SECOND ANNUAL REPORT

OF THE

AMERICA[illegible] DAIRYMEN'S

ASSOCIATION

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[illegible]E YEAR [illegible]

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FOR THE YE[illegible]

UTICA.

ROBERTS, BOOK AND JOB [illegible] STREET.

SECOND ANNUAL REPORT

OF THE

AMERICAN DAIRYMEN'S

ASSOCIATION,

WITH ACCOMPANYING PAPERS, &c.,

FOR THE YEAR 1866.

TO WHICH IS ADDED THE ANNUAL REPORT OF THE

OHIO DAIRYMEN'S ASSOCIATION,

FOR THE YEAR 1866.

UTICA, N. Y.

ROBERTS, BOOK AND JOB PRINTER, 60 GENESEE STREET.

1867.

PREFATORY REMARKS.

In sending out this, the Fourth Report issued since the organization of this Association, the Secretary feels that it will receive a warm welcome from members, and from all practically interested in dairying and the advancement of the science of cheese-making in our land.

The same rate of increase in the number of cheese factories in America, which has been adverted to in former Reports, still continues. So far from diminishing in force it is probable that at no former period has the increase been so great as it is to-day.

The list of factories herein contained numbers 524, against 294 last year, and it is yet very incomplete. Not only in the Middle, Eastern and Western States has this system been established, but Virginia, Kentucky, and perhaps other Southern States, have factories in operation.

Indeed, so rapidly are these establishments multiplying, that fears are entertained in the minds of many that the production of cheese will soon so far exceed the demand, as to render dairying unprofitable, particularly on the high cost lands of the East. It may not be amiss to remark, however, that the best offset against an over-supply is to continue to raise the standard of quality of our dairy products so as to induce their more general use amongst us. With quality to suit their taste, Americans will not be slow to learn that cheese is cheaper and more nutritious than meat. It will be noticed, too, that in the address of Mr. Anson Bartlett, of Ohio, found in these pages, it is stated that there are now no more cows in America in proportion to the population, than there has been for over half a century.

The past season was very unfavorable for cheese-making on account of the excessive heat of the early summer, and perhaps less progress was made in improving cheese than has been made in some previous years.

But that the quality of our cheese is being steadily and surely advanced from year to year, is fully acknowledged by dealers at home and abroad. It is no small achievement so far to remove the prejudice of the English against our dairy products, as to find ready introduction into their markets, and a not unfavorable comparison with their own productions. Mr. Willard's experience and observations in Great Britain, as set forth in his letters, private circulars, and in the address contained in this Report, give us far clearer views and juster impressions of what our cheese really is in England, and what is thought of it there, than we have ever had before.

It is probable that the question regarding the real value of whey, and the most profitable use to which it can be put, will receive vastly greater attention during the coming season than ever before. Certainly the fact as to whether good, clean, sweet-flavored table-butter can be made from whey, will doubtless be solved. If decided affirmatively, it will induce an immense saving to dairymen, and may also so considerably increase the production of butter, as to bring the price of that article within the means of thousands to whose tables it is now interdicted by reason of its dearness.

It is an interesting phase of our calling, to see how largely the spirit of investigation and improvement is being carried into the perfecting of the apparatus and implements used in producing cheese and butter. The best possible qualities and quantities, with the least manual labor involved in their production, are the aims, and are to be the results, of this state of things.

The arrangement of the accompanying Report is very similar to that of its predecessors. The address of X. A. Willard, A. M. needs no commendation here. It is certain to receive that consideration which it so justly merits. Surely those members of this Association, and others who contributed towards defraying the expenses of an agent abroad last season, must feel abundantly repaid by the fullness and value of the information which, in various ways has accrued to them, as growing out of this mission.

Attention is also called to the able and characteristically practical address of Mr. Anson Bartlett, before the Ohio Dairymen's Associa-

tion;—a report of whose Convention at Cleveland, in February, will be found in the latter part of this volume.

The Weekly Circular, to which allusion was made in our Convention, has so far been abandoned by the committee having the matter in charge, as to relinquish all thoughts of publishing a separate paper. The weekly reports and statements from factories, if sent to X. A. Willard, Esq., Agricultural Editor of the UTICA HERALD, will be published in that paper.

Again, the Secretary acknowledges his obligations to the gentlemanly Reporters of the Utica papers, (more especially the HERALD.) Their reports of the proceedings of the annual meeting have been largely relied upon in making up the transactions as published herein.

In justice, also, to himself, the Secretary would state that this Report would have been issued nearly a month earlier had he not been obliged to wait for the manuscript of Mr. Willard's address.

The American Dairymen's Association is slowly but surely making for itself a permanent and prominent position in the land. There have been times, as doubtless there usually are in the building up of all similar enterprises, when even its best friends have almost despaired of its success. The apathy and indifference of dairymen have been and are the most serious impediments against which we have to contend.

Happily these are being gradually overcome, and dairymen are getting to see that their own interests are best subserved in sustaining and upholding this Association, and the objects for which it was formed.

Hoping that the Report herewith submitted may add to the usefulness and advance the interests of the Society, it is respectfully submitted.

GARDNER B. WEEKS,

Secretary.

VERONA, N. Y., April, 1867.

ARTICLES OF ASSOCIATION.

WHEREAS, It is deemed expedient to merge the New York State Cheese Manufacturers' Association, which was organized in January, 1864, into an American 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 interest of the dairy community.

ARTICLE I. The name of the organization shall be The American Dairymen's Association.

ART. II. The Officers of the Association shall consist of a President, ten Vice-Presidents, Secretary and Treasurer.

ART. III. The President, Vice-Presidents, Secretary and Treasurer, shall constitute the Executive Board of the Association.

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

ART. 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.

ART. VI. Any person may become a member of the Association, and be entitled to all its benefits, by the annual payment of two dollars.

OFFICERS OF THE ASSOCIATION FOR 1867.

PRESIDENT.

GEORGE WILLIAMS, Delta, Oneida County.

VICE PRESIDENTS.

Hon. B. N. HUNTINGTON, Oneida.

SETH MILLER, Lewis.

M. H. COCHRANE, Canada East.

BRADFORD STILES, Madison.

DWIGHT J. WOODWORTH, Cattaraugus.

A. D. HALL, Ohio.

ALANSON SLAUGHTER, Orange.

A. A. MOORE, Vermont.

——————— KINNEY, Illinois.

C. E. CHADWICK, Canada West.

SECRETARY AND TREASURER.

GARDNER B. WEEKS, Verona, N. Y.

LIST OF MEMBERS

OF THE

AMERICAN DAIRYMEN'S ASSOCIATION,

For the Year 1867.

Avery, Eli, Clayville, Oneida co.
Avery, A. L., Ilion, Herkimer co.
Allen, M. S., Fenner, Madison co.
Ansted, A., Oneida, "

Brooks, J. W., Steuben, Oneida co.
Blue, Archibald, N. Gage, Oneida co.
Blue, J. C., " "
Brown, James P., Utica, "
Brown, H. E., W. Winfield, Herk. co.
Bonfoy, S., Winfield, "
Broat, Hiram, Little Falls, "
Brayton, H. E., Newport, "
Brown, Hiram, New Berlin, Chen. co.
Babbitt, Chester, Fly Creek, Otsego co.
Brown, James, 731 Broad St., New York.
Blakeley, Dan'l, E. Aurora, Erie co.
Baker, N. R., Schuyler's Lake, Otsego co.
Blanding, Wm., Hawleyton, Broome co.

Clark, J., Delta, Oneida co.
Coates, J. G., Holland Patent, Oneida co.
Clark, F., Vernon, "
Cornish, S., Camden, "
Comstock, Wm. H., Utica, "
Curtis, T. D., Paris, "
Cooper, B. W., Little Falls, Herk. co.
Campbell, Gaylord, Frankfort, "
Chapman, J. R., Oneida Lake, Madison co.
Cole, G. T., Potsdam, St. Lawrence co.

De Angelis, W. W., Hol. Patent, Oneida co.
Devendorf, H. A., Fort Hunter, Mont. co.
Douglass, Geo. B., New York.

Eaton, J., Little Falls, Herkimer co.
Ellison, J., Middleville, "
Ellison, H. D., Newport, "

Foster, F., Durhamville, Oneida co.
Folts, L. H., Lowville, Lewis co.

Gouge, Jacob, Trenton, Oneida co.
Goodier, A. K., Bridgewater, "
Griswold, John C., Fredonia, Chau. co.
Griswold, H. E., Morrisville, Madison co.
Gilbert, M. A., Gilbert's Mills, Oswego co.

Alexander, Eaton, Henderson, Jeff. co.
Andrews, J. W., McLean, Tomp. co.
Adams, John, Ingersoll, C. W.

Blanding, F., Brookfield, Madison co.
Brockett, D. Z., Bouckville, "
Beattie, W., Truxton, Cortland co.
Brown, J. I., Flat Creek, Montgomery co.,
Buchanan, Edwin, East Otto, Catt. co.
Brainard, A. L., Perrysburgh, "
Berry, Dwight W., Middletown, Orange co.
Burnham, Asahel, Sinclairville, Chautau. co.
Baker, Rufus, Fairfield, Lenawee co., Mich.
Bacon, T. W., St. Clair, St. Clair co., Mich.
Brown, L. M., Woodbury, Wood'y co., Iowa.
Bardwell, C. S., Pawlet, Vt.
Bartlett, S. R., N. Madison, Lake co., Ohio.

Chase, Benj., Macedon, Wayne co.
Conover, J. W., Glen, Montgomery co.
Carr, J. J., Root, "
Chamberlain, L. A., Fowler's Mills, Geauga co., Ohio.
Carter, H. N., Perry, Lake co., Ohio.
Collins, Miles A., Davenport, Iowa.
Cochrane, M. H., Montreal, C. E.
Chadwick, C. E., Ingersoll, C. W.

Downes & Co., Seneca Falls.
Dewey, J. A., Potsdam, St. Lawrence co.
Dick, J. B., Willink, Erie co.

Ensign, P. W., Sheridan, Chautauqua co.
Elliott, S., Ingersoll, C. W.

Freeborn, A. H., Solsville, Madison co.
Farrington, H., Norwich, Oxford co., C. W.

Gould, Ira, Phœnix, "
Gildersleeve, C. F., Kingston, C. W.
Grosvenor, E. & J. F., Claridon, Geauga co., Ohio.

Herbert, Samuel, Ava, Oneida co.
Haskins, L. S., Vienna, "
Huntington, Hon. B. N., Rome, Oneida co.
Hopson, E. R., Brockett's Bridge, Herk. co.
Hart, D. D., Oneida Lake, Madison co.
Hunt, S., Hubbardsville, "
Harrington, M., Cowasalon, "
House, C. C., Houseville, Lewis co.
Hamlin, D., Watertown, Jefferson co.

Ingraham & Lewis, Adams, Jefferson co.

Jarvis, F. G., Fly Creek, Otsego co.
Jones, S. E., Gowanda, Cattaraugus co.

Lair, M. S., Utica.
Lewis, Ebenezer, Utica.
Leach, Nehemiah, Norwich, Chenango co.
Lamunion & Clark, Munnsville, Madison co

Mitchell, H. W., Rome, Oneida co.
Moon, Bowen, Norway, Herkimer co.
Miller, Seth, Constableville, Lewis co.
Markham, H. C.. Colliersville, "

Nicholson, Thos., Springfield, Susq. co., Pa.

Preston, C. B., N. Gage, Oneida co.
Poppleton, G. H., State Bridge, Oneida co.
Potter, Enos, Paris, "
Putnam, J. M., Newport, Herkimer co.
Palmer, W., W. Winfield, "

Roberts, T. D., Floyd, Oneida co.
Ralph, Wm., Utica, "
Reynolds, A. G. Springville, Erie co.

Spinning, Edmund, Taberg, Oneida co.
Scott, L. R., Bridgewater, "
Shearman, J. A., Utica, "
Schermerhorn, L., N. Gage, "
Seeley, Isaac, Vienna, "
Smith, C. W., Cedarville, Herkimer co.
Smith, P. H., Brockett's Bridge, "
Smith, H. W., Fulton, Oswego co.
Sweet, H. T., Phœnix, "
Stow, Geo., Bouckville, Madison co.
Saunders, G. C., S. Brookfield, Madison co.

Talman, J., N. Y. Mills, Oneida co.
Tucker, A., Sauquoit, "
Thomas, Stephen, Cassville, "

Vanderveer, J. I., Root, Montgomery co.

Ward, N., Holland Patent, Oneida co.
Wight, L. L., Whitesboro, "
Williams, Geo., Delta, "
Weeks, G. B., Verona, "
Walker, Hiram, Union Square, Oswego co.
Wilson, W. C., Cherry Valley, Otsego co.
Wilson, Geo. Wm., Dansville, N. Y.
Walts, G., Fort Plain, Montgomery co.
White, John H., Gowanda, Catt. co.

Young, D. G., Cedarville, Herkimer co.

Hughes, A. A., Stone Mills, "
Harrington, H. H., Southville, St. Law. co.
Hawley, Jas. S., Binghamton, Broome co.
Hubbs, S. E., Johnstown, Fulton co.
Hitchcock, Noah, Homer, Cortland co.
Harris, James, Ingersoll, C. W.
Hamilton, Geo., Cromarty, Perth co., C. W.
Hunter, W. S., Derby Line, Vt.
Hall, A. D., Chardon, Ohio.

Irish, R. K., Collins Center, Erie co.

Johnson, W. C., Butterfly, Oswego co.
Judson, Thomas, Brant, Erie co.

Lewis, Sidney, Syracuse.
Lawrence, Philip, Walworth, Wayne co.
Lewis, Harris, Frankfort, Herkimer co.

Morse, B. G., Red Falls, Greene co.
Miller, J. Y., De Witt, Onondaga co.
Morton, Geo., Morton, Leeds co.. C. W.

Otis, Parley, Columbus, Chenango co.

Peck, A., Burtonville, Montgomery co.
Pierce, M., S. Richland, Oswego co.
Page, J., Lorraine, Jefferson co.
Pope, J. L., S. Edmeston, Otsego co.

Riggs, C. G., Turin, Lewis co.
Rann, C. A., E. Poultney, Vt.
Reigash, J. H., Beloit, Rock co., Wis.

Scott, J. G., Watertown, Jefferson co.
Shepherd & Grinnell, Mannsville, Jeff. co.
Smith, Henry, West Exeter, Otsego co.
Smith, B. & F., Spooner's Cor. "
Sage, A. J., New Berlin, "
Safford, H.. East Otto, Erie co.
Smith, Reuben P., Tully, Onondaga co.
Simpson, Wm. Jr., New Hudson, Alle'y co.
Slaughter, Alanson, Middletown, Orange co.
Smith, J. Harvey, Fort Plain, Mont. co.
Smith, Sam'l G , Montreal, C. E.

Titus & Sisson, City, Dutchess co.
Turner, A. H., 2 Bowling Green, New York.

Welch, P., Gowanda, Cattaraugus co.
Woodworth, D. J., Yorkshire, Catt. co.
Wilbur, S. W., Farmington, Oakland co., Mich.
Waterman, H. C., Rosendale, Fond du lac co., Wis.
Wilder, C. H., Evansville, Wis.
Wickham, R. C., Pawlet, Vt.

York, J., Elgin, Elgin co., C. W.

LIST OF CHEESE AND BUTTER FACTORIES.

NEW YORK.

ONEIDA COUNTY.

			No. of Cows.
M. Mitchell's	Factory,	Remsen,	400
D. Thomas'	"	"	400
Thos. Roberts	"	Floyd.	350
Rathbun's	"	Stittville,	700
South Trenton	"	South Trenton,	600
Wight's	"	Whitesboro,	865
South Corners	"	Vienna,	600
Blossvale	"	Swiss Cheese,	450
Glenmore	"	Annsville,	700
Baggs'	"	Holland Patent,	500
Cotes'	"	" "	300
Higginsville	"	Higginsville,	245
M. Converse's	"	North Bridgewater,	600
Deansville	"	Deansville,	275
Henry R. Hill's	"	Westernville,	400
H. Williams'	"	"	300
J. C. Owens'	"	Trenton,	
E. Lewis'	"	Deerfield,	1,200
L. Tanners'	"	Marcy,	1,000
Wilcox's	"	"	600
E. C. Lewis'	"	Kirkland,	500
H. L. Rose's	"	Lowell,	600
G. B. Weeks'	"	Verona,	625
Oneida Central	"	"	300
Smith & Squier's	"	Delta,	600
Wm. Wallace's	"	West Branch,	400
J. L. Dean's	"	Hecla,	200
J. M. Tufts'	"	Vernon,	100
Woods'	"	Lee,	500
W. Saxton's	"	"	300

			No. of Cows.
Peter Charton's	Factory,	Lee Center,	400
L. S. Davis'	"	Florence,	500
David Waldo's	"	Westernville,	300
Green's	"	Vernon,	675
J. A. Shearman's	"	New Hartford,	500
Maj. Miller's	"	Trenton,	800
Excelsior	"	Rome,	600
D. Cady's	"	"	300
Hampton	"	Hampton.	500
J. K. Schuyler's	"	"	307
Rome C. M. A.	"	Rome,	850
F. Foster's	"	Durhamville,	300
Chuckery	"	Paris Hill,	600
J. H. Brooks'	"	Steuben,	500
F. Clark's	"	Vernon Center,	430
A. S. King's	"	Sauquoit,	400
E. A. Palmer's	"	Clayville,	180
S. Thomas'	"	Cassville,	250
J. Crosby's,	"	Rome,	240
Cold Spring	"	Florence,	400
Mad River,	"	"	500
Camden,	"	Camden,	500
Knoxboro,	"	Knoxboro,	300
J. F. Pierce's	"	Holland Patent,	700
Curtiss'	"	Waterville,	250
A. Blue's	"	North Gage,	140
Hampton C. Assoc.	"	Westmoreland,	700
Bronson & Earl	"	Vernon Center,	300
Dunlap & Rivenburg	"	Vernon,	300

HERKIMER COUNTY.

Northrup's	Factory,	Litchfield,	300
North Winfield	"	North Winfield,	500
J. H. Clark's	"	Winfield,	300
E. Bartlett's	"	"	300
H. C. Brown's	"	West Winfield,	400
Walter Palmer's	"	" "	200
Samuel Smith's	"	" "	200
E. C. Warren's	"	Warren.	400
Kinney	"	Litchfield,	600
Fort Herkimer	"	Fort Herkimer,	400
Richardson's	"	Schuyler,	300
Daniel Hawn's	"	Starkville,	800
Shell's	"	Russia,	600
Poland	"		400
J. Mather & Co.'s	"	Fairfield	1,000
Coon's	"	Russia.	250
R. Brown, Cole & Co.'s	Factory,	Fairfield,	600
Eatonville	Factory,	Eatonville,	1,000
Hopson's Cold Creek	Factory,	Salisbury Center,	800
Green & Ostrander's	Herkimer Co. Union,	Little Falls,	700

Geo. W. Pine's	Factory,	Herkimer	700
S. A. Farrington's	"	Frankfort,	600
L. N. & G. Harvey's	"	Graefenberg,	300
J. W. Runyan's	"	North Litchfield,	400
W. Budlong's	"	West Schuyler,	1,000
Herkimer,	"	Herkimer,	500
First National	"	Frankfort,	650
Cedarville	"	Cedarville.	600
Cook, Ives & Co.'s	"	Salisbury Corners,	600
Avery & Ives'	"	" Center,	800
Jas D. Ives'	"	Norway,	
L. H. Carr's	"	Salisbury,	
Mather Rees & Co.'s	"	Fairfield.	
S. Eysaman's	"	Eatonville,	
Helmer & Favill's	"	Brockett's Bridge,	800
L. Snell & Co.'s	"	Manheim Center,	
J. " "	"	" "	
Rice, Broat & Co.	"	Little Falls,	950
Geo. Davis'	"	" "	
Cold Spring	"	" "	
Herkimer Union	"	Herkimer,	

MADISON COUNTY

West Eaton	Factory,		600
Ingram	"		500
Peckspport	"		800
Erieville	"		700
Seymour's	"	Lebanon,	400
Smith Valley	"		500
Morse's	"	Eaton,	600
Georgetown	"		800
Stiles'	"	Oneida Castle,	600
Cazenovia	"		500
Canasaraga	"		450
Clockville	"		500

Peterboro	Factory,		900
Stockbridge	"		500
De Ruyter	"		700
Woodstock	"		800
Hunt's	"	Hubbardsville,	600
Lamunion & Clark's	fact'y,	No. 3, Stockbridge,	400
Nelson	Factory,	Nelson,	600
Hart's	"	Oneida Lake,	250
Mile Strip	"	Fenner,	350
Ellison's	"	Brookfield,	200
Excelsior	"	"	300
Fenner	"		450

LEWIS COUNTY.

			No. of Cows.
Folts'	Factory,	Lowville,	750
Peter Bent's	"	"	400
Hall's	"	Barnes' Corners,	600
Rees'	"	Martinsburgh,	150
Miller's	"	Constableville,	750
High Market	"	High Market,	460
Houseville	"	Houseville,	800
Glensdale	"	Glensdale	700
Sugar River	"	Leyden,	900
Wood's	"	Turin,	400
Bush's	"	"	500
Shepherd's	"	"	250
Williams'	"	"	150
Carpenter's	"	Houseville,	150

			No. of Cows.
Dunton's	Factory,	Martinsburgh,	1,000
W. Martinsburgh	"	West Martinsburgh,	500
Green's	"	"	400
Kelsey's	"	"	450
West Lowville,	"	West Lowville,	800
Searles'	"	"	500
Alexander	"	"	300
Sulphur Springs	"	Lowville,	800
Vary	"	Harrisburgh,	500
Clark's	"	"	600
Lanphere's	"	"	500
Deer River	"	Deer River,	700
Austin	"	Denmark,	700

OSWEGO COUNTY.

Bennet & Bonfoy's	Factory,	Moleno,	400
M. Pierce's	do	South Richland,	300
Gilbert Mills	do	Gilbert Mills,	430
A. M. Gregg's	do	Kennellville,	
Volney Center	do	Volney,	310
Whittemore's	do	Scriba,	500
Ingell & Smith's	do	Volney,	875
Blodgett's	do	East Sandy Creek,	600
Robbins & Co.	do	do do	600
Suydam's	do	do do	400
Trumbull's	do	Pulaski,	270
Hall's	do	do	300
Cold Spring	do	do	300
Jones'	do	South Richland,	400
L. Willis'	do	do do	300
Moscow	do	Orwell,	400
Blunt's	do	do	150
Union,	do	Colosse,	400

Union	Factory,	Mexico,	500
Waygint's	do	Prattville,	500
Smith's	do	New Haven,	200
Daggett's	do	do	300
Donnelly's	do	North Scriba,	400
South West Oswego Factory,			400
Vermillion	Factory,	Vermillion,	400
Smith's	do	Volney,	330
Brown's Corners	do		200
Hubbard's	do		250
Jennings'	do	Palermo,	100
East Scriba,	do		260
Sweet's	do	Schroeppel,	200
Gregg's	do	do	260
Phoenix	do	Phoenix,	850
Central Square	do		200
West Manual	do		250

JEFFERSON COUNTY.

Westcott's	Factory,	Watertown,	300
Wilson's	do	do	
Skeel's	do	do	300
Cascade	do	do	300
D. Hamlin's	do	Rutland,	500
Harper's Ferry	do	do	
Wicks'	do	Champion,	
Babcock's	do	do	
Hadsall's	do	do	
Wardwell Settlement	do	Pierrepont Manor,	600
Salisbury Mills	do		600
Smithville	do	Smithville,	
Hill's	do	Rodman,	
Heaton's	do	do	230
Vroman's	do	do	400

Dry Hill	Factory,	Rodman,	
Loveland	do	Adams	
Woodville	do		600
Belleville	do		500
Mannsville	do		600
Ingraham, Lewis & Co.'s	do	Adams,	900
Union	do	Watertown,	170
Leffingwells'	do	Henderson,	170
Parker's	do	Wardwell,	450
Stanley's	do	Adams,	500
Philadelphia	do	Barber's Corners,	400
Bonfoy, Bettinger & Allen's Factory, Loraine,			530
Evans Mills	Factory,	Evans Mills,	
Brownville	do	Brownville,	
Wilson's	do	Rutland.	

MONTGOMERY COUNTY.

Charleston 4 Corners	Factory,		525
Smith Creek	do	Fort Plain,	675
Empire	do	Burtonville,	260
Hallsville	do	Hallsville,	
Frysbush	do	Frysbush,	
Hessville	do	Sprout Brook,	
Cold Spring	do	Stone Araba,	
Waterville	do	Ames,	
Flat Creek	do	Flat Creek,	
(Seven others in contemplation.)			

Cayadutta	Factory,		845
A. Snell & Co.'s	do	St. Johnsville,	
Snell, Smith & Co.'s	do	do	
Root	do	Root,	
Wler's	do	do	
Glen	do	Glen,	
Dievendorf's	do	Amsterdam,	
Florida	do	Minaville,	
Switzer Hill	do	Fonda,	

CHAUTAUQUA COUNTY.

Crowell & Session's	Factory,	Hamlet,	800
J. E. Robertson's	do	Busti,	600
Clear Spring	do		700
Burnham's	do	Sinclairville,	1,049
J. S. Hulbert's	do	Forrestville,	400

Coon's	Factories (3)	M'na,	1,250
do	do	Sherman,	450
Canadawa	do	Arkwright,	687
Gerry	do		500
Casadaga,	do	Casadaga,	400

OTSEGO COUNTY.

J. Wycoff'	Factory,	Richfield Springs,	500
Ellison's	do	Unadilla Forks,	220
David Lock's	do	Richfield,	800
Center Brook	do	Otego,	130
Stocker & Fox's	do	East Springfield,	600
Casler & Andrews'	do	Springfield Center,	450
Charles Russell's	do	Hartwick,	200
Pitt Cushman's	do	Edmeston Center,	200
Col. Gardner's	do	Burlington Flats,	150
Ed. Gardner's	do	do	150
Benj. Smith's	do	Spooner's Corners,	400
Brockway's	do	Richfield,	300
Chas. Smith's	do	West Exeter,	500
Babbit & Jarvis'	do	Fly Creed,	200
Park's	do	Burlington Green,	250
Parley Phillips'	do	Unadilla Forks,	200
Russel Bowers'	do	Exeter,	300

Parker's	Factory,	South Edmeston,	400
Gates E. Pope's	do	do	400
L. N. Brown's	do	West Edmeston,	500
Ed. Loomis'	do	Richfield,	150
L. O. Vebber's	do	Exeter Center,	200
H. & S. Smith's	do	West Exeter,	300
D. R. Joslyn's	do	do	100
Lyman Johnson	do	Burlington Flats.	500
Coleman's	do	do	200
Newel N. Talbot's	do	do	150
Wm. Brown's	do	Unadilla Forks,	400
Clark's	do	Schuyler's Lake,	200
James Ackerman's	do	Edmeston Center,	400
Warren Chase	do	West Edmeston,	250
Joseph King's	do	Burlington Green,	300
George Clark's	do	Hyde Park,	300

CHENANGO COUNTY.

			No. of Cows.				No. of Cows.
Tuttle	Factory,	Columbus,	230	Holmesville	Factory	Holmesville,	650
Hiram Brown's	do	do	400	Daniels'	do	McDonough,	600
A. R. Sage's	do	New Berlin Center,	800	Lincklaen	do	Lincklaen,	500
Holmes & Richer's	do	Columbus,	600	Norwich C. M. Co.	do	Norwich,	500
George Buel's	do	King Settlement,	600				

CORTLAND COUNTY.

Lewis Sears'	Factory,	Cuyler,	1,000	Preble	Factory,	Preble,	600
L. Sears'	do	De Ruyter,	1,100	Homer	do	Homer,	800
Kenney	do	Truxton,	1,200	Freetown	do	Freetown,	800
Beattie's	do	Truxton,	500	Cincinnatus	do	Cincinnatus,	400
Blodgett's Mills,	do	Cortlandville,	300	S. Cortland	do	S. Cortland,	400
Keeney's Settlement	do		1,000	Meecham's	do	Marathon,	300
New Boston	do	Cuyler,	600	Taylor	do	Taylor,	400
East Homer	do	East Homer,	450				

CATTARAUGUS COUNTY.

Woodworth's	Factory,	Yorkshire	600	Champlins'	Factory,	Napoli,	300
Franklinville	do	Franklinville,	700	East Otto	do	E. Otto Corners,	
Lewis & Wilder's	do	Sandusky,	500	Waverly	do	Waverly,	
Elton	do	Elton,	400	Follett's	do	Machias,	
Ashford	do	Ashford,	400	Farmersville	do	Farmersville,	600
Riceville	do	E. do	250	Hopkin's	do	Mansfield,	
Lowe & Stocking's	do	Springville,		Perrysburg	do	Perrysburg,	
Poor & Cary's	do	Yorkshire Center,					

CAYUGA COUNTY.

