refrigerator chamber will be exposed. The side next the ice to be sheathed horizontally with 1-inch matched boards, then with paper, and then with another sheeting fixed vertically, similar to that used elsewhere. This double sheeting to stop within ten inches of the ceiling, so as to form the warm-air flue, as shown. From the ceiling of the refrigerator chamber up to the top of these 6x2-inch studs put 4x2-inch studs, placing them edge to edge with the 6x2 inch ones, and so forming the warm-air flue 10 inches wide.

Floors.—The floor of the ice chamber to consist of 4x2-inch pieces laid flat on 6x6-inch sills, and bedded in sand, and carrying a floor of 1-inch matched boards, having a fall of 1 inch towards the drain. On this floor place eight pieces of 4x2 inches, as shown on edge, and directly over the first pieces; on these joists lay another floor of 1-inch matched lumber, leaving a space of 1 inch next the dividing partition, and another one of 12 inches in the center, running the full length of the ice-chamber, as shown. Upon this floor lay 3x2-inch joists directly over the others, and thirteen pieces of 4x2 inches laid flat and at right angles to the 3-inch strips; the first piece next the dividing partition to be against the wall and the remainder evenly spaced. Upon this lay the ice supply.

Floors.—The floor of the refrigerator chamber to have 4x2-inch strips on 6x6-inch sills and bedded in sand, and carrying 1-inch flooring, laid with a fall of 1 inch towards the drain, then 4x2-inch strips on edge, carrying fifteen pieces of 2x1½ inches, evenly spaced and at right angles. This lattice floor to be made in sections convenient for lifting up.

Drain.—A box drain to be formed of 1-inch material and laid with a fall of 3 inches from one side of the building to the other, and discharging into a pipe having a trapped inlet below grade, and protected by a box cover.

Sawdust.—All the spaces around the studding to be firmly packed with dry sawdust, and all ceilings to have at least 14 inches of sawdust as a cover, as shown by the drawings. Particular care must be taken to have the sawdust well packed, and from time to time go over the sawdust with a heavy roller.

Sealed-off.—The lumber touching the ground must be well sealed off, and the sand filled in so as to prevent any air from any air spaces between the lumber and the floor being laid. The outside of the building to be well packed with earth, at least 15 inches deep.

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