



The Dairy.

Cheese Factories.

These are establishments in which cheese-dairying is prosecuted on a large scale. They are of very recent origin, the first having been started only some ten years ago, by Jesse Williams of Oneida Co., New York. Practical dairymen know very well that the process of converting milk into curds and preparing them for the press is of such a nature that with proper facilities, it is scarcely more work to attend to the milk of fifty cows than the milk of ten and comparatively little more trouble to attend to that of five hundred instead of fifty. Improving upon this circumstance, the individual above-named, conceived the idea of making up his neighbours' milk into cheese along with his own. The plan was found to work so well that he increased his facilities so as to manufacture the milk of four hundred cows or more. The advantages of this plan were so evident that the number of these establishments quickly increased until there were in operation last season no fewer than 37 cheese factories in the single county of Oneida, each making up the milk of 200 to 1000 cows, and altogether employing the lactical product of 16,450 cows. In the adjoining county of Herkimer, long celebrated for its excellent cheese, there are several of these establishments in operation. In Cortland County one has been lately erected large enough to require 1,500 cows. Nor are these factories confined to the State of New York. They are being rapidly introduced throughout the entire North. Ohio especially is going into the new method with great vigour. Dairying may be said to have undergone a revolution among our American cousins, the new system being already widely diffused, and every where regarded with much favour. We do not change old established customs and practices with quite the same facility as our American neighbours, but already a pioneer cheese factory is announced as just ready to begin operations in the township of Norwich, and it will doubtless be in full blast by spring. We also hear of others being in contemplation. Dereham, the banner dairy township of Canada, will not consent to be left behind, and we doubt not that soon a number of these institutions will be actively and successfully at work among us.

When it is proposed to commence one of these factories in a given locality, a number of farmers who are neighbours, and feel inclined to promote the undertaking, meet together for consultation. Sometimes an association is formed, the members agreeing to put their dairy material into a common stock, the business being managed by an executive committee and the factory carried on by a superintendent or agent. In other cases, some one individual proposes to erect the necessary buildings and fit them up on his own account, binding himself to manufacture and take care of the cheese at so much per pound; while the rest enter into a contract with him to supply the milk of the requisite number of cows for a certain term of years. The milk of about 400 cows is believed to be the smallest quantity that will yield profit enough to afford a living to a manufacturer who makes cheese-dairying his sole business, while the milk of 1,000 cows can be manufactured at comparatively little extra expense.

It is of course desirable that a cheese factory should be located in as convenient and central a position as

possible, as it respects the parties from whom the supply of milk is to come. Another important matter is an abundant and unfailling supply of pure, cool, spring water. It is deemed an advantage to have a considerable stream passing under the manufacturing room, so as to carry off all refuse matter, and keep an air of sweetenness about the premises. Where practicable, the manufacturing room is so located as to have a bank on one side, several feet in height, and forming a road on which the teams drive and deliver the milk through receiving windows, whence there is a convenient descent to the weighing and measuring apparatus, and thence to the vats. Where the bank is lacking, a platform must be built for the purpose. The buildings necessary for a cheese factory are a manufactory or place for making the curd, a press room, dry house or curing rooms, and an ice-house. At one of the establishments recently erected near Rome, N.Y., and where the milk of 600 cows is used, the buildings are of the following dimensions: Manufactory, 26 by 26 feet, story and a-half; press room, 39 by 12 feet; dry house, 26 by 100 feet, two stories high. These buildings are of frame, covered with rough siding and shingled, but not lathed and plastered. They cost, with fixtures, about \$2,500. One of the best arranged factories is the new one in Cortland County, already mentioned, and designed to consume the milk of 1,500 cows. We quote a brief description of it, as furnished by the superintendent, Mr. Smith:—

The manufacturing room is 32 by 40 feet, and contains seven vats, 15 feet long by 3½ feet wide, of six hundred gallons capacity each. There are two places by which the milk can be emptied, so as to keep the waggon waiting the least possible time. The milk is weighed instead of being measured. Adjoining the work room is the press room, 50 by 16 feet; there are ten presses on each side. The sink containing the curd stands on rails, so as to be run into the press room opposite the presses. There is a space of four feet behind the sink, so the hands can work the curd and not interfere with those who are dipping it out.

The engine, of eight-horse power, stands in a separate building. There is a (horizontal) main steam pipe, six feet from the floor, to which are attached six steam pipes connecting with the vats; the hands can in this manner go around either end of the vats.

The buildings are on a level so that the cheese can be run from the press room on trucks into the curing house, between the counters. This obviates all carrying of the cheese.

The back side of the work room is built of masonry, and the water, fifty feet fall, brought into a large reservoir directly under the platform upon which stand the receiving cans. Under the work room is laid flagging, over which flows a stream of water to keep it free from any matter that might collect there if the soil under the building was soft.

The whey vats are a long distance from the buildings, for we believe the milk will absorb any impurities of the atmosphere. Hog pens are dispensed with entirely, for past experience proves to us that if cheese is properly made there is not enough nourishment left in the whey to make it profitable for pork raising.