Throopsville C. M. Assoc. Factory, Auburn, 450

ST. LAWRENCE COUNTY.

Olin & Smead's	Factory,	Canton,	675	South Canton	Factory,	South Canton,	450
Southville	do	Southville	200	De Kalb	do	De Kalb,	700
Barker's	do	Richville,	640	Gouverneur	do	Gouverneur,	500
Potsdam	do	Potsdam.	500	W. Fowler	do	W. Fowler,	450

ONONDAGA COUNTY.

L. H. Webster's Factory, Fabius, 500 De Witt C. M. A. Factory, De Witt 300

ALLEGANY COUNTY.

Simpson's	Factory,	New Hudson,	400	Akerly's	Factory,	Rushford,	
Perry's	do	Seymour,	600	Barn's	do	Fillmore,	
Elmer's	do	Rushford,	200	Andover	do	Andover,	500
Forsythe's	do	Independence,	200	Black Creek	do	Black Creek,	
Nile	do	Nile,	125	E. Rushford	do	E. Rushford,	
Richburg	do	Richburg,	100	Oramel	do	Oramel,	
Alfred	do	Alfred,	525	Almond	do	Almond,	
Friendship	do	Friendship,	150	Clarksville Center	do		
Centerville	do	Centerville,	600				

TOMPKINS COUNTY.

Dryden Union	Factory,		600	McLean Association	Factory,	McLean,	1,300
Groton	do		500	Freeville Union	do	Freeville,	700

FULTON COUNTY.

E. R. Hopson's Factory, Cold Creek, 550

BROOME COUNTY.

Maine	Factory,	Maine,	250	Squires Creamery,		Kirkwood,	200
Hawleyton	do	Hawleyton,	275				

ERIE COUNTY.

Collins	Factory,	Collins,	1,100	Concord Center	Factory,	Woodward's Hollow	500
W. G. Huntington's	do	Pontiac,	800	Boston Corners	do	B. Corners,	400
Moore & Adams'	do	Concord,		Wales	do		450
First Collins	do		560	Paxon's	do	Eden Corners,	600
Collins Center	do	Collins Center,	660	Collins,	do	Gowanda,	600
Brant Center,	do	Brant,	350	Sisson's	do	Shirley,	400
Marshfield	do	Marshfield,	1,000	North Evans	do	N. Evans,	500
Morton's Corners	do	M. Corners,	600	Angola	do	Angola,	550
Springville	do	Springville,	1,400	Brant	do	Collins,	500
Reynold's	do	Sardinia,	500	Judson	do	Brant,	500
Glenwood	do	Glenwood,	400	Dwight	do	Gowanda,	250

WAYNE COUNTY.

Walworth Factory, Walworth, 500 Macedon Factory, Macedon, 300

ORANGE COUNTY.

		No. of Cows-			No. of Cows.
Circleville	Factory,	400	J. F. Vail & Co.	Factory,	450
Collabnrgh	do	225	Brown, Lane & Co.	do	250
Rockville	do	425	Wawanda	do	375
Unionville	do	250	J. B. Halsey & Co.	do	300
Wallkill Association,	do	475			

FACTORIES WHERE MILK IS BOUGHT. (ORANGE COUNTY.)

D. Mullock's	Middletown,	250	E. Bull's	Chester,	150
Orange Co. Milk Assoc.	Michigan,	550	Bankers Brothers	do	250
do do	Chester,	325	F. Davis	do	225
Gouge & Woodhull	Hamptonburgh,	600	P. Holbert's	Middletown,	275
Bates & Co.	do	250	Mapes & Stewart	do	425
Gouge & Youngs'	Florida,	400	Jas. Hulse	do	250
T. J. Taylor	do	175	Wm. Mead & Co.	do	250
Carpenter Howell	Amity,	425	Cristee & Hayne	Unionville,	300
do	Warwick,	350	O. F. Green,	Greenville,	300
Sanford & Smith	do	300	H. Reamey	do	125
R. Millburn	do	250	Corwin & Moore	Otisville,	225
T. Durland	do	150	J. A. Wood	Slate Hill	200
Brown, Bailey & Co.	Edenville,	400	Howell & Woodhull	Monroe,	400
Foster Clark's	Wickham's Pond,	350	W. H. Clark & Co.	Minisink,	300
Wood's	Chester,	200			

WYOMING COUNTY.

George Hoye's Factory, Attica, 300

FACTORIES IN PENNSYLVANIA.

Springville Factory,	Springville, Susq. Co.	300	New Milford Creamery,	N. M. Susq. Co.	200
Bridgewater do	Bridgewater, do	200	Spring Hill Factory, S. H.,	Bradford Co.	150
Gage do	do	80			

FACTORIES IN VERMONT.

E. Berkshire Factory,	E. Berkshire,	800	Wickham's Cheese Factory,	Pawlet,	800
Enosburgh Factory Co.,	Enosburgh,	1,000	Mason's do do	Richmond,	80
N. Enosburgh Factory,	N. Enosburgh,	600	Valley do	Hinesburg,	500
E. Franklin Cheese Factory,	E. Franklin,	600	E. Poultney, do	E. Poultney,	500
Middletown do do	Middletown,	500			

FACTORIES IN MASSACHUSETTS.

Worcester Co. Factory,	Warren,	500	Petersham Cheese Co.,	Petersham,	
Union Cheese do	Hardwick,		Cheshire do do	S. Adams,	
New Braintree do	N. Braintree Center,	542	Westboro do do	Westboro,	
Barre Central Cheese Co.,	Barre do		Lewis' Milk Condensing Factory,	W. Brookfield,	
Barre Cheese Co.,	Barretown,	375	Coy's Hill Cheese Co.,	Warren,	300

FACTORIES IN ILLINOIS.

Hainesville Factory,	Hainesville, Lake Co.,		Huntley Grove Factory,	H. G. McHenry Co.,	250
Burchard's do	Sumner, Kankakee Co.,		Wanzer & Co.'s do	Herman, Kane Co.,	

FACTORIES IN OHIO.

GEAUGA COUNTY.

Ayer's	Factory,	Pond Station,	800	J. Budlong's	Factory, Chardon.	1,200
Andrew's	do	Bissels,	900	D. L. Pope,	do Welshfield,	1,200
Lucius Bartlett's	do	Chester,	300	L. J. Randall	do Burton,	900
do	do	do cross Roads,	1,200	P. Hall	do do	400
R. Hood's	do	Bridge Creek,	1,000	Armstrong & Chace	do East Claridon,	800
Smith & Baker's	do	Ford,	800	H. J. Langston	do Parkman,	1,000
Hall & Freeman's	do	Newbury,	800	B. Armstrong	do Huntsburg,	950
A. D. Hall's	do	Fowler's Mills,	800	L. J. Randall	do Montville,	1,000
do	do	Chardon,	900	F. Smith	do Thompson,	700
L. J. Randall,	do	do	700			

LAKE COUNTY.

H. N. Carter	Factory,	Perry,	400	R. T. Hitt	Factory, Willoughby,	500
S. E. & H. N. Carter	do	Leroy,	300	Bartlett & McKee	do S. Kirtland,	400

TRUMBULL COUNTY.

E. C. Cox	Factory,	Mesopotamia,	900	McConnell & Harshman Factory,	Southington,	800
J. M. Trew	do	W. Farmington,	1,000			

SUMMIT COUNTY.

Gilbert Roach	Factory,	Twinsburg,	1,200	Hudson	Factory, Hudson,	500
Akron C. M. Co.	do	Akron,	800	Wolcott's	do Little York,	400
Copley do	do	Copley,	400	Streight & Terry	do Hudson,	800
Hopkins, McMillen & Co.,	Factory,	Bath,	500	do do	do Twinsburg,	450

PORTAGE COUNTY.

		No. of Cows.			No. of Cows.
Streight & Terry's	Factory, Streetsboro',	600	O. C. Risden & Co.'s	Factory, Shalersville,	800
Hurd & Brother's	do Aurora,	600	Bradley's	do Mantua,	750
W. G. Eldredge	do do	250	H. S. Johnson	do Garretsville,	800

CUYAHOGA COUNTY.

Lord's	Factory, Mayfield,	500	J. Q. Lander	do North Solon,	1,000

LORAIN COUNTY.

J. C. & C. W. Horr	Factory, Wellington,	1,200	Camden Cheese Co.,	Kipton Sta.	800
Snow's	do Huntington,	400	Mussey & Viet's	Factory, Elyria,	350

HURON COUNTY.

L. D. King	Factory, New London,	200	J. B. Bissel	do Wakeman,	1,000

ASHTABULA COUNTY.

H. F. Gidding's Factory, Lindenville, 400

MEDINA COUNTY.

Chamberlin & McDowell's	Factory, Medina,	500	G. G. Crane	Factory, Sharon Center,	600
A. C. Benedict	do Litchfield,	600			

FACTORIES IN WISCONSIN.

C. H. Wilder's	Factory, Evansville, Rock Co.,	400	Rosendale	Factory, Rosendale, Fond du Lac Co.,	600
Springvale	do Nanaupa,		Hazen's	do Springvale, do do	450

FACTORIES IN IOWA.

Smith's Factory, Mason City.

FACTORIES IN MINNESOTA.

Anderson's Factory, Mower City.

FACTORIES IN KENTUCKY.

Childsburg Factory Childsburg, Fayette Co. 300

FACTORIES IN MICHIGAN.

St. Clair Factory,	St. Clair,	450	Horton's Factory,	Adrian,	
Fairfield do	Fairfield,	400			

FACTORIES IN CANADA.

Smith & Sons',	Norwich, Oxford Co., C. W.,	400	Lossing's,	Durham,	C. W.	250
Galloways's,	Ingersoll, do do	150	Kearn's	Oxford,	do	200
Josiah Collins,	Mount Elgin, do do	350	Dodge's	do	do	200
Moyer's,	West Zorra, do do	100	Silverthorn's	do	do	70
Adams'	Nissouri, do do	450	Tho. Abram's,	Norwich,	do	275
Wade's,	Coburg, do do	450	G. Dunkin	do	do	200
Jas. Harris,	Ingersoll, Oxford Co., C. W.	400	Wm. Bailey,	do	do	175
do Branch do	do do	300	Andrew Pickert, Lowville, Halton Co.			150
H. Farrington,	Norwich, do do	300	Rich Carter, Bramton, Peel Co.			175
do Branch do	do do	200	Wilmot's, Milton, Halton Co.			250
Chas. Banbury,	St. Mary's, do do	300	Cambell's do do			200
Harris & Adams,	Mt. Elgin, do do	250	Smith & Cochrane, Compton, C. E.			250
Scott's,	Lobo, C. W.		(About 50 others erecting.)			

ANNUAL ADDRESS

Delivered before the AMERICAN DAIRYMEN'S ASSOCIATION, *at Utica, Wednesday Evening, January* 9, 1867.

By X. A. WILLARD, A. M.,

OF HERKIMER COUNTY, N. Y.

MR. PRESIDENT AND MEMBERS OF THE AMERICAN DAIRYMEN'S ASSOCIATION—LADIES AND GENTLEMEN:

Before entering upon the topics for the evening, it will be proper for me to state some facts in regard to my mission to Europe.

It is well known that a committee was appointed at the last Convention to raise funds to send an agent abroad. Soon after the close of the Convention, Mr. Shearman, its chairman, inaugurated a plan for obtaining the funds, and through his indefatigable exertions, assisted by Mr. Williams, Mr. Bartlett, Mr. Farrington and others, the money was raised, and I was invited to go abroad on the mission. I am not insensible to this honor, (unsolicited as it was on my part,) nor to the general approbation which the committee assured me was had from all parts of the dairy region.

Though going abroad was to me a serious pecuniary loss, it does not lessen my obligations to those who were active in the movement, and reposed confidence in my ability to obtain the expected information. I duly considered, before accepting the mission, its advantages and disadvantages, and did not expect to reap pecuniary reward.

In raising the fund, the subscribers made a condition that the more important matter elicited should come to them in private circulars. I saw from the first that this mission was one of considerable responsibility; that the excursion was to be no pleasure trip, but one of steady, active, laborious work.

In looking over the ground before me, I determined upon the following course of action: 1st. To have no part with dealers or shippers of cheese, in business transactions, no matter what offers or inducements might be held out. 2d. To obtain facts from actual observation; to sift opinions and statements, and get at the truth at

all hazards; to be earnest and faithful in the discharge of duties; to be true to the interests of those who sent me abroad; and finally, to bring back a perfectly clean record.

The committee placed $1,630 in my hands, about one-third of which was given to convert the balance into gold. After paying necessary expenses and passages across the Atlantic, it left some $800 in gold for prosecuting observations. I traveled over a large part of England, from the extreme south to the extreme north—was in Scotland, Ireland, France and Switzerland. I went out early in May and returned in October, drawing while abroad considerably on private funds.

In regard to my reception in England, I have no fault to find. I received attentions from some of her most distinguished men; such men as Dr. Voelcker, the great chemist of the Royal Agricultural Society; Professor Gilbert, noted throughout the world as the rival of Liebig, Mr. Freer, editor of the *Journal of the Royal Agricultural Society*, and many others of celebrity. I could name many acts of kindness received in England from persons who knew something of me from reputation, but must not occupy time in this way. I mention these things here in no spirit of boasting, but because I know you have an interest in hearing in what manner your agent was received abroad.

I sent out thirteen circulars, eleven only of which were received and published. They embrace facts, rather than opinions. Some of them contain statistics and information requiring much labor to obtain, and never before made public. As a basis of future operations, they must prove of great value. The object of the mission was not of an advisory character. It was simply to collect facts, and transmit them at as early a date as practicable. Somebody took the pains to write out my circulars, and send them back to London shippers. I cannot say what was expected of me; but I did not engage to keep track of the markets in both countries, to control the price of gold, to be responsible for panics in the provision markets, to ensure that factories should make prime cheese, or to compel buyers to come to the door and take it at monstrous prices. If any factory anticipated some grand, overwhelming result, that should unsettle the laws of commerce, laws built up by a thousand years of labor, *that* factory has probably been disappointed.

It was claimed abroad, by persons competent to judge, that had it not been for the factories sending abroad an agent, prices here would have gone down in July, and the best American cheese could have been bought during the season at 15 cents. The attempt was made and failed, simply because the factories had the necessary

information and stood firm. Men in New York wrote back to England, that it was useless to try to break prices in America, that the factories stood firm, and that your agent was doing immense damage to the trade by his circulars. It is not the first time that I have been accused of injuring the dairy public. Last year in open Convention, you will remember, it was stated that my editorials in the *Herald* had done great damage, by inducing men to hold cheese and not sell it to speculators at a low price. Factories that had their cheese on hand, it was said, would be very likely to keep it, and yet, in two weeks after the Convention, up went prices, verifying my predictions.

Now, I have no war to make against dealers; many of them are honorable men, engaged in a special branch of commerce, requiring vast sums of money, and the running of large risks. They operate precisely as you or I or anybody else would, under similar circumstances. They do not buy cheese for a mere pastime, but to make money.

Some people, however, infer that I am hostile to them, because my sympathies are with the farmer, and must therefore be put out of the way. I could mention names, and refer to insinuations circulated in the hope of damaging me in the good opinion of friends, but it would do no good. It is come to be considered almost a crime for a man in any public capacity to take sides with the producer. Somebody must have a bite; and if you remonstrate that the nip is too large, you are accused of being a dangerous person.

I hear that some factories held their cheese till December, had no place to keep it, and then became uneasy and sold it at a low figure. If the cheese was good, in my opinion they made a great mistake. They should have shipped to New York, and held a few weeks for better prices. If they charge they have been misled by my circulars, it is ungenerous. I advised no one to hold or to sell; I but stated facts truthfully. I labored incessantly to sustain prices. I could have written the market down, and have been well paid for it. You would never, perhaps, have been the wiser, but I should have had the consciousness of being treacherous and dishonest. The price of cheese is now advancing on the other side, as was anticipated. The consumption is large and the supply limited. It must be had from America. Time will prove whether my estimates have been warranted or otherwise. I have not proposed to use the matter of the circulars in my address. Those who keep them for reference in next year's transactions, will more than get back the money that has been paid for them. In my opinion, hundreds of thousands of dollars have been saved this year to the dairymen of America, by hav-

ing the exact condition of the English markets, the foreign production and the probable demand, placed in the possession of factories. The intelligence might have reached them through sources other than the circulars, but it did not, and judging from the past, the chances are entirely opposed to it. It is not to the interest of commerce to post up the producer, and it ought not to be expected.

Last year, (1865,) with gold and exchange at a high premium, with an unprecedented home market that kept up all the season, the average prices obtained for our best factories, was only 15 cents and a fraction per pound. This year, with a greatly increased production, with an early break down in the home market, with a mass of poor flavored cheese made in July, and with poorer average rates of gold and exchange, we have realized a considerable higher average for cheese than last year. Reasoning from analogy, the price should have been less this year than last. Will you tell me what has brought about this result? a result unparalelled in the history of the cheese trade. Is it because commercial men have been more liberal? Dealers claim that no money was made on cheese sold from June to September. Has it been simply a matter of chance? No; it is because you, dairymen, inaugurated a plan for getting a true account of the foreign demand and markets. That knowledge gave you courage, and you were prepared, and able to meet the commercial man upon an equality. I claim nothing for myself, because I simply did my duty; but if any one is simple enough to believe that prices could have been kept up as they have been without this knowledge, kept up till the great panic in the provision market in the fall, then he must reason upon a new line of observations which it would be well for you to know for conducting next year's operations. What have been the prices paid for cheese here the past season? In looking over the reports of sales for the different weeks and months, I find that prime factory cheese commanded during the season up to the 1st of September, 19 cents and upward. On the 4th of September, the best sold at 18¼ cents. The week ending September 11th, a flurry in the cheese market is reported, and a statement is made that the buyers in New York had combined to drop prices. Farm dairies at Little Falls at that date, brought only 17 cents. On October 23d, the factories were selling at 17½ cents, and on October 30th, at 16½ cents, November 5th, 16¼ cents. On November 6th, the Herkimer county *Citizen*, of Ilion, reports nine factories selling in that market at 16¼ cents. On November 12th, factories sold at Little Falls at 16¾ cents. This last figure is a penny a pound above average sales of 1865. On November 19th, farmers were selling late ends at Little Falls, at 16 cents. The market for fine factory

make did not go below that figure in December, though some may have forced sales at lower figures. It was worth more money, and those who bought knew it. I have letters from Messrs. Anderson & Son, of London, saying that a large profit was being made on cheese invoiced at the low rates of November sales. I am told that dealers in New York could not readily get money from the banks to operate, hence competitors were kept out of the market. I do not blame dealers. A combination of circumstances has favored them, and they will make money. This is, perhaps, better than to have had them sustain losses. I am always glad to have them do well, and believe they should be amply paid for services. I do not object to their taking a fair proportion of the profits. It is only when they take all, that complaint is made.

From reports of factories sent to me and published in the *Herald* since my return, I find the average sales of MILLER'S FACTORY, of Constableville, to be $18.01 per 100 lbs. This is 2 cents higher than last year's sales of the same factory.

WEEKS' FACTORY averaged $17.92 per 100 lbs., over 2 cents higher than last year's sales.

The following statement sent to me from the Treasurer of the Verona Central Cheese Factory, will probably give a fair idea of the fluctuations in the market during the season:

RECEIPTS.

May 25,	sold	5,048	lbs.	to Cary, at 19½ c.	$984	36
June 7,	"	4,119	"	Van Evera, at 19 9-16c.	805	77
" 18,	"	8,774	"	Burrell, at 19c.	1,667	06
July 14,	"	6,830	"	Bradt, at 19½c.	1,331	85
" 28,	"	23,114	"	Stiles, at 18½c.	4,276	09
Aug. 29,	"	19,080	"	Bradt, at 19c.	3,434	40
Sept. 24,	"	19,101	"	Cary, at 16⅛c.	3,080	04
Nov. 12,	"	14,680	"	Cary, at 16½c.	2,415	60
" 26,	"	17,988	"	Tomlinson, at 16c.	3,038	08
				Add to sale of Nov. 26,	5	00
		1,145	lbs.	sold to patrons,	188	92
		120,839	lbs.	of cheese,	$21,227	17

Average per 100 lbs. for whole season, $17.56⅔.

The extra two cents this year upon the Miller and Weeks' factories alone, amount to $8,856.54; of the Verona Factory there is no statement of last year's sales in the report.

I am not here to give a manual on cheese-making, or to act in the capacity of teacher. If I shall be able to throw out suggestions here and there for thought—suggestions which, after having been revolved and worked up by you, shall result in the further devel-

opment of our art—it will be all I have ever hoped to accomplish. It should be remembered that no written exposition of a science can be substituted for experience. You can not write out the art of cheese-making as you would a prescription or a compound, which requires only the scales to weigh out the different ingredients. General principles can be stated. From these, deductions must be made and results watched, and thus, through a series of experiments and observations, the art acquired. What is desirable for us, and it is all that should be expected, is to have the facts connected with the business presented in a clear and lucid manner. Then each one must bring his intelligence, his judgment, and experience, to group them together, and make them subserve his purpose.

At your Convention last year I presented some new features of the factory system, obtained in my tour through Orange county—the manufacture of butter, in connection with cheese, at factories. The statistics and deductions were given as a matter of intelligence, to be duly considered and disposed of by you, as your judgment and good sense should dictate. Some established butter and cheese factories made large profits, and have been well pleased with their operation. Others, I learn, have not been successful, and charge that the system is a great damage to the dairy interest, and should never have been suggested. That may or may not be. All are not equally skillful and successful in the management of their business, whether it be upon the farm, in the dairy, or in the counting house. But I submit, it is not generous to cast one's bad luck upon the person who furnishes you information and facts with which you have been hitherto unacquainted.

Suppose Mr. A. T. Stewart, or some other successful business man, should address you on the art of money-making, giving his own experience; how from poverty he rose to affluence, giving in detail every step of his successful career; it does not follow that every one in this audience could work out similar results. The principles set forth might be of great service, and be so applied as to be generally beneficial; but some in attempting to put them in practice would signally fail. But, would Mr. Stewart be responsible for the bad luck or ill success of these persons? By no means.

Now, while I hold myself responsible for the truth of the statements which I may present, I wish every one to reason upon them, to make up his own mind upon the deductions, and not adopt them unless he is satisfied they are sound.

I know there are a great many people in the world who are delighted to make a profound sensation, who write and speak to please the popular ear; and perhaps something of the sort is expected of

me this evening; but my friends, there is other work to do, for I am in earnest, and have no words to waste in figures, and tropes, and rounded periods.

The dairyman has a great work to do. Standing as I do in that relation with my farm and herd, I feel with intensity every movement which affects our common interest. I desire to see the American farmer stand in the position to which his worth entitles him. He is the capital of the nation, the source of its wealth and power, and yet other classes have the controlling influence. They make our laws, they place the burthen of taxation on our shoulders, they arrange the prices for our products, they write for us, and do the most of our public speaking. Even at our agricultural gatherings and fairs, it is usual to employ some speaker who knows nothing of farming practically, and who has no sympathy with the calling or feelings of those in our profession. We listen to such speakers and are perhaps tickled at the heartless compliments they pay us, and the paradise on earth which they pleasantly picture we are enjoying. But however much we may be pleased with the *picture*, we know it is quite different from the reality; and whatever is suggested by way of practice passes by without confidence, because we suspect it is not genuine. So far as any real usefulness is concerned, nothing has been gained. Whereas if some plain, practical farmer had merely stated his experience in what way he had been successful, and how losses had been sustained, many would have been instructed, and *some*, at least, greatly benefited. We need to be told the truth, even if it cuts down to the quick. If on the wrong road, it is better to know it at once. It may be pleasant for the time being to be told you are in the right way, that the road is good and pleasant, and all that, but after miring in its sloughs and ditches, we feel that it would have been better to have had the unpleasant truth at first.

This is quite a common fault among farmers; the idea that knowledge has no moneyed value, but that it can be picked up by hook or crook for nothing. I have heard men say that they did not care to spend their time and money at farmers' clubs, or even at these conventions, saying they can get all the proceedings the next day from the papers at no cost. Men have actually asked me to introduce topics for discussion, upon which they desired information, and who expected to get it all without any trouble or expense.

When in England, going among the farms, I visited an intelligent and extensive farmer having many acres of wheat, which the continued wet weather had spoiled. We walked through a field where a great force of workmen were employed in opening the sheaves to

get them dry. This had been done over and over again, but each time before they could be made ready for the stack, the rain would come wetting them again, and now the wheat was sprouted. I said to him that it made me sad to see such a waste of grain, in a country where there were so many poor and needy people that required it, and that thousands of acres of wheat in Great Britain could have been saved this year, by the adoption of a little Yankee contrivance called the "Hay Cap," and then I explained its construction and use. Oh, said he; that suggestion a few weeks ago would have saved me hundreds of pounds, and I shall adopt it at once; but why could you not have told our English farmers of this through the papers, in time to have spared us this great calamity? You see he blamed me me for not anticipating his bad luck and want of knowledge. And so it is at home. Men cannot see what a simple suggestion is sometimes worth until too late. This is one reason why progress is slow.

Last year the greater part of the time of this Convention was employed in discussions which had no point—in accusations that somebody was running this Society to make money out of it, or to advance some private end. People came here from a great distance and at much expense, in the hope of learning something, and when they saw the time wasted in this way, they felt, and had a right to feel, that it was an abuse. The aspersions cast against some of the officers were baseless. I believe that every member of the board has ever been actuated by the purest motives, laboring without hope of reward to sustain this institution and make it serviceable to the farmers of the country.

My friends, I beg of you to think of these things in their proper light. Occupying no position in the Society—never having sought a favor, or expected it—I can afford to stand here and tell the truth. I am earnest for the advancement and success of this Society, because I am, like you, engaged in the dairy business. I know that among so large a body of practical men, some new hints and practical suggestions *must* have been developed during the year. It is to your interest and to mine to have them discussed, since difference in experience may modify ultra views. Hence it is important that there should be a good feeling among members, and that each strive to promote the general good, rather than to distract by unworthy suspicion. The Society has accomplished a vast amount of good for the country at large. The reports of your proceedings have attracted great attention, not only throughout this country, but in Europe. Dairymen everywhere are looking to you for information, and are watching the result of your deliberations. Let them be worthy of yourselves and the great interest which you represent.

THE DAIRY INTEREST IN GREAT BRITAIN.

The dairy interest in Great Britain is large, but it has not been represented, I think, to be more extensive than it really is. One would suppose that a people so intelligent as that of Britain, would have inaugurated a system of statistics, from year to year, giving the annual yield of agricultural products; but this is not done, for the assumed reason that the farmers oppose it, and will not give the requisite information.

I think there are other reasons of a commercial nature which have more weight. The English are a manufacturing nation. The country is densely populated, and is unable to supply the food needed for consumption. She must look abroad to supply this deficiency; and would it be policy to lay bare her necessities, so that the people that have food to sell may take advantage of them? Every man in the nation is interested in purchasing food cheaply. The poor must be fed, and if food is dear, the prices for labor must advance, or starvation ensue. If the price of labor advances, manufactures also must advance, and then it is not easy to dispose of the goods, since Britain maintains her supremacy in the markets of the world by underselling. Hence we never know what her real deficiency of food may be. Her commercial men operate with more success by having these matters covered up, and making their purchases as cheaply as possible. This, it would seem, is the chief reason why the statistics of crops are so meager.

They keep track of all the markets of the world, and when there is likely to be a deficiency or falling off in the production of any particular product, they seek new fields and in some way induce nations and individuals to engage in its production. They are a great commercial people, and their wealth is immense and well directed. Their most intelligent dairymen were unable to give me an estimate of the annual yield of cheese in the kingdom. All of them have an erroneous idea of the annual product of cheese in America. They say they are told the supply of American cheese is unbounded—that the imports from year to year are to be upon a gigantic scale, and unless home prices are moderate, supplies must be looked for abroad and the English dairymen go under. They are told that the American cheese is quite equal to the best English, and hence that large prices must not be looked for in the home product.

On the other hand, *we* get accounts of an entirely different character. The yield of English cheese is always represented to be from year to year the largest ever before had, and that *our* cheese is vastly inferior to English make, which they assume is verified by

the difference in the comparative prices which each brings in their principal markets. It is hard to find out how these contradictory statements get abroad, for many of the great commercial houses seem to be the soul of honor, and bear unblemished reputations. I owe to many of them courtesies and kindnesses, which I wish here publicly to acknowledge. And among this class I only found in a few instances a studied desire to deceive and mislead. Among the London dealers I might make honorable mention of the Messrs. Anderson & Son, the Messrs. Corderoy, Messrs. Laming & Co., Page & Son, Mr. Downes, the Messrs. Webbs, and others. In Liverpool I received much assistance from Mr. McDonald, a high toned gentleman and of strict business integrity, from Mr. Morell, Mr. Cockburn and others.

