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EXTRACTS FROM THE REPORT

OF THE

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NEW YORK STATE

Cheese Manufacturers' Association,

ORGANIZED JANUARY 7, 1864.

(FROM THE TRANSACTIONS OF THE NEW YORK STATE AGRICULTURAL SOCIETY.)

ALBANY:
VAN BENTHUYSEN'S STEAM PRINTING HOUSE.
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SF221
N51

EXTRACTS.

[This report having been prepared previous to the expiration of our agricultural year, is included in the report for 1863.]

OFFICERS OF THE ASSOCIATION.

President—Geo. Williams, Oneida county.

Vice-Presidents—Seth Miller, Lewis county; David Hamlin, Jefferson county; A. L. Fish, Herkimer county; George L. Morse, Madison county; Moses Kinney, Cortland county.

Treasurer—L. R. Lyon, Lewis county.

Secretary—William H. Comstock, Utica, Oneida county.

NOTICE.

In presenting to the members of this association this report, I am instructed by the executive board to say that the report is not quite as full and useful as it was our desire to present to you. We neither had sufficient time nor sufficient finances to make up as full and large a report, with engravings accompanying, as the growing interest in cheese-making seems to demand.

After due consultation, we have embodied four plates, which we think may be of some interest to many of our members. We might have made some new engravings that perhaps would be more useful and instructive, had our finances permitted us so to do. These engravings were obtained through the kindness of B. P. Johnson, Corresponding Secretary N. Y. State Agricultural Society. If every member will answer carefully and accurately the questions sent to them, we will next winter be able to publish a book upon this subject worthy of the enterprise, and worth keeping as a text-book upon cheese-making.

I would suggest, in comparing the different reports from cheese factories, we should try to ascertain the condition of the land on which the cows were kept, as it is well known that dry, rich land will yield better milk than wet, sour land; and that in one section where there is a drouth (as was the case this year in the northern part of this State), more cheese can be made from the same quantity of milk. That we may be better prepared to understand these facts in our next report, we have tried to embody in our questions that which will, if fully answered, enable any one to see at a glance the kind of land the cows live upon, and the condition of the season. I trust every member will have a full report of this season's operations before we have our next annual meeting, and send their report to me.

Our next annual meeting will be held at Utica, the second Wednesday of January, 1865.

WM. H. COMSTOCK, *Secretary*.

ARTICLES OF ASSOCIATION.

WHEREAS, it is deemed expedient to organize an association through which, as a medium, results of the practical experience of dairymen may be gathered and disseminated to the dairying community; therefore,

Resolved, That we, the undersigned, do hereby associate ourselves together for mutual improvement in the science of cheese-making, and more efficient action in promoting the general interests of the dairying community.

Article I. The name of the organization shall be the NEW YORK STATE CHEESE MANUFACTURERS' ASSOCIATION.

Article II. The officers of the association shall consist of a president, five vice-presidents, secretary and treasurer.

Article III. The president, vice-presidents, secretary and treasurer shall constitute the executive board of the association.

Article IV. The officers of the association shall be elected at the regular annual meeting, and shall retain their offices until their successors are chosen.

Article V. The regular annual meeting shall occur on the second Wednesday in January of each year, and at such place as the executive board shall designate.

Article VI. Any person may become a member of the association, and be entitled to all its benefits, by the annual payment of one dollar.

PROCEEDINGS OF THE CONVENTION.

The convention, called by over forty prominent manufacturers in Central New York—the first of the kind ever held in the United States, and probably in the world—assembled at the court house in Rome on the 6th of January. The court room was nearly filled with the intelligent and practical men interested in the proceedings, when the convention was called to order, and Col. Seth Miller, of Constableville, Lewis county, appointed temporary chairman; and Messrs. George W. Pixley, of Kirkland, Oneida county, and B. F. Stevens, of Lowville, Lewis county, were appointed temporary secretaries. The call was then read, after which the chairman appointed a committee on permanent organization. Adjourned until two o'clock P. M.

AFTERNOON SESSION.—The audience was largely increased, many being unable to find seats. Representatives were present from sixty-nine cheese factories, with from 150 to 1,000 cows each, as follows:

Location—County.	No. factories.	No. cows.
Oneida	32	15,003
Madison	10	6,650
Herkimer	5	2,420
Lewis	5	2,897
Chautauqua	3	1,700
Chenango	3	1,300
Cortland	3	2,710
Oswego	3	1,150
Fulton	1	600
Montgomery	1	600
Erie	1	1,000
Jefferson	1	220
Warren, Mass	1	500
	69	36,752

A large number of gentlemen were present also from private cheese dairies from this and other States.

On the report of the committee, the following gentlemen were elected permanent officers of the convention:

President—Jesse Williams, of Oneida county.

Vice Presidents—Lyman R. Lyons, Lewis; L. Warner, Ontario; Daniel Smith, Montgomery; A. L. Fish, Herkimer; Alonzo Peck, Madison; D. W. Maples, Cortland; M. R. Stocker, Otsego; George C. Morn, Erie; D. H. Goulding, Chautauqua; A. D. Stanley, Jefferson; Alfred Buck, Oneida; Dwight Ellis, Mass.; A. Bartlett, Ohio.

Secretaries—B. F. Stevens, Lewis; George W. Pixley, Oneida.

Sundry propositions were made by different gentlemen as to the course that should be pursued by the convention, and finally the following committee of five were appointed to report to the convention the details of cheese making by the factory system, and matters pertaining thereto: Jesse Williams, Oneida; H. Farrington, Herkimer; Allen F. Fowler, Oneida; Isaac Schell, Herkimer, and William Johnson, Ontario.

On motion a committee of five, to report preamble and articles of association for a State organization, were appointed as follows: B. F. Stevens, Lewis; George Williams, Oneida; A. L. Fish, Herkimer; B. Stiles, Madison, and G. B. Weeks, Oneida.

EVENING SESSION.—Mr. Geo. Williams, of Oneida, offered a resolution that it is impracticable to establish an agency in the city of New York. It required but a few minutes discussion from a few of the clear headed to decide to adopt the resolution.

The committee reported a petition to the Legislature in regard to frauds and adulteration in milk, which, after amendment, was adopted, as follows:

To the Honorable the Senate and Assembly of the State of New York:

We, the undersigned, citizens of the State of New York, interested in the manufacture of cheese by the factory system, respectfully petition that your honorable body pass a law inflicting severe penalties upon all persons who sell or furnish milk to factories, who shall dilute with water, adulterate, or in any way impair the quality and value of the milk so sold or furnished.

Mr. Fish, of Herkimer, proposed several important questions relative to the manufacture of cheese by the factory system, and made some remarks. He believed the factory system the only true one to make cheese by, owing to the greater facilities for making and curing—the producing of a better quality of cheese, and taking out of families an unhealthy and injurious business.

Mr. Bartlett, of Ohio, said that the editor of the *Ohio Farmer* had sent him a copy of his paper containing an article of strictures and objections to the factory system. One of the objections was that milk sent to factories was liable to be adulterated, and that there was no instrument or means to detect the adulteration. He said adulteration could always be detected, but dilution was not so easy; yet by the use of the hydrometer, the lactometer, and a French instrument not yet introduced into this country, together, dilution could generally be detected. Another objection is the

difference in the quality of milk of different dairies. This objection could only be fully met by the overbalancing advantages of the factory system, but we lack statistics on this point. He had arrived at this conclusion by testing the milk of many factories, that the difference was not over one per cent. in any case. The loss of whey was another objection. Mr. Bartlett thought it had been a losing thing with him to feed it to hogs.

The subject of making cheese on the Sabbath was discussed somewhat. Mr. Lyons, of Lewis, stated that an experiment had been made in his county of keeping the milk at home on the seventh day, and making it into butter, &c., instead of sending it to the factory. The conclusion arrived at by the convention was that it was better for all concerned to make the cheese on the Sabbath.

Mr. Bartlett thought one cent a pound for the manufacture was not a sufficient remuneration, but that one and one-quarter cents was about right. He was anxious to hear the whey question discussed.

Mr. H. Farrington, of Herkimer, had had extensive acquaintance with cheese factories, and had come to a different conclusion with respect to the value of whey from that the gentleman from Ohio had. He said we did not get all the valuable material out of the whey. True, and for that reason it was valuable for hogs—in many cases he believed it more than doubled the weight of hogs. It should not be fed alone, but corn and grain should be added to produce healthy hogs.

Mr. Wm. Wheeler, of Trenton, had a small factory of 200 cows—had kept 50 hogs, two-thirds of them grown, the rest spring pigs. Fed the whey, sweet and warm, till the 1st of September, then commenced feeding grain. The result was \$2 profit per cow.

Mr. Jacob Ellison, of Herkimer, said the factories had greatly increased the value of American cheese in the English market; they alone had done it. Their cheese had sold during the past season for one and two cents per pound more than the cheese of single dairies. This in itself was a sufficient answer to all objections to the factory system.

THURSDAY MORNING, *Jan. 7th*, 1864.

Convention called to order by the chair. Mr. Simmons, of Oneida, offered the following resolution: That the convention approve, for the size of cheese, 20 inches in diameter and 10 inches deep, weighing, when cured, about 100 pounds.

Mr. Comstock moved the resolution be laid on the table, in order to receive the report of the Committee on State organization. The committee then presented their report. Mr. Comstock moved that the convention receive the report, and that they proceed to adopt or reject the same by separate articles. The report was, with but little discussion, adopted as follows:

Whereas, it is deemed expedient to organize an association through which, as a medium, results of the practical experience of dairymen may be gathered and disseminated to the dairying community, therefore,

Resolved, That we, the undersigned, do hereby associate ourselves together for mutual improvement in the science of cheese making, and more

efficient action in promoting the general interests of the dairying community.