In the factory just described, and in many others, steam is used for warming the milk and cooking the curd. Sometimes only a steam boiler, set in brick work, and provided with distributing pipes, is used, but in others there is an engine usually from four to eight-horse power. There are, however, vats contrived with a heating apparatus attached to them, which many prefer as cheaper, unattended with noise, and free from risk of explosion and other accidents. Ralph's Oneida Vat and Heater is highly spoken of by those who have tried it. Very simple presses are employed in most of these establishments, consisting of a stout iron screw with the necessary attachments for holding it in position, and receiving the hoop containing the curds. The screws are turned down on the cheese with an iron lever from time to time until the needed amount of pressure is obtained. Some are, however, adopting a species of press that is of a self-acting nature and does not need watching. The screw is, however, cheap, strong, and requires but little space. Wooden hoops or moulds are in general use; but a firm in Utica have recently invented a metal hoop which is thought to be superior to the wooden ones. Tables and racks of convenient height for handling the cheese are arranged in the

curing house. On these the cheese is placed when it leaves the press, and there it remains until the curing process is finished. The cheese rack described in a former issue of this paper is much used. Without going into minute details at present, and reserving for future consideration the advantages and disadvantages of cheese factories, we close this article by quoting an estimate of the cost and profits of one of these establishments, as furnished by the Secretary of the Maine Board of Agriculture in his report for last year:—

"The factory charge for manufacturing cheese is one cent per pound; rennet, salt, bandage, annatto and boxes, as well as the carting of cheese to market, being charged to the association and paid by each dairyman in proportion to the quantity of milk furnished during the season. All other expenses, including the care of the cheese while curing, &c., is paid by the manufacturer.

"To run a factory using the milk of six hundred cows will give constant employment to at least four persons, half or more of whom may be females.

"At one of the factories near Rome, New York, in 1862, the price paid for the services of a man and woman, who were the foremen of the establishment, was one dollar each per day and board; others received from two dollars to four dollars per week; and I was informed that the actual cost of manufacturing the milk of six hundred cows for the season was seven hundred dollars. It is presumed this sum did not cover interest on capital invested for buildings and fixtures, but was the amount paid out for labour, board, fuel, &c.

"From these data it will be easily estimated what amount of money can be realized from the business of manufacturing. Allowing that the 600 cows produced on an average 400 pounds of cheese each, there will be in the aggregate 240,000 pounds. The cost of a well-constructed factory will not be far from \$3,000.

We have, then, 240,000 lbs. at one cent -	\$2,400
Cost of running factory -	\$700
Interest on buildings, &c. -	180
Annual wear and tear, or depreciation of property -	200
	<hr/> 1,080

Profits -	<hr/> \$1,320
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Statistics of Cheese Factories.

The following statements are from reports made at the late Cheese Manufacturer's Convention at Rome, Oneida Co., N. Y.:—

Alfred Buck's Factory, Vernon, Oneida County.—Number of cows, 470, for six months; 145,695 pounds cheese made; 10 10-100 pounds milk made 1 pound dry cheese; cheese sold for 13 cents per pound; the cost of boxes, bandage, salt, &c., 40½ cents for 100 pounds; price charged by cheese-maker (he furnishing his own help) for making cheese, \$1 per 100 pounds—making whole cost \$1 40½.

Williams, Adams & Decey's Factory, Hampton, Oneida Co.—Number of cows, 350; pounds of milk, 976,378; pounds of cured cheese, 95,959, sold for \$12.279.73; 10 pounds 2 ounces milk made 1 pound cheese; price of making cheese, at \$1 per 100 pounds, \$959.59; incidental expenses, \$386.92; total, \$1,346.51.

Whitesboro' Factory, Oneida County.—Number of cows, 650; eight months milking; number of pounds of milk was 2,122,855; number of pounds of cheese, 207,313; sold for 12 cents and 88-100 per pound. Thirty cords of wood, used costing \$90; 3 tons of coal, costing \$24. Expense of bandage, salt, boxes, &c., 45 cts. per 100 pounds; shrinkage of cheese 4 per cent.

Clark's Factory, Vernon, Oneida Co.—Number of cows (not reported); pounds of milk, 955,915 for four months; number of pounds of cured cheese, 101,694; number of pounds of green cheese, 107,083; 9,399 pounds of milk for 1 pound of cured cheese; expense of boxes, &c., 40 cents per 100 pounds cheese.

Miller's Factory, Constableville, Lewis Co.—290 cows; 871,515 pounds milk; 100,089 pounds cured cheese. Net sales of cheese, \$11,011.64; 9 7-10 pounds of milk for 1 pound of cured cheese—the amount of shrinkage was 6 17-100 per cwt.

Deerfield and Marey Factory, Oneida Co.—700 cows; 1,949,215 pounds of milk; 193,335 pounds cheese; 10 82-100 pounds of milk, 1 pound of cheese; cheese sold for 13 611-1000 cents per pound, delivered at Utica.

Lowville's Factory, Lewis Co.—600 cows; 1,763,934 pounds milk; 172,162 pounds dry cheese; shrinkage 8,754 pounds; cheese sold for 13 7-10 cents per pound; cost of bandage, boxes, &c., 43 cents.

Georgetown Factory, Madison Co.—435 cows; 1,588,204 pounds of milk; 156,911 pounds of cheese; 9½ pounds of milk for 1 pound of cheese; shrinkage 3½ per cent; cheese sold for 12½ cents per pound.