But there *are* dealers in London who have large transactions in American cheese whom I found untruthful, and who took great pains to mislead me, and perhaps might have done so, had I not ferreted out the desired information through other sources. These are among the men who authorize their agents in New York to erase the name from the box of every factory which sends forward prime cheese. But I shall have more to say on this head in its proper place.

The cheese districts of England are grouped together in counties lying contiguous. Thus, in the south, we have Gloucester, Somerset, Wilts, Dorset, &c., while in the north there are Cheshire, Lancashire, Derbyshire, Leicestershire, and Shropshire. Other counties produce cheese in limited quantities, but not to that extent to make it a leading business.

I went into the southern districts first, and found three styles of cheese, each having a different shape, and character, and differently manufactured. They were the Cheddar, the double and single Gloster, and the Wilts.

I had never seen any large tract of country so beautiful as this part of England. It was in June, when the hedges were covered with dark green foliage, and the pastures flecked with the daisy and butter-cup, flowers celebrated by the poets. But the English daisy is not to be confounded with that pest of our fields, the ox-eye daisy, for it is small and unpretending, and does not suck up the life of the land. Then the smooth roads, the villas, the farm houses, and the hamlets, with their adornments, together with the garden-like cultivation of the land, formed a picture ever to be remembered.

For quiet pastoral scenery, England is surpassingly beautiful. Every thing seems to be picked up and in place. You see no tumble down fences, no unsightly stone heaps disfiguring the land, no

cheap wooden houses falling to pieces, no remains of wood-piles and other accumulated trash, like a cancer, blotching the premises, but everything seems to be swept up and in order, or, to use a homely phrase, "prepared for company."

SOMERSET, AND ITS SYSTEM OF FARMING.

Somerset has a rolling, undulating surface, and it is in this county that the famous Cheddar cheese originated. In form the county is difficult to describe, perhaps partaking more of an oblong figure than any other. We enter it from Devonshire on our way to Bristol, three or four miles south of Wellington, which is a respectable market town. According to recent returns of live stock, &c., its area is 1,047,220 acres, containing 444,873 inhabitants, 84,262 cows, 89,257 young stock, 636,975 sheep, and 75,469 pigs. The surface of the country is generally uneven, and towards the west, on the borders of North Devon, approaching to mountainous.

The principal hills lie east and west, and are nearly parallel to each other. Of these are the Porlock and Anantock in the south, the Paulet or Polden in the center, and the Mendips in the north. These ranges are generally poor, affording pasture for a coarse kind of sheep, and some young cattle. The hill-tops of the south and south-west are covered with heather, among which are found grouse. The geological features of the country are varied, and are chiefly composed of mountain limestone, inferior oolite, the white and blue lias, and the new red sandstone. The highest hills are mountain limestone, which has been forced up from its proper place and is found overtopping the upper strata, to a height of six or seven hundred feet. The eastern part of the country is generally oolite, stretching away northward to Bath, at which place it produces some of the finest building stone in the kingdom. The lias comes next in rotation, cropping out from under the oolite westward. The red sandstone is not so prevalent. This with the oolite are the lightest soils upon which large flocks of sheep are kept, which in the south are chiefly of the South Down breed, but in the northern district toward Bath are crossed with the Leicester, which forms a larger and more remunerative animal.

The method of farming is the four or five field shift: 1st crop, wheat; 2d, green crop, (turnips, vetches, &c.;) 3d, barley; 4th and 5th, clover first and second year. The wheat crop is from 24 to 40 bushels per acre; barley from 32 to 60 bushels—sometimes more. A heavier kind of land is found on the lias formation. A team of four horses or six or even eight oxen are employed in plowing it; this also is farmed in a similar manner to the lighter land, and is

more productive of grain. In some places, what is termed a dog flock, that is, young sheep of a year or so old, are fattened for the Bristol and Bath markets. The lowlands and valleys are rich and productive. Between the ranges of hills before noticed are some of the richest plains in England. The vale of Taunton Dean in the south of the county is extremely rich, in which is situated the neat town of Taunton. Another nearly level plain extends from the town of Bridgewater to the Mendip hills and eastward to the city of Wells.

Another plain, but rather more uneven, stretches north of the Mendip towards Bristol. These plains are largely devoted to the fattening of beef and mutton, for the supply of the local and also the London markets. Somerset is noted for its cheese, of which large quantities are made. It bears the name of Cheddar, from a small village at the foot of the Mendip hills. The name originated from the farmers of the village uniting the milk of their cows, for the purpose of making a larger cheese. This was done at each other's houses in turn. From that time, which was about one hundred years ago, the thick cheese made in Somersetshire has borne the name of Cheddar, and bears the highest quotations in the London and other markets of any English cheese. It is made much thicker than was at first anticipated. The size that now is in request ranges from 40 to 60, 80, and up to 100 lbs.; the shape is from 10 to 14 inches in depth, and 15 1-2 in diameter.

This county and the others south have suffered very little from the cattle plague. Dairy cows, however, during the past season, have been high, commanding from £18 to £20 sterling per cow, or from $90 to $100. The dairy cows are mostly grades, and so far as I have seen, do not show any better milking qualities than the first class dairies of Herkimer and Oneida.

The cattle kept in the county at this time are the Devon and Sort Horn—the former pure of their kind, the latter rarely so, but have been employed to improve the original stock of the county.

The Devons are said to have been formerly, with a very few exceptions, a small three-cornered nondescript animal, of little use to the dairymen, and less to the breeder and grazier. Their home is South Somerset and North Devon. The race is wonderfully improved, through the energy and perseverance of some farmers, who have taken the best animals they could find, and bred from them, until they have succeeded in producing one of the best animals England can boast of. In the opinion of some, no beef is equal to it; the fat and lean so nicely intermingled. Their milking qualities are not yet equal to other kinds. Some years since they had what

was called the Hampshire cow, a good, useful animal for any purpose, full of constitution, size, milk, and beef. Mr. Harding gave me a description of a cow of this breed, nearly the last of the race, which was twenty years old, and had been milked the previous summer, and in the March following went to the butcher at £20 1*s*. Fifty years ago, in the neighborhood of the Mendip hills, I was told they had what was termed the "Mendip cow," of little service but to milk; but both these good and inferior animals have passed away, and they have scarcely any cow but what partakes in a greater or less degree of the Short Horn breed.

The increased quantity of cheese supplied by this county, is not due, it is said, to the change of stock, so much as to the superior management of the present day; such as feeding stock, clearing the hedge rows, and draining the wet lands, &c. Fewer cows were kept thirty years ago than now. It was then generally supposed that no more could be kept to advantage beyond what half the pasture or grass land would supply with grass in the summer, and the other half cut for hay in the winter. Now they keep more cows, mow less, and in order to do with less hay, feed with straw and oil-cake while the cows are dry, so that they get little or no hay till they calve. Three pounds of cake per day, (the best American,) they say will keep a cow in fair condition, if straw be given *ad libitum.*

In some particular districts, as much as 600 weight, or 672 pounds of cheese per cow, it is said are made. This is on the best cheese producing land, and this, from long observation, is chiefly on some one of the oolite formations. Not only does it produce the largest amount of cheese, but also of butter. There are no statistics of the quantity of cheese made annually in the county, but from all I can gather it is from 18,000,000 to 25,000,000 of pounds.

WILTSHIRE.

For diversity and beauty of scenery, Wiltshire is not equal to Somerset. Its geological formation in general terms may be classed in three divisions: namely, the white lias, which is lowest, the several classes of oolite, and the chalk. According to the late returns the area is 865,092 acres; the number of cows kept, 44,760; young stock and oxen, 32,967; sheep, 596,822; and pigs, 261,012.

The natural division of the county is so remarkably distinct, that it must be described accordingly, namely: north and south. The south part with a few exceptions is the chalk district, and forms what is called the Wiltshire Downs. Lying high, the land is very thin; still the valleys and slopes are rich for growing grain and turnips. The farms are large, some 1000 to 2000 acres. Large numbers of

sheep known as the South Downs are kept upon these farms. They have black faces and feet—the wool short and fine. The mutton obtains the highest price in the London market of any in the kingdom. Though small in size, they will frequently load themselves with flesh so as to reach 120 pounds in weight.

In this district is the celebrated Salisbury Plain, also on the chalk. It is not strictly a plain except in general appearance, but is beautifully undulating, not unlike the ocean with its long swells after a storm. The farming of this section is generally the four field system. In some places, such as the white clay and the sandy loam, at the bottom of the hills, it is worked in the three field system. All the light land is plowed with two horses. Neat and good farming is here everywhere seen, and, it is claimed, is scarcely surpassed in England. North Wiltshire is very different in appearance from the south. The broad and uninclosed downs are no longer seen, but instead, inclosed fields, with numbers of trees in the hedges, giving the appearance from the surrounding heights, of forests. This is the oolite district, and is farmed in much the same manner as the south, being all light lands. The temperature of the climate being warmer, the grain comes earlier to ripen, and is therefore less liable to blight.

The lias is but a very small portion, and may be merged into the dairy district, which is principally in the middle and northern parts. The cows are Short Horns, and regarded here as the most useful in England, milk and meat being both alike studied. A large quantity of cheese is made, which finds its way to the London and other markets. The quality of the cheese is not the best; a little milk butter is usually taken out, but not always, but a large quantity of whey butter is often made. The method of cheese-making is laborious, not so much in the manipulation of the curd, as in the salting, pressing, and preparation for the market; all being unnecessary labor. The salting, which might and ought to be done in the curd, is continued over two or three days, rubbing it in with the hands over the external parts of the cheese, which receives a fresh cloth every time it is salted, which in some instances is twice a day. The cheese is then continued in the press, turned every morning, for from four to six days, after which it may venture to the cheese room, which is a large airy room, supposed to be requisite for its drying properly. The cheese is then allowed to throw out a coat, generally blue. This coat must be scraped off, and a new one formed, after which it goes to the market, realizing from 10*s.* to 15*s.* under the improved Cheddar price. I was in Bath, on June 6th, and took the railroad for Chippenham, in Wilts, to see the Wiltshire

cheese market. Wiltshire, up to the 21st of April last, had lost but 99 cattle on account of cattle plague. We heard of no recent cases in the county during the summer. The principal dairy district of Wilts ranges from Westbury in the south, to Chippenham in the northward, around Chippenham, and towards Swindon, from forty to fifty miles in length. It is generally narrow from Westbury to Chippenham, and from Chippenham to Swindon, from ten to twelve miles wide, and a pretty level tract of country.

Before reaching Salisbury, to the south, you strike the chalk formation which underlies the "Salisbury Plain." In going to Salisbury from the north, the chalk first shows itself in a range of high bluffs or hills, upon one of which is cut in the chalk an immense figure of a horse, which can be seen from a great distance. I was told that the figure was cut in commemoration of King Alfred conquering the Danes. It is about a hundred yards long, the soil being removed down to the white chalk, leaving the surrounding soil covered with vegetation, which gives form to the figure. The chalk lands are rather light, and are worked with two horses, while with the heavier lands, three and four horses are used attached to the plow. Upon the lowlands the soil is of richer character, and is excellent.

In passing through this county, one is continually coming upon large flocks of sheep in charge of the shepherds. Of course, mutton sheep, since the production of meat, is always an important element in the resources of British agriculture.

MANNER OF MAKING WILTS CHEESE.

There is nothing in the manufacture of Wilts cheese that would be of any account to the dairymen of America, and it is a matter of surprise, that the people of this district are so bound up in old practices as to waste their time and substance in manufacturing cheese of this character. Comparing the Wiltshire method, and the apparatus in use, with our factory system, the latter is about a century in advance. I give some of the leading features of the Wilts method of manufacture, not for the purpose of benefiting anybody, but rather as a matter of *curiosity*, if I may so term it.

I was upon some of the best farms of Wiltshire, and among some of the most intelligent of its cheese-makers, and shall give their best practice. The night's milk is skimmed in the morning, and added to the morning's mess. Milk set at 80 deg. and left about an hour to coagulate. It is then broken up with a circular breaker, having an upright handle, and used as you would push a churn dash down and up. The breaking is done gently at first. In cooking, the mass is raised to 100 deg., stirring all the time with the breaker. It is

then left at rest, and as soon as the curd can be handled or taken out of scald, is put to press. It remains in press 20 minutes, is then taken out, ground and salted, at the rate of two pounds of salt to the hundred weight of curd. It is then ground again and put to press. The next day the cheese is taken out of press and salted on the outside, receiving a new cloth, and put back to press, the same course being pursued for two successive days, after which it gets no more salting, but is kept in press eight days, each day being taken out and turned.

It is then put into a stone cheese room, and left for a week or two and turned every day. At the end of this time the cheese will be covered with mold, when it is put in a tepid bath or moistened, and the mold scraped off, when it goes to the dry room. Here it is turned every day until fit for market, say from 60 to 90 days old, or according to the demand and price. The Wiltshire cheese is less solid than the Gloucester, to which I shall refer hereafter.

At one of the farms I visited where 60 cows were kept, and very nice stock too, the product was a trifle over two pounds of curd per day from each cow, and one and one-half pounds of butter for each cow per week. Here Cockey's cheese apparatus was in use, which consists of a tub having a double bottom, the upper one copper; heat being applied between the two, either with hot water or steam; but generally the old fashioned tubs hold sway.

The hoop for pressing the cheese is turned out of a solid block of wood, with a bottom to it pierced with holes for the whey to escape. When put to press, some eight cheeses are piled up together, one above the other, and pressure applied to the lot at one time. The milk pails are made of tin, and hold about 24 quarts; they are formed with a projection or handle on one side, and are carried upon the head while taking the milk to the dairy.

The Wiltshire dairies are very cleanly. The dairy rooms are built of stone, with stone floor, and whey vats of lead, and everything kept in the neatest possible manner. In this respect they are models; but the amount of labor in cheese-making is very great, and the dairy women adhere with pertinacity to old customs, giving no reason for this foolish waste of labor, except: "That is the way we always do." In Wiltshire I found the stock better than in Somersetshire, some attention being paid to breeding. Wiltshire has a great cheese market at Chippenham.

CHIPPENHAM CHEESE MARKET.

The market place is an open court surrounded by buildings, one side of which is open and supported by pillars, thus giving a spacious

place for the storing of cheese under cover. The whole open court is nicely paved, and the arcades on either side have a stone floor. The cheese is brought in carts, packed loosely in straw without boxing. They are taken from the cart and placed upon the stone floors in the arcades, spread out or piled up. Each dairy farmer has his lot together, and they are thus exposed for sale.

The cheese mongers or dealers come down from London, Bristol, Bath, and other places, and make their purchases. There is a constant hum of voices and tread of feet, as one can readily imagine, where a large number of people are collected together, intent on selling or purchasing, or are here out of curiosity, or perhaps to meet persons in other business than the cheese trade. The dealers go about testing the cheese, making their purchases, and ordering it to be sent away as sales have been made. No boxes are used in the transportation of cheese as with us in America. The market days here are twice a month, and often I was told as much as two or three hundred tons of cheese are in the market during the fall sales. There was a considerable quantity on sale at the time of our visit, all new cheese, and most of it Wiltshire. The Wiltshire cheese is a small flat cheese, from four to five inches thick, fifteen to sixteen inches in diameter, and taking four to make one hundred weight, (112 lbs.) They are an inferior cheese to the Cheddar, and very much inferior to American factory make, and the highest prices are not realized except occasionally.

GLOUCESTERSHIRE.

I think there are no statistics giving the number of pounds of cheese annually produced in Gloucestershire, but some estimate may be made from official returns of the number of cows in the county. It is put at 34,744. Loss from cattle plague up to 21st of April, 116. I do not understand that the losses since that time have been of much account.

Its geological features are the oolite, the lias, and the new red sandstone. The former comprises the principal part of the hills and high lands, the lias the more level, and the latter the richer and deeper soils of the valleys, which are chiefly pasture lands, upon which meat, butter and cheese are largely produced. The oolite strata in its varied character runs from north to south, forming the Cotswold hills. Entering Somersetshire at Lansdown, near Bath, where it furnishes the beautiful Bath stone, passing onward into North Somerset, widening as it enters Wiltshire, soon after which, in the neighborhood of Westbury, it is no longer the surface soil,

but becomes loaded with the green sandstone and chalk formation, like the snail which bears its shell upon its back.

The Cotswold hills are well farmed, on the four, five, or six course system, according to the capability of the soil. Wheat, barley, and turnips are successfully grown. The hills give the name to the Cotswold sheep, which upon them are universally bred and fed. It is a beautiful animal, with white face, and of highly improved quality, both as regards meat and wool, the latter of which is long and fine, the fleece weighing from five to ten pounds. A ram will sometimes turn off fifteen or sixteen pounds of wool. They are generally heavier in mutton than the Downs. On the western side of the Cotswold hills, extending to the Severn river, and fifteen or twenty miles in length, is what is called the vale of Berkley. It has every appearance of having been in past time covered with the sea. This valley is the chief dairy district of the county of Gloucester. The native cow is of a dark color, with a black nose, short on the legs, is a thick set, well built animal, altogether a very useful beast; but the Short Horn and Herefords are replacing her.

GLOUCESTER CHEESE-MAKING.

In the regular Gloucester dairies the cheese are made thin, eight of them only weighing 120 pounds. They are made twice a day. They commence about seven o'clock in the morning, and finish about ten or eleven o'clock. In the afternoon they commence with the evening's milk, about five, and finish between eight and nine o'clock. These cheeses have a name in the cheese consuming world as the famous Berkley cheese. If made well, they are rich and sweet. The makers of them are quite as tenacious of their reputation as those who make cheese worth from ten to twenty shillings per cwt. more money. Cows are generally kept more or less over the county, except on the uplands. The south and south-west, around the neighborhood of Bristol, are the coal meadows.

This district is farmed not so well comparatively as other sections, from various circumstances; being in the coal district the surface is uneven, and the inclosures small, as are also the farms; besides it is near Bristol, at which place hay, straw and milk are continually sold.

At a nice farm in the southern part of Gloucestershire, which I visited in June, for the purpose of seeing the operations of making "Single Gloster cheese," the dairy consisted of thirty-five cows. These were Short Horns, large, handsome stock, but not showing extraordinary capacity for milk. The dwelling, dairy and outbuildings were all of stone, large, commodious, and everything kept in the neatest manner. The place where the cheese was made was a

spacious room, with stone floor, clean and well ventilated, and as cool and sweet an apartment as the most fastidious cheese-maker could desire. The utensils or appurtenances for cheese-making consisted of an unpainted tub for holding the milk, leaden vats for holding the whey, a circular wire curd breaker having an upright handle springing from the center, dippers, skimmers, &c., with two box presses for pressing the cheese. These last were nnlike any thing I had ever seen, and consisted of large square boxes, moving up between standards, by means of pulleys and ropes attached to a windlass. The boxes were filled with stones, iron, &c., making a weight of several hundred pounds, and are applied directly on the cheese. These presses were very nicely made of dark wood and varnished, evidently intended to be ornamental as well as useful. From the manner of their make, and the power to be applied in raising the weight, the services of a strong man would be required.

The milk was being made up twice a day, making eleven cheeses of 14 pounds each for every two days, the cheese being about 2½ inches thick by 14 or 15 broad. There was no heating apparatus in the room, and none is required in the "Single Gloster" process of cheese making.

As soon as the milk is all deposited in the tub, the rennet is added, when it is left to coagulate. As soon as properly coagulated, it is broken up with the wire breaker, by moving it up and down, which has a tendency to *pulp* the curd rather than break it, as the word breaking is generally understood by our cheese-makers. The mass is thus left for the curd to settle, and after it has arrived at a proper degree of firmness to be handled, the whey is dipped off down to the curd, the tub canted up to drain off what whey remains, and the curd gathered to the upper edge of the tub. The whey being removed, the curd is cut across and heaped up, and pressed with the hands, to expel as much of the whey as possible, when it is put to press. It remains in press till morning, when it is taken out, turned and salted on the outside. It is then returned to the press, and goes through the same operation for from four to six successive days.

When taken from the press, it is put upon the shelf for a few days, to be turned every day, and finally goes to the cheese room, where it will be ready for market in two or three months, if prices suit. The cheese room, or *drying room*, is in the upper part of the dwelling house, and the cheese when taken here are placed close together upon the floor.

TESTING THE CHEESE, PASTURES, &C.

A cheese dealer from Bristol, who was present with us, made a test of the cheese, by walking upon them as they lay spread out upon the floor,

which we were assured was the usual method of determining their firmness and solidity. They stood the test of his weight and boots, and were pronounced one of the best dairies in Gloucestshire. The hoops in which the cheese are pressed, are turned out of a solid block of wood, and each has a stationary bottom pierced with holes, similar to the hoops used in Wiltshire. In one of the presses I counted fifteen cheeses piled up, one above the other, all of which were being pressed together.

I think, from the above description, none of our dairymen in America will care to make "Single Gloster cheese," and I cannot see why the people there will continue to keep along in the old rut of their forefathers without making some effort to improve.

I have now presented some of the general features of this great dairy district. The country is very well watered with springs and streams, but no better, if as well, as in many parts of the central counties of New York. When watering places are constructed, the plan is somewhat different from ours; small ponds being more universal. The pastures perhaps produce more feed than with us, from several causes. In the first place, they are freer from weeds; they are better cared for in top-dressings of manures, while the humidity of the climate produces a fresher feed and greater quantity of verdure.

The permanent pastures have a fine thick sod, filled with a variety of nutritious grasses, among which the following may be of interest in this connection. The sweet scented vernal grass, (*Anthoxanthum odoratum*) flowers in May, and grows freely in all soils and situations; it is one of the earliest of grasses, and the fragrant odor it affords when dried, gives to meadow hay much of its sweetness. Meadow foxtail (*Alopecurus pratensis*) flowers in May and June. Its early, abundant, leafy produce, is much liked by cattle and sheep, and render it one of the most valuable of pasture grasses. It forms part of the best pastures, and thrives under judicious irrigation. Meadow fescue (*Festuca pratensis*) flowers in June, likes a good soil, and does not attain its full growth until three years from the time of sowing. The produce is nutritious and abundant, and it forms a uniform and abundant turf. Cocksfoot grass (*Dactylis glomerata*) flowers in June and July, grows three feet high and upward, and forms a large portion of all the best natural pastures, and is regarded superior to most grasses, in the quantity and quality of its produce. Its coarse and tufted character make it unsuitable for lawns. Crested dogstail (*Cynosurus Christatus*) flowers in July, and is found in all pastures. It suffers but little from dry weather, but produces only a moderate quantity of fine herbage. Hard fescue grass (*Festuca*

duriuscula) grows two feet high, and forms a portion of all dry pastures, and retains a permanent verdure; it flowers in June. Sheeps fescue (*Festuca ovina*) is found in all dry soils from the sea land to a great elevation, and flowers in June. Meadow grass, (*Poa pratensis*,) our June grass or Kentucky blue grass, produces an early, nutritious herbage, and is regarded as particularly suited to light soils. Rough stalked meadow grass, (*Poa trivialias*,) fibrous rooted, with rough stalks, forms a portion of almost all mixtures for permanent pasture grasses, and is particularly desirable in grounds shaded with trees.

Timothy is also found in pastures and meadows, but is not grown to that extent as with us. Then there are the clovers, the red and white, which are so largely grown with us. And the Alsike clover, (*Trifolium hybridum*,) a true perennial, very productive on moist, rich soils, and will succeed where red clover fails. It is regarded by many as superior to white clover in bulk and quality of produce, and equals it in duration.

These are among the leading grasses, and in seeding for permanent pastures, composed of the best grasses and clovers, as much as two bushels of the light, and twelve pounds of the heavy seed are often used per acre.

I think the question of pastures is better understood in England than with us, and it is a point on which we have something to learn from them. I can not say that the quantity of grass from permanent meadows, or those long in grass, is larger than is often found with us, but the quality is finer and better: that is, the hay has less woody fibre than with us. At Rothamstead, Lawes' celebrated experimental farm, my attention was particularly called to the fineness of the grass made into hay. The old stacks which had been cut down presented a solid mass of hay, almost as fine as hair, and its nutritive quality must have been a third more than our Timothy, on account of the less waste or woody fibre.

Allusion has been made to permanent meadows; but generally what we term meadows, that is, lands devoted to the production of hay, are treated widely different from ours. Much of the hay is grown on what is termed the four or five course shift. It comes in regular rotation after grain crops. It is mowed once or twice, and then is broken up for a crop of wheat. Various mixtures are sown, and large yields often result. I went upon a splendid meadow in Devonshire, where the yield of grass upon the ground must have been at least 2½ tons of hay per acre, and perhaps more; and it was the first crop. The seeding per acre was as follows: 8 lbs. Red clover; 2 lbs. White clover; 4 lbs. Trefoil clover; 3 pecks Italian Rye grass.

This is not given as an illustration of the best mixture, but rather as a specimen of what our farmers would term heavy seeding. Lands often get more and a greater variety of seeds.

Perhaps I am wearying you by going so minutely into details, but I feel earnest for the success of our farmers, and have thought that it might be of interest for you to get a little insight into the manner in which farms are managed abroad. Perhaps you may appreciate this the more, when you are told that a farmer in the dairy regions of England often pays from $3,000 to $3,500 per annum in rents and taxation for a three hundred-acre farm. He pays this for the land alone, and gets no use of any personal property whatever. He then stocks it at his own expense. He is to all the cost of utensils, labor, and of keeping the farm in repair. As the "well-to-do" farmer never lays his hand to any labor, beyond superintendence, you will naturally conclude, as I did, that pretty shrewd management, at least, is required to pay this sum, support his establishment, and lay up money from his business.

By the judicious use of capital, by the liberal use of fertilizers, and by a system of mixed farming, he is able to accomplish these results. It is true, labor is cheap. He pays his laborers from 30 to 40 cents per day, and in harvest a little more, but he does not board them. They have cottages, good, substantial buildings, and little gardens. The cottages, like the more pretentious mansion of the farmer, are erected by, and at the expense of the landlord; but a certain number of people go with the farm, and they pay rent to the farmer for their cottages, say about a shilling per week.

The condition of the peasantry is in many respects most wretched; but that need not be discussed here. The farmer's position is infinitely above them, and he lives for the most the life of a gentleman. He is a man who is expected to have some means—say from £8 to £10 per acre; or, in other words, a floating capital of from $40 to $50 for every acre of his farm. This he uses in his business, purchasing stock, buying fertilizers, and making such improvements as he judges will pay him back remunerative profits.

CHEDDAR CHEESE-MAKING.

Having described the Gloster and Wilts process of cheese-making, perhaps I can not do better in this connection than to say something of the Cheddar process. The improved English Cheddar cheese, as you are aware, is regarded by Englishmen as the finest cheese that is made anywhere in the world. It suits the general taste better than any other description of cheese manufactured.

The fact that Cheddar always commands the highest price, that

there is an immense demand for it, and that its manufacture has been brought more to a science than with other kinds, make it important for us to study somewhat its character. I was among the Cheddar dairymen for more than two weeks, studying the process of manufacture, and saw some of their most noted dairies; I was at Mr. Gibbons, who was awarded the gold medal for the best dairy at the international exhibition at Paris; at Mr. Harding's, of Marksbury; Mr. McAdam, of Gorsty Hill, Cheshire, and others; and after having seen all the different styles of cheese in Great Britain, I am of the opinion that the Cheddar is the only process from which the American dairymen can obtain suggestions of much practical utility. I may remark here that *John Bull*, like his blood relation, *Jonathan*, is a man of strong prejudices, and will often prefer a Cheddar cheese of no better quality than good American, at 10*s.* to 15*s.* per cwt. more in price, simply because the English Cheddar has a better reputation. This feeling has very much to do in regulating the difference of price between the best samples of cheese of the two countries. But, laying all prejudice aside, I must in truth say that we have not yet been able to surpass in excellence the fine specimens of English Cheddar. It is a very high standard of cheese, and is deserving of all the encomiums which it has received from time to time.

The quantity of extra Cheddar made in England is comparatively small, and its peculiar excellence has been rarely reached in American dairies. Its requisites may be briefly summed up in the following points: 1st. Mildness and purity of flavor; 2d. Quality, which consists of mellowness or richness under the tongue; 3d. Long keeping qualities; 4th. Solidity, or freedom from eyes and holes; and 5th. An economical shape as regards shrinkage, handling and cutting.

In my address before the Cheese-makers' Convention in 1865, I gave the leading features of Cheddar manufacture, as described by Mr. McAdam, of Gorsty Hill, Cheshire; and in one of my circulars from London, the process is described as I saw it in operation among the Somerset dairymen, and at Mr. Joseph Harding's, of Marksbury. I need not repeat the facts therein given, but rather present some of the points of difference between their process and our own.