Article I. The name of the organization shall be the New York State Cheese Manufacturers' Association.

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Article VI. Any person may become a member of the Association, and be entitled to all its benefits, by the annual payment of one dollar.

Mr. Fish, of Herkimer, suggested as a plan for the Association, that all who chose should propose questions relative to the business of cheese-making, which should be circulated among the members of the executive board, and that from time to time premiums should be offered for the best answers to specified questions.

Mr. Comstock, of Utica, wanted to have the whey question talked of more—said that he had proved by years of experience, that whey was worth as much to feed to cows as to hogs—he considered it worth \$5 per cow when fed to them.

Mr. Stevens, of Lewis, thought the business of perfecting the organization of a State Association should first be attended to.

On motion, a committee was appointed to report officers for the Association; on whose report the following officers were unanimously elected:

President, George Williams, Oneida; Vice-Presidents, Seth Miller, Lewis; David Hamlin, Jefferson; A. L. Fish, Herkimer; George E. Morse, Madison; Moses Kinney, Cortland; Secretary, Wm. H. Comstock, Utica; Treasurer, Lyman R. Lyon, Lewis.

Gentlemen now complied with the conditions necessary to become members of the association, and within the next two or three hours over one hundred paid in their fees and became members of the association, thus taking another step in the history and advancement of the dairying interests of the State, and we might say of the world. The first name on the list, as it appropriately should be, was Mr. Jesse Williams, of Rome, the originator of the factory system.

A few minutes after the election of officers, the convention adjourned *sine die*, and immediately President Geo. Williams took the chair, and called the association to order. Soon after, a recess until 2 o'clock, p.m. was taken.

AFTERNOON SESSION.—Several verbal and written reports were given by manufacturers respecting their operations the past year, some items of which were number of pounds of milk received—pounds green cheese made—pounds dry cheese made—pounds shrinkage per hundred—pounds of milk to one pound of dry cheese, &c.

One or two facts we state, as being demonstrated by these reports—that it takes some 10.20 pounds of milk to make a pound of cured cheese; also that the shrinkage is about five per cent. There are other nice points and facts that can be demonstrated to almost a certainty by a systematic and similar report from each one of the factories now in operation and those to go into operation this coming season. This desideratum can be reached by complying with the following resolution, adopted on motion of Mr. Fish, of Herkimer:

Resolved, That every member of the association be desired to forward to Wm. H. Comstock, the Secretary, a written report in detail of his cheese making operations, as full as may be, to be published in the transactions of this association, to be distributed to each member thereof.

Mr. Comstock offered the following, which was also adopted:

Resolved, That the executive board shall make out and print, as soon as possible, a full set of statistical and other questions, in every way relating to cheese making, curing and selling, and send such report to each member of this association, and that each member answer all questions therein proposed, and make such other report as he may think proper, and send to the secretary before the next annual meeting.

REPORTS.

"MORSE'S FACTORY," EATON, MADISON Co., N. Y.

Average number of cows.....	640	
Quantity of milk, in pounds.....	2,406,294	
Number of pounds dry cheese, as sold.....	242,588	
Number of pounds of milk to one of cheese.....	9.91	
Gross proceeds.....		\$31,339 03
Total expenses, less cartage, and including insurance and making.....		3,418 84
Nett proceeds.....		\$27,920 19
Average sale per cwt. on gross receipts.....		12 92
Total expense, less cartage, and including insurance and making, (per 100 lbs.).....		1 45
Whole number of cheese made.....	1,757	
Average weight (in lbs.).....	138	

GEORGE E. MORSE.

Madison County, Town of Eaton, ss:—On this 13th day January, 1864, personally appeared before me George E. Morse, who, being duly sworn, deposeth that the above statement is, in all respects, correct and true to the best of his knowledge and belief.

GARDNER E. MORSE, *Justice of the Peace.*

Process of Making Cheese in Morse's Factory. We put the evening's and morning's milk together, evening's being strained into a double vat and cold spring water running under through the night; kept stirred till animal heat all out; morning's milk added, and the whole raised to a temperature from 82° to 84°; coloring matter put in and rennet sufficient to bring it in 35 minutes; curd when formed is cut with a gang of thirteen steel blade knives. It is first crossed and allowed to stand till whey begins to rise to the surface, then cut the other way and left till curd settles. A portion of the whey is then drawn off with syphon curd, then carefully stirred with wire fork made for this special purpose, and the whole cut in the most

thorough manner until very fine; a gradual heat is then applied, still keeping the fork in motion until the temperature is raised to 86°. The heat is then withdrawn, but the wire fork is not suffered to stand still, and indeed we never give the curd rest till it is put into the hoop; but our aim is to keep it fine and loose through all its different stages, and thereby we think we effect a more even scald than we otherwise could. After some thirty minutes heat is again applied, and the whole raised slowly till it reaches 98°; steam then cut off. It remains in this state till the curd will separate when pressed in the hand like so much wheat; whey then drawn off and curd dipped into sink to drain and work. It is salted while warm and put into press when cool, and if the system has been faithfully followed it will be found in this state like so much rice. Salt, three pounds to the 1,000 pounds of milk, most of the season; less in the fore part and more in the after part of the season. Our aim is to keep our rooms for curing at as even a temperature as may be—say about 70°—deeming it a very important feature in giving our cheese a nice flavor. All of which is submitted.

GEORGE E. MORSE, *Proprietor*.

F. WELLINGTON, *Maker*.

B. F. STEVENS' CHEESE FACTORY, LOWVILLE, LEWIS CO., N. Y.

LOWVILLE, N. Y. Jan. 13, 1864.

WM. H. COMSTOCK, Esq., *Secretary, Utica, N. Y.*

Dear Sir—Herewith please find statement or report of operations in my factory the last season.

Respectfully yours,

B. F. STEVENS.

Whole number pounds of milk received during the season of 163 days was.....	1,763,934	
Whole number pounds of green cheese made from said milk, (weighed when taken from the press) was.....	180,916	
Whole number pounds of dry cheese made from said milk, as per sales, (average age about 80 days,) was..	172,162	
Whole number pounds of shrinkage in said cheese from green weight, was.....	8,754	
Expense of manufacturing said cheese, (that is amount paid the manufacturer,) was.....	\$1,721	62
Expense aside from making was.....	749	72
Total expense.....	\$2,471	34
Gross proceeds from sales of cheese during the season, (three sales) were	23,586	80
Less total expense of manufacturing, &c.....	2,471	34
Nett proceeds.....	\$21,115	46
	lbs.	cts.
Expense of making said cheese per pound was.....		01
Expense other than making per pound was.....		00.43
Total expense per pound.....		01.43
or about \$1.43.54 per hundred pounds.		
Average sale per pound on the gross receipts was.....		13.7
Average sale per pound on the nett receipts was.....		12.26
Whole number cheese made was (pressed in 23 in. hoop,) 1,129.		
Average green weight of each was.....	160.11	
Average dry weight of each was.....	152.33	
Shrinkage per 100 pounds was.....	4.84	
Average number pounds of milk for one pound of cheese (green) was.....	9.75	

Average number pounds of milk for one pound of cheese (dry) (average about 80 days) was.....	10.24	
Gross proceeds from one pound of milk was.....		01.337
Nett proceeds from one pound of milk was.....		01.201
Amount of rennet used per 100 lbs. cheese was.....	31	
Whole number rennets used was.....	539	
Price allowed for each was.....		18 $\frac{3}{4}$
Cost per hundred pounds of cheese for rennet was.....		05.81
Amount of anotta used per 100 pounds cheese was.....	0.15	
Cost per 100 pounds cheese for anotta was.....		.75
Total number pounds used.....	26	
Barrels of salt used.....	16	
Quality of salt was Onondaga factory filled.		
Amount of salt used per 100 pounds of cheese was....	2.6	
Cost to salt 100 pounds cheese.....		2.45
Cost to bandage 100 pounds cheese was.....		13.7
Cost to box 100 pounds cheese was.....		15.6
Balance of incidental expenses was.....		5.28

I heat with steam only under the vat, and scald to 104; usually leave my curd in the whey till the whey is slightly changed to sour; cost for fuel has been \$37.42; have had no trouble with our milk; cool my milk to between 68° and 70° in warm weather; leave spring water running round it all night; press my cheese from about 3 P. M. till 8 P. M. next day; think this is enough; press slowly at first; set my milk at 84°; usually have it ready to cut in from 45 minutes to one hour; cut it up with a tin instrument about 14 inches square; two knives filed sharp, about an inch apart, running only one way; I am about an hour or an hour and a quarter in scalding; salt in a cooling sink after the whey has drained off; do not color the bandage, but color the grease. We commenced making May 4th, and closed October 15th. The first sale was the hay cheese, June 12th, 9,716 pounds; the second sale was made the 7th of July, 13,159 pounds; the balance was sold October 9th, and the last delivered November 17th.

WHITESBORO CHEESE FACTORY.

Whole number of cows, about.....	650
Average number of cows, eight months, about.....	550
Number of pounds of milk worked.....	2,122,885
Number of pounds of cheese sold.....	207,313
Average sale per pound.....	12.88 cts.
Number pounds of milk to pound of cheese.....	10.24
Expenses of bandage, boxes, salt, &c., per cwt.....	.45
Commissions per cwt.....	\$1.00
Amount of wood in engine, 30 cords, at \$3.00.....	90.00
Amount of coal, 3 tons in curing house, \$8.00.....	24.00
Number of rennets per cow.....	1 1-6

Cheese sold in shipments to last September, when contract was made for all fit for shipment and all to be made to November 1. Shrinkage about 4 per cent.

GEO. WILLIAMS.

LOWELL FACTORY, LOWELL—H. L. ROSE.

MR. COMSTOCK—*Dear Sir*: We commenced making cheese May 5th, taking about 11 pounds of milk to a pound of cheese, and we kept trying to improve until we got it down to 7 $\frac{1}{2}$ pounds of milk to a pound of cheese,

well worked down. In the fall we sold at five different times at from 12 to 12½, 13, 14 and 17 cents per pound at the factory. Our *modus operandi* was similar to most of our neighboring factories. One dollar per hundred pounds for making, 38c per hundred pounds for all other expenses. We use a steam boiler and the plain tin and wood vats. We receive the evening's milk, dividing it in our vats and cooling it down to 70°, in order to reduce the animal heat. We then leave it for the night with water running between the tin and wood vats, occasionally using ice on muggy evenings, like those we had during most of last July. The morning's milk we put proportionately with the evening's. We then raise the temperature to from 82° to 84° and put in our anotta, (which is prepared with lye without boiling,) then add rennet enough to produce coagulation sufficient for cutting in about one hour. I use Mr. Young's gang knife, cutting it slowly but as fine as I want it before applying much heat. We then work it with our hands, raising the heat to from 86° to 88°; then we draw off the whey down to the curd with a syphon; we then raise the heat again to 93° moderately, and after a while to 98°, holding it there until it is sufficiently scalded, which we determine by handling. We then dip it into the sink prepared with a rack and strainer, and stir it with our hands until it is drained quite dry; then we salt by sprinkling it over and mixing well to get it as uniform as may be, using from 2½ to 3 pounds of salt to a hundred pounds of cheese, varying according to the weather and our curds, which we find greatly inclined to vary. We put the curd into the hoops a little warm and let it stand a while before pressing at all, and press but gently at first when we do commence. We bandage in about one hour after pressing; we then turn them over and put to press again under increased pressure, leaving them in the press until the next or second day, as may be. We use a 20½ inch hoop, making our cheese 10 inches thick, which when cured will weigh about 125 pounds. We box in a 21 inch box. When we take our cheese out of the press we trim and grease with whey butter, which is prepared and colored for that use, plait down the bandage on both sides, put them on to the covers and take to the curing house, where we turn them every day, excepting Sundays, until they are cured quite dry, and after that only every other day.

My curing or dry house is 30x100 feet, giving room for five double rows of ranges on each floor. I intend to so arrange as to get two tiers on a floor, one above the other. I ventilate through the floor and sides. The building is boarded up and down on the outside and battened and sealed up on the inside. My make room is 30 feet square, well ventilated. The press room is 15x24, with presses on either side of the sink, which runs on rollers on a track from behind the vats, along between the presses, which is one long press on either side, divided by rods which hold the press together, into eight presses in each, giving us pressing capacity for a ton of cheese a day, which amount we are expecting to have the coming season. My making house is clapboarded and ceiled also. I have connected with the making house a very comfortable dwelling indeed, which I find to be a great acquisition to a cheese factory. My water is so controlled that

I can flood under my make and press rooms at will, which help very much in keeping them clean and sweet.

Yours respectfully,

H. L. ROSE.

LOWELL, Oneida Co., N. Y.

KING SETTLEMENT CHEESE FACTORY.

Commenced operations on the 14th day of May, 1863, and closed November 10th, 191 days.

Greatest number of cows.....	315	
Average number of cows.....	290	
Whole number pounds milk received.....		982,331
Whole number pounds cured cheese.....		98,474
Average number pounds milk for pound cured cheese.....		9 lbs. 15 $\frac{1}{2}$ oz.
There was delivered at said factory in the month of May, 90,568 pounds of milk, from which was manufactured 8,756 pounds of cured cheese.		
Number pounds of milk to pound of cheese when delivered was.	10 lbs. 5 $\frac{1}{2}$ oz.	
Number pounds milk received in month of June.....		202,847
Cured cheese manufactured.....		19,328
Number pounds milk to pound cured cheese.....		10 $\frac{1}{2}$
do milk received in July was.....		212,314
do cured cheese manufactured.....		20,406
do milk to pound cured cheese.....	10 lbs. 6 $\frac{1}{2}$ oz.	
do milk received in month of August.....		182,040
do cured cheese manufactured.....		17,278
do milk to pound cured cheese.....		10 $\frac{1}{2}$
do milk received in month of September.....		154,440
do cured cheese manufactured.....		16,708
do milk to pound cured cheese.....	9 lbs. 3 $\frac{2}{3}$ oz.	
do milk received in month of October.....		122,391
do cheese manufactured.....		13,805
do milk to pound cured cheese.....	8 lbs. 14 oz.	
do milk received in month of November.....		17,731
do cheese manufactured.....		2,193
do milk to pound cured cheese.....	8 lbs. 1 $\frac{1}{2}$ oz.	

In making my report in* gross and by the month, the variations from month to month of the percentage of cured cheese from a given quantity of milk, (this is occasioned in part from the quality of the milk, and perhaps for want of proper knowledge in the manufacture,) my experience proves to me that a more perfect knowledge is yet to be attained.

The cheese from this establishment was sold at different times and prices, from \$11.50 to \$13 per hundred.

The gross receipts of said 98,474 pounds of cheese was..... \$10,395 89

Expense Account.

Manufacturing 98,474 pounds at 1c.....	\$984 74
Sacking for same.....	189 64
Anotta used.....	11 00
Rennets used, 350.....	31 25
Salt used.....	33 00
Transportation to points of delivery.....	231 48
Boxing same.....	224 12
	<hr/>
	\$1,705 23
Nett proceeds.....	<hr/>
	\$8,690 66

Process of Manufacturing.

The milk is received morning and evening; the evening milk is strained into the vats, with a current of water passing through the wooden or inner vat, agitating the milk until it is about 65° or 70° of heat; it is then left until

morning; the morning's milk is then added and steam is then applied and brought to 80°; rennet is then added sufficient to curdle fit to cut in from forty-five minutes to one hour; it is then cut with a steel knife; allowed to stand about ten minutes, then cut again; the whey is now separating from the curd, and I commence to move or break carefully with the hands or wires prepared for that purpose, easing the heat to 86° or 88°; a portion of the whey is then drawn off, the heat raised to 98° or 100°, as judgment may direct, cutting and working the curd fine until sufficiently cured so that it will not pack; it is then covered with cloth until the whey sours; it is then dipped into the sink or draining vat and salted, three pounds to one hundred of curd; it is then put into the hoops and pressed three or four hours; turned and bandaged, when it is again pressed for twenty hours; it is then taken from the hoop, dressed and put into the curing room; turned each day and oiled when the surface becomes too dry.

Yours respectfully,

NATHANIEL LEACH, *Manufacturer.*

MILLER CHEESE FACTORY, CONSTABLEVILLE, LEWIS CO., N. Y.

Commenced making cheese 30th March, 1863, closed November 1.

Pounds of milk received.....	971,515
Number of cheese made.....	902
Pounds green cheese made.....	106,677
Cured cheese.....	100,089

Shrinkage of hay cheese which was sold from 5th of May to 16th of June was 11 5-10 per cent. Early grass cheese shipped from 16th June to 8th July, about twenty days old; balance of grass cheese shipped from 26th September to 23d November. Average shrinkage of grass cheese 5 3-10 per cent. The early and late cheese kept in a plastered room with fire, and well cured. 9 1-10 pounds of milk made one pound of green cheese, or 9 7-10 pounds of milk made one pound of cured cheese.

The Oneida or Ralph vat was used for manufacturing the above cheese, which consumed twelve cords of 18-inch slab wood. Expense of manufacturing, paid by the patrons, \$1 per 100 lbs. cured cheese. Contingent expenses, viz., bandage, salt, anotta, rennets, boxes, and insurance, 43 cents per 100 pounds. Cheese made in 21-inch hoops.

J. K. SCHUYLER'S FACTORY, WESTMORELAND, ONEIDA CO., N. Y.

Commenced manufacturing May 11th; closed October 31st. Number of days manufacturing, 174.

Number of cows, about.....	307
pounds milk.....	830,493
cheese (including six small).....	697
pounds cheese, (green weight).....	82,580
pounds cheese, (cured weight).....	78,644
pounds milk to a pound cheese, (green weight).....	10.06
pounds milk to a pound cheese, (cured weight).....	10.56
Shrinkage.....	4 $\frac{3}{4}$ pr ct.

Sales.

When shipped.	No. cheese.	No. pounds.	Price.	Gross proceeds.
June 23.....	60	6,788	12 cts.	\$814 56
July 28.....	100	11,117	11 $\frac{3}{4}$	1,806 25
Aug. 17.....	100	11,111	12	1,333 32
Sept. 7.....	100	11,265	12	1,351 80
Sept. 21.....	86	9,965	12 $\frac{1}{2}$	1,220 71
Oct. 9.....	50	5,888	13 $\frac{1}{2}$	794 88
Dec. 15.....	197 (6 small)	22,082	15	3,312 30
Retailed at factory	4	428	12 & 13c.	52 32
Total.....	697	78,644		\$10,186 14

Expenses.