In the first place, the English dairymen has a cleaner and better flavored milk than generally obtains with us. The milking is performed with great nicety, in tin pails. At Mr. Harding's, the milkers were not allowed to enter the milk-room; the pails being emptied into a conductor at the window. The milk-rooms are perfect models of neatness. They have stone-floors, and the joints of the flagging are cemented together, so that no slops or decomposed milk can have an entrance. They are situated in a cool, airy place, and

the walls are of stone or of hollow brick, thus rendering them cool and of an even temperature. Every part is well ventilated, and out of the reach of disagreeable or fœtid odors. The floor, the utensils, and cheese apparatus are kept as sweet and clean as the table and crockery of the most fastidious housewife.

This condition of things I found universal wherever I went among the dairymen; at the Royal dairy near the Queen's palace at Windsor Castle, and radiating from thence through all parts of England. Nothing connected with cheese-making abroad struck me with more force and admiration than this perfect neatness, and cleanliness of the dairy. In this respect they are greatly in advance of us; and in my opinion it is one of the chief reasons why they are able to obtain that fine, clean flavor, which is a distinguished characteristic of their choice cheese.

There is nothing, perhaps, which indicates the progress and skill of our manufacturers more than the fact, that they are able to take nasty milk from the hands of patrons, manipulate it among the fœtid odors of whey-slops, decomposed milk, and pig-sty emanations, and yet turn out a cheese that will compete with the great bulk of English make. But these conditions will not, and *can not*, produce the fine, delicate flavor of the best Cheddar; and it is one reason why there is such a great bulk of American cheese condemned abroad, as "not just right in flavor." You see this putrid innoculation does not show its whole character at first, but, like an insidious poison in the blood, increases from week to week, until it puts on a distinctive feature which spoils all the good materials with which it comes in contact.

I saw American cheese abroad, perfect in shape and color, rich in quality, splendidly manufactured, and having a bright, handsome appearance that would have placed it on an equality with the best in the world; but the trier showed a flavor that could be plainly traced to a bad or imperfect condition of the milk before manipulation. I have been extremely mortified while testing cheese abroad, to catch the taste and smell of putrid rennet, and of the stables.

You can not expect me to stand here and hide from you these facts. They are unpleasant for you to hear and for me to state, but I shall not deceive you.

This is one point of difference in the dairy practice of the two nations.

In the Cheddar process, the milk is set at a low temperature, from 78 deg. to 80 deg., using sour whey with the rennet, according to the condition of the milk. After coagulation is effected, which takes from 40 to 60 minutes, the curd is cut in large cheeks, and soon

after they commence breaking with a wire breaker attached to a long handle. The breaking is at first slow and gentle, and is continued till the curd is minutely divided. This is effected before any additional heat is applied. They claim that the curd can not be properly broken at 90 deg., or above 90 deg., and that there is a better separation of the whey and condition of the curd, by breaking minutely at 75 deg. or 80 deg. without an increase of heat during the process. This process of minute breaking in the early stages of the curd, appeared to me to result in loss of butter; and this is the chief reason, I think, why Cheddars have less butter in their composition than our American. That it does not result from inferior milk is shown from the quantity of whey butter manufactured. The breaking at Mr. Harding's usually occupied a full hour. The heat is raised in scalding to 100 deg. Their cheese apparatus is inferior to ours, and hence, I think, that part of the process is not capable of being done so well as with us, since heat is not applied so evenly to all parts of the mass; but from this point there is a wide difference in the treatment of the curds.

When the curd has reached a firm consistency, and the whey shows a slightly acid change, *a change so slight* as to be detected only by the experienced observer, it is immediately drawn, and the curd heaped up in the bottom of the tub. I am not sure but that this early drawing of the whey is an improvement.

When in London, I had some conversation with Dr. Voelcker, the celebrated chemist of the Royal Agricultural Society. Among other things, he said: "One of the greatest faults of cheese-makers is in the application of heat. Many use too high heat. The lower the temperature that can be used, and the more uniform or evenly it can be applied, the better flavor will obtain to the cheese." Another point of importance, he said, in cheese-making, and one not generally understood, was in relation to the whey. It should be drawn off, got rid of, just as soon as possible, or as soon as consistent with the necessary operations. He would draw the whey sweet. The reason he gave was that you can never tell what matter you have, or what you are dealing with in the whey. It may contain taints of the worst character. You can not well determine the degree of its acidity, and hence great risks are run in steeping the curd for a long time in the fluid. He would prefer to draw the whey as early as possible, and allow the curd to undergo its proper change, and arrive at maturity heaped up in the bottom of the vat.

Soon after the whey is drawn, and the curd heaped, it is cut across in pieces a foot or more square, and thrown again in a heap to facilitate drainage, and develop further acidity. It remains in

this condition for half an hour, the whey meanwhile flowing slowly from the heap, when it is taken out of the cheese tub and placed in the sink or cooler. It is then split by the hand into thin flakes, and spread out to cool. The curd at this stage has a distinctly acid smell, and is slightly sour to the taste. It is left here to cool for 15 minutes, when it is turned over, and left for the same length of time, or until it has the peculiar mellow or flaky feel desired. It is then gathered up and put to press for 10 minutes, when it is taken out, ground in a curd mill, and salted at the rate of two pounds salt to the 112 pounds curd. It then goes to press, and is kept under pressure two or three days. The curd when it goes to press has a temperature of from 60 deg. to 65 deg., and when in the sink it is preferred not to get below this point. A proper temperature is retained in the curd during the various parts of the process in cool weather, by throwing over it a thick cloth.

It will be seen that the whey being disposed of at an early stage, the attention of the manufacturer is to be directed only to one substance, the curd. By draining the whey and expelling it under the press, and then grinding and salting, a uniform incorporation of this material is effected. The cooling of the curd before going to press, and the removal of the cheese after pressure to a cheese room, where an even temperature is kept up, differing but little from that of the cheese when taken from the press, effects a gradual transformation of the parts into that compact, mellow, flaky condition which is characteristic of the Cheddar, and at the same time preserves its milky or nutty flavor.

Now, apparently, there is nothing difficult in the process; but the great art in this as in other methods of cheese-making is to understand the condition of the milk and the state of the curds during their various manipulations. This cannot be described, but can only be learned by experience. The process, however, is easier acquired than that usually practiced at the factories; since the whey being got rid of, the curd is placed under better control of the operator, and the pressing, grinding, and salting, must in this respect make a more uniform product.

We can scarcely yet appreciate the part that chemistry plays in the manufacture of cheese. We use a chemical agent, rennet, the nature of which even the most learned chemists do not fully understand. We note the changes that this produces in the milk, and manipulate it in its new condition. We then employ heat, another agent, and develop an acid; then another agent, salt, and what wonder that in all these conditions and changes, the careless and unskillful operator should fail in the quality of the article which he produces, or the standard which he sets out to reach.

The most profound chemists are often thwarted in their operations by inexplicable conditions, which at first sight seem easy of solution. Thus, for instance, take four well known substances, viz: grape sugar, cane sugar, starch and wood; each of which is made up of only three elements, carbon, hydrogen and oxygen, which it would seem easy to use so that any of these substances could be converted into the other. There is very little difference, you will see, in the composition of any of these substances, and yet how widely different are they to our senses. It would seem a very simple thing to convert one of these substances into another, by merely adding or subtracting an element; yet we find that the most expert chemists experience the greatest difficulty in bringing about a result which nature is constantly accomplishing in her silent laboratories.

The more we can reduce cheese-making to a science, and confine it within certain rules, the better will be our practice, and the more uniform our product. It may not be advisable to adopt any one system exclusively, since fine cheese can be made by various methods; but the study of the cheese-maker should be to seize upon a good point whenever he can find it, and combine it in his own practice. Mr. Harding, of Marksbury, believes a sharp cutting instrument in breaking the curd is injurious, and that the curd should be allowed to split apart according to its natural grain. Other persons in England, quite as good cheese-makers, believe in sharp cutting implements; of these I might mention Dr. Voelcker, of London, and Mr. McAdam, of Gorsty Hill, who has not only written well on cheese-making, but has done much in introducing the Cheddar system into Scotland and Cheshire. Of this, however, we may assure ourselves, by no system can good cheese be made unless the manufacturer study his business, and learn by close application, by observation and experience, the changes that are going on in the process with the curds and whey, and can properly manipulate them.

CHESHIRE CHEESE-MAKING.

I suppose that many of our cheese-makers would hardly suspect that a really fine, delicious cheese could be made by the following process, which is the one in general practice in Cheshire, and yet some of this cheese cannot be surpassed in flavor and excellence.

The Cheshire mode of cheese-making is somewhat peculiar, and to an American would appear decidedly antiquated. The night's milk is usually set in pans, and added to the morning's mess, when it is set with rennet at a temperature of about 75 deg. Often no heat is applied to the morning's milk, being sufficiently warm to

keep the mass up to the desired temperature for setting. After the rennet is applied, the coagulation is perfected in about an hour, when it is carefully broken up with a wire or tin curd cutter, of similar make to the old American curd cutter.

The breaking being perfected, and the curd becoming sufficiently firm without any additional heat being applied, the whey is dipped off. The curd is then lifted into a drainer or kind of sink, where the whey can drain off more thoroughly, and from time to time the curd is cut across and heaped up, so as to facilitate a more thorough separation of the whey. It is then salted by guess and ground in a curd mill, when it is put into the hoops; but not immediately to press. The hoops filled with curd are set in a warm place for a day or so, generally in a kind of oven constructed for the purpose, and on the second day are put under press. Here they are kept several days, similar to the plan pursued in the Wiltshire and Gloucestershire districts. The hoops have no followers. They have a bottom pierced with holes which is stationary. A strip of tin four or five inches wide is placed about the curd, on the inside of the hoop and above it, so as to raise the curd above the top of the hoop. A board is now placed on top of the curd, and as the press is applied, the tin sinks down with the curd until it is pressed even with the hoop. If the cheese is not found to be solid enough, another hoop of less height is used, and the tin put around that portion above the hoop, and pressed in a similar manner. Many of the presses are nothing but large square blocks of stone raised by a screw. They are rude affairs. The bed piece on some is of stone, with a flue beneath for conducting heat, in order to keep the cheese warm while pressing. The milk is worked up into curd, and the utensils cleaned up every day by 12 o'clock, M.

It was really a matter of surprise to me, to find that fine cheese could be made by this process, where everything is done by guess, where all the operations are so different from our method. But a great deal of poor cheese is made in the Cheshire dairies, and as a whole, is inferior to our factory make. That which is the best is as fine in flavor and quality as any cheese made, and will command the highest prices. The texture of Cheshire cheese is different from the Cheddar, being what is termed *open-meated*, that is, loose in texture without being porous. Their best cheese appears richer in butter than the Cheddar.

I have merely given the outline of the Cheddar mode of cheese-making, as a matter of curiosity. In my judgement, there is nothing in the process adapted to America, we being at least fifty years ahead in our appliances and mode of manufacture. I must say this,

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ERRATA.—Page 44, *fourth* line from bottom, for *Cheddar* read CHESHIRE.

however, in favor of the Cheshire dairymen. Everything connected with the dairy is kept scrupulously clean. The floors, the utensils, and every part of the dairy, are all sweet and clean. And here, perhaps, is the secret, or at least a part of it, of the fine, clean flavor of their best cheese. During a portion of the time the Cheshire cheese is undergoing the process of curing, the cheese is placed on straw or hay upon the floor of the curing room.

APPEARANCE AND COMPARATIVE MERITS OF AMERICAN CHEESE ABROAD.

Having now described the manufacture of the leading styles of English cheese, you may desire to know something as to the appearance of American cheese in England, and what is thought of it in the foreign markets. I went in nearly all the principal market towns in England, from the south to the north, and heard hundreds of people discuss the merits and faults of American cheese, at the storehouses, the shops, and at the table. I took much pains to get at the true state of feeling in the country, and I think I may safely say, that American cheese to-day, as a whole, has more quality, and is better manufactured, than the bulk of English make. I have given them the credit of producing a limited quantity of cheese of the finest type that has ever been reached by any manufacturer, but the quantity is comparatively small, and when the whole bulk is considered, there is nothing like the richness and uniformity of that from our factories. This is not only my own opinion, but that of many of the best judges of cheese in Great Britain.

I have been at hotels where American cheese is always purchased in preference to English, and I have been amused to hear Englishmen contend that no such cheese could be produced in America, and no where else, except in the best dairies of England, but who were forced to give way on pointing out to them the bandage, which is an indisputable proof of American manufacture. Country dealers, cutters, middle-men, and shippers, all admit that the highest grades of our factory cheese has more quality, and is superior to the general run of English make.

I have often heard dealers declare, in a spirit of vexation, that if the Americans continued to progress in the ratio of the last four years, two or three years more would place their cheese at the top of the market, and English make must rank secondary. They say the Cheshire dairymen are "dough-heads," not to try to keep pace with modern improvements. I have seen a dealer look at American and English cheese, side by side, and while admitting that the American was in every respect the best, take the English at a higher

price, because, as he said, some of his customers had such foolish prejudices that they would not try the American, and therefore could not judge of its quality. A leading dealer in Manchester told me he had many times tried to introduce American cheese among certain of his customers, and that they would not purchase. By and by, when they sent up an order, he would slip in a few of nice grade factory make, and after that the customer would be eager to purchase, declaring he never cut up better cheese.

Now this is the condition of things all over England; there is prejudice to overcome, because formerly our cheese was of bad character, and there is a feeling that it is of such a perishable nature that it will spoil if not immediately consumed. These remarks apply to our nice grades of cheese.

There is another class of our cheese, that comes into market, that does great injury to sales. It is cheese that is rich and well made, but out of flavor. This with large shipments of inferior make, the accumulated refuse from good and indifferent lots which can not be sold alone, are mixed up with good samples and shipped abroad, to clean out New York storehouses. These lots drag on the market; they are constantly accumulating, and sales are forced which break the market, besides carrying a prejudice wherever they go against American cheese.

As to the outward appearance of American cheese as I saw it abroad, it is generally good. Of course, some of it comes to hand soft, melted, and in wretched condition; but generally the great bulk of factory-make comes in store quite as bright and handsome as does the English manufacture. Many of the large houses told me they had never had cheese come to market with handsomer outward appearance than this year's make. And I think, in getting the comparative merits of the two nations, we have often been misled and wrongly informed. Great condemnation has been made of our poor cheese, all of which was well deserved; but while great stress has been laid upon these, there has been a studied care to conceal the merits of our best goods. This is but natural. Men engage in the cheese trade to make money; they run great risks, and you can not expect them to post you up to their own disadvantage. The laws of trade are to buy cheap and sell dear; and so, after all, they are not so much to blame.

Some of the dealers, acting in concert with parties in New York, take great pains to keep factories which make prime cheese in ignorance of the fact. The factory names are erased from the boxes, and so customers are supplied with a line of cheese which they can only trace to the private brand of the dealer. Some have acquired in this

way quite an enviable reputation for handling choice American cheese, and have made largely by the practice. It is a great damage to the factories, since other dealers are kept ignorant of the brand, and can not enter into competition for the purchase. I know of no way for this to be remedied, except by branding the name of the factory upon the bandage. Perhaps a good way, also, would be to have the name of the factory neatly cut in rather broad letters upon the pressing followers, so that the cheese, when pressed, will show the name of the factory in raised letters. There is no difficulty in this, and no hurt will result to the cheese. I have seen samples of English cheese, where elaborate figures were raised upon the surface in the manner suggested; but I would advise no "gingerbread work:" nothing but plain carving.

STYLES OF CHEESE DEMANDED.

The styles of cheese demanded for the trade will depend somewhat upon the market for which they are intended.

In London, small Cheddar shapes, of 40, 50, 60 or 70 pounds, are popular, and will command an extra price over cheese of large size, of the same quality. The true Cheddar shape is 15½ inches in diamter by 12 inches high, and by preserving this proportion for larger and smaller cheese, that style is obtained. Cheddars are made varying in size from those named, up to 80 and 100 pounds; but the larger are not so common. A limited number of those weighing 100 pounds would readily find sale.

Those weighing about 70 pounds are not objectionable, but the smaller sizes are of readier sale, and often on account of their size bring better prices. It costs more, however, to manufacture small cheese, and there is greater loss in shrinkage, so this ought to enter into the account in determining the size that will be most profitable. It would be well for factories to make two sizes of Cheddars—a larger and smaller—regulating each somewhat in accordance with their own convenience. The Cheddar shapes are popular all over England, and therefore may be regarded as best adapted as a general rule for our factories to make for exportation.

There is another style called the Derby shape, which when made of fine quality brings the highest prices. It is a small flat cheese, 14 to 15 inches in diameter, about 3 inches thick, and weighing 25 to 30 pounds. If care were taken in boxing, two cheeses might be put in a box, and thus the expense on that score lessened. There should be two heavy scale boards between the cheeses, and none but well made, substantial boxes used.

There is a moderate demand for our old-fashioned shaped cheese,

that is, a cheese half as high as its diameter, and weighing from 60 to 80 pounds; but it should not exceed 100 pounds. In Liverpool, a variety of styles are readily worked off. Several of the dealers there told me they had no difficulty in disposing of cheese weighing 120 to 150 pounds, provided it was all right as to quality and flavor; but I am satisfied after going among the country dealers, in different parts of England, that preference is always given to cheese of smaller size when other qualities are satisfactory.

COLOR.

The matter of color is a question which has long occupied the attention of American Dairymen, and upon which very indistinct notions have been entertained. It is not to be wondered at when the different markets in England, give preference to a variety of shades, and different dealers ask only for the color of their particular market. The Londoner likes a cheese of considerable color, something like the rich shade of butter, made when the dandelions are in bloom. It must be clear and pure, not *lemony* or dirty, or mottled through the cheese, but a rich shade of cream that gives a pleasing effect to the eye, thus serving to heighten the imagination that a delicious morsel is before you.

There are no persons in the world more particular about their food, than the people of London; they *will* have the choicest qualities of every kind, and it must have a nice tidy appearance. London is the great commercial metropolis of the world, where wealth is unbounded. They claim that there is no delicacy on the face of the earth but may be had in London. In ordering a dinner, they will tell you that any delicacy that can be named, may be had, and will be provided at your order.

I sometimes surprised them, by ordering *Buffalo steak*, *green corn*, *succotash*, *pumpkin pie*, and a string of delicacies of this sort. I would order them in a sober, earnest manner, when the waiters would look blank astonishment, and soon come back, saying they could not be obtained *even* in London.

But the best articles of food readily find a market here, and command the highest prices of any in the kingdom. If they can only get the best, they are willing to pay for it, and this is the reason why choice cheese never goes begging at top prices.

When I went through the Manchester cheese market, they told me that colored cheese was a drug, and did not suit that market. A very extensive dealer had just returned from Liverpool, disappointed in not obtaining a supply of pale colored cheese. In price, quality, and shape, he said there was no difficulty in being suited; but his

customers insisted upon an uncolored article, and as that was not to be had, he did not purchase. It was in this man's storehouse that I saw some of the Herkimer County "coarse curds," and they were commended for their texture and quality. There are large quantities of pale colored cheese made in England, and considerable of the high priced Cheddar has no color, except that which results from the natural condition of the milk.

I went down to Chippenham to see the great anotta manufacturer, Mr. Nichols. His preparation bears the reputation of the best in England, and I thought it might be worth while to have him send over samples, and thus have an article that was approved by English dealers. Mr. Nichols is a pleasant, companionable man, and was very courteous and attentive. He was willing to send out samples, on my assurance that they would be properly distributed. But when I got up to London, I learned from the chemists a secret, which is worth a good many thousand dollars to dairymen. It is, that all preparations of anotta depend for their excellence not so much upon any patent for dissolving or cutting the crude anotta, as upon the purity of the anotta itself. All the best English liquid anotta is cut with potash, so that our dairymen can just as well make their own coloring material, as to send abroad at great expense for the English article. But it is important that you obtain a *pure* article; and this can only be secured by purchasing of a reliable person, who is a good judge of it. If you use a bad article, you are sure to get a *bricky*, uneven color, which is objectionable, and which reduces the price on your cheese.

BANDAGES, BOXING, &C.

I gave you in my circulars from London important information in regard to bandaging and boxing cheese, and need not repeat it here, but may only remark, that no cheese should be made for shipping abroad without bandage, and without being put up in strong boxes, with heavy scale boards. I have seen considerable quantities of English cheese in the storehouses, split open at the sides, a prey to skippers, and upon which losses were sustained. The Cheddar dairymen put a coarse linen bandage upon their cheese during the process of curing. It is brought round tight and temporarily secured. Some work eyelet holes in the ends of the bandage, and bring it snugly about the cheese, by lacing, as you would fasten a shoe upon the foot. These bandages are stripped off when the cheese go to market.

The cheese would be better protected, if they had permanent bandages on our plan, and some of the English dairymen advocate

its introduction in their dairies. By not bandaging, something perhaps might occasionally be gained in helping the English dealer to deceive his customers, by palming off our cheese as of English manufacture; but good factories would lose their identity, and the loss from breakage and other sources would overbalance by far this advantage. Besides, it should be our object to make for American cheese a reputation that shall stand unchallenged, as the best in the world.

DEFECTS IN AMERICAN CHEESE, BAD FLAVOR, &C.

We come now to consider the two leading defects in American cheese, porosity and bad flavor; and the last may be said to-day to overbalance all the other defects put together, *two* or *three* times over. I need not waste time upon that character of cheese known as soft, spongy, or salvy; or the poor grades which come from carelessness, inefficiency or ignorance in manufacture. Good cheese-makers know at once how these may be corrected; but I refer to the better class of cheese made at factories. The English acknowledge that the American factories stand unrivaled as sending out a cheese full of *meat*, that is, full of butter, or rich in quality. They speak in high terms of the improvements that have been made in texture, firmness, and solidity; but to see a cheese handsome in appearance, the meat having scarcely an objectionable feature to the eye and finger, yet under the nose a disagreeable odor, is what they can not well understand. It is the large exportations of this poor, indifferent, or bad flavored cheese, that break prices and do immense damage.

The causes of bad flavor in cheese are various: inefficient or uneven salting, a faulty separation of the whey from the curd before going to press, and while pressing, putting the curd in press too hot, high heat, and a rapid manipulation of the curds, getting them in press before the proper chemical changes have been effected; but the chief cause of bad flavor in well manufactured cheese, as I saw it abroad, is, in my opinion, due to bad milk, bad rennet, and the bad curing of the cheese. I am satisfied that the cool, even climate in England, and the excellent condition of the milk, together with uniform temperature of their curing rooms, enable them to succeed, where we often fail. We have a hot, bad climate to contend with, and milk is often spoiled when it reaches the factory. If farmers would only look upon this matter in its proper light, instead of laying all the blame of bad flavored cheese upon the manufacturer, there would be some hope of improvement. You send to the factory tainted milk, and demand from it a perfect cheese. You impose upon the manufacturer conditions which no skill has yet been able

to surmount. High skill, and great experience in manipulating milk, together with favorable weather, and the putting the cheese in market just at the right moment, may enable the manufacturer to counteract, in part, the fault of tainted milk; but with intensely hot weather, and under unfavorable circumstances, it is beyond his art.

Bad rennet, and tainted milk, is one reason for the early decay of our cheese. You are told that American cheese will decay early. I have seen American cheese in England more than a year old, perfect in flavor, and in the best preservation, but it was not made in hot weather. The cheese made in July this year, and sent to England, was all of it, more or less, out of flavor. The complaint was universal, and against some of the most noted factories in America. My friends, we must look upon these things from the practical side. I am not going to stand here and deceive you with a fine spun theory! We have been greatly led astray in regard to this matter of flavor, led to believe that the people of the old world had discovered some wonderful process, which would ensure a perfect cheese under all conditions of the milk.

You know that milk not divested of its animal odor, and closely confined in hot weather, soon becomes putrid; cheese manufacturers tell me that milk often comes to the factory having a most fœted and sickening odor. In extremely hot weather, when cows have been exercised and unduly excited, the milk is often of a rank, bad odor, as soon as drawn. The practice of putting warm milk in tight cans, and conveying it a long distance to the factory, is objectionable, especially in hot, sultry weather. Here is the commencement of bad flavor. The good milk is inoculated with putrid matter, which shows itself sooner or later, and carries with it decay, like any other decomposition.

Some plan should be adopted for cooling the milk, or exposing it, so that the animal odor may pass off, especially in hot, sultry weather. I feel certain from my observations, both here and abroad, that this is a leading cause of bad flavor, and hence the practice of the Cheddar dairymen in getting rid of the whey as early as possible, and the exposure of the curd a long time to the atmosphere, is founded upon philosophic principles.

My friends, I do not want to mislead you. If you could only appreciate how earnest and anxious I am for your success, with what pure motives I have labored for improvement in our dairy practice, and for sustaining remunerative prices, these suggestions would be duly heeded, and you would take hold of the matter and help bring about a reformation. I can assure you there is no time to be lost, since movements are on foot to establish the factory system in Northern Europe.

Again, the cheese producing sections of the Union are being developed so rapidly, and in such large proportions, that competition every year must be larger and larger. Every factory should now establish a reputation for "extra fine goods." You should keep your best manufacturers in the country. Make it an inducement for them to stay with you. High skill and experience command ample remuneration the world over. Old and established factories can afford to pay for it rather than let new districts pick off your best cheese-makers. The London dealers complain that there is no reliability of factories sending forward prime cheese year after year. They want a brand that can be relied upon, and when they find such, will pay an extra price for it. The curing rooms ought to be arranged so that temperature may be controlled. The curing rooms of England have walls of stone, or of hollow brick. The climate is cooler, more moist, and less variable than ours. These facts ought to afford suggestions in the construction of our curing houses.

There is another way in which flavor is lost. The shipments of cheese in hot weather, to lay in New York until heated through and through, and then stowing away in the vessel with cargoes of grain, oil-cake, or some other freight, from which taints are absorbed. Much of our nice cheese is injured in this way. In Bristol, Bath, London, Chester, Liverpool, Manchester, and in fact all over England, the commercial houses for cheese are well constructed for the purpose of preserving flavor. They have stone floors, are cool and well ventilated. Cheese that comes in bad condition is often taken out of the boxes, or the covers removed, and then laid upon the floor to cool. But I have detained you so long that I must not dwell on these points.

The fine, compact texture of English cheese, in my opinion, results in a great measure from their process of expelling the whey, grinding in the curd mill, and then salting and pressing. I may remark that, while porousness is an objection, if the texture is not of a honeycomb character, but will fill the trier with a tolerable compact mass, dealers do not urge a reduction of price, if the flavor and quality are perfect. Extreme porosity shows a defect in manufacture, and carries with it the impression that the cheese will soon go to decay, and is therefore dangerous to handle, requiring quick sales.

THE ENGLISH MARKET.

In closing, a word may be offered in reference to the prospect of future exportations and prices. The English are a great cheese eating people. We have no conception of the extent in which this food enters into general consumption. Those who can afford to eat

a good article, purchase the best, and the poor take up with that which is inferior and bad. I have seen tons and tons of the most worthless stuff, apparently fit only for the pigs, in the shops and public market, and it had a rapid sale. The cutters are extremely expert. They use a thin, circular knife, like a half moon, having an upright handle springing from the center, and with this they cut the cheese upon the counter. They also use a fine wire, with handles at each end, for splitting large cheese. I have been surprised at th accuracy with which they will cut the different weights. The crumbs are laid on one side to be used for balancing the scales. There is an immense demand for inferior or low priced cheese. If we could manufacture cheese so as to sell on the counter at 4*d.* to 6*d.* per pound, I think they would take our whole product.

Cheese does not come upon the table with pastry, as with us, but is brought on as a separate and last course. A half or quarter of a cheese, placed upon a silver dish, with a clean napkin under it, is set upon the table, and you cut from it as desired. I became very fond of eating it in this way. Then bread and cheese and ale are used as a lunch. I have seen the best people make a hearty meal in this way, and have often done it myself. I have seen very respectable looking people eat *skippery* cheese with a relish. I did not get so far along as that, but after seeing horse flesh eaten in Paris, the thing did not seem in the least repulsive.

I think there must be a good demand for our cheese the coming year. The production has been cut off in the Northern districts. The cattle plague has been terrible in its ravages through this section. In Cheshire and the adjoining counties, the losses have been fearful. The Cheshire people feel very melancholy, and many of the farmers are unable to pay their rents. Some of them are trying sheep-farming, but with indifferent results. They have been long a dairy people, and understand the management of cows. I am convinced they will go back to dairy farming when the cattle plague shall be effectually crushed out, and that appears now to have been almost accomplished but they will hardly get established by next spring. They will not abandon dairying till we can furnish cheese so cheaply as to drive them from the market. The cost of transportation, and the high prices of labor, and heavy taxation, are against the production of a cheap cheese on this side, at least in the older States. Holland, too, enters into competition with us. She is now shipping to England, 80,000,000 pounds of cheese per annum. Last year the quantity imported was nearly 73,000,000 pounds. The passage can be made in a day, and the cost of exportation is a mere trifle. Their cheese is very good, but not equal to ours; but they

are improving every year in quality. They make three styles of cheese which are popular among the poorer classes. The Edams and middle-bars are round like a cannon ball, and weigh from 6 to 12 pounds. The Goudas are a small flat cheese of about 20 pounds weight. The agricultural laborers like the Edams, as they can take a cheese into the field and eat it without waste. Their cheese sells at from 8 to 10 shillings per cwt. below American. There is less difference in the Derby Goudas, often no more than 4*s.* less than ours.