Items.	Cost.	Cost per cwt. cured cheese.
Manufacturing 1c per lb. green weight,	\$825 80	\$105 00
Boxes, 688, at 21 and 21 $\frac{1}{2}$ cts.....	144 58	18 38
Bandage, 425 $\frac{1}{4}$ yards, at 24 cts.....	102 06	12 98
Rennets, 317, at 25 cts.....	79 25	10 08
Salt, 10 $\frac{1}{2}$ bbls.....	22 30	2 84
Boxing, (labor by patrons,).....	17 37	2 21
Drawing cheese to railroad by patrons.	95 50	12 14
All other expenses.....	41 47	5 27
Total.....	\$1,328 33	\$168 90

Cost per cwt. of cured cheese, besides manufacturing and deducting, drawing cheese and boxing, (labor by patrons,).....	\$49 55
Average weight of cheese, (factory size 20 $\frac{1}{4}$ in. in diameter,) 114 lbs.	
Average gross price per pound.....	12 95
Average nett price per pound.....	11 26
Average nett price per pound of milk.....	1 07
Number of rennets per cow.....	1.03
Number pounds anotta used.....	12

J. K. SCHUYLER.

FRANKLIN CLARK'S FACTORY, VERNON, ONEIDA Co., N. Y.

The following is the statement handed in from the Cheese Factory of Mr. Franklin Clark, of Vernon, of the operations of said factory during the seven months, nearly, between May 5th and November 30th, 1863:

Largest number of cows.....	350
Average number of cows.....	300
Number pounds of milk.....	\$55,915
do green cheese.....	107,083
do of shrinkage.....	5,389
or nearly 5 $\frac{1}{2}$ per cent.	
Number pounds of cured cheese.....	101,694
do of milk to a pound of cured cheese.....	9,399
which is 1-100 part of a pound less than.....	9 4-10 lbs.
Expenses of making.....	\$1,426 79
Number of cheese manufactured.....	946
Amount of money received for cheese sold.....	12,789 72
Number of patrons.....	30
Number of rennets.....	349
Average cost of bandage, about.....	20c pr yd
Salt used, 11 bbls., at \$2.62 per bbl., Onondaga factory	
filled; one gallon (or 10 $\frac{1}{2}$ lbs.) producing 12 7-100 cents	
after deducting all expenses.	
The average sale per 100 lbs. was.....	\$12 57 $\frac{1}{2}$

The vat used at this factory is Cooper's, of Watertown, N. Y.

HAMPTON FACTORY—WILLIAMS, ADAMS & DEWEY.

To WM. H. COMSTOCK, *Secretary of the Association*:

Whole number of cows.....	350
Average number of cows for six months.....	330
Number pounds of milk.....	976,378
Whole number pounds cheese sold.....	95,959
Amount of sales.....	\$12,279 73
Average sale per pound, about.....	12c 8 mills.
Average amount of milk per pound dry cheese.....	10.17
Total expense.....	\$1,346 51
Average expense per hundred pounds.....	1 40
Number of cheese made.....	825
Number of rennets used for the season.....	200
Number pounds anotta.....	10
Number barrels salt.....	12

E. S. ADAMS.

C. H. CURTIS & Co.'s FACTORY, WATERVILLE, ONEIDA Co., N. Y.

WATERVILLE, N. Y., Jan. 14, 1864.

We commenced the 21st of May, having about 50 cows till the 4th of July; an addition came in and the most we had was from 100 to 125 cows.

Entire amount of milk, (in pounds,).....	277,901
Total of cheese, (in pounds,).....	27,140
One pound of cheese from 10.2395 pounds milk.	
Total amount of sales.....	\$3,327 82
Average price per pound.....	0 12.26
Expenses per hundred pounds.....	0 65.86
Expense for cartage per hundred, gross.....	0 18

Our last sale was a small one, at 15 cents per pound, but the previous one was a little too quick, at 13½ cents.

C. H. CURTIS & CO.

GEORGETOWN FACTORY, MADISON Co., N. Y.

The Georgetown Factory Company would respectfully report that—

The average number of cows was.....	435
Number pounds of milk manufactured into cheese.....	1,538,204
Amount of cheese made.....	156,911
Number pounds of milk for a pound of cheese.....	9¾
Shrinkage per hundred.....	3½
Average amount of cheese to each cow.....	361 lbs.
Labor not hired.	
Cost of 1,190 boxes, at 21 cents each.....	\$250 00
Cost of bandage.....	250 00
Other incidentals.....	135 00
Total.....	<u>\$635 00</u>

SALES OF CHEESE.—Two hundred, sold early in the season, at 12½ cents; balance sold in September last for 12¼ and 12½ cents per pound.

FUEL.—Forty cords of hemlock wood, 18 inches long.

BROWN & CO.

Dated GEORGETOWN, *Madison Co., Jan. 5th, 1864.*

COLUMBUS CHEESE FACTORY.

Whole number of cows.....	516	
Average number of cows for six months.....	416	
Whole quantity of milk worked, (in pounds,)	1,608,811	
Whole number of pounds cheese sold.....	157,975	
Number of pounds of milk to a pound of cheese.....	10.12	
Average sale per pound.....		\$12.57
Expenses of bandage, boxes, salt, &c., per cwt.....		43
Commission per hundred pounds.....		1 00
Gross receipts.....	\$19,857 62	

HIRAM BROWN, *Manufacturer.*

WM. BUDLONG'S CHEESE FACTORY, WEST SCHUYLER, HERKIMER Co., N. Y.

Whole number of cows.....	211	
Average number six months, about.....	180	
Whole number pounds milk.....	647,560	
Whole number pounds cheese.....	66,141	
Whole amount received for cheese.....	\$8,539 76	
Whole amount received for expenses.....	745 58	
Whole amount nett proceeds.....	7,784 18	
Average price of cheese per pound.....	12.91	
Nett income for milk per pound	0.12	
Number pounds milk per pound cheese.....	9 79	
Whole charge for making cheese per pound.....	1 $\frac{1}{8}$	

PETERBORO CHEESE FACTORY.

PETERBORO, *January 9, 1864.*

We made cheese six months, commencing May 1st and ending October 31st.

Average number of cows.	530	
Whole number pounds milk.....	1,760,845	
Whole number pounds cheese sold.....	179,353	
Number pounds milk for pound cheese.....	9 81-100	
Incidental expense aside from one cent per lb. commission.....	43-100c.	

Yours, &c.,

ARBA BLODGET.

CASCADE FACTORY, WATERTOWN, JEFFERSON Co., N. Y.

Commenced making cheese May 1st, 1863; finished November 1st.

Number of cows at any time.....	220	
Average number for six months.....	180	
Number pounds milk produced.....	636,077.5	
Number pounds green cheese.....	68,429	
Number pounds dry cheese.....	64,862	
Shrinkage about.....	5 $\frac{1}{4}$ pr. ct.	
Number pounds milk to pound green cheese.....	9.29	
Number pounds milk to pound dry cheese.....	9.80	
Sold 64,862.25 lbs. cheese at an average of 12.34c. per lb.....	\$7,999 64	
Expense of manufacture \$1 per hundred.....	648 62	
Incidental expenses per hundred.....	0 39	
Total expense per hundred.....	1 392	
Nett profits per hundred.....	11 95	
Rennets used.....	223	
Yards brown cordage used at 22 cts.....	350	
Yards bleached cordage used at 30 cts.....	50	
Salt used, nine sacks, Ashton's factory filled, at.....	3 50	
Pounds annotta used.....	5	
Average weight of cheese.....	153 lbs.	

We are aware that our shrinkage exceeds that of many other dairies

which excess may be owing to the time the cheese was kept on hand. Our first sales were June 3d, of 2,279 pounds; next was June 29th, of 5,551 pounds; the balance of the dairy was sold the 11th September, and was delivered the 18th October and the 25th November.

We wish in *all* cases and under *all* circumstances to have the curd go sweet into the hoop if possible. A sour curd, in our experience, not only reduces the quantity of cheese, but also the *quality*.

Yours, &c.,

J. CALVIN HARDY.

VERNON CENTER CHEESE FACTORY.

Until July 15th, 151 cows; from that time out, 212. Commenced making May 12th; finished October 24th.

Total poundsmilk.....	479,931	
Total pounds cheese (dry).....	50,375	
Average price per pound for cheese.....		\$0.12.36
Average expenses per hundred pounds cheese, exclusive of rennets.....		54
Average number lbs. milk per lb. cheese, 9 10 $\frac{1}{4}$ -20, or 9.525-1000.		

Two vats, 458 gallons each, made by O. O'Neil & Co., Utica, N. Y. Self and one girl performed the labor; paid girl \$2 per week. Average weight of each cheese 100 pounds, dry. No discount for poor cheese.

M. A. LANPHERE, *Proprietor*.

S. A. BUNCE, *Treasurer*.

VERNON CENTER, *Oneida Co., N. Y.*

J. S. PIERCE'S CHEESE FACTORY, HOLLAND PATENT, N. Y.

Whole number of cows manufactured from.....	520	
Average number of cows for six months and ten days.....	428	
Whole number pounds cured cheese made.....	144,502	
Number beer gallons milk delivered.....	141,088	
Nett proceeds.....	\$19,717 20	
Average sale per pound nett.....	13 89	
Expense of manufacturing, boxes, bandage, salt, &c., per 100 lbs..	1,52.28	
Expense of boxing per hundred pounds.....	20.06	
Whole number cheese made	1,117	
Average weight per cheese.....	129.75	
Size of hoop used.....	2 $\frac{1}{2}$ inch.	

I use the steam boiler for heating, 3 $\frac{1}{2}$ horse capacity; cool the milk to 70° as fast as delivered, and retain it there until we commence warming for setting in the morning; I mix the morning and night milk together; I prefer doing so than working each mess separate; I set the milk at 80°; put in rennet enough to coagulate the milk in from 40 to 60 minutes; we break the curd with our hands; we use no cutter of any kind; agitate slowly while heating until it reaches 96° to 98°; it is then covered over and stands at rest from twenty-five minutes to five hours, according to circumstances. I know of no definite time that cheese can be made where milk has been drawn some two or three miles, that would do to practice every day alike. Salt 2 $\frac{1}{2}$ pounds to the 100 pounds of curd; cool the curd down to 86° before putting into the hoop.

JOHN F. PIERCE.

D. HAMLIN'S CHEESE FACTORY, WATERTOWN, N. Y.

WATERTOWN, Feb. 3, 1864.

Dear Sir:—Agreeable to request I send you a brief report of my experience in cheese making. We have had the past season about 150 cows. From May 10th to Nov. 1st, the yield was lbs. of milk 461,591; pounds of cured cheese for same time sent to market in November, 47,874; pounds of milk to one pound of cheese 9.64; it sold in market for 18 cents per pound, netting me in Watertown over 16½ cents per pound. We set milk at about 84°; time for cheese to come 30 minutes; cut into checks with knife, worked careful and coarse, scald by putting hot water into outside vat, scald three times: 1st at 88°, 2d at 94°, 3d at 98° or 100°; allowing about one-half hour between each scald; let stand in last scald from two to five hours, or until it is thoroughly cooked; then remove to sink and salt; feed whey to cows; think it much more profitable than in any other way; color curd with anotta prepared from receipt, and turn cheese every day except Sundays, until cool weather.

Yours very truly,

D. HAMLIN.

DEERFIELD AND MARCY CHEESE FACTORY.

The above factory is situated in the town of Deerfield, two miles north of Utica. The company is composed of a number of dairymen, associated together for mutual benefit, organized about one year ago. Shares \$100 each. A President, Secretary, Treasurer, and Executive Committee are chosen from their number, to attend to the business of the company. During the past season they have worked the milk of about 700 cows, amounting to 1,949,215 pounds; making 193,335 pounds of cheese, being at the ratio of 10.082 pounds of milk to one pound of cheese.

Four sales of cheese were made during the season. Sold in the months of June, July, August and November, at 12, 13, and 15 cents; averaging 13.611 delivered at Utica. The company charge 1½ cents per pound, covering the expense of making and other expenses of boxes, bandage, salt, rennets, &c.

WEEKS' CHEESE FACTORY, VERONA, ONEIDA Co., N. Y.

Whole number of cows at any one time 640; average number of cows, about 600; length of season, April 13th, to October 31st, 6 months, 17 days; quantity of milk, 236,516 wine gallons, and 2,010,378 pounds.

How Worked.

Amount of cheese made.....	201,686
Yield per 100 wine gallons, green.....	90,528
Yield per 100 wine gallons, cured.....	85,274
Yield per 100 pounds, green.....	10,650
Yield per 100 pounds, cured.....	10,032
Shrinkage.....	5 5-6 pr. ct.
Size of cheese.....	20x8½ to 9
Average weight, about.....	108

Cost of Labor.

Cost of boxes, one cent less than one cent an inch; cost of boxes per 100 pounds of cheese at 19 1-6 cents, 19, 16; cost of bandage, average cost 15 1/3 cents for two widths; cost of bandage per 100 pounds of cheese at 14 1/4 cents, 14.248; cost of all materials per 100 pounds, 47 1-6 cents.

Cheese has been sold frequently. Lowest price obtained, 11 cents for 50 hay cheese; highest price obtained, 13 cents for Sept. and Oct. Cheese contracted September 28th. Average price obtained, 12.2084 | 10000. Kind of vats; ordinary tin vats of 500 gallons capacity set in wooden ones. Kind of boiler; five horse power horizontal, 20 flues. Amount of fuel; twenty-five cords, including fire in dry house, spring and fall. Kind of fuel; hemlock wood.

Milk has been tested frequently with three instruments only one of which is considered reliable. Considerable difference is noticed in the quality of pure milk, that from cows pastured on wild grass of new land lacking 1-20 to 1-16 the richness of milk from cows on the best pastures.

GARDNER B. WEEKS.

VERONA, *Oneida Co., N. Y.*

MOORE & ADAMS' DAIRY, CONCORD, ERIE COUNTY, N. Y.

Commenced to make cheese April 3d, from 45 cows. Whole number of cows 78. They were not all in until the 12th of May. From the 25th of April made two cheese per day in the morning, till December 1st; part of the time we used two 18-inch hoops, and part 20-inch hoops; after December 1st, one 24-inch hoop.

Made cheese from April 3d to December 27th. Sold 33,546 pounds of cheese and 94 pounds of butter for \$3,540.80, and used all the butter, cheese and milk wanted in the family—fourteen persons, including children.

Used 272 yards 2,836 in bandage.....	\$48 66
17 bags of 140 lbs. each, F. F. salt.....	19 10
336 rennets.....	48 72
69 lbs. old butter to grease with.....	6 90
palm oil.....	2 08
2 lbs. twine to gather with.....	1 45
cloves, cinnamon and sage.....	3 14
4 lbs. anotta.....	1 80
Cost of labor and wood to make cheese.....	169 80

Total..... \$301 65

Fed nothing but whey after the cows went to grass; after calving fed two quarts of peas and oats ground per day, with hay and straw, to the cows.

GEO. A. MOORE, *Buffalo, N. Y.*

LITCHFIELD FIVE CORNER FACTORY.

FRANKFORT, *January 19, 1864.*

I submit to you the following report of the Litchfield Five Corner cheese factory:

[EXTRACTS.]

Whole number of cows	310
Average number of cows for six months, or from the 28th of May to the 20th November, about.....	250
Whole quantity of milk worked.....	902,524 lbs.
Whole quantity cheese sold.....	90,853 lbs.
Number pounds milk to a pound of cheese.....	9 lbs. 14.90 oz.
Average sale per pound	\$0 13.91

Made four shipments, as follows: 1st. October 9th; 2d. October 31st; 3d. November 25th; 4th. December 16th. First sale 13½c. to October 1st; second sale, 15½c to November 20th. Average shrinkage 3 lbs 15 oz. per hundred. The shrinkage in each month are as follows: 28th of May to October 9th, 6 lbs. 4 13-16 oz; 1st of July to October 9th, 5 lbs. 8 8-16 oz.; 1st of August to October 8th, 4 lbs. 4 oz.; September 1st to October 31st, 2 lbs. 4 8-16 oz.; October 1st to November 25th, 1 lb. 2 oz.; November 1st to December 16, 1 lb. 4 oz. J. KINNE, *Proprietor*.

A. BARTLETT'S FACTORY, OHIO.

MUNSON, OHIO, *January 11, 1864.*

Dear Sir: The following is the report of A. Bartlett, Fowler's Mills, Gauga county, Ohio.

The total number gallons of milk received during the season, from April 20th to November 9th, inclusive, was 182,605; number pounds dry cheese, 181,643, being a fraction less than one pound per gallon.

Our cheese was sold at two different sales, except about one ton shipped to Pittsburgh and a ton and a half cut and sold at the factory, mostly to our patrons; and the average price obtained was \$11.98.3 per cwt. on the ranges, without boxes. The cost of salt, bandage, anotta and rennets (we paid 25 cents each for good rennets) was 26 cents 5 mills per 100 pounds. The cost of boxes, 16.5; boxing, .03; hauling to railroad 15 cents per hundred pounds. Cost of scale boards \$2 per M., 3 mills per hundred pounds; in all, if added to other expenses, 61 cents 3 mills per cwt., so that the actual price of our dairy during the past season, boxed and delivered at the depot, was at the average of \$12.33 per hundred pounds. The average shrinkage of our cheese was 4 89-100 per cwt.

The drouth of the past season reduces the average yield of milk, as compared with previous ones, fully one-fourth, and as compared with 1861 fully one-third. The average number of cows we received milk from was about 700, although during a part of the season they numbered 800.

After September 25th, I tried a series of experiments, the object of which was to demonstrate, if possible, the maximum yield of curd to the hundred gallons of milk. These experiments were continued throughout the balance of the season, with the most satisfactory results, so far as the increased weight of the curd was concerned, and the cheese produced being, in my opinion, of superior quality and flavor. These experiments demonstrated that at least *ten per cent.* greater yield of curd can be obtained by this process than by any other with which I am acquainted, and have the cheese of equal quality.

The radical feature of this process consists in pressing down and packing the curd as closely as possible upon drawing down the whey after the

first heat is applied. I think about 86° the most proper heat for packing a curd. After being thoroughly packed we apply pressure to the curd by pushing the hands down upon it, care being taken not to triturate or grind the curd by allowing it to slip between the fingers, or by allowing the hand to slide on the curd when pressing down. The pressure should be continued until the curd has become sufficiently separated to move freely in the whey, when the heat is raised and the process completed, substantially the same as by the other process.

The following is from a printed pamphlet of Mr. Bartlett's:

Skill.

Cheese-making, like every other branch of manufacture, requires skill; and I claim that no person can succeed in making a superior article of cheese, unless they devote their whole time and attention to the business—it being one of the nicest chemical, as well as a very nice mechanical process, it follows as a matter of course that any mistake, or any thing wrong, however small it may be in itself, is sufficient to injure the product and lessen its value.

Take Time.

The almost universal practice of our dairymen is, to allow as little time as possible for making their cheese, hurrying through with it so as to be about something else; and the only question they stop to ask is: "Will it sell?" With this answered in the affirmative, they are content, caring little whether it is good, bad or indifferent. When I think how many there are in Northeastern Ohio, who will persist, year after year, in taking good wholesome milk (for mind you, the cows don't give sour or stinking milk), and working it up, or allowing it to work itself up, into such hard, dry, sour and stinking stuff as they do, I feel vexed. And then to have them pretend that such garbage is food for human beings, when a great deal of it is already half decomposed and rotten, or is so dry and hard as to be almost indigestible, is absurd.