Our future success it seems to me, will depend upon our making fine cheese, and getting it to market at cheap rates. Something might be done in opening up new markets. The English export cheese to Australia, Cape of Good Hope, Brazil, and various other points.

There will be a good market for cheese next year in Paris; but I doubt whether any of our dealers will have pluck to try it.

Something should be done by the cheese-makers and shippers in the way of regulating exportations. If you could give England a steady supply, without rushing forward immense quantities to clog the market, prices would be maintained, and greater profits realized. In November and December, dairymen became uneasy, they lost all courage, and were glad to sell at any price. The cheese should have been shipped to New York, stored and held. In my opinion a great mistake has been made. The cheese product of Great Britain has been cut off. They commenced early in the season to use their own make. They drew all they could upon Holland, and now have nothing to fall back upon, except supplies from America. They will get no new cheese till June, and prices must necessarily advance in that market.

The shipments from New York to Liverpool and London, during the month of October this year, were 7,798,150 pounds, and last year only 1,309,850. In November this year, 3,804,250 pounds; last year only 2,298,150. In December this year, 5,853,050 pounds; last year only 2,027,300. In other words, the exportations this year during the three months have been 17,455,250 pounds, while for the same time last year they were only 5,635,300 pounds—showing an increase this year over last, of nearly 12,000,000 pounds during that time.

I was told in London, that last year prices went down to 63*s.* per cwt. This year, the lowest price reached for extra cheese was 66*s.*, and on the 15th of December, notwithstanding the immense shipments, prices advanced to 70*s.* per cwt. The whole exportations, this year, from May to January, have been over 7,000,000 pounds more than for the same time last year. I learn that the stock in New

York is much smaller than usual at this season of the year, and where the cheese is to come from to supply the English market till June, is not easy to be seen.

I do not pretend to predict the future market; no one can do that with certainty, since there may be disturbing causes, and events shrouded in darkness, and known only to Him "who doeth all things well." These may have controlling influence; but so far as human foresight may be trusted, the present condition of things indicate extreme prices on the other side for the winter and spring sales.

I have but one more suggestion to make. It is that some plan be inaugurated whereby factories may ship cheese to New York and hold it, whenever desired. Most especially is this needed in the fall when prices are low. Many factories have no place for storing cheese in winter. They wish to get it off before navigation closes, in order to take advantage of low freights. They become uneasy, and often sell at a sacrifice, when, did they know of some feasible way of shipping and storing in New York, they would gladly avail themselves of it, rather than make a sale.

The matter is an important one for the producer's interest, since a repetition of this year's transactions should be guarded against.

I should have been glad to have touched upon many other points of interest, but have already drawn too largely upon your patience and good nature, and must close, thanking you for your attention, and hoping some of the suggestions offered may be useful.

TRANSACTIONS AT THE SECOND ANNUAL MEETING

OF THE

American Dairymen's Association,

HELD AT THE COURT-HOUSE, UTICA, N. Y.,

ON WEDNESDAY AND THURSDAY, JANUARY 9 AND 10, 1867.

At half past eleven on Wednesday morning, the Convention was called to order by the President, WM. H. COMSTOCK, Esq., of Oneida, who spoke substantially as follows:

GENTLEMEN: The hour having arrived for proceeding with the business of this Convention, I take this opportunity to call your attention to some of the subjects which should receive your careful deliberations.

Providence has favored us the past season, and given us large products; a rich reward for our patient labor and toil; let us worship him as the author of every blessing we enjoy.

The Dairymen have not only been blessed with large products from their labors; but also through the influence of this Association in connection with the *mission to England*, have received remunerative prices for those products.

The *mission to England*, with X. A. Willard, Esq., as a representative and agent for the American Dairymen, created a lively and healthy competition among cheese dealers and shippers, and strengthened the confidence of the producer by keeping him posted about the English markets, thereby keeping cheese up to a fair price, through the whole season.

Mr. Willard sent to us the only correct and satisfactory report of the condition, quality and flavor of *American cheese*, when it arrived on the other side of the waters. Through him we learn that American Factory cheese is taking the place of English cheese upon the tables of the wealthy, as well as upon the tables of the poor.

The thanks of all Dairymen are due to our committee, with J. A. Shearman, Esq., as their Chairman, for their energy and skill in procuring the money necessary to send an agent to England, and to their wisdom in selecting X. A. Willard, Esq., as our representative. Great credit is due to Mr. X. A. Willard, for his energy, his skill, and integrity, in obtaining and reporting to us desirable information, and in making timely and valuable suggestions.

The proposition made at our last annual meeting to publish a paper by the American Dairymen, I am sorry to say, did not meet with that pecuniary encouragement necessary to warrant your committee any success in the enterprise; but let me urge upon your attention the importance of a weekly Circular, which shall contain the correct markets of England and America, and also give each week the amount of cheese made, and shipped, and such other information as will be useful for our Dairymen.

The law to prevent the adulterating of milk, should be so amended that there will be no questions as to the proper parties who may commence an action under said law.

By the rulings of the Commissioner of Internal Revenue, a tax has been laid upon the manufacture of butter and cheese. By the tax law, butter and cheese are exempt from tax, and we think the ruling of the Commissioner wrong, caused, probably, from a want of any practical knowledge of cheese-making. Some have called the making of cheese similar to the manufacture

of flour. Wheat is an original product that can be preserved for a long time without change, or it may be carried any distance, while milk, on the other hand, must be, as a rule, made into butter or cheese, before it can be preserved any considerable length of time, or carried any great distance. The producing milk and making it into butter or cheese, has always been connected together as one and the same business, while wheat has always been produced by the farmer, and carried to market, and sold like butter or cheese; while the miller, who manufactures the wheat into flour, may be thousands of miles from the producer.

Dairymen should give more attention to making and curing cheese. The factory system has caused a large increase in the product of cheese; many places never before engaged in the Dairy business, have this past season started a factory and the dairy; and we have reason to believe that its growth will be unprecedently large the coming season. With this fact in view, I would ask, how much can we increse the product of cheese and not have the supply greater than the demand? can we not increase consumption by improving the quality? Are there not other countries in which we can introduce our cheese? can we not induce our American people to use cheese as a necessary article of food instead of using it as they now do as an article of luxury? Let us use every effort to improve the quality of our cheese, and to create a demand which will equal the increasing supply. Every Dairyman should help with his money, with his influence, and with his counsel, to advance the interest of this Association, thereby advancing his own interest. In conclusion, I ask your indulgence and co-operation while I preside over your deliberations.

COMMITTEE ON ORDER OF BUSINESS.

On motion of N. Leach, of Chenango, the following Committee of five, on Order of Business, was appointed by the Chair:

Messrs. Nehemiah Leach, Chenango; A. A. Moore, Vermont; D. J. Woodworth, Cattaraugus; S. Wheeler, Oneida; C. E. Chadwick, C. W.

COMMITTEE ON NOMINATIONS.

On motion of H. Farrington, of Canada West, the following Committee of five, on Nomination of Officers for the ensuing year, was appointed by the Chair:

Messrs. Harvey Farrington, of C. W.; A. Burnham, Chautauqua; N. Leach, Chenango; E. R. Hopson, Herkimer; L. L. Wight, Oneida.

COMMITTEE ON FINANCE.

On motion of R. C. Wickham, of Vermont, the following Committee on Finance was appointed by the Chair:

R. C. Wickham, Vermont; Dwight Ellis, Mass.; M. H. Cochrane, C. E.; D. Hamlin, Jefferson; S. Bonfoy, Herkimer.

THE AGENT IN ENGLAND.

Mr. Farrington, of C. W., called for the report of the Committee on sending an Agent to England.

Mr. Shearman, Chairman of such Committee, stated that the Committee would be ready to report in the afternoon, if then desired. He might state, however, that some $1,900 had been raised for the purpose of sending an agent to England; of that amount, about $1,600 had been paid Mr. Willard for his services.

Jacob Ellison, of Herkimer, desired to know the name of every man who had subscribed to the fund raised to send an agent to England, together with the respective amounts. He moved that Mr. Shearman so report, together with the names of those subscribers who paid, and those who have not. Mr. Farrington seconded the motion. The motion prevailed. Adjourned to 2 P. M.

AFTERNOON SESSION.

The Convention re-assembled at 2 P. M.—President Comstock in the chair.

ORDER OF BUSINESS.

Mr. N. Leach, of Chenango, from the Committee previously appointed to prepare the order of business for the Convention, reported the following subjects for discussion, together with the names of gentlemen to whom the introduction of the various topics had been assigned:

1. Ought farmers to be taxed on the manufacture of cheese; and should not measures be taken to have the internal revenue laws or the Commissioner's decision in this regard changed? Milk differs from other raw materials, since it is of such a perishable nature that it can not be disposed of in the ordinary way like other products. E. G. Storms, Montgomery.
2. Is the branch factory system practicable; and is its adoption to be advised? Lemuel N. Brown, Otsego.
3. What are the requisites of purity of flavor in cheese; and how can it be secured? G. Williams, Oneida.
4. How can fair prices for dairy products be best maintained the coming year? J. Jones, Oneida.
5. Should not the Convention adopt some measures to secure a more substantial and uniform cheese box? W. E. Paxton, Erie.
6. Best stock for dairy purposes; and should not choice calves be more generally raised for replenishing our dairies, rather than to rely upon droves from Canada and elsewhere? S. S. Whitman, of Herkimer.
7. The advantage and profits of connecting butter-making with cheese manufacture. L. Carryl, Herkimer.
8. What are the best hours for milking? and in what way should it be conducted to get the best results? Hiram Walker, Oswego.
9. Is there not danger that dairying in America is being too largely extended and increased? What is the present limit to which it can be safely carried? Harvey Farrington, Canada West.
10. Best grasses and grains for dairy stock; and to what extent can soiling be generally adopted? Hon. Harris Lewis, Herkimer.
11. The cause of the loss in flavor in cheese which was made prior to or during the excessively warm weather in July. A. Bartlett, of Ohio.

On motion, the report was adopted and the committee discharged.

REPORT ON SENDING AGENT TO EUROPE.

Joseph A. Shearman, Esq., Chairman of the Committee on sending an agent to Europe, here made a report. Mr. S., read the names of subscribers to the fund raised for sending Mr. X. A. Willard to Europe, as an agent of the Association, together with the names of those who had paid their subscriptions and those who had not. He had personally received $631, together with additional amounts first collected by others. The total amount received towards defraying

the expenses of an agent to England was $1,980. Of this amount $1,630 was paid Mr. Willard.

Mr. S. Miller, of Lewis county, moved that the report be received.

Jacob Ellison, of Herkimer, rose to make a personal explanation; but he "explained" so pointedly, that he was called to order by Mr. Farrington, of Canada West.

The Chair ruled that Mr. E., under the circumstances, was not entitled to consume much time of the Convention.

Mr. Ellison thereupon sat down.

Mr. Leach, of Chenango, offered an amendment to Mr. Miller's motion, to the effect that the report be laid upon the table. Carried.

REPORT OF THE COMMITTEE ON NOMINATIONS.

Mr. Farrington, from the Committee on Nominations, reported the following names for Officers of the Convention, for the ensuing year:

President—Wm. H. Comstock, of Oneida.

Vice Presidents—Hon. B. N. Huntington, of Oneida; Seth Miller, of Lewis; M. H. Cochrane, of Canada East; Bradford Stiles, of Madison; Dwight J. Woodworth, Cattaragus; A. D. Hall, of Ohio; Alanson Slaughter, of Orange; A. A. Moore, of Vermont; —— Kinney, of Illinois; C. E. Chadwick, Canada West.

Secretary and Treasurer—G. B. Weeks, Oneida.

Mr. Williams, of Oneida, moved the adoption of the report of the Committee. Carried.

Mr. Comstock peremptorily declined the re-nomination as President of the Association.

Mr. Walker, of Oneida, moved that the report be referred back to the Committee, with instructions to substitute a name for that of Mr. Comstock. Report so referred.

Mr. Farrington, of C. W., Chairman, reported the name of Dr. L. L. Wight, of Oneida, as President.

Dr. Wight declined the honor.

Mr. Leland, of Oneida, nominated Mr Walker, of Oneida, for the Presidency.

Mr. Walker respectfully declined.

Mr. Farrington now presented the name of George Williams, of Oneida, as President.

Mr. Williams was thankful for the honor conferred, but begged leave to decline. He closed by nominating Ebenezer Lewis, of Oneida.

Mr. Lewis thereupon declined.

But the convention had now heard excuses enough, and unanimously elected Mr. Williams President of the Association.

On motion of N. Leach, of Chenango, a committee consisting of Messrs. Leach and Lewis was appointed by the chair, to conduct President Williams to the chair.

They performed their duty, and Mr. Williams took his seat. In so doing, the new President returned his thanks for the honor conferred upon him. The proceeding was entirely unexpected by him; still he should discharge the duties resting upon him with impar-

tiality. He asked for himself the co-operation of all the members of the Association.

The report of the Committee on Finance was called for, but the Committee were not ready to report.

DISCUSSIONS.

The first question for discussion was called for, and the discussion opened by Mr. E. B. Storms, of Montgomery.

Question: Ought farmers to be taxed on the manufacture of cheese; and should not measures be taken to have the internal revenue laws or the Commissioner's decision in this regard changed? Milk differs from other raw materials, since it is of such a perishable nature that it cannot be disposed of in the ordinary way like other products.

REMARKS BY MR. STORMS.

A cheese is in its prime at from one to four months old; according to the state of the weather; after that time it begins to deteriorate, and soon becomes too rank for the popular taste. Whether a reduced temperature and an air-tight composition or varnish would maintain the flavor intact for a greater length of time, remains to be determined by experiment. We are consequently compelled to sell or submit to inevitable loss by holding on.

Let us figure a little. I suppose the average number of acres in dairy farms is about 125, and these should carry, one year with another, 25 cows, a span of horses, and other necessary stock. From these cows there should be made 11,500 pounds of cheese, and butter sufficient for the family, if made at a factory. At 15 cents per pound, this amounts to $1,725. Add $100 for sale of pork, and we have $1,825 as receipts. For expense account, we have interest on land at $80 per acre, and $2,000 in stock and machinery—$840; a man at $30 per month, eight months; a woman at $12 per month, sometimes, and an extra hand in haying and harvest, one month, $52; this amounts to $238, leaving $587, out of which the farmer must board his help, pay taxes, make repairs, and clothe his family. All that remains after deducting a reasonable compensation for his own and wife's labor, need not astonish anybody. If, in view of these facts and figures, any one supposes that dairying is so very profitable, their faith must be marvelous indeed.

I had hopes, when the factory system was inaugurated, that we might in a measure control the market, or at least, by concentrating business in fewer hands, enable the salesmen to act in concert, and thus realize better prices for their products. But I am fearful that the insane competition that is springing up among dairymen, will defeat the object in view, by multiplying factories and associations to such an extent that concert of action will be an impossibility. Manufacturers are in part, responsible for this state of things; their charges are generally too high, and they do not sufficiently consult the interests of patrons. These are dissatisfied, and immediately another factory is erected, and sometimes three or four, where there should be but one.

I understand that by a decision of the Commissioner of Internal Revenue, or an act of Congress, the license fee will not in future be assessed upon dairymen, but as each Assistant Assessor interprets the law to suit himself, we may as well expect to pay it. As stated recently in the UTICA MORNING HERALD, in Oppenheim no fee is assessed upon dairymen who take their milk to a factory, while in St. Johnsville, an adjoining town, the license is required.

If Congress insists upon collecting the tax, it might be well to call its attention to some of the foregoing facts. At least the law should be impartially executed.

Mr. Storms was followed by William H. Comstock, Esq., of Oneida. Mr. Comstock took the ground that cheese-making could not come under the head of manufactures, and made a motion that a committee be appointed to proceed to Washington, for the purpose of getting the tax upon cheese packages removed. The motion was carried.

By motion, the Chair was left the appointing of the committee.

Mr. Comstock moved to lay the question under discussion on the table. The motion was carried, and the next question for discussion was called up and opened by Mr. Lemuel N. Brown, of Otsego county:

Is the branch factory system practicable? and is its adoption to be advised?

MR. BROWN'S ADDRESS.

MR. PRESIDENT, LADIES AND GENTLEMEN:

I have been called upon to make a few remarks on the cheese factory system. I might with propriety claim to be excused, as I have retired from the field as a manufacturer. But I shall ever be willing to lend a helping hand to a cause which I have for years labored hard to promote.

In regard to the question of branch cheese factories, I will state that, for the last four years, I have been in business which led me from one factory to another, through the principal dairy region of this State. In taking this broad view of the factory system, I have seen certain objections, which, if carried out, will soon cripple it in its infancy. The first and greatest objection is the expense and trouble of carrying milk long distances. I therefore introduced and put into practical operation, two years ago, and to a greater extent one year ago, the plan of working the milk at different points, and drawing the cheese together, instead of drawing the milk. For this purpose I erected cheap buildings, some 18x24 feet, furnishing them with all the apparatus and conveniences of a nice factory, with ranges to hold ten or fifteen cheeses—or a load—which were boxed and drawn to the dry-house. I prepared the rennet, anotta and bandages at the dry-house, sending the required amount to the branches when the team went after the cheese. I have closely followed up the experiment for the last two seasons, and found the plan to work admirably, even beyond my expectations. The advantages are greater and the objections less than I expected. The first advantage is, that it gets a large amount of cheese together, by drawing the

milk but a short distance; and there is not only a saving in distance, but, as there are but few teams to deliver at one of these branches, the patron can drive up and unload at almost any moment, thus saving much time from the disadvantage of waiting his turn at a large factory. Another advantage is, that as the milk is drawn but a short distance, it is delivered earlier in the day, and in better condition—two considerations which will be appreciated by all practical cheese-makers. In many instances, when milk comes in bad condition, had it been delivered an hour or an hour and a half sooner, it would have caused no difficulty in its manufacture. As it will be admitted by all that the quality of the milk has much to do in determining the character of the cheese, these facts will argue a superior dairy in favor of the branch system, to say nothing of the increased amount of the product.

The third advantage is the facility with which the patron can obtain his share of the whey, having to draw it but a short distance, on his return home from carrying his milk. In brief, the branch system secures to the farmer all the advantages of a large factory in his own neighborhood.

By giving the farmers these advantages and conveniences, I think the permanency of the factory system will be established; but as I am led to believe that the day of drawing milk long distances is nearly over, it is my opinion that, unless the branch system be adopted, the large factories will break up into smaller ones, which will fail to be sufficiently profitable to stimulate individual enterprise. They will then be built by a few farmers, in convenient localities, and managed, to save expense, much like the old private dairies. As they have learned something from the present factory system, they will undoubtedly make better cheese than of old; but there will be an end to all that progress in cheese manufacture which has, within the last few years, given American cheese the first place in the world's market. Indeed, the quality of American cheese will be generally lowered; for, while few excel or equal the present standard, many will fall below it, from lack of that interest which is felt by the individual who makes cheese-making not only his business, but his study.

As to the manufacture of cheese in branch factories, they can be so placed as to get the milk from 200 to 300 cows into a single vat, which can be worked by one hand, without any additional help. I hired a hand the past season, who run a branch with 236 cows, without receiving the least assistance from any source.

As the help has but one vat to watch, the work can always be done in season. Not so in the large factory, with a combination of vats; for in case two or more vats need dipping at the same time, which is often the case, one of them is obliged to wait, to its injury.

These considerations argue two points against large factories, and in favor of the branch systems:

1st. The milk will be delivered at the branch earlier and in better condition.

2d. The work can always be done at the branch in the proper time.

One objection brought against this system by many is, that there

will be as many kinds of cheese as there are places of manufacture. My experience does not sustain this objection. Distance has nothing to do with the result. If the same rennet and anotta are used, and the same rules are observed in the process of manufacture, what difference can it make whether the vats be two feet or two miles apart? The conditions being the same, I see no reason why the result would not be the same. Facts and observation show that it is. During the past season, I visited a large number of factories, and nowhere did I find a more uniform lot of cheese than was produced under the branch system.

As regards the amount of help, I think a dairy of 1,000 cows could be manufactured nearly as cheaply at four branches, with 250 cows each, as if the milk were all delivered at one place. I am now speaking simply of making. The additional expense and trouble would be in drawing the cheese together. Still this is less than the extra expense and trouble of drawing the milk long distances. There is not only more weight, but the milk has to be delivered in season, whatever may be the weather, while the cheese can be left over, in case of bad weather or hurry.

When the milk is all drawn to one large establishment, the entire care is commonly thrown upon one person, the rest feeling little or no responsibility, and not working with the interest required in the successful performance of such delicate business. But when the milk is worked by the branch system, the care is divided, and not only a feeling of responsibility, but a spirit of rivalry is awakened. Consequently, the labor is more carefully and thoroughly performed.

Another objection raised against the branch system is, that it will require all experienced hands. But, as the milk comes in better season and condition, and there is only one vat to watch, with the rennet and anotta prepared and furnished ready for use, it will readily be seen that, with frequent visits from the overseer, it will not require as much experience and skill as it would to manage a large factory. I have found no trouble with hands of little experience. In one case, I hired a hand who was totally unacquainted with cheese-making, and he run a branch through the season with the best of success. There is an effort among the hands to excel each other, and should any of them have bad luck, as each branch has its own mark, the superintendent will readily detect it, when a visit to the branch will enable him to soon put everything right.

Farmers at a distance would generally choose to pay for drawing their milk, rather than to draw it themselves. But, if a branch were erected in their neighborhood, the general opinion is that each would rather draw his own milk than to be obliged to get it ready for the milk wagon, at just such a minute, every night and morning. Admitting this to be so, the branch system would save to many the sum paid for drawing their milk to a large factory—it, on an average, costing $2.50 per cow. Allowing it to cost 25 cents per 100 lbs. more to work up milk under this plan, then, as a cow will make 400 lbs., which would make the additional expense $1.00 per cow, the saving to the farmer would be $1.50 on each cow—which, with other advantages mentioned, would throw the argument in favor of the branch system.

In conclusion, I will say to those who are about to build, unless you adopt the branch system, do not build too large. I have been on the road for the last three months, and have exchanged views on this point with a large number of manufacturers. It is the prevailing opinion that the day of drawing milk long distances is rapidly coming to a close. From a mile and a half to two miles is as far as it will be found feasible to draw it. This, as a general thing, will get together the milk of from 200 to 300 cows.

With these few brief and hurried remarks, I leave the subject of branch cheese factories to the consideration of the Convention.

A gentleman from Herkimer county succeeded Mr. Brown, raising the question whether the uniform make of cheese in the branch factories would be as perfect as that in one large factory.

Mr. Davis, of Herkimer, asked what object there could be in drawing the cheese together, instead of drawing directly to market.

Mr. Brown answered, it was for the purpose of curing it.

Mr. Farrington, from Canada, then took the floor, saying that the branch system had been adopted by one of the largest factories in Canada, and it had worked greatly to the advantage of the manufacturer. In answer to the question by Mr. Davis, of drawing the cheese to one place for curing, it was said the object was to save the expense of building branch dry-houses. He was ready to endorse all Mr. Brown had said. No extra expense was attending the branch system.

Mr. Johnson, of Oswego, rose to ask if it was necessary to provide ice or spring water at each of these branches.

Mr. Farrington replied that the branch system did not supersede the use of ice or spring water.

On motion of Mr. Lewis, of Herkimer, the question was laid on the table.

The next question was then in order.

What are the requisites of purity of flavor in cheese; and how can it be cured?

Mr. G. Williams, of Oneida, President elect of the Association, rose to open the discussion, saying he was not prepared to more than introduce the question, having been frustrated in his plans by the report of the Committee on Nomination of Officers. Purity and flavor he considered to be the essentials of cheese. He did not think the quality of cheese depended altogether upon the manufacturer. It depends mainly upon the kind or quality of grass or grain upon which cows are supported. Grass must not only be pure, but everything with it must be pure. No pasture should be used which is mixed with weeds. Eating these impure articles of food invariably produce impure milk, and no good cheese can be made from impure milk. Cows must be in perfect health. It is the interest of dairymen to select only such cows as will produce pure milk, even sacrificing quantity to quality. Milk must be kept where nothing impure can influence it. Milk is a very susceptible article, and readily partakes of the properties of whatever surrounds it. Onions in the same room with milk will communicate their pungent quality to it.

Mr. John R. Chapman, of Madison, followed Mr. Williams.

MR. CHAPMAN'S ADDRESS.

I have no other object in view, if permanent impressions can be made by simple words, than the very commendable one of trying to improve the quality and flavor of American cheese.

I am a Madison county dairyman, and made cheese last season from the milk of my own cows, 57 in number, and branded my cheese-boxes "Orchard Factory, J. R. Chapman, Oneida Lake, N. Y." During the season of 1864 and 1865, I sent my milk to the Hart Factory, Oneida, and during those terms I acted as salesman and clerk for that factory. For four years previous to 1864, I made my own cheese from some 20 cows, and it varied in flavor very much, because I was continually making experiments. However, I always had the good luck to be thought a first-rate cheese-maker, having had the advantage of instruction from Frank Foster, of Durhamville, who was taught the art by Mr. Fish, of Herkimer county.

Now, gentlemen, the first requisite for purity of flavor in cheese is, pure sweet milk in the vat when ready for the rennet to be mixed with it. Now, this statement will clash with the ideas of some of our leading cheese factory propagators, for they have preached that first-class cheese could not be made unless the milk had been shaken up by being conveyed in a milk wagon two or three miles to a factory. In addition to this, the milk generally is exposed in the can to the rays of a hot sun two hours, more or less, waiting for the milk wagon, and its flavor cannot be much improved by being put into the cans unstrained. This process, they say, gives the milk just sufficient acid to make it work tractable in the vat and cure easily.

The second requisite is a very careful, and I may say a scientific, cutting and handling of the curd from the time it is first cut until the heat is finished. "Coarse Curds Cheese" is getting to be a dangerous compound, for the best and most expert buyers will scarcely look at it. More weight of cheese can be made by the Coarse Curds system than any other; but, remember, it is done at the expense of fine flavor, by getting a larger amount of water in the cheese. Nash, in the "Progressive Farmer," page 143, quotes an analysis of four kinds of cheese by Professor Johnstone, as follows:

In 100 lbs.	No. 1.	No. 2.	No. 3.	No. 4.
Water,	43.81	35.81	38.58	38.46
Caseine,	45.04	37.96	25.00	25.87
Butter,	5.98	21.97	30.11	31.86
Ash,	5.18	4.25	6.29	8.81

Now, the amount of water in cheese will startle many of my hearers, for nearly two-fifths of the weight of Prof. Johnstone's cheese is water.

Let us examine the analysis of milk given by Nash, page 128: Water, in 100 lbs., 88.5; cream, 3; curd, 4; sugar, 4; ash, 5; total, 100.0.

Another by Le Bel and Boussingault, in "Rural Economy," page 383: Caseine, in 100 lbs., 3.6; fatty matter, 4.0; sugar, 5; water, 87.4; total, 100.0.

It will be seen that these two analyses correspond very closely, and if we make a cheese from milk of Boussingault's analysis, and obtained nothing more in the cheese than pure caseine and fatty matter, we should get seven and one-half of cheese from 100 lbs. of milk; and if we could work as close in a vat as chemists can in a laboratory, we should require thirteen and twenty-six hundredths of milk to make one pound of cheese. As the result of my experience, I have come to the conclusion that the finest flavored cheese, all other conditions being equal, are those which have the smallest amount of water in them. A factory in my neighborhood made their last dividend about Christmas last. It required seven and four-fifths of pure milk for the month of October to make one pound of cured cheese, and six and three-fifths to make one pound of skimmed milk cheese in the month of November. Now, if this was really done, the scientific conclusion is, that there must be a very large amount of water in this cheese, and this opinion is strengthened by the fact that the above named skimmed milk cheese lost two pounds out of 60, in riding 12 miles for delivery at Oneida. Another conclusion is inevitable that there was more water in the cream taken from the November milk than there was in unskimmed October milk, a condition impossible, for it is very certain that there could be no difference in the cheese producing powers of October and November milk. It will be seen that 100 lbs. of the unskimmed October milk yielded 12.82 lbs. of cheese, and 100 lbs. of skimmed November milk 15.15 lbs. of cheese, or more than twice as much cheese as as there are cheese elements in Boussingault's analysis; in other words, more than one-half of this cheese was water. This same factory during the summer required 11½ lbs. of milk to produce 1 lb. of cured cheese. Gentlemen, it is well-known by the masters of the cheese factories that if they do not make comparatively a large quantity of cheese from a given quantity of milk, they are in danger of losing the patronage of the milk men, and to produce this apparent effect the weight of milk is tampered with by some, and others reconstruct the figures to make a statement to tickle the feelings of their customers. A very large number of our cheese factories are very badly managed in the milk account and dividend department, arising from the want of capacity of the committee men.