Although I have long held the foregoing opinions of the importance of skill, care, and the necessity of taking time in the manufacture of cheese, I was never so forcibly impressed with them, as during a visit which I made the past season among the fine dairies of New York, located in Oneida and Herkimer counties.

The Process—Commission.

In the first place, allow me to state that the cows are owned by different individuals, living at various distances from the dairyhouse; some of them are even four or five miles away; the owners draw the milk as soon as it is taken from the cows, directly to the dairy, where it is accurately measured, and an exact account kept; and the dairymen take it when it is thus delivered to them, manufacture it into cheese, keep it, and take all care of it until sold. They then sell it, and after deducting the cost of salt, caping, rennet and anotta used in the manufacture, pay over to each farmer who furnishes milk his pro rata share of the proceeds, except one cent per pound on the sale weight of the cheese, which, and the whey, is the pay of the dairyman for all of his labor, care, use of buildings, fixtures, &c.

Evening Work.

As soon as the milk is delivered and put into the vats at night, they add one gallon of cold water for every ten of milk, which they will have in the vat when it is all in, and immediately set cold spring water to running around the milk vat, and reduce the temperature as quickly as possible to sixty degrees, when it is left for the night with the water still running around the vat, in order still further to reduce the temperature, and keep it cool through the night, and prevent souring.

Morning Work.

In the morning the milk is put in with the last night's milk, as soon as delivered, and when all is in, the heat is raised to 82° in warm weather, and 84° in cool, and sufficient rennet added to produce perfect coagulation in one hour and fifteen minutes.

The Cream.

Before heating to put in the rennet, the cream which has risen on the last night's milk is dipped off and poured back through a cloth strainer, until it has become thoroughly incorporated with the mass of milk; and after the rennet is added the milk is kept frequently stirred, dipping off the top and pouring through the strainer, until the milk begins to thicken. This is to keep the cream from rising. When allowed to remain quiet, even for a few minutes, the cream separates and rises to the top; and if the curd begins to form with the cream floating on the top, it will work off in the whey; but if kept thoroughly mixed and incorporated with the milk until the milk thickens and the curd begins to form, it is not very difficult to keep it in the cheese, and not lose it in the whey. One great object in adding the water to the milk, is to reduce the milk so as to have the cream work in the more readily.

The Curd.

When the curd is sufficiently formed to go to work at—which may be known by its breaking with a clean smooth fracture, in passing the fingers through it—break it up carefully with some instrument, so as to leave it in lumps about two inches square; but this instrument should not have sharp edges so as to cut, for—take very particular notice—*no cutting edge* of any kind must be allowed in the curd at any time during the process of manufacture. This is essential and important. The curd must be divided entirely by *breaking*, and not by cutting. As good a way as any, is to use the hands for breaking the curd from the first. After breaking, as above described, so that the lumps will be about the size of an egg, let it stand about ten minutes, or until the curd begins to settle, and then begin to work and break the curd with the hands. Let the motion be very slow and careful, so as not to work the cream off, or whiten the whey; meantime raise the heat to 88°; when the temperature arrives at 88°, cut off the heat, let the curd settle, and draw off the whey until there is barely enough left to cover the curd.

Pressing Out the Whey.

Now comes the most difficult part of the process, that is, to break the curd thoroughly and finely, and at the same time preserve the green appearance of the whey. This is done by taking the curd between the

hands in small quantities at a time, and bringing the hands flat and close together with a pretty strong pressure. Care must be taken however, not to rub or mash the curd so as to start the white whey. In fact I hardly think any written description of this part of the process will be intelligible, practical instruction being almost indispensable; but the result aimed at is to expel the whey from every particle of the curd, by thus pressing it between the hands, as well as to break up the curd.

Cooking the Curd.

When you have completely broken up the curd, put on the heat; keep it stirred and broken until the temperature arrives at ninety-four, and then cut off the heat; keep the curd stirred with a lively motion fifteen minutes, and then draw off the whey again, leaving just enough to cover and float the curd. Now go over the curd again, and break it up as before, getting it fine and even as possible, and then put on the heat again and heat to 100°. This is the greatest heat. Meantime stir the curd with a brisk, lively motion, cut off the heat and keep stirring twenty minutes, and then cover the vat up with a blanket and let it stand until the curd is thoroughly cooked, which will be about an hour, or a little longer. When the curd is all completely cooked—which may be known by taking a small lump and pressing it firmly between the thumb and finger—if well cooked, on removing the pressure the curd will spring out into its former shape; or select the softest lump you can readily find, break it open, and if it appears dry inside, and free from whey, it may be considered done.

After Cooking.

Now let off the hot water from the vat, and replace it with cold water; cool the curd and whey to 88°, and then dip the whole out into a draining sink, or a cloth strainer, keep it stirred so that it shall not pack together until thoroughly drained, and then add the salt and work it in thoroughly.

Salting.

Mr. Williams' rule for salting is two pounds and seven-tenths of a pound of salt to a cheese from one hundred gallons of milk—beer measure—and Mr. Frazee's rule is two and five-eighths pounds of salt to one hundred pounds of pressed cheese. Either rule I think will do well enough, although I prefer Mr. Williams' rule.

Pressing.

When the curd is salted, it is ready to be put into the press, and its subsequent treatment is much the same as is ordinarily pursued.

Rennet.

One word about the rennet. Nothing but the skins of the rennets are used; the curd, if there should be any, being thrown away. The way to preserve them is to use salt enough to do it and then add a little more salt; stretch on a bow and hang up in a close, dry place. In preparing the rennet, take a gallon of water at the temperature of 90° for each rennet used, put the skins into the water, and add more salt than will dissolve; let them soak two or three days, rubbing them occasionally; and then take out the skins and put them in another vessel, and add water and salt as before. Use of the first until that is gone, and by that time the other will be ready,

A good rennet is sufficient to make from six to eight hundred pounds of cheese.

Anotta.

When the rennet is put into the milk, add a small quantity of anotta, just sufficient to give the cheese a bright straw color, or the color of good butter. The best way to prepare the anotta for coloring the milk, is to boil it in strong ley; white ley is best. The quantity to be used must be determined by experience, as no very accurate rule can be given.

A. BARTLETT,

Fowler's Mills, Geauga Co., Ohio.

W. W. DE ANGELIS, HOLLAND PATENT.

Salting in the Whey.

HOLLAND PATENT, *February 17, 1864.*

WM. H. COMSTOCK, Esq., *Secretary:*

Dear Sir:—I shall not have time to comply with your request to prepare a full report of my process of cheese making. In passing, however, I will say that my mode of manufacture up to the time of *salting* will not materially differ from that of most good dairymen, as the process is now pretty well understood; and in this communication I shall not spare the time to enter into particulars, merely remarking that I want a curd *carefully handled* and *thoroughly scalded*.

Taking the process at this point, I have adopted a series of experiments which thoroughly convince me that *salting in the whey* is a decided improvement over the old mode of *dry salting*.

To begin, I draw off the whey, leaving just enough to float the curd, and at this stage throw in the salt—say five pounds to the hundred of curd, if intended to go to market green; or six pounds if to keep till cured for a fall market, stirring it thoroughly. I then let it lay in this pickle until cool enough to go into press, hurrying it if necessary by turning the cold water around the vat.

This whey will be too salt to feed to hogs, though cows will take it to advantage. I prefer, however, to throw it upon the compost heap. The waste of whey and the extra salt used, has been the principal objection to this process. To such objectors I offer the following remarks and suggestions:

The mode of salting *distributes the salt perfectly* without bruising the curd; consequently, the most rapid and thorough pressing will not start the *white whey*, saving in the cheese the cream, making it both *heavier* and *richer*. I hardly think it requires an argument to prove this. Every dairyman knows that more or less white whey is lost out of every cheese he puts to press.

This white whey is not milk, it is *cream*, set free by the bruising and bursting of sacks or globules containing the butter; hence, many dairymen press lightly at first, hoping to save this waste of cream, and they run the risk of having a *wet* cheese.

Salt cannot be evenly distributed in a *dry curd* without more or less

bruising. We all know this; and we must know that every drop of white whey discharged while pressing impoverishes the cheese—*just so much cream is lost*, and with it both *richness* and *weight*.

I have intended to push these experiments further, but the *factory* system offered such a bribe that I could not withstand it. My milk now goes to the factory and my experiments cease.

Value of Whey.

I will, therefore, suggest that your committee take into consideration the subject of the value of whey, and how to make it most available. Let them cause the trial of the following experiment, under the supervision of a competent chemist :

Take a few gallons of whey—or even a vat full—set it heating over a moderate fire, add salt, more or less, (I have no rule for the quantity ; several experiments would indicate it.) As the heat increases a substance will rise to the surface, which can be skimmed off.

This substance in Italy is called *ricata*. Von Thaer calls it *seret*. He says : “ In the neighborhood of towns this substance is usually sold fresh, and appears in various forms on the tables of the rich.” In Italy it is “ sold in market as a great luxury,” &c.

Let your chemist say whether by this process we get all the value out of the whey; then see if we can make *ricata* an article of commerce in this country.

Please indulge me while I add the fact that my hogs were at the *factory* and fed on whey about five months, and were actually not so good when taken away as when they went there.

W. W. DE ANGELIS.

The Use of Whey.

There seems to be considerable difference of opinion among dairymen as to the best use to which whey may be put, whether it is more profitable as a feed for hogs or cows. The usual manner in which it is fed to hogs is in an acid state (sweet whey being considered unsafe); and as it is often and for the most part made their only food for several months in the year, there can be no question but that the animal contracts disease, and the pork is rendered unwholesome as an article of food. The elements of whey are not in the right proportion, when used exclusively for feeding swine, to meet all the wants of the animal economy, and hence should never be used for the purpose above indicated, unless mingled with food of a more solid character. Many dairymen have abandoned the general use of whey for feeding swine, believing that it results in little or no profit, and at some of the cheese factories the same opinion prevails. We are told by the superintendent of a large cheese factory, that if the cheese is properly made the whey is considered of no value as far as the factory is concerned. That an experiment having been made in keeping swine on whey, many died, and the cost of the shoats in the spring was more than was realized from the sales in the fall ; and it was believed if an accurate account were kept by farmers, a similar result would generally be obtained. Many dairymen of long experience, who have looked closely to this matter, are of the opinion that the best use to which whey may be put is to feed to cows in milk.

It increases the quantity of milk, and serves another important purpose which is sometimes overlooked, and that is, the general health and condition of the animals are in a measure kept up. It is believed, too, that the quality of the milk is improved by the use of whey in this manner, since the animal may appropriate whatever traces of casein and butter are left in the whey. From some experiments made with a view of testing the value of whey fed to milch cows, we are informed that the result was far greater than was anticipated, and that the gain in cheese was largely in advance of what could have been realized by feeding to swine, even were the latter furnished to the dairy in the spring without cost. By comparing the analysis of cheese given by Norton, with the analysis of milk given by Johnson, we have in 100 parts sweet whey :

Casein.....	1.004
Butter.....	1.376
Milk sugar.....	5.300
Saline matter.....	168
Water.....	92.152

By this it will be seen what the nutritive value of whey is, and whether it cannot be more advantageously fed to cows than employed for feeding pigs and shoats, or animals which have not arrived at maturity.

These scanty proportions of mineral and nitrogenous matter unfit it for nourishing the bones and muscles of young and growing animals, and hence young pigs kept on it soon contract disease and die. Some farmers find a good result from mingling bran or shorts with the whey and feeding to cows, and this is, perhaps, the best way to learn the animal to use it, commencing early in the spring before turning to grass. Cows soon become fond of it, and from the testimony of persons who have made careful experiments, in feeding with a view of thoroughly testing the matter, it is believed that whey may be fed to milch cows with decided profit, wherever cheese is made in families. Where cheese factories are established, whether it will pay to cart the whey any considerable distance is a question; but that it should be used at these establishments as an exclusive food for swine, would seem to be scarcely less reprehensible than the furnishing of any other diseased food for the market.

RENNETS.

A point of great importance in cheese manufacture is to have a good sweet rennet for coagulating the milk. Much trouble with cheese while curing results from diseased or tainted rennet. The taint is communicated to the cheese, causing undue fermentation, the swelling or "huffing" of cheese, and not unfrequently causing it to take the form of a worthless and putrid mass. A large quantity of cheese with more or less of this taint annually finds its way to market, to distribute its subtle poison among consumers—a poison which, it is true, may not kill outright, but, nevertheless, passes into the system, inducing more or less derangement, according to the quantity consumed. Its effects are precisely like that produced by the consumption of putrid flesh or other food which has undergone a high state of decomposition.

First, the calf from which the rennet is to be saved should be perfectly

healthy, and allowed all the milk it will take for at least four or five days. Weak or sickly calves should never be selected, as the rennets from such will be found to be more or less unhealthy. We regard it important that the calf be kept four or five days, since by that time its state of health may be determined. There are various opinions in reference to the time that food should be withheld from the calf (immediately previous to its being slaughtered) in order to obtain a rennet of the most strength. Our opinion is that from 12 to 15 hours will be sufficient; nothing is gained by the cruel practice of some of depriving the animal of food for 36 or more hours; on the contrary, we deem it positively injurious. The calf may be allowed to take its regular meal in the evening, and slaughtered the next morning. In slaughtering it is well to have the blood flow freely, and drain as thoroughly from the body as may be. A good rennet has a whitish, healthy appearance; if dark, or discolored in spots, or having the appearance of inflammation, it should be rejected, since one bad rennet when put to soak with others communicates its taint to the whole mess.

There are several processes of saving or curing the rennet.

First process. The rennet may be carefully emptied of its curd, care being taken not to rinse in water, or remove in any other manner the substance that naturally adheres to the inner coating of the rennet. If dirt adheres remove it carefully with a cloth or knife; then rub the rennet in all parts with good clean salt; then put about one pound of salt into the rennet and carefully place the ends, both lower and upper, on the inside of the rennet; then take a small, sharp stick, about four inches long, and run it through and through several times at the top of the rennet, the bottom being also attached, with ends placed inside, and tie a string around it just below the stick.

Second process is same as first, except in the place of one pound of salt being added, stretch the rennet upon a hoop or fork stick. We think the first process the best, as it keeps the rennets free from moths. It is claimed for the second process that the rennets are stronger, that the salt diminishes the strength. Our experience does not prove this statement.

The curd should never be saved; it is injurious to the flavor of the cheese, and tends to taint your rennet.

The rennet should be hung in a dry atmosphere, with only moderate heat, as too much heat injures materially its strength; on the other hand, freezing and thawing, when in a green state, is thought to diminish its strength and efficacy. We have seen rennets rendered nearly worthless from being hung in a heated room or near a stovepipe in constant use. The plan adopted by some of salting down the skins in a tub or barrel, it is believed is not a good one, since rennet needs exposure to the air, whereby to undergo a slow process of decomposition. When thus kept a year or more, strength has accumulated, while a peculiar rankness and fermenting power has passed away, rendering it fit to produce mild and fine flavored cheese.

"By exposure to the air," says Professor Johnson, "the surface of the membrane has undergone such a degree of change or decomposition as to enable it to induce the elements of the sugar to alter their mutual arrange-

ment and to unite together in such a way as to form lactic acid, and thus the action of the rennet resolves itself into a curdling of the milk by the action of its own acid." And he reasons that after its use it may be again salted and dried, and thus used several times, but of this there is a question. Repeated experiments, made with a view of testing the efficacy of exhausted rennet, induces us to believe that when thoroughly rubbed and soaked, and exhausted of its strength, no after treatment in the way proposed by Prof. J. will be of service in rendering it again fit for use. Dairy-men generally understand that it is not profitable to use rennets less than a year old; since green rennets make a less quantity of cheese, besides rendering the cheese liable to swell or "huff," and being prejudicial to fine flavor.

Rennet when prepared for use should be set in a cool place, and kept either in bottles, jugs or stone jars. Wooden vessels are objectionable on account of their liability to contract taint. Rennet should be prepared by placing several in a stone jar and filling the jar with soft or rain water, and rubbing the rennets frequently to get the strength out; then after the liquor stands about 24 hours, add enough salt to keep it sweet. We urge upon dairymen the importance of properly saving and preparing rennet, since no degree of skill in the art of cheese manufacture will be able to produce a prime article of cheese, unless good, sweet rennet be used.

THE USE OF THE HYDROMETER OR LACTOMETER.

The following table purports to give a reliable test. In a test of several specimens of milk with the hydrometer, on which pure milk was graduated 100 degrees, the result was as follows:

One pint of milk drawn from a native cow when tried by the instrument indicated.....	101 deg.
One pint strippings from same cow	86 deg.
One pint milk from pure bred Jersey	95 deg.
One pint milk from Hereford.....	106 deg.
One pint from Devon.....	111 deg.
One pint thin cream	66 deg.

All of these were tried at a temperature of 60 degrees; hence it will be seen that milk rich in cream might be taken as diluted. The constituents of milk as analyzed by Haidlen consist of

Water	873
Butter	30
Casein	48.2
Sugar of milk.....	48.9
Phosphate of lime.....	2.31
Magnesia.....	.42
Iron.....	.47
Chloride of potassium.....	1.44
Sodium and soda.....	.66
	<hr/>
	1000.

We hope to introduce into this country a French instrument for testing the quality of milk. Said instrument, we believe, will be an addition to those already in use; we are not enough acquainted with it to attempt to give an accurate description of it. If we succeed in getting one we will exhibit it in our next annual report.

We think it a good plan to have glass gauges or tumblers, with each man's name that furnishes milk attached to one, and every few days fill these with the milk from each patron; thereby you can determine with

some degree of accuracy the relative condition of each patron's milk, both as to quality and as to its sweetness when brought, &c. We think that by giving this subject proper attention we will be able to invent some way or ways, by which we can determine the condition of milk with an accuracy that will not admit of a doubt.

THE ORGANIZATION—SELECTION OF FACTORY SITE, ETC.

Cheese factory associations are organized in neighborhoods of ten or a dozen or more farmers.

When it is proposed to start a factory, several persons who are neighbors to each other get together and talk over the matter among themselves. If enough are found willing to turn in their dairies together, so as to make a fair start, (say 300 cows,) a committee is appointed to look further into the matter, to visit factories, and get all the information on the subject that can be had. A favorable report from the committee being had, they then organize, choose directors, and adopt some general rules or plan for the guidance of the association. The next step will be the selection of some experienced cheese maker as superintendent, and the place for the erection of the factory building.

Generally some person proposes to put up the buildings on his own account, and to manufacture and take care of the cheese at a fixed price per pound, demanding a contract on the part of the farmers to furnish the milk of the requisite number of cows for a certain number of years.

The milk of about 400 cows, it is believed, is the smallest quantity that can be employed by the manufacturer, (when cheese making is his sole business,) in order to obtain a fair living compensation for services, while the milk of a thousand cows can be manufactured at but little extra expense comparatively.

FACTORY SITE.

In choosing the place for the erection of the factory buildings, two requisites are sought—good water and convenience as to access and distance for the dairies furnishing the milk. The site, above all, should command an abundance of pure spring water. This is regarded by those who have had longest experience at the business as imperative.

Even in family cheese making a considerable quantity of water is needed in various ways about the dairy, for cooling milk, cooking the curd and keeping the utensils and buildings clean and sweet; but for the factory the quantity of water should be abundant and unfailing. It is usual to have a considerable stream of water passing under the manufacturing room, so as to carry off the drippings of whey and refuse slop, so that there be no accumulation of filth or taint of acidity hanging about the premises. Where whey and slop are allowed to collect from day to day about the milk room, the stench at times becomes intolerable, and must do great damage to the milk, which absorbs taints of every character with great readiness. Hence means must be taken to have all the refuse matter swept beyond the reach of the premises.

Some factories are being built where dependence for water is placed upon wells of large capacity, but these are as yet experiments to be tried. At all events, it will be seen that much more labor will be required, with

greater liability to taints, than where spring water, passing in a considerable stream under the building, can be had.

COLORING CHEESE.

Great complaint is made by shippers of the color of American cheese. It is of a redish tint or shade, a bricky color, in streaks, too high or too light, and is not uniform, except uniformly wrong. This is attributable to the careless mode of dissolving or liquefying the anotta. Annotta, or anotta, is the pulp of a South American plant, and is no more poisonous than the coloring property of the carrot, beet, blackberry or any other coloring vegetable. According to medical authors, it has no injurious effect upon the human system, but simply contains a red coloring principle. The red ray of light is the first primary color and least divergent from the solar spectrum; the next are orange and yellow. Acids change vegetable blues to red; alkalies turn them back to blue, and change the blue infusions of cabbage to green.

Under these laws, if we dissolve anotta with a pure acid the color is brightened, and if we intensify the red by carbonizing the acid it becomes darker than venous blood, and the color is stretched to its utmost tension. In this state if diluted with a vast quantity of milk a diffusion of colors ensues, and we have the next in the solar spectrum, orange and yellow, or the cowslip shade.

To dissolve anotta with an alkali is a serious mistake. It retards coagulation, and is extremely liable during the curing of cheese to damage its color. Sharp, strong alkalies saponify the butter. The ley of leached ashes is very impure; the red color it contains is mostly carbonic acid, and is not fit to be used in the preparation of human food. Purify the ley of leached ashes and it is as clear as water; the residue is very filthy. An acid carbonized solution of anotta should then have added to it a mordant to fasten or set the color, and we shall be all right.

Continued scientific investigations have been made—suggested by remarks made at the late dairymen's convention, held at Rome, to perfect a coloring solution, and with a degree of success which promises to be highly advantageous to the dairying public, and to remedy the bad color of American cheese.

JONATHAN JONES.

WINFIELD, *Herkimer county, N. Y.*

ORGANIZATION OF FACTORIES.

Within a brief period several corporations have been formed for making cheese under the general manufacturing law of New York. The stock is divided into small shares, and generally distributed as much as may be among the dairymen of the neighborhood, with a view of creating a general desire for the success of the institution, and enlisting efforts to secure patronage. The concerns of the association are managed by a board of trustees or directors; the stockholders having no direct voice in the management, beyond the annual election of the trustees. The trustees appoint one of their number president; elect a secretary and treasurer, and form committees to look after the different interests of the company. A superintendent is employed to direct the manufacturing and curing operations

The actual cost of conducting the company's business is charged to the patrons in a general account, with a percentage on the amount of capital stock sufficient to pay interest on the investment and cover the wear and decay of fixtures.

In this account credits are given for all moneys received for cheese, whey, or other produce, and the balance apportioned among the dairymen according to the amount of milk furnished by each. The interest and any surplus of the percentage that may not be necessary for repairs, are divided upon the shares of stock. It is yet to be determined whether this be the more successful and satisfactory method of conducting the business, and whether the division of responsibility will result in want of proper care in management.

In view of the very general inclination among dairymen to avail themselves of the advantages of the factory system of manufacturing cheese, it is thought a brief statement of the different methods upon which they are conducted would likely interest many of those whom this report may reach.

Originally the milk received at the pioneer factory was wholly purchased by the manufacturers, it being estimated and paid for by the amount of curd it produced when pressed.

This plan failed to give entire satisfaction to the dairymen, because of differences of opinion upon its prospective value in the fall market, but furnished sufficient data for determining every item of expense attending the manufacture, and for deducing the cardinal features of the commission method.

Hence the dairymen were left to accept a price for their milk or curd which the manufacturers felt safe in offering, or allow them one dollar per cwt. of cheese manufactured and the whey, for performing the work of making, curing, preparing for market, selling the cheese, receiving and disbursing the moneys; the dairymen paying all other expenses, as boxes, bandage, salt, rennet, &c.

These two methods were practiced together, each having about an equal number of adherents for a few years, the latter however gradually growing in favor, until it has become the general rule among the older factories. In some instances slight variations in the detail of the original terms have been made.

Mr. Geo. Williams has in use in his cheese curing house at Whitesboro, shelving in four rows for cheese to stand upon, each row containing two tiers, one above the other, and each tier two rows of cheese, side by side. The upper shelf is not too high to be conveniently reached, not quite four feet. It is composed of two parallel pieces of scantling, as heretofore shown in the plate for ranges. The lower tier of cheese rests upon a shelf, but in order to turn them with equal ease they are slid out from the shelf upon a little truck of the same height, the top of which is composed of two pieces of scantling, similar to the plate for ranges, and after you turn, rub and grease the cheese, you slide it back. These tiers of shelves, both upper and lower, are supported by upright posts that run from the top to the bottom of the building, about eight feet apart. There are four rows of these posts upon each floor, and each row of posts supports four tiers of cheese, one

tier on each side of these posts, and one above the other, supported by frame work let into the posts. A diagram may be seen in the illustrated Annual Register, of rural affairs, of 1864, by Luther Tucker & Son, Albany. The storing capacity of the rooms are thus doubled.

A. L. FISH'S CHEESE FACTORY.

I am informed that Mr. Fish has built a factory, and will work upon a plan differing from the usual practice in cheese factories. It is located at Cedarville, Herkimer county, N. Y. The conditions are these: The manufacturer furnishes a suitable wagon on springs for carrying one hundred and fifty cows milk at once, as an attachment to the factory to be run by the patrons, *without charge*, on any route furnishing one hundred and fifty cows milk to the factory. Each patron to deliver at the factory one calf's rennet to each cow's milk delivered by him, the milk to be delivered morning and evening by nine o'clock, from April first to December first, and weighed. Each patron's weight of milk to be put upon a way book to be presented by the carrier, corresponding with the account kept on the factory book, the milk made up into cheese, cured, and put into boxes when sold, ready, for which manufacturer charges one dollar per hundred, the patron paying contingent expenses for bandage, salt, anotta, boxes, &c. For milk taken at the dairy barn and carried to the factory by manufacturer, and all contingent expenses paid by him, one cent per pound extra is charged to the patron. If the whey is left to the manufacturer, one shilling per hundred is to be deducted from two dollars. If it is taken away by the patron, one shilling per hundred is to be added to one dollar for milk delivered.

Mr. Fish has an original plan for heating his curing building with his steam apparatus. He has ordered his hoops made of oak staves, bound with heavy iron bands and iron handles attached, carefully made, the inside being turned or worked down true and smooth. The size of his hoops are eighteen inches in diameter and sixteen inches high. I would here say that the usual size for hoops are twenty and one-half inches in diameter, and from thirteen to fifteen inches high. There are different kinds of metal hoops made in Utica. Whether they are better than wood I am unable to say.

WHEY BUTTER.

Whey butter is always made in Switzerland for table use. It is equal to common butter, except perhaps it may be a little more highly salted. The whey is heated in a kettle (in the same apparatus in which you make the cheese, after the cheese is removed), gently to boiling heat. The whey should be salted before or while heating. This effects the separation of the oily and cheese particles from the whey, and they rise to the surface and are removed by the skimmer to large tin coolers, which are placed in cisterns of cold water, where the cream remains twenty-four hours; then it is churned in a common dash churn, worked by dog power, at a temperature of 60° to 65°, requiring about two hours to produce butter. If the cream requires more churning it generally makes an inferior quality of butter. The whey should be sweet.

CONCLUSION.

We have presented the main features in the plan of the cheese factory system and the various operations connected therewith.

To prevent misunderstanding or litigation, let every factory organization observe these rules:

1. Always weigh your milk instead of measuring.
2. Get some careful person to draw contracts, so that each man may know just what he must do.

AN ACT

TO PROTECT BUTTER AND CHEESE MANUFACTURERS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Whoever shall knowingly sell, supply or bring to be manufactured to any cheese or butter manufactory in the State any milk diluted with water, or in any way adulterated, or milk from which any cream has been taken, or milk commonly known as "skimmed milk;" or whoever shall keep back any part of the milk known as "strippings," shall, for each and every offence, forfeit and pay a sum not less than twenty-five dollars, nor more than one hundred dollars, with costs of suit, to be sued for in any court of competent jurisdiction for the benefit of the person or persons, firm, association or corporation upon whom such fraud shall be committed. (Act of May 2d, 1864.)

It is here presented the only business in the plan of the chosen factory system and the various operations connected therewith.

The present organization is a legal one for every time of year.

1. A more weighty report will instead of receiving

2. But some weighty report to other countries in that each year

3. But some weighty report to other countries in that each year

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