Gentlemen, I fearlessly assert that the quality of cheese has deteriorated during last season in New York State, and this has been brought about by the competitive system of cheese factories. The great aim of factory managers seems to be to crowd as much water as can be got into a cheese by the system of coarse curds and quick application of heat, and keep it there by heavy doses of salt. I remember seeing in the *Country Gentleman*, some years ago, a statement that a celebrated English cheese-maker had been induced to try experiments in making cheese, because he had observed that the amount of cheese produced in their dairies was less than chemical analysis showed the milk was capable of yielding. If, ere this, he has not succeeded to the full extent of his wishes, I would advise him to come over to see his "Uncle," he can learn more than he ever dreampt of.

To repeat, the finest flavored cheese, all other conditions being equal, are those which have the smallest amount of water in them; and the amount of water depends upon the comparative coarseness of the curds and the time consumed in heating up from 80 to 98 degs., and this time in factories is controlled by the condition of the milk at the moment the rennet is stirred in. It is well-known that some factories make a great many sour cheese, and the blame is put upon the cheese-maker, whereas, in truth, the patrons let their cans become sour and the faucets foul from want of care and hot water. They also send skimmed milk, watered milk, and sometimes both, to the factory; and from my experience I think I speak the truth in asserting that one half of the patrons in some factories send milk which has been tampered with in some shape or other; and all this rascality has a certain tendency to trouble the cheese-maker. He soon perceives there is too much acid in the milk, and the inevitable consequence is that he is compelled to drive heat up from 80 to 90 degs., in some cases in less time than 15 minutes, jerk the curd into the cooler, and salt and pepper as quickly as he can possibly do so, and this is the very best he *can* do, under the circumstances he is placed in by the groveling meanness of the patrons, for it is a perfect impossibility for him to make fine flavored cheese from tainted, coppered milk. Now, at this stage of cheese-making, a private dairy has a great advantage over a factory. The acidity of the milk can be regulated by an admixture of sour whey, say from 1 quart to from 100 to 200 of milk, according to the condition of the atmosphere; and by using basswood as fuel you can take two hours to raise the heat from 80 to 90 degs.; and the more regularly you can raise the temperature, take what time you will, the smaller the loss from injury to the curd from violent agitation, and from high temperature of the vat water. In applying heat to curd in large vats, by gluts, as in steam apparatus, or in a hurry, in any vat when the milk is very acid, the calorie reaches the curd at so high a temperature as to permanently injure it, and also necessitates a very violent agitation of the curd to prevent it packing into large masses; and this violent agitation will certainly produce a milky whey, and consequently a loss of curd. As soon as the heat is brought up to 98 degs. the fire is shut off, and the curd, with the exception of an occasional stir up, is allowed to rest in the whey until the mass emits a peculiar odor, which notifies the cheese-maker that the whey is just commencing to turn sour, and this period requires very careful watching, for if the curd remain in the whey after it is distinctly sour, it will affect the cheese by a loss of weight, and in curing, works the same as a sour cheese. Some of our cheese-makers take the curd out of the vat into the cooler without reducing the temperature down to any fixed standard, and the consequence is that the curd, from an excess of heat packs into hard lumps; they also mix the salt with the curd as well as they can, and depend upon the press to drive the brine into and through masses of curd as large as your fist. Now, gentlemen, this method of salting curd is one of the principal causes of porous cheese; and an expert buyer can tell from the appearance of the surface of cheese after they are placed upon the tables, for the

purpose of curing, whether they were properly salted or not. The surfaces of such cheese show an uneven appearance, and when you draw your finger across them you will have a sensation of up hill and down hill. Now, the true way is to let out the warm water and run cold water through the vat, stirring the curd at the same time, so as to reduce the temperature of the whey down to 88 degs., then remove it quickly into the cooler, stir it up thoroughly with the hands for one minute, then mix in the salt and keep stirring a few minutes afterwards. Let the curd remain at rest for half an hour, then put it into the hoops and press it gently for two or three minutes, then as hard as you can, and continue trying the screws every five minutes for half an hour, and you will have a well pressed cheese, without any honeycomb on the lower face. The strainer cloth in the cooler, the press cloths, the hoops, the followers, and the press boards, require the utmost care and attention in keeping them sweet and clean, for if there be any nasty smell induced by fœtid curd or sour whey or cream, the surface of the cheese, when on the curing table, will show it by its inclination to chip and crack, leaving a rough looking surface.

Coarse curd cheese makers generally put three pounds of salt, and some of them ought to put four, to the product in curd of 1,000 of milk; in fine curd, I think two and a half pounds is nearly right, and quite enough at any time of the season. And here let me say that the quantity of salt affects the flavor of cheese, other conditions being equal, so as to make a difference of one cent per pound in the estimate of skillful buyers. Cheese ought to be turned every day till they are three weeks old; after that, once in two days, and at that age I have found it advantageous to put a scale board under each cheese, as it prevents the fine film of grease on the face of the cheese from sticking to the table.

It may be well to state that the distinctive features of factory cheese and dairy cheese consist in factory curd being allowed to remain in the vat till the whey turns. Dairy curd is taken out of the whey as soon as it will distinctly squeak by being pressed against the front teeth. Dairy cheese generally has a sharp, biting flavor, which suits the home but not the foreign market; consequently shippers won't touch it. Factory cheese, to be fine, must be close, soft, buttery, and of a peculiar flavor which can only be produced by first-class cheese-makers, and they, like angel's visits, very few and far between. Some of my hearers may imagine that the foregoing remarks are aimed against the factory system. Not so, gentlemen. I am opposed to factories being conducted, as too many are, by green, ignorant cheese-makers, low, rascally, thievish patrons, and incompetent committee men; and I know of no better way of counteracting these wrongs than a public exposition at the annual meeting of this Association.

It is time that cheese buyers began to discriminate and pay for cheese its actual value, for so long as they continue to pay as much for very poor as very choice cheese, just so long will poor cheese be made. Cheese is treated by the buyers pretty much the same as wool. Water and grease, in certain combinations, sell equally as well as pure cheese or pure wool.

Mr. Chapman was followed by Mr. Farrington, of Canada West, who could not exactly agree with the gentleman who had left the floor. He thought there was danger of getting too much of the water out of curd. Where too much water was taken out, sour cheese are invariably the result. Private factories he did not believe to be as good as large factories. He had tried it, and had given it up in disgust. The private system could never be carried out and it never would be tried generally again. Concerning purity in cheese, Mr. Farrington said, the impurity and bad quality of cheese during the past year was owing, in a great measure, to the wet season. Mr. F. discussed this part of the question from a scientific point, attributing the impurity of cheese to the surplus of ammonia in the food of the cows. Upon this question of soil, Mr. Farrington agreed with those who held that the quality of cheese depends somewhat upon the soil, citing the fact that different localities produced cheese of very widely different quality.

Mr. Hiram Walker, of Oswego, followed in the discussion, advocating the large factory system in manufacturing. He said that private factories were conducted in part by the women of the dairyman's family, and having other duties to perform, they frequently neglected the making of the cheese, thus producing a sour article.

On motion, the question was laid on the table, and the following Committee on Membership was announced by the Chair: Hiram Broat, Herkimer; William Simpson, Jr., Allegany; T. W. Bacon, Michigan.

The Report of the Finance Committee was read and adopted. The report shows a balance on the credit side of the Association's account for the year, notwithstanding the fact that a large amount of the year's income was used in paying a portion of last year's bills.

A recess was now taken until 7 P. M.

EVENING SESSION.

The Convention was called to order at 7 o'clock, by President Williams.

After some preliminary matters of business, relating to the collection of entrance fees from those who were not members, but were present to listen to the address; President Williams introduced the Speaker of the evening, X. A. Willard, A. M., of Herkimer, whose able address will be found in full in another part of this volume.

VOTE OF THANKS TO MR. WILLARD.

At Mr. Willard's conclusion, on motion, a vote of thanks was tendered to the speaker for his able and eloquent address, and a copy requested for publication in the Annual Report of the Society.

WEEKLY CIRCULAR.

Mr. Comstock, of Oneida, introduced the subject of a Weekly Circular, to be issued under the auspices of the Association; to contain statistics from every factory, respecting the amount of cheese being made daily, the amount sold, and at what price, quantity of cheese on hand, &c., &c.

He moved the appointment of a committee of five, by the Chair, to perfect a plan for such a circular and present it for the consideration of the Convention.

The Chair appointed, as such committee, Messrs. Comstock, of Oneida; Walker, of Oswego; Conover, of Montgomery; Burnham, of Chautauqua; Ingraham, of Jefferson.

Adjourned until 10 o'clock A. M., Thursday.

MORNING SESSION.

At 10 A. M., the Convention was called to order by President Williams.

DISCUSSION OF A SIDE QUESTION.

The regular question for discussion before the Convention at the time of adjournment on Wednesday, was laid upon the table, and other matters first given a hearing.

Jacob Ellison, of Herkimer, presented a series of questions for the consideration of the Convention, and, on obtaining leave, proceeded to discuss the following topic:

Are there styles and kinds of cheese made in England, which sell for higher prices in the English markets than any American cheese sells for in the same market?

He began his remarks by stating that the cheese, which in England excelled all others in price was the Stilton. So confident was he of the superiority of this cheese that he designed making it this year in his own dairy. The best of Cheddar was always better than the best American. Scotch Cheddar cheeses were good, but they had not that rich flavor which some of the English cheeses had. This proved that soil and water had much to do with the quality of cheese.

The English cheese is of better flavor than American, because there is more cleanliness observed in all stages of its manufacture, and because the atmosphere of Britain is so much cooler than ours.

Referring to coarse curd cheese he declared, that so far as his observation extended, at home and abroad, he did not consider their quality as good as finer curds.

The heat of last July nearly ruined the cheese made in that month, but he knew that our cheese can be so made that age nor heat, nor an Atlantic voyage, could injure them. He referred to some factory cheese which arrived in London while he was there that were in superb condition.

The prejudice of the English against American cheese is fast dying out, which could not be the case if we were not sending them a good article.

He spoke pointedly in regard to the looseness, (or something worse,) with which American cheese is weighed in London, and stated that considerable losses occurred in lots shipped direct to London by sundry factories, before the leakage was discovered and stopped.

In answer to questions, Mr. Ellison stated that he was unable to state the manner in which Stilton cheese is made. They weigh 16 to 18 pounds.

REGULAR ORDER OF BUSINESS RESUMED.

The regular order of business prepared for the Convention was here resumed by the discussion of the following question:

How can fair prices for dairy products be best maintained this year?

Mr. Farrington, of C. W., was the first speaker. He stated, in brief, that by a diligent use of the means now in our hands—the benefits of association—of the press—the dissemination of statistical items—and, above all, by the production of a superior article of cheese—we may insure remunerative prices.

As bearing upon this topic, Mr. Comstock, of Oneida, here introduced the report of the Committee on a

A WEEKLY CIRCULAR.

WHEREAS, It is desirable for the interests of dairymen that a Weekly Circular be issued for the benefit of every cheese-producer, containing a correct report from every American cheese-maker, of the amount of cheese sold, for what market shipped, and the number of boxes on hand, together with the size of cheese and prices obtained; and,

Whereas, Such information can be obtained only by the co-operation of all the cheese-producers in sending their individual weekly reports to a designated head or circular; and,

Whereas, The expense of the Circular, with postage, &c., will be several hundred dollars; therefore,

Resolved, That our Secretary communicate this plan to every cheese-producer as far as practicable, and solicit a pledge from the producer to pay $3 each for the expense of such circular; that such Weekly Circular shall be furnished only to the producers who help pay the expenses, and furnish a weekly report of their cheese product to the Secretary.

Resolved, That our Secretary issue such Circular, provided he receive sufficient encouragement to warrant such publication.

Discussion on this matter being in order, Mr. Weeks, of Oneida, stated that although warmly in favor of such a project as that referred to in the resolutions, yet the committee had failed to place the enterprise in a shape in which the objects desired could be realized. At the last annual meeting, as gentlemen will remember, several hours of valuable time were consumed in discussing the desirableness of establishing a weekly paper devoted exclusively to the interests of dairymen, and gentlemen vied with each other in setting forth the bright prospects of such a periodical, and the ease with which at least 3,000 subscribers could be obtained. And yet, after putting the treasury to considerable expense in sending out a prospectus for the paper, there was a return of only 144 names! The same result must follow this attempt, because it is of precisely the same nature.

Gentlemen might say that one failure ought not to discourage, but rather to stimulate to further effort. But he felt that it were wiser for members of the Convention to spend their time in the dis-

cussion of practical and useful themes rather than fritter it away in talking of impracticable and Utopian schemes.

The expenses for printing and postage would amount to a very large sum, while the salary of the person in whose charge it would be placed ought also to be large, for the labor of receiving, assorting, classifying and preparing these Circulars, before and after printing, would be very great.

For himself, as Secretary, he could only say that the pressure of other duties would utterly preclude all thoughts of his undertaking the work.

Mr. Clark, of Lewis, thought the result desired could be as readily obtained, and more widely disseminated, through the columns of the UTICA HERALD, while, at the same time, the expense to the Association would be nothing.

Mr. Comstock was informed by Mr. Willard, that all proper information furnished him by dairymen, would be printed in the HERALD. Mr. C. believed dairymen must rely upon themselves. They must have unity of action. They must have something which represents them. They needed a Weekly Circular. The expense of such a periodical would be less than that supposed by the Treasurer. Many bank cashiers of Utica predicted a break in the cheese market on account of the large quantities held by producers.

Mr. Chadwick, of Canada, was in favor of the resolution. He had been highly gratified at the intelligence brought before this body. He was not a cheese-manufacturer, but had taken a great degree of interest in the subject. There were many features to be learned, and these annual meetings brought them out. The subject under discussion was of great importance to cheese-manufacturers.

It was an old adage that farmers are ever ready to support every institution and enterprise, except their own. There was some truth in it.

The information obtained by your agent to England has been of immense benefit to the dairy interest, and the statistics contemplated in the Circulars would result in great good. All that was wanted was to present it in such a way that persons could subscribe for it, and it would be a success. The people of Canada were only separated from you by an imaginary line, and would go with you in this movement. They were willing to reciprocate and further the cause. He hoped the resolutions would pass. Mr. C. spoke at some length and was several times applauded.

Mr. Clark, of Lewis, thought that if the statistics were published in some paper, it would be valuable to that paper. The facts brought out would be valuable to all. Men in New York, in the fall, thought the country flooded with cheese, but we knew better.

Mr. Comstock, of Oneida, said that the matter of the reports would take two columns of a paper, and that was more than the HERALD could give to it. He thought the matter could be prepared for the press for $400.

Mr. Farrington, of Canada, contended that facts and information should be placed before the people. He would be one of a hundred to be responsible for $400.

The matter of a Circular was discussed at length by Mr. Johnson, of Oswego, Mr. Lewis, of Herkimer, and others.

Dr. Wight, of Oneida, offered an amendment, which was subsequently modified and adopted, to the effect that a committee be appointed by the Chair to solicit subscriptions for the purpose of issuing such circulars in such a manner as seemed best to the committee.

Mr. Leland, of Oneida, offered an amendment which, after discussion, was adopted, by which the word "producers," in the second resolution, was changed to "persons," so as to read "shall be furnished only to the persons who help pay," &c.

The report of the committee, as amended, was adopted.

CHEESE BOXES.

The question in regard to securing a better kind of cheese-box was now taken up.

Mr. Nicholson, of Oneida, said he was a manufacturer of boxes. He had investigated the subject, and come to the conclusion that dairymen are loosing money by sending cheese abroad in frail boxes. They were not substantial enough to ship cheese to Europe. There was a struggle between the box manufacturer and the cheese-manufacturer. The latter wanted a cheap box, and insisted on a good box. The two were rather opposed to each other. Good materials were scarce, and it was a question whether we should not have to resort to another kind of box, on account of this scarcity of material. He asked why a band is better than a double cover? It was replied that the band was less expensive.

Mr. Farrington, of Canada, said the trouble with boxes is that the heads were not sufficiently seasoned. The heads shrink after being put together, and fall to pieces. The timber for hoops were too brittle. It was said that lumber was becoming scarce. If box manufacturers would send to Canada for lumber, they could have the finest in the world and enough to last half a century.

A gentleman of Cortland, (name not announced,) said he had been in favor of sawed hoops for boxes. He was satisfied that a sawed hoop is better than when it is cut. Timber is not generally steamed enough, they check and split. Sawed boxes do not split.

The question was now laid on the table.

The Chair here announced the Committee on Circulars: W. H. Comstock, L. L. Wight, and E. Lewis, of Oneida; and the Committee on the subject of the removal of the tax on cheese-producers: W. H. Comstock, of Oneida; Colonel Seth Miller, of Lewis; and Bradford Stiles, of Madison.

The Convention now took a recess till 2 o'clock.

AFTERNOON SESSION.

Convention re-assembled at 2 P. M., President Williams in the chair.

The President urged upon gentleman the importance of renewing their memberships, in order to furnish the means for carrying on the ordinary operations of the Society.

DISCUSSIONS CONTINUED.

The following question was taken up for discussion: "Best stock for dairy purposes."

The first speaker was S. S. Whitman, of Little Falls. He said:

In looking at this subject, two questions seem prominently presented.

1st. Can dairymen obtain cows to fill up their dairies from abroad?

2d. Is it advisable for them to depend on this foreign supply, instead of raising their own stock?

Relative to the first question, we must inquire whether the large number of cows that will be required this coming spring, can be obtained at prices that dairymen will venture to give. Can we name a single county in the State where good cows can be bought to any considerable extent at prices that farmers would consider safe? It is but a few years since cows could be bought in nearly all the counties west and north of Oneida, and in some parts even of Oneida. Last spring a supply of good cows could not be obtained either in this State, or Ohio, or Canada, at safe prices, and yet dairymen were paying from $70 to $100 for cows.

One cause of this scarcity was the high price of beef. This cause has not been removed. Another reason is that the factory system of manufacturing butter and cheese—more especially the latter—has enabled towns and neighborhoods where cheese had never been made for market, and where but small dairies had been kept, to make just as much cheese as Herkimer or Oneida can produce, and in some locations get a better price for their products than can generally be obtained here; and, in fact, in locations like these last, the factory system is really most demanded. Within a short time, cheese factories have sprung up throughout this State. The West is going into the same system, and how soon the great West that lies stretching out beyond our ordinary West, where the scream of the panther and the tramp of the buffalo will soon be drowned by the whistle of the engine and rumble of the railroad train, will adopt the same system, we cannot exactly tell, but we may soon expect Brigham Young to be sending for some Herkimer county dairyman to go to Salt Lake to put up a mammoth factory, that will make ours dwindle into mere huts. But coming nearer home, and a little nearer my subject—the towns and neighborhoods that have lately started factories have learned that it is not worth while to sell a good cow, when her product for a single season will put more money in their pockets than they could realize for the sale of the cow. They might be induced to part with an unruly cow, especially if she was a real kicker, or milked so hard that it would make a man shed tears to think of milking her, or she might have some other defect—cows of this kind may be bought. But propose to buy the man's best cow and you will hear another story; that cow is not exactly for sale; there will be some excuse. He must consult his wife, or the boys, or the girls, or something of the kind.

I have, for the past dozen years or more, kept a yard where a limited number of cows could be stabled and cared for, and the location

being favorable as to water, &c., a great many cows have been kept and sold, and I have had an opportunity to see the tricks of the adept, and the blunders of the raw hand at the business. I do not know as it will be interesting for me to give a description of either.

This is not all; there is a real difficulty in finding and purchasing just the right kind of cows. Let a man go out in any of the counties of this State, and undertake to buy cows that come up to a desirable standard, say from four to seven years of age, with udder and teats all right, with marks indicating a good milker, with fair size and good appearance, and coming in about the right time, we will say in April, and he will find it a slow business; and, as I indicated before, there are but few of these cows bought, but more generally they are culls or second-rate cows at best.

And there is another trouble to encounter. I refer to the injury the cows sustain by reason of transportation, and of their uneasiness on account of being in a strange herd and on a strange farm. This is so well understood by dairymen, that they do not expect that a cow will come up to her real standard the first season after purchase.

The above remarks have been made to show that a man will be very fortunate if he keeps his dairy up to a fair standard by purchasing his cows, saying nothing about the great losses that many dairymen have had by introducing into their herds that disease that has prevailed so extensively in some towns in Herkimer, Oneida and Lewis counties particularly—I mean abortion.

And now what is the remedy for this uncertainty? For this unpleasant and often unprofitable business of purchasing cows?

All of you will—yes, and have already anticipated my answer, and I scarcely need to say—raise your calves.

When I say that, I have only introduced a subject of great importance, I had almost said the greatest importance to dairymen, and I'm only sorry that I am not able to present this subject in a way that will make an impression equal to its importance.

When I say raise your own calves and fill up the complement of your dairy from them, I do not mean that you, in a hap-hazard way, raise anything that you happen to have, and that by chance. I mean much more than this. I mean nothing less than the best you can procure. I do not claim that because you lavish a large sum of money in purchase of stock you will thereby be surely the gainer, but let not a few dollars, or a few hundred, deter you from obtaining the best results.

For the purpose of raising good stock, the best breed and most perfect animals of both sexes should be employed in propagation.

I know of no way that a dairy can be so easily improved as by obtaining a bull of deserved reputation as of a milking family, forming a regular character or type for a succession of generations, (if I may so express myself,) and then raise your calves from cows that have proved your best milkers, or from their progeny, remembering that ancestral influence is of practical importance, and the man who expects to improve his dairy must give it proper attention, for the law of hereditary transmission will show itself by marks that cannot be misunderstood. First, fix upon a point you wish to attain, and then use the means resolutely and judiciously to reach it.

In February, 1859, this same subject was before the Farmers' Club of Little Falls. At that time but few calves were raised; but some dairymen began to see the bad policy of depending on purchasing cows to fill up their dairies. At that meeting Mr. R. D. Brown, of Fairfield, stated that out of thirty-five half-blood Durham heifers raised by him, only three had been turned off as bad milkers—all of the others proved to be superior milkers, and he kept them till they were completely worn out, having turned off the last the year before, at the age of eighteen years, and he thought she yielded 500 pounds of cheese, even at that age. In raising these calves he made a selection out of seventy cows. By attention to breeding, Mr. Fish, of Herkimer county, has improved the milking qualities of his cows so that he has succeeded in producing 834 pounds of cheese as an average per cow.

At a meeting of the Club of a more recent date, Harris Lewis stated that from a superior cow in his dairy he had scarcely failed, out of six or eight of her calves he had raised, of having cows of like superiority. Alonzo Reed made a similar statement relative to the calves of a choice cow of his dairy. I might multiply facts of this kind if it was necessary, but it is not, for every observing dairyman present has known of cases of the same kind.

In 1859, a choice cow was estimated at $50, and according to the estimate of Mr. Brown, a heifer at two years old had cost $35. His items were as follows: Calf at four days old, $1.25; two months, saying to the first of June, $4.50; the next, five months to November 1, $3.75; to April 1, $8.00; the second year, the first seven months, $7.00; the following five months, $11.00—making $35 at the end of two years. I will add that in the next three years she will more than pay the expense of raising, so that the farmer, instead of paying $50 for a cow at five years old, has a cow already at his stable, kind and peaceable, that has paid all her expense; in other words, has balanced her account, and is ready to go on for the next ten years at a large profit to her owner.

All dairymen know that a good cow is much better than a poor one, but all do not appreciate the difference. To illustrate this difference, I cannot do better than to give an extract from an essay by Mr. Reed, in March, 1859. The whole of it is valuable, as all of his essays were. He gives the statistics of the yield and profit of five of the best cows in his dairy, and also of the five poorest in 1857. These were obtained by measuring, and recording the amount of each cow's milk on the first day of each month, and are approximately correct:

Five best cows Cr. by average of 554 gallons milk each, which realized in butter and cheese 11½ cts. per gallon		$63 75
Dr. to 2½ tons hay, at $8	$20 00	
" 30 weeks in pastures, at 2s	7 50	
" 200 ground feed in spring, at 12s	3 00	
" 10 per cent. interest on cost of cow, at $45	4 50	35 00
By balance in favor of cow		$28 75

Five poorest cows Dr. to cost of keeping, as above,	$35 00
By an average 243 gallons of milk each, as above, at 11½ cts	27 95
Balance against cow	$ 7 05

This is an average amount realized per gallon for the whole season; thus making a difference of $178.00 for the season, between the two lots of cows. It is needless to add that these cows were kept only one season.

Each breed has its advocates. As we do not go beyond (at this time,) the milking qualities, the question turns upon the quantity and quality of the milk, including hardiness and ease of keeping. For all these qualities, some of our native cows (I use the term by way of distinction,) have proved the equals of foreign breeds of later importation. Probably in the hands of a judicious breeder, much of the early importation from different parts of Europe, would have proved equal, if not superior to the best late importations. But they have become so befuddled by all kinds of cross-breeding, that it is difficult to detect the original type except by superior milking qualities; and when we find this, it should be improved upon by the best means within our reach.

In 1350, a French historian says that at a certain siege the besieged could only receive their supply of butter from Holland, which had been famous for its dairy products for 500 years. The Hollanders, in bringing their cows to America, would undoubtedly bring their best stock, as it involved a cost of several hundred dollars, and a voyage, at that time, of some six months. This stock of cows was scattered along the North River, and along the Mohawk, as far west as Palatine, and off south in Schoharie county, where, it is said, that traces of that same Dutch breed may be found to this day.

Other breeds have their superior qualities, and earnest advocates, and when the dairyman finds the desirable qualities in any of them, let him not fail to avail himself of their advantages.

I have endeavored to show that it is neither safe nor profitable to depend on purchasing cows at random for filling up dairies:—

That calves can be raised with better results as to cost and quality:—

That care should be strictly observed in breeding for the dairy, in the selection of the bull as well as the cow, so that the good qualities of the one may not be counteracted by the bad ones of the other, and by this means we may be quite sure of superior milkers:—

That good cows are cheaper than poor ones, the best way you can fix it.

This subject might be extended to an indefinite length, for I have a multitude of facts to prove my position. I hope my few remarks will provoke discussion here and elsewhere, till this subject shall receive the practical attention it so loudly demands.

In order to show what has been done the past season with good cows, well kept, regularly quickly and cleanlily milked, Mr. Ellison, of Herkimer, read a statement respecting the dairy of Mr. Nicholas

Smith, of Fairfield, Herkimer county, New York. Said dairy consisted of twenty cows, from which were made and sold

14,018 lbs. cheese for	$2.449	49
365 " butter "	127	75
	2.577	24

Besides these amounts sold, there was used in the family

250 lbs butter,
182 " cheese,
2 quarts of milk daily.

Here is shown an average of both butter and cheese per cow, of 740¾ lbs., and an income per cow of $136.25.

COMBINING BUTTER AND CHEESE-MAKING.

The first speaker was Mr. Johnson, of Oswego. He aimed to prove by illustration, that butter should be manufactured with cheese, at factories. The Oswego factories have been complained of as making skim cheese. There was no ground for the accusation. Their factories during the past year had made one pound of cheese from 9.43 pounds of milk. Had Oneida county factories done better than that?

Mr. Clark, from Lewis, said their factories had made into butter the cream which rose upon their vats during the night. He did not think the idea a good one. It did not have as good flavor as butter made in other ways. The speaker, at his factory, was able to make good cheese from partially skimmed milk.

Mr. Ellison did not believe in skim cheese. He had seen that kind in Liverpool, and thought very little of it. To make cheese in this manner, would be to reduce its value in the market.

Mr. Slaughter, of Orange, gave his ideas on skim milk and butter. Some four years ago, people in his vicinity had tried the skim milk plan with success. Between this plan and others, he thought each one should intelligently choose for himself.

Col. Miller, of Lewis, would like to ask Mr. Clark what his fac tory sold at last season.

Mr. C. replied that they sold at 18 cents during the first part of the season, and 16 cents during the latter part.

A gentleman from Orange, said the skim cheese was best for the Southern market, where full milk cheese can not compete with skim cheese.

Mr. Comstock, of Oneida, said it was a misnomer to call the cheese under consideration *skim* cheese.

Mr. A. G. Bagg, of Oneida, rose to protest against the custom of extracting a particle of the butter quality from milk before making cheese. It was possible to hold every particle of the butter quality in manufacturing. Those who can not do this, he would advise to skim; but for the good of the dairymen, he protested against the skimming system. Cold water is not good in the manufacturing of cheese. The animal warmth of the milk must be evolved gradually, and this could be done by the application of salt in sufficient quantity, and then gently but constantly stirring it.

Mr. Walker, of Oswego, followed, saying his experience was that great loss was sustained by taking off any cream before manufacturing. It was his opinion that the process of manufacturing skim cheese was damaging to the interests of dairymen.

On motion the question was laid on the table.

TABLE BUTTER FROM WHEY.

The question of making butter from whey was then taken up, and the discussion opened by Mr. Riggs, of Lewis county. Mr. Riggs gave his experience in making butter from whey, showing that the latter article can easily and profitably be used for the purpose of making butter. He said the butter he had made he sold in New York for forty cents per pound, and it was in as good demand as butter made from pure cream. Mr. R. gave the following explanation of the process.

After separating the whey from the curd, place it in a tin vat and add a liquid acid. One gallon to the whey of 50 gallons of milk, if the whey is sweet, but less quantity if changed. After this apply heat until it indicates a temperature of from 200 to 212 degrees Fahrenheit. When the cream rises and is skimmed off and placed in a cool place, let it stand till the next day. Then it is churned at a temperature ranging from 56 to 68 degrees, depending on the weather, and it is worked over and salted in the usual manner of butter-making. It will produce on an average, one pound of butter from the whey of 150 pounds of milk. The acid is made by taking any quantity of whey at boiling heat, after the cream is extracted, adding 1 gallon of strictly sour whey to 10 gallons of this boiling whey, when all the casein remaining in the whey is collected together in one mass, and is skimmed off. After the whey is let stand from 24 to 48 hours it is ready for use as acid. This process is repeated as often as necessity requires.

Several questions were asked by members of the Convention, which were answered by Mr. Riggs.

Mr. Killian Egger, of Cortland county, took the floor, and proceeded to explain that he had a patent for making butter from whey. A circular, bearing testimonials of the success of Mr. Egger's experiment in the business under consideration, was presented.

On motion, the Secretary was instructed to read the circular.

During the process of reading, mention of a patent was made, at which, Mr. Comstock, of Oneida, moved to lay the circular on the table, as it was not the business of the Convention to advertise patents.

The motion was put and lost by a decided vote.

The Secretary then finished reading the circular, passing immediately from the patent to statements of great interest to those contemplating the making of butter from whey. Mr. Egger made $1,600 worth of the best of butter, in one season, in a factory receiving the milk of only 450 cows, and that, too, under disadvantageous circumstances.

BEST HOURS AND PLAN FOR MILKING.

Discussion on this topic was opened by Mr. Hiram Walker, of Oswego, who said: It may be considered a simple thing to milk a cow, which any novice might do; so it is to plant and hoe a hill of corn. I have dairied it, under as humble circumstances as any one present. In 1830 my business called me from home. I had but one farrow cow, which run in the road, not having then a rod of pasture or meadow to keep her. My wife, who was well skilled in New England economy, made from her what cheese we needed for the year; with the rudest kind of fixtures, we have made cheese every year since, and for the last twenty years we have had a good-sized dairy. But next to having good cows and good keep, is the importance of having your milking well and properly done. In the first place, cows should be put in some secure place to milk, either in the barn or in a shed expressly for that purpose, with a good ventilation for warm weather. The practice of milking cows running loose in the yard is very inconvenient, to say the least about it, especially when the yards are muddy. It cannot at any time be done as cleanlily as when in stanchions. The proper hours for milking can not be as uniform in the factory system as in private dairies. Those living at the extreme end of the milk drawer's route, must necessarily milk at an earlier hour than those near the factory. There should be as much uniformity in the hours of milking as possible; dividing the two points of time between morning and evening, and evening and morning, as nearly equal as other farm labors will permit. I have generally practiced milking from half-past five to half-past six in the morning, and from six to seven in the evening, during the summer season, but as the days shorten, the hours of milking must be varied. Great pains should be taken to clean the udder before milking, and each milker should milk the same cows through the season, and in the same order. It is important to have cows treated kindly, not only when milking, but at all other times, if you wish to get the best flow of milk. Constant harsh treatment has a tendency to diminish the flow of milk. Although brutes, they are quick to discern the difference between kind and harsh treatment. I have rarely seen a cow that was made quiet by severe usage. I have had one or two Ayrshire cows, that nothing but the rod would subdue. The sooner such cows are sent to the shambles the better. It is too much the practice, especially with young milkers, after drawing a part of the milk, to stop to hear or tell a story before finishing. This is a bad habit, and should not be tolerated. To get the best results, the milk should be as rapidly drawn as possible, until the udder is thoroughly clean. A gentle hand will always get more milk than one who is always out of sorts, whom nothing pleases. As our happiness is not the r sult of any one great act in life's pathway, but of a great variety of small incidents, so our success in the dairy business is not the result of any great financial scheme, but of a thousand little cares-taking, which are as necessary to our success as the polish of the statue is to show the skill of the sculptor.

Mr. Bonfoy, of Herkimer, said his practice had been to milk his cows in rotation, beginning and ending with the same cow at each

milking. He had noticed that cows are creatures of habit, and when they once get into the habit of being milked in regular order, they object to being ever milked out of that order.

Mr. Johnson, of Herkimer, and Mr. Johnson, of Oswego, corroborated the position held by Mr. Bonfoy. The latter gentleman, (Mr. Johnson, of Oswego,) adding that cows ought to be treated gently, and milking should be done quickly. He had noticed that a cow will give more milk for a gentle milking maid than for a crusty old bachelor. To this last statement several gentlemen said: "Hope the ladies present will hear this."

The question of whether dairying was not being carried to too great an extent in this country, was laid on the table.

GRASSES, GRAINS, AND SOILING.

Hon. Harris Lewis, of Herkimer, opened the discussion, saying that he thought it late to enter upon the discussion of the vital question of dairying. He then read the following statement on

GRASSES.

In answering the question "Which are the best grasses for dairy stock?" I need not speak of the value of the grass crop, dry and green, in dollars, for that is understood as well, perhaps better by each one of those present, than it is by me. Suffice it to say that a large portion of the human family are dependent upon it for food and clothing.

A Southern writer, some 18 years ago, remarks that "the great secret of the *astonishing resources* of the frozen regions of the North lies in its grasses, of which clover is the chief." Since that time, some men South have tried to believe that cotton is king, but have found out their mistake, for grass IS KING and *cannot* be dethroned.

Notwithstanding the vital importance of this crop, it must be apparent to all that it does not receive that care and attention which we bestow on other crops of far less value. The grass in too many pastures and meadows grows by chance, and being nourished by neglect, will disappear, to the great surprise of the owner. In answer to the question under consideration, I would seed land in good condition, for permanent meadows, with the following grasses:

FOR HAY.

Red-top, Timothy, June, or Blue-grass, Orchard-grass, Tall Fescue, Smooth-stalked Meadow-grass, and Fowl Meadow-grass.

FOR PASTURES.

Red and White Clover, Orchard-grass, Timothy, Sweet-scented Vernal-grass, Meadow Foxtail, June, or Blue-grass, and Smooth-stalked Meadow-grass.

FOR PASTURES ON MOIST LAND.

June-grass, Red-top, Tall Fescue, Orchard-grass, Rough-stalked Meadow-grass, and Floating Fescue.

FOR PASTURES AND MEADOWS ON WET CLAY SOIL.

Red-top, Couch, or Twitch-grass, Quack, June-grass, and Rough-stalked Meadow-grass.

FOR SOILING.

Lucern, Winter Rye, Red Clover medium, Tall Oat-grass, and Millet.

FOR EXHAUSTED WET CLAY SOILS.

Couch-grass, and Quack.

Couch-grass, and Quack, are both propagated from the root, as well as the seeds; are both strong and hardy growers, making a growth when cropped, of one inch every 24 hours, under favorable circumstances; will both grow well on land wet or dry, rich or poor, on the steepest side hills, or on level ground.

These grasses will grow either side up equally well, and when once fixed in the soil they are like the Frenchman's horse at the foot of a hill, *there* every time. And with little care you will have a good crop of grass to the end of time.

If any naked or thin spots occur in fields stocked with these two grasses, create at once a strong opposition to their growth by turning the sod upside down with the plow, tear it into shreds with the harrow, top-dress with whatever the soil may require, and my word for it, you will behold a sward, whole and perfect in all its parts, and a crop of grass, year after year, that will astonish all who look upon it, and convince the most skeptical of the truth of the proverb that "*opposition* is the life of business," and of *Couch grass* and *Quack*. Quack produces better hay than timothy for cattle.

Before I dismiss the subject of grass for dairy stock, allow me to urge upon the consideration of this Association the vital importance of a closer attention to the teachings of nature.

Let us carefully study the lessons she imparts and be wise. When we desire to stock a piece of land to grass, let us give it a thorough preparation for the seed, and then sow all the good kinds we can procure, and wait the result.

Mother earth will select from the seeds thus cast upon her bosom the kinds she will grow, and indicate to us *unmistakably*, by their growth and vigor, the kinds suited to the soil; and if some good kinds, unknown to us, spring up and grow, let us not attempt to thwart nature in her effort to produce for us a good crop of grass by rooting these strangers out, "but use them, rather" as gifts from Him who created them for us, and designed them for the various localities where they are found.

BEST GRAIN FOR DAIRY STOCK.

Regarding wheat as out of the ring, on account of its cost, I believe oats well ground, the best grain for dairy stock, all things considered. 2d—Rye; 3d—Barley; 4th—Wheat; 5th—Bran; 6th—Buckwheat; 7th—Corn and Oil-cake, equal to either.

If the condition of the cow is what you desire, oat-meal will keep her in that condition, or rather improve it, and at the same time improve the quality and largely increase the quantity of milk. If the cow is in low condition, and you desire to improve the condition of the cow and the quality of her milk, and at the same time keep up the flow of milk, add to the oat-meal one-third or more of corn-meal or oil-meal, rye or barley. The bran from wheat, called shipstuff, will, to a limited degree, improve the condition of cows and the quality of milk, and increase its quantity to a considerable extent.

What is left of buckwheat, after taking out the flour, will largely increase the quantity of milk, without improving its quality or the condition of the cow. The foregoing notions were imbibed from my experience in feeding grain to dairy stock for the first 12 years of my dairy life; but for the past six years I have fed but little grain, have let the grain "go to grass."

SOILING.

Not having practiced soiling, except to supply dairy-stock with sufficient food when the pastures in summer or autumn have failed to supply them, I cannot speak upon this subject with that practical knowledge that many others possess. But as I am required to open the discussion upon this subject, I will venture the opinion that soiling can now be advantageously adopted on all moderately level farms in the vicinity of our cities and villages, where manure can be easily obtained; and, upon farms where the meadows are made self-sustaining by the annual overflow of streams.

Dr. Wight, of Oneida, said: I have had some experience, in part soiling, during several years past, and am satisfied that when the soil is well adapted to the system, as it is on the Mohawk Flats, it is far more profitable than the old method of grazing. My practice has been to set apart about twenty-five acres of pasture for fifty cows. Commencing about the middle of May, I let the cows to pasture a few hours each day, still giving them what early cut fine hay they will eat, and soon beginning to cut some rye, sown early and thickly the previous autumn on rich soil, for this purpose. The advantage of rye is that it is fit for feeding earlier than other soiling food. But I feed it no longer than I can get early clover, as it is too light a crop to be profitable. Early clover is then fed twice a day as long as it remains green and succulent. Next, late and large clover, followed sometimes by oats sown thickly on rich soil, and cut just before or at the time they begin to head. Oats are succeeded by sowed corn, which, having been sown at different times, I continue to feed till frost comes, exchanging awhile with the second crop of the small clover, which furnishes nearly as much feed as the first crop.

I generally turn the cows upon such aftermath as I do not wish to cut as a second crop of hay, both for the purpose of saving the feed and to benefit the next year's crop of hay, as a large growth of aftermath left on the ground injures the succeeding crop very much on the interval soil. By pursuing this course I find three acres will

carry as many cows through the year, as four acres treated in the ordinary way. The expense in labor is considerably more, but that is counterbalanced by the increase in manure.

Cows fed thus, will at least equal, if not surpass those kept in the usual way, in both quantity and quality of milk; and the dairyman, by adopting this method, finds his profits enhanced nearly one-fourth.

Full soiling I have never practiced, as I cannot overcome the prejudice of feeling it to be better for the health and comfort of stock to roam freely in the open air a considerable portion of the time.

Question laid upon the table.

Mr. Ellison, of Herkimer, alluded to the anotta prepared by Messrs. Nichols & Co., England, as being excellent in quality, though its cost was large.

A gentleman stated that his experience and observation led him to believe that if care was used in selecting pure basket anotta, and cutting it with a solution of potash, a coloring would be produced not to be excelled.

Mr. Shearman, of Oneida, rose to make a personal explanation respecting the fund raised for the European agency, which explanation Mr. Ellison, of Herkimer, declared to be quite satisfactory to him.

ADJOURNMENT.

On motion of Mr. Miller, of Lewis, the Convention adjourned *sine die.*

[The attendance upon these meetings was large—the capacity of the Court Room being fully tested. Many ladies were present, and delegations from both the Canadas, New England, Pennsylvania, Ohio, Illinois, Indiana, Michigan, Minnesota, Wisconsin, and other of the Western States and Territories, composed a portion of the audience.]

FACTORY REPORTS FOR 1866.

NEW YORK.

ONEIDA COUNTY.

Whitesboro Factory, Whitesboro.—Manufactured into cheese, the milk of 865 cows. The amount of milk received, was 3,083,649 lbs. The cured cheese made therefrom, 311,881 lbs., 9 88-100 lbs. of milk making 1 lb. of cheese. Size of cheese, 15 inches by 10 inches, and weight about 65 lbs. The cheese was mostly sold at home when ready for market. The average price to Nov. 1st, was 18 7-100 cts. per lb. 1¼ cts, was charged for making, and all the other expenses, including insurance, was 73 cts. per 100 lbs. Salted 2 7-10 lbs. per 1,000 lbs. milk, and a trifle higher in very warm weather.

Too much salt makes a dry and hard cheese; too little insures bad flavor from decomposition. Prepare anotta in concentrated potash. Think too much rennet causes the curd to work faster, become harder, and makes the cheese more porous, and slightly bitter. Have tried sour whey, but think it injures the flavor and tends to sour the cheese. Better cheese can be made from milk slightly acid than when the curd sours. I prefer medium fine curds, as coarse curds will not part with the whey as readily, and hence, sometimes sour on the shelves after pressing. If there is danger of the curd becoming sour in the vat, we heat higher and work faster. I prefer to have the whey change slightly, but let the curd remain perfectly sweet. To avoid porosity in cheese, cut the curd when rather soft. Let the heat be applied very gradually at all times; let the whey change slightly before dipping out; cool the curd a little before putting to press; press 20 minutes, and then grind in a good curd mill, salt, and then press two or three days. Then let the curing-house be scrupulously kept at an equable temperature, of about 70 degrees, and the atmosphere rather moist than dry. We can store about one-third of last season's make at one time.

There is a loss in incorporating the cream of the night's milk with the morning's, but what per cent., I cannot say. We weigh the milk as it comes to the factory, making no deduction on rainy days.

L. L. Wight.

Dorn Factory, Ava.—Number of cows, 350; average number, 300. Pounds of milk received, 916,803; pounds of cheese sold, 96,716; pounds of milk to one pound of cheese, 9 75-100; received for making cheese, $1 per 100 lbs; expenses for boxes, bandages, &c., per 100 lbs, 63cts. Received for cheese from 13cts. to 20cts.

N. B. Lawrence, Manufacturer.

A. Blue's Factory, North Gage.—Commenced making cheese April 1st, and closed 25th November; number of cows 140; the number of pounds of milk received, 566,738; the number of pounds cheese sold, 59,277; average prices of sales was 17 58-100 dollars per hundred; the number of sales, 10; quantity of milk for one pound of cheese is 9 9-16; the number of pounds of cheese per cow, 423; the number of cheese made, 880; average, 67 pounds each; the price for making, boxing and all expenses, two dollars per hundred.

ARCHIBALD BLUE.

Roberts' Factory, Floyd.—Commenced making cheese April 10th; season ended Oct. 30th; average number of cows 275; number of pounds of milk received, 831,253; pounds of green cheese made, 87,-026; pounds of cured cheese made, 82,100; size of cheese, 18 inches; average weight of cured cheese, 90 lbs.; pounds of milk to one pound of cured cheese, 10 124-1000. Sales made May 28th, 19½cts.; June 21st, 19½cts.; June 25th, 20cts.; July 27th, 18cts.; September 18th, 16½cts.; November 16th, 16½cts.; average price per pound, 17.41. Whey fed to hogs; value of whey per 1000 lbs. milk, 50cts.; price received for making, $1.12½. Used O'Neil's vats. Cost of boxes, bandages, &c., per 100 lbs. cheese, 73cts. T. D. ROBERTS.

Chuckery Factory, Paris.—Number of cows, 500; pounds of milk received, 1,637,651; pounds cured cheese made, 168,561; the size of cheese, 19 inches; pounds of milk to one pound of cured cheese, 9.72; to what market sent, New York; average price for cheese $17,-54; price received for making, $1.25 per 100; what heating apparatus used, Ralph's; amount of salt used, 3 lbs. to 100 lbs. curd; average number of cows, 458; pounds green cheese made, 173,617; shrinkage, about 3 per cent; average weight, cured, 96 lbs.; when cheese sold, once in about 20 days; kind and quantity of fuel, maple, 25 cords, 18 inch; what use made of whey, fed to hogs; cost of boxes, bandage, &c., per 100 lbs. cheese, 87cts. Milk set from 80 to 84 degrees. After standing forty to sixty minutes it is cut both ways; heat is then applied, and the cutting continued until the curd resembles corn for size. Highest heat used, 96 to 100 degrees. Salt in sink and put to press at a temperature of 80 degrees; press 18 to 20 hours; keep dry room from 70 to 75 degrees. ENOS POTTER.

Weeks' Factory, Verona.—Season opened April 9th; closed November 3d. Largest number of cows, 620; average number, about 520; pounds milk received, 2,075,327; pounds green cheese made, 221,371; pounds cured cheese made, 212,975; shrinkage, 8,396 lbs. or 3 79-100 per cent; pounds of milk for one pound of green cheese, April, 9 84-100; May, 9 32-100; June, 9 49-100; July, 9 77-100; August, 9 28-100; September, 8 70-100; October, 8 28-100; November, 7 61-100; average of milk required for one pound green cheese, 9 37-100 pounds; average of milk required for one pound cured cheese, 9 74-100 pounds.

My patrons, for the five years since I began making their cheese, have always practiced the plan of selling cheese often—believing it, on the whole, more satisfactory, when a shipment of cheese is ready for market, to accept a fair price for it than to hold for a better one.

The result, though not always successful, is yet so far satisfactory that we shall be likely to continue the same rule in future. Fifteen sales have been made during the season. The extreme prices being 20¼ and 16. The average has been $17 92-100 per hundred. The cheese has all been sent to New York, and, so far as known, has all of it eventually gone to England.

Four hundred boxes were shipped to London on our own account, through Messrs. Williams & Ellison. Though the expenses of such a transaction seemed needlessly large, we believe that a price was obtained for these 400 boxes better, by one half a cent per pound, than could have been realized here. The loss in weight on that lot (29,-664 pounds,) was 335 pounds.

The size of my cheese has been 16 inches by 9½, averaging, cured, 77 pounds; though I have made one or two, almost daily, in a 14 inch hoop, weighing 48 pounds—these last have been made in order to avoid saving curd from one day to another.

Cost of materials used, (including taxes, insurance, subscriptions to European agency, and other extras,) 78 cts. per 100 pounds. Received for making cheese, 1½ cts. per pound.

Whey has been fed to swine, but only in connection with grain. I have long been convinced that there is some more profitable use to be made of whey than to feed to either pigs or cows. Pressure of other duties last summer, alone prevented my testing the practicability of making good table butter from the whey; a subject to which I purpose giving my early attention during the coming season.

Of Factory Filled Salt, 2 7-10 lbs. per 100 lbs. curd is used in summer; less in spring and fall. If too much salt is used, the product will be dry, hard, lifeless; if too little, the cheese will be soft and salvy, and oftentimes will decay upon the tables. Carefully selected basket anotta is prepared in a solution of potash. Rennets are soaked in whey, the first which separates from the curd being used. I prefer whey to water because there is less liability to taint; and because the whey assists in the coagulation of the milk, and also hastens the cooking of the curd. Steam is used for warming the milk. In order, so far as possible, to remove the animal heat from the milk, the cold water is allowed to pass around each vat until it is filled. Heat is then applied, and, at 82 degs. in summer, and 86 degs. in cool weather, coloring and rennet are added. In about 45 minutes the vat is uncovered, and, with a 13-bladed knife the curd is cut lengthwise and across. It is then allowed to stand for 20 minutes, when the knife is again brought into requisition, the agitator being used to raise the curd for cutting. This process is very slowly and carefully done. When the particles of curd are of the size of chestnuts the knife is laid aside and used no more.

Heat is now applied up to nearly 90 degs., the curd, meantime, being very carefully kept in motion by the use of a simple rake, by

the aid of which one person can do better justice than two could do by the hands, and with less waste.

When the curd no longer "packs" it is allowed to settle, and a large part of the whey is drawn off. The temperature is now increased to 98 degs. On the development of a decided acid in the whey, and a slight change in the curd, it is removed to the sink, thoroughly drained, cooled, salted, and dipped into the hoop.

This process differs from former methods practiced by me, in the final cutting of the curd *before* heat is applied; in the greater coarseness of the curd; in the more careful handling of it; in the strong acidity required in the whey before dipping out the curd, and in the lower temperature of the curd when put to press.

In regard to the necessity of the presence of a decided acid in the whey (and even a slight touch of it in the curd) before removing the curd to the sink, I confess myself a firm believer. In my judgment, this acid gives a firmer and less porous cheese, and a cheese which sudden extremes of weather, and even very hot weather, can not spoil—can scarcely injure—a cheese of better flavor, and one which retains its good qualities and grows better with age; and a cheese which will bear exportation, and improve during the voyage. Cheese made by this rule never will assume that rank, sharp, and putrid smell and taste, that so invariably marks a cheese which in the curd was too slightly cooked, after such cheese is two months old and upwards, if such cheese has been made at a period when it must be exposed to our ordinary summer heats in curing. The prime cause of the general loss in flavor in cheese made prior to and during the excessive heat of last July, was because cheese-makers generally failed to fortify their product against such emergencies, by permitting a proper degree of acid. Such was the case with me, and nothing has ever so strengthened my belief in the necessity of this course as my experience and observation in cheese made at the time mentioned. (Another cause for the same, is found in the fact that in such times of unusual heat, especially when so long protracted, milk invariably comes to our factories in bad condition. It was so in July last, and the wonder is that cheese-makers are able to produce, under such circumstances, a cheese that is saleable at all.)

I noticed then, as I have many times since, that cheese-buyers, who are admitted to be unsurpassed as good judges of cheese, invariably preferred cheese showing the presence of some acidity in their making; and those cheese which I fancied too far gone, were always considered by them the best on the tables.

It must be remembered, however, that it is a nice point to determine just what degree of acidity it is safe to permit; for, if allowed to develop one step too far, a sour cheese is inevitable. I suppose that it is better to have too little acid than too much, although shippers are always more afraid of a soft cheese than a sour one.

In my own practice the coming year, I shall, on the 1st of September, begin gradually to reduce the acidity, and by the 15th, and thence through the season, allow none at all. If permitted so late in the fall, the cold nights of October and November will cause the surfaces of the cheese to crack and check so badly as very much to

injure their appearance. And in cheese which is made, cured, and consumed in the colder months of the year, the acidity is not required, for there is no danger of the flavor of the cheese being injured by heat. I have never practiced using sour whey to hasten the process of perfecting the curd.

For a curd thoroughly sour in the vat, the best course to pursue is to hasten the cooking, and take it from the whey as speedily as possible. We have practiced dashing the curd with warm water both in the vats and in the sink, and with very good results. Haste in the making of cheese, and exposing them to a high heat to cure, are both to be avoided.

We have practiced adding salt to the night's milk on sultry evenings, but am not convinced that it is an advantage. There is more difficulty in determining the condition of the milk in the morning, than when salt is not used.

Mr. C. D. Shipman has made my cheese during the past season.

GARDNER B. WEEKS, Proprietor.

HERKIMER COUNTY.

Cedarville Factory, Cedarville.—Average number of cows, about 575; pounds of milk, 2,378,714; number lbs. cured cheese, 233,802; size of cheese, 16 by 9; average weight of cured cheese, 61 lbs.; number lbs. of milk to lb. of cured cheese, 10.105; cheese sold when fit for market (except one lot of 1,121, which was held until the 8th of Oct.) at average price of 17.32; cost of boxes, bandage, &c., per 100 lbs., 68.10 cents; charge for making, $1.25; rennets used for 1,000 lbs. of cheese, about 2, or 443 in all; rennets soaked in soft water; most of whey fed to hogs; use the best barrel salt, per. cwt. 2½ lbs. in summer, 2 1-4 spring and fall; set the milk at 82 to 85 degrees, and heat in scalding to 100 degrees. We use Ralph's apparatus for heating, with good success.

Do not seek to make the curd very fine, nor do we adopt the extreme coarse curd system, believing a medium safer than either extreme.

Prefer a slight acid in the whey before removing the curd.

Press 20 hours. Believe two days pressure very desirable when practicable.

C. W. & J. SMITH, Proprietors.

First National Factory, Frankfort.—Whole number of cows the present season, 650; average number, 550; number of lbs. of milk received, 2,654,913; cured cheese, 259,064 lbs.; average number lbs. of milk per lb. of cured cheese, 10.248; commenced making cheese March 26th, and ended November 23d; received the milk once a day, and cream taken off the night's milk from March 26th, to May 10th, and from October 7th to November 23d, the same; used 2 1-2 lbs of salt to 1,000 lbs. of milk, spring and fall, and 3 lbs. during the warmer portion of the season; there were 11 sales of cheese during the time, ranging in price from 19 1-2 to 15 1-2; average price cheese sold for 17.02 cts. From March 26th, to May 10th, while

the milk was received once a day; number of lbs. of milk for a lb. of cured cheese, 11.28 lbs.; during September, 9.55 lbs.; October 9.117 lbs.; and November, 8.65 lbs.

GAYLORD CAMPBELL, Manufacturer.

MADISON COUNTY.

Lamunion & Clark's Factory, Stockbridge.—We have received the milk of 400 cows; commenced making cheese April 16th; finished making, Nov. 3d; number pounds of milk received, 1,169,254; pounds of cured cheese made, 118,412; average quantity of milk per pound of cheese, 9.86; average price per pound, 17 1-2 cts.; weight of cheese, 72 lbs.; number cheese made 1,650. Sunday morning's milk not received at Factory.

Hunt's Factory, Hubbardsville.—Number cows, 600; average number cows, 450; amount of cheese sold, 183,479 lbs.; amount of milk received 1,713,498 lbs.; pounds of milk for 1 lb. cheese, 9 1-3; average price cheese per lb., 17 90-100; price for manufacturing and furnishing, 2 3-10; size of cheese, 18 inches; average weight, 71 1-4; whey fed to hogs; cheese principally sold in New York market, by S. B. Potter & Co. and C. S. Brown & Co.; cheese sent forward nearly each week; Heating apparatus used, O. O'Neil's; we salt by taste; too much salt upon cheese makes it dry and crumbling, and produces white scurf upon the surface; for coloring, we use Jones' prepared anotta. My method for preparing rennets;—take two 4 gallon jars;—with No. 1 jar, put in 2 gallons brine of boiling water, when cold put in 4 rennets, let soak 2 or 3 days before using, when we have whey commence with No. 2 jar by filling with sweet whey from vat; after the curd is settled sufficient to dip off, then remove the 4 rennets from jar No. 1 into jar No. 2, applying what salt the whey will dissolve, then rub and wash the rennets in jar No. 2, and leave them to soak for one day, then put new rennets in jar No. 1, and filling the jar with liquor from jar No. 2 as it is used out, and renewing jar No. 2 as used out, by new whey and sweet, being careful to add salt daily to each jar, all that will dissolve, using from jar No. 1, replenishing from jar No. 2. Too much rennet makes a dry, hard cheese. My treatment of the night's milk; let the cream remain until the morning milk is in, the mass is then heated to 82 or 84 degs., then with a pan skim off the cream and turn it through the strainer, then apply the anotta and rennet, mix by stirring, then cover with a cloth until it coagulates sufficiently hard to break before the finger and not leave a milky appearance on the finger, then apply the knife, cutting lengthwise of the vat, then wait for the whey to appear, then cut crosswise; I then wait for the curd to settle nearly out of sight in the whey, then raise the curd softly with the hands, then cut the curd a little finer, apply the agitator carefully, not suffering the curd to pack, waiting a few minutes, apply the heat, gently, increasing slowly as the curd hardens until the heat reaches 100 degs. If the acid developes itself, I commence running off the whey; if the acid is

very strong, would run it down until there was barely enough to cover the curd, and if exceedingly strong, run the whey all off, and apply hot water to finish the heat with. When sufficiently firm, draw off the water and salt by taste, and when cool put into the hoop; let it stand 20 and 30 minutes fitting to press, then press 30 or 50 minutes, then bandage and turn, continue until we want the press next day. No satisfactory treatment for curds that are sour in the vat; do not use sour whey on any occasion. Cause of porosity in cheese is owing to a fermentation in the rennet and a lack of salt in warm weather. We can store from one third to one half of the cheese we make in the season.

S. HUNT, Proprietor.

Excelsior Factory, Brookfield.—This is a new factory, built in the spring of 1866, and this the first season of operation.

Number of cows, 300; average, 275; pounds milk received, 897,-250; pounds of green cheese made, 101,000; pounds cured cheese, 97,000; shrinkage, 4 12-100 lbs. per hundred; size of cheese 16 inch.; average weight, 72 lbs.; 9 1-4 lbs. milk to 1 lb. cured cheese. All our products sold to the shipping trade, at an average of 17¼ cts. per lb. The whey was taken from the factory by the patrons. We use the O'Neil vats. Received 1¼ cts. per lb. for manufacturing. Cost of boxes, bandage, &c., per 100 lbs., 81 cts.; use 3 lbs. salt per 1,000 lbs. of milk; we salt a little more, later in the season; too much salt causes a hard cheese with imperfect flavor; too little salt a softer cheese with too high flavor; we prepare our own anotta. The night's and morning's milk are mixed to make up; add rennet at a temperature of 82 degs.; requires from 30 to 60 minutes to coagulate; the curd is broken carefully with the hand and agitator; temperature in cooking carried up to 98 or 100; remains in the whey until it reaches the proper condition for the press, which time will vary from 1 to 3 hours; we want no acid in the curd and but a slight development of it in the whey. I consider *one* cause of porosity in cheese to be taking the curd from the vat when insufficiently cooked. I can store 100,000 lbs. of cheese at one time. With proper management there is no loss in mixing the cream of the night's milk with the morning's milk. Do not add salt at any time to the milk to prevent the development of acid, but are *very* particular in thoroughly cooling the night's milk.

F. BLANDING, Proprietor.

MONTGOMERY COUNTY.

Empire Factory, Florida.—Began making cheese, April 4th, ended November 5th; whole number of cows, 260; average number, 225; pounds milk received, 777,869; pounds cured cheese made, 77,784; pounds milk to one of cured cheese, 10; size of cheese, 15 inches; weight, 61 lbs.; average price received per hundred, $17.25; received for making cheese, and furnishing materials, 2 cts. per pound; use O'Neil's vats, which give entire satisfaction; milk skimmed in

the spring until May 25th, and again in the fall from October 1st; do not think it profitable to skim in the spring; used of salt, from 2 7-10 to 3 lbs. per 1,000 lbs. milk; think less salt is required in the spring than at any other part of the season. Too much salt makes a dry, crumbly cheese, and too little, a soft, salvy cheese, which on attaining age will have a rank, putrid flavor; use Jones & Co.'s prepared anotta; have used both whey and water for soaking rennets; believe that with whey, rennets are less liable to taint; prefer the presence of an acid in the whey before removing curd. Porosity is caused, chiefly, by lack of acid in the whey, also by tainted rennet, and also by a high temperature in the curing room.

A. Peck.

Charleston Four Corners Factory.—Whole number of cows, 525; average number of cows, 500; whole number of pounds of milk, 1,726,954; pounds of cured cheese made, 168,896; size of cheese, 15 and 19 inches; pounds of milk to one pound cured cheese, 10; to what market sent, New York; average price for cheese, 17 1-4 cts.; price for making and furnishing, 2 cts.; heating apparatus, O. O'Neil's vats; fuel, 14 cords soft wood; whey fed to hogs at factory; amount of salt 2.5 spring and fall, 2.7 warm weather; I prepare my anotta by dissolving in common ley; I soak the rennets in strong brine; I cool the milk at night to 70 degrees, add morning milk and raise temperature to 82 degs.; add rennet to coagulate in 30 minutes; my process does not differ materially from former course; I make rather coarse curd; I use saleratus or soda for sour curd in vats; I use no sour whey to hasten the action of the acid; I want a slight acid in the whey; none in the curd before dipping out; I had no difficulty in loss of flavor during the season; I have been troubled some with porosity in cheese, but have no tested theory as to cause; too high a temperature destroys the flavor, too low the same; on sultry evenings I add salt before the milk is cooled.

John W. Conover, Manufacturer,

Smith Creek Factory, Palatine.—Erected in the winter of '65–'66; commenced making cheese April 14th, closed December 1st; whole number of cows, 675; average number, 600; whole number of lbs. milk received, 2,213,111, from which was made 222,390 lbs. cured cheese; some of cheese held until 100 days old; size of cheese, 17 inches; average weight when cured, 78¾ lbs.; average price per lb., 17¼ cts.; average number of lbs. of milk for a lb. of cured cheese, 9 95-100; skimmed from time of commencing until 25th of April, and from October 4th, until we closed; received for making, 2 cts. per lb., furnishing everything; whey given to patrons, each patron allowed 1 hog to 5 cows, or its equivalent in whey drawn from factory; whole number of hogs, 175; hogs yarded, having free access to running water and cool shade; fed 1 pint of corn in the kernel per head, daily, the entire season; hogs perfectly healthy, losing *but one.*

OSWEGO COUNTY.

Gilbert's Mills Factory, Gilbert's Mills.—Commenced making cheese April 24th, and closed October 31st; whole No. cows, 430; average No. about 360; pounds cured cheese made, 151,621; pounds milk to 1 lb. cured cheese, 9 73-100; average price sold for, 16 7-10 cts. per lb.; number of cheese made, 1,800; size of hoop, 18 inches; cost of material used, 74 cts. per 100 lbs.; number of sales, 7; price of making, 1 1-4 cts. per lb. ANDRUS GILBERT, Salesman.

Ingell & Smith's Factory, Volney.—Commenced making cheese May 1st; closed November 1st; pounds of milk received, 1,226,939; pounds cheese sold, 126,939; pounds of milk to one of cured cheese, 9 72-100; largest number of cows, 375; average number of cows, 300; average of sales, 16 7-10 cts. INGELL & SMITH.

Prattville Factory, Mexico.—Number of cows, 516; average number, 425; pounds milk received, 1,330,677; pounds cured cheese made, 134,181; size of cheese, 20 1-2 inches; average weight cured, 102 lbs.; pounds milk to one pound cured cheese, 9 96-100; cheese sold June 30, September 15, December 10; average price received for cheese, $14.83 per hundred; cheese sold to go to New York; price received for making, (and furnishing materials,) 1.88 per 100 lbs.; used 25 cords hard wood, (2 feet long,) and 6 cords soft wood; whey fed to hogs; use from 2 to 3 pounds of salt per 100 lbs. curd; in spring and fall use 1-2 lb. less; too much salt hardens the cheese and kills the flavor; prepare our anotta in a weak ley; soak rennets in water; too much rennet makes the curd hard and husky, and injures its flavor; set the milk at 80, and scald from 90 to 100 degs.; favor coarse curds, because the less the curd is handled the better; where curds are sour, we scald lightly, and handle carefully; we use sour whey in cold weather; do not think it essential that an acid be present in the curd and whey before removing the former; think this acid hastens fermentation and injures the flavor; can store 3-4 of our season's make at one time; there need be no loss of cream in mixing night's and morning's milk, if proper care be taken.

REUBEN F. WEYGINT, Proprietor.

Trumbull's Factory, Pulaski.—Began May 1st; closed November 1st; number of cows, 270; pounds milk received, 653,047; pounds cheese made, 67,406; pounds milk to pound cured cheese, 9 62-100; average price obtained for cheese, 16 cts.; size of cheese, 17 inches; use Cooper's vats, Nos. 10 and 13; having no spring I am obliged to pump water from a well. H. I. TRUMBULL.

LEWIS COUNTY.

Miller's Factory, Constableville.—Commenced March 16th, and closed November 1st; 2,197,255 lbs. milk received; made 245,711 lbs. green cheese; sold of cured cheese 229,852, for $41,405.02; shrinkage is 15,859 lbs. or 6 45-100 per cent.; average price at which

the whole sold, is $18.01; 8 93-100 milk made 1 lb. green cheese; 9 55-100 made 1 lb. cured cheese when sold; 9 51-100 milk made 1 lb. of cheese from 1st of May to 1st November; charge for making cheese per 100 lbs. $1.25; expenses including boxes, bandages, anotta, license, insurance, salt, &c., per 100 lbs., 0.63; in March, 9 28-100 milk made 1 lb. green cheese; in April, 10 08-100 milk made 1 lb. green cheese; in May, 9 56-100 milk made 1 lb. green cheese; in June, 9 10-100 milk made 1 lb. green cheese; in July, 9 20-100 milk made 1 lb. green cheese; in August, 8 85-100 milk made 1 lb. green cheese; in September, 8 25-100 milk made 1 lb. green cheese; in October, 8 07-100 milk made 1 lb. green cheese; average price for feeding hogs, $2.59; average price of feed for each hog, $2.07, total, $4.66. I put in operation in my factory last season, a float, in the milk vats, which was kept in moderate motion on the surface of the milk during the night, serving entirely the double purpose of cooling the milk and preventing any cream from rising to the surface of the milk, I consider this one of the greatest inventions of the age, in cheese-making, as it saves all manual labor in cooling the milk in the vats, and is a perfect preventive to any waste of cream; its operation is simple; the water which passes around the vats to cool the milk keeps the float in motion; the float is made of pine or spruce, and somewhat resembles a door frame without the panels; the boards are about 1-2 inch thick, by 2 1-2 wide, two side, and one middle piece lengthways, and the same across; coming near the sides of the vat, and within a couple of feet of the ends of the vat; when the float is in motion, the power used to move the float, is the spring water turning a simple wheel of five to six feet diameter, and the connections with the float are narrow strips of light wood. SETH MILLER.

Glensdale Factory, Glensdale.—Whole number of cows, 700; average number, 600; pounds of milk received, 2,610,807; pounds cured cheese made, 273,490; pounds milk to one of cured cheese, 9 59-100; size of cheese, 19 3-8 inches; weight, 91 lbs.; average price received for cheese, 17 10-100 cts.; cheese sent to New York City, and to New Jersey; received for making, per 100 lbs., $1.00; use 2 1-2 lbs. salt, spring and fall, and 3 lbs. in summer, per 100 lbs. curd; prepare anotta in ley; prepare rennet in water; too much rennet produces a strong, rank cheese; prefer fine curd, because it cooks, and can be salted more evenly; scald to 110 degs., and salt lightly in the whey; desire the presence of an acid in the whey before removing the curd, but do not want the curd changed at all; believing this acid promotes and hastens curing; porosity caused by too little pressure; cheese should be in press 48 hours; can store about one third of the make of the entire season; believe there need be no loss in mixing the night's and morning's milk together.
ANSON W. JOHNSON.

Sulphur Springs Factory, Lowville.—Whole number of cows, 770; average number, 750; received 2,108,140 lbs. milk; made 214,282 lbs. cured cheese; cheese pressed in 20½ inch hoop, and averaged

when cured, 106 lbs.; used 9 84-100 lbs. of milk for one lb. of cured cheese; made 3,320 lbs. butter, by skimming vats in the morning; 635 lbs. of milk made 1 lb. of butter; sent to New York market; average price per 100 lbs. of cheese, $15.48; received 1 cent per lb. for making; used steam boiler for heating; sold 98 cheese May 30th, for 17¾ cts.; June 19th, sold 271 cheese for 18 cts.; December 14th, sold in New York, 1,627 cheese for 16⅜ cts.; the remainder of the 2,011 lbs. made, were sold to patrons for their own use; used hemlock mostly, for fuel, and about 25 cords; cost of boxes, bandage, &c., per 100 lbs. cheese, 51 cts.; use 27 lbs. of salt for every 10,000 lbs. of milk, and increase with the comparative richness of the milk, as the season advances. We prepare our own anotta, by disolving it in ley; we soak our rennets in water; in my judgment, double the amount of rennet tends to give a strong flavor to cheese; we set our milk at 84 degs. and when the curd is so that it will not stick to the finger, we cut the curd lengthwise of the vat; after it has settled so that about half of the surface curd is under whey, we cut the other way, let it stand awhile, and then finish cutting what is called a fine curd; apply heat slowly until the mass is raised to a temperature of 100 degs., more or less, according to atmosphere and condition of curd, stirring with the hands; then rake meantime, and continuing the stirring until the curd will not "clog;" we never use sour whey to hasten an acid; do not consider an acid necessary, though perhaps desirable in the colder part of the season of cheese-making, in order to hasten the curing; we are able to store one-half of the cheese made during a season at one time; we think there is no loss in incorporating the night's milk with the morning's; on sultry evenings we add salt to the cooled milk.

CYRUS L. SHELDON.

High Market Factory, High Market.—First cheese made, May 1st; last cheese made, October 31st; number lbs. milk received, 1,273,-346; number lbs. cured cheese, 136,157; number lbs. milk to make 1 lb. cured cheese, 9 35-100; average price received, $17.206 per hundred; cost of boxes, bandage, &c., $0.6612 per hundred; price for making, $1.15 per hundred; no record of shrinkage.

C. A. WIDER, Proprietor.

ST. LAWRENCE COUNTY.

Canton Factory, Canton.—Began cheese-making May 8th, this being the first season. Whole number of cows, 675; pounds milk received, 1,615,126; pounds cured cheese, 167,878; size of cheese, 17½ inches, and from 8 to 10 inches high; pounds of milk to lb. of cured cheese, 9.56; part of cheese sold went to Montreal, but the greater part sent to Liverpool; we receive $1 per hundred for making; whey fed by patrons at home; use the Oneida vat and heater; average weight of cured cheese, 83 lbs. Sold July 1st, 230 boxes at 18 cts.; October 10th, 1,356 boxes at 15¼ cts.; December 20th, at 15 cts.; used about 10 cords soft wood; cost of furnishing boxes,

&c., 65 cts. per 100 lbs. of cured cheese; prepare our own anotta with white ley; soak rennets in water; have been troubled with sour milk; have no satisfactory treatment; never use sour whey; aim to have the curing room of a temperature of 60 degs. to 65 degs.; our store-rooms will hold 1,500 cheese; use spring water temperature of 52 degs.; also use ice. SMEAD & OLIN.

JEFFERSON COUNTY.

Adams Factory, Adams.—Average number cows, 800; number lbs. cheese made, 248,376; highest price obtained for cheese, 19½ cts., June 20, 1866; least price obtained for cheese, 15 7-8 cts., December 5, 1866; average price obtained for cheese, 16 76-100; number lbs. milk for 1 lb. cured cheese, 9 98-100; 800 lbs. butter made at factory from skimming vats; cost of manufacturing, and all other expenses inclusive, 2 18-100 cts. per lb.

INGRAHAM, LEWIS & COOPER, Proprietors.
A. W. INGRAHAM, Secretary.

Bonfoy, Bettinger & Allen's Factory, Lorraine.—Number of cows, 530; milk delivered, 1,762,333 lbs.; cured cheese made, 181,686 lbs.; one lb. of cured cheese from 9 69-100 lbs. of milk; expense of manufacturing, $1.12½ cts. per hundred; expenses, aside from rennets, (which were furnished by patrons,) per hundred, 55½ cts.; gross expenses, $1.68; average sales, (sold monthly,) per hundred lbs., $17 32-100. SETH BONFOY.

ERIE COUNTY.

Collins Center Factory, Collins Center.—Commenced making cheese April 3d; number of cows, June 15th, 662; received milk once a day, from April 3d to 20th; twice, to September 16th; once, to November 17th; once in two days, to November 27th; once in three days, to December 3d; whole amount of milk, 2,437,731 lbs.; number rennets used, 598; milk per rennet, 4,076 lbs.; whole number cheese made, 2,945; average weight when sold, 83¾ lbs.; whole number lbs. cheese, cured, 246,739; milk per lb. of cheese, 9.88 lbs.; salt, 2.7 per 1,000 lbs. of milk; color the curd to cream color, by adding anotta to milk at the time of setting; we use hot water for heating, and set at 82 to 86, according to the weather; scald to 106, dip out the curd to cool and salt; press until next morning; we use whey butter for greasing, and add palm oil to color it; average age of cheese when sold, about 60 days; average price received for cheese, 15.86, per 100 lbs. E. R. HARRIS & Co., Proprietors.

First Collins Factory.—Average number of cows, 560; pounds of milk received, 2,042,270; pounds of cured cheese, 216,479; size of cheese, 18 inches; average weight of cured cheese, 72 lbs.; sent to western markets, 76,956 lbs.; sent to New York markets, 139,528 lbs.; average price for cured cheese, $16.52; sold monthly; price

received for making and furnishing materials, $1.75; whey drawn home by patrons; heating apparatus, Ralph's vat; salt used spring and fall, 2 7-10; salt during hot weather, 3 lbs. per hundred; we prepare our own anotta, at a cost of 1½ ct. per hundred; soak the rennets in water; we consider it necessary that an acid should be present in the whey before dipping out; pounds of milk to lb. of cured cheese, 9.43. S. E. JONES, Manufacturer.

Brant Center Factory, Brant.—This factory was erected last spring. Began cheese-making May 1st, ended November 14th; average number of cows, 300; pounds milk received, 1,049,686; pounds cured cheese made, 105,466; average weight of cheese, 70 lbs.; highest price received for cheese, 18 1-2 cts.; lowest price received for cheese, 16 1-2 cts.; average price received, 16 75-100.

THOS. JUDSON.

CHAUTAUQUA COUNTY.

Canadaway Factory, Arkwright.—Commenced making cheese, May 8th; closed, October 27th; whole number of cows, 687; average number of cows, 525; whole number of lbs. milk received, 1,800,377; whole number of lbs. cured cheese, 186,608; size of cheese, 15 inches in diameter, 9 inches high; weight of cheese, 57 lbs.; number of lbs. milk to one lb. cheese, 9 65-100; average price received for cheese, 15 43-100 cts. per lb.; sold May cheese June 30th, at 19 cts. per lb.; sold June cheese July 26th, at 18 1-2 cts. per lb.; sold the balance of dairy Nov. 21st, at 14 cts. per lb. The whole dairy was sent to the New York city market; fed whey to hogs without any profit, on account of loss by disease. I made the cheese, furnished boxes, salt, and coloring matter, boxed and weighed cheese, made out bills and distributed money to patrons for 2 2-10 cts. per pound.

ASAHEL BURNHAM, Proprietor.

Sinclearville Factory, Sinclearville.—Commenced making cheese, May 7th; closed, November 6th; whole number of cows, 1,049; average number of cows, 727; whole number of lbs. milk received, 2,703,974; whole number of lbs. cured cheese made, 288,060; size of cheese, 15 inches in diameter, 8 1-2 inches high; weight of cheese, 55 lbs.; number of lbs. milk to one lb. cheese, 9 39-100; average price received for cheese, 16 67-100 cts. per lb.; sold May cheese June 30th, for 19 cts. per lb.; sold June cheese July 26th, for 18 1-2 cts. per lb.; sold July, August, and part of September cheese, October 29th, for 16 cts. per lb.; sold balance of dairy Dec. 16th, for 16 cts. per lb. The whole dairy was sent to New York city market. Fed whey to hogs and cleared $85 94-100, which was divided among patrons. I made the cheese, furnished boxes, salt, and coloring matter, boxed and weighed cheese, made out bills, and distributed money to patrons, for 2 3-10 cts. per lb.

ASAHEL BURNHAM, Proprietor.

CORTLAND COUNTY.

Beattie Factory, Truxton.—Commenced making cheese, May 1st, and closed October 31st; whole number of cows, 468; average number, 434; number of lbs. milk received, 1,485,567; number lbs. of cured cheese made, 150,720; average lbs. of milk to one lb. cured cheese, 9 85-100; pressed in 17 inch hoop, about 9 1-2 inches high; average weight of cheese, 83 lbs.; price received for making, 1 1-4 cts. per lb.

During the season there were six sales of cheese as follows: First sale to May 18th, at 18 cts.; amount of milk required for 1 lb. cheese, 10.22; second sale to June 10th, at 20 cts.; amount of milk required for 1 lb. cheese, 9.70; average lbs. milk required for 1 lb. cheese to June 10th, 9.85; third sale to August 1st, at 18 cts.; amount of milk required for 1 lb. cheese, 10.48; average lbs. milk required for 1 lb. cheese to August 1st, 10.26; fourth sale to Septemtember 4th, at 17 cts; amount of milk required for 1 lb. cheese, 9.85; average lbs. milk required for 1 lb. cheese to September 4th, 10.15; fifth sale to October 1st, at 16 1-2 cts.; amount of milk required for 1 lb. cheese, 9.16; average lbs. milk required for 1 lb. cheese to October 1st, 10.00; sixth sale to November 1st, at 15 3-4 cts.; amount of milk required for 1 lb. cheese, 8.88; average lbs. milk required for 1 lb. cheese to November 1st, 9.85; the average price of sales, was $17.59; average number lbs. of cheese per cow, 347 28-100; average amount received per cow, $61.09. Use steam engine for heating; hemlock slabs and seasoned hard wood for fuel, about half and half, about 35 cords in all. Mode of making cheese substantially as follows: a small quantity of prepared anotta (I do not color high,) is mixed with the milk, the temperature raised to 86 degrees, and then the rennet applied; when sufficiently coagulated cross-cut with gang knives; after the curd settles, apply the gang knife again, and cut and work the curd as fine as wheat kernels; then heat to 98 degrees; draw the whey down to the curd, and stir and agitate gently while cooking—requires from one to three hours to cook, according to the season; dip curd in sink, and salt, and immediately put in press; press lightly from twenty minutes to one hour, then turn and bandage; keep in press about twenty hours with heavy pressure applied, then take out; oil on top and put in dry room; turn and rub daily, and grease occasionally. Cost of boxes, bandage, salt, rennets, &c., 71 cts. per 100 lbs. cheese; use 3 lbs. salt to 1,000 lbs. milk—use Onondaga salt; sometimes use a little more salt in extreme hot weather—think too much salt makes a hard, dry cheese—too little, a strong cheese. Prepare my own anotta; cut with ley; rennets soaked in water; think too much rennet makes a hard, brittle, strong-flavored cheese. I favor fine curds, think the cheese is more evenly salted, and less liable to be porous and strong-flavored; I have not used sour whey much to hasten action of acid while curd is forming, but am so impressed with the benefits of its use that I mean to test it thoroughly the coming season. I can store from 1-2 to 3-5 of the season's make of cheese at one time; on sultry evenings I put a little salt in the milk while cooling. In my opinion the main cause of loss of flavor in cheese early in the season, was owing to putresence

in the milk, for during the extreme hot weather there was scarcely a day but what there was some milk brought to the factory tainted to a greater or less degree. I have no well tested theory regarding porosity in cheese, but am satisfied that tainted milk is mainly instrumental in causing porosity in cheese.

If the following is of any use or interest, the public are welcome to the benefit of it: During October and a part of September I made about 400 lbs. of whey butter—did not have apparatus and time to make very careful experiments, with a view to results of mathematical precision, but have arrived at some conclusions, rather loosely drawn it is true, but yet in my opinion safe for parties who desire to make whey butter, to base calculations upon: First, quantity—I put the amount to be made per cow during the season, at *nine* pounds. Second, quality—good as *good State* butter, but more perishable; requires marketing soon after it is made. None but experts can tell a good article of whey butter from good butter made from cream raised from milk, and even experts cannot detect it unless well acquainted with it. Of the eight tubs made, all except the first, sold at the highest market price on the day of sale, and sold as follows: 1 tub at 30 cts.; 2 tubs at 35 cts.; 2 tubs at 40 cts.; 2 tubs at 38 cts.; 1 tub at 35 cts.; average price 36 41-100. My mode of procedure in making this butter was as follows: When I drew the whey from the curd I run it into spare cheese vats, and immediately let a stream of cold water under and around it, (same as is used in making cheese when we cool the milk,) this stream of cold water is kept under the vat all the time the cream is rising. At the expiration of from 20 to 22 hours, the vat is skimmed and the cream immediately goes to the churn, and is treated in all respects the same as cream raised from milk.

WM. BEATTIE.

CAYUGA COUNTY.

Throopsville Cheese Manufacturer's Association, Auburn.—Our factory is located about three miles north west of Auburn, on the Owasco Outlet, in the town of Throop. Number of pounds of milk received, 1,379,069; number of pounds of cured cheese made, 139,455; which sold for $22,988.26; average price per 100 lbs., $16.41; expenses for bandage, rennets, &c., $890.74, (64 cts. per 100 lbs.;) cheese pressed in 20 inch hoop; average weight about 95 lbs.; which sold to go to New York, with exception of about 50,000 lbs. sold in Auburn. Customers paid 1½ cents per lb. for making.

U. A. WRIGHT.

ALLEGANY COUNTY.

Simpson Factory, New Hudson.—Commenced April 16th, and closed November 11th,—in operation 209 days; received 1,263,329 lbs. of milk, from which was made 136,030 lbs. of cured cheese, taking 9 29-100 lbs. of milk, for one lb. of cured cheese; made eight sales averaging $16.12½ per cwt., amounting to $21,937.88. Whole number of cows, 400; average number of cows for 209 days,

305; which average 19 82-100 lbs. of milk per day, and produced cheese which sold for $71.92-100 per head in 209 days; use steam boiler, with connecting pipes to vats; size of cheese 19½ inches; cost of manufacturing, including boxing, &c., two cents per lb.

WM. SIMPSON, JR.

ONONDAGA COUNTY.

"*Cheese Manufacturing Association of De Witt,*" *De Witt.*—Whole number of lbs. milk received, 1,042,075; pounds cured cheese made, 103,453; average to one pound of cured cheese, 10.07. The cheese were pressed in 16 inch and 19 inch hoops, the small weighing from 60 to 70 lbs., and the large from 90 to 105 lbs. The small size sold the most readily, and commanded the best price, and we intend to use the 16 inch hoop exclusively the ensuing season. The cheese was sold principally in Albany and Syracuse for home consumption. The prices ranged from 16 1-2 cts. to 18 cts. during the season. For heating in spring and fall, we use vat with furnace under, but when more than one vat is required, we use the boiler; whey fed to swine at factory, or drawn home by patrons. The average of milk required for one pound of cheese was greater than it should have been from the fact that many small dairies made butter in spring and fall, and put milk in factory only through the hot weather. The cheese could have all been sold for 18 cents, if small hoops had been used.

GEO. S. LOOMIS, Pres.

J. Y. MILLER, Sec'y.

BROOME COUNTY.

Hawleyton Factory, Hawleyton.—Number of cows, 200; pounds of cheese made, 60,000; pounds of milk to one pound cured cheese, 9 28-100; average sales of cheese, $18.89 per 100 pounds. We do not make cheese on the Sabbath.

JAS. S. HAWLEY.

PENNSYLVANIA.

Springville Factory, Springville, Susquehanna Co.—This was the first cheese factory erected in Northern Pennsylvania, built by Hon. Asa Packer in the spring of 1865,—this being the second season of operations. Pounds of milk received, 493,461; pounds of green cheese made, 58,662; size of cheese 20 inches; weight about 75 lbs.; pounds of milk to one pound of green cheese, 8.42. The cheese from this factory has all been sold, (with the exception of some 14,000 lbs. now on hand,) for the Pennsylvania Coal Valley trade, at an average of 18 cents per lb. The price received for making and furnishing, excepting boxes, was 2 cents per lb. We use the O'Neil vats, with heaters and tank complete.

Use made of the whey: the whey is fed to hogs kept at the factory, where we have a good dry yard and commodious house for feeding. The hogs are appraised by the committee when put in at the factory, each patron receiving credit for the number of lbs. furnished at the appraised value. If not a sufficient number are fur-

nished by the patrons to consume all the whey, the committee make up the deficiency by purchase. In the fall, the pork is sold, when each patron receives his capital furnished, and also his proportion of the profits, pro rata to the lbs. of milk he has delivered to the factory. Our experience shows that hogs will, in five months, gain in weight 50 per cent., and the value of whey this season is 75 cents per 1,000 lbs. milk. We use 3 lbs. salt per 1,000 lbs. milk, increasing the quantity in the fall as the product of cheese increases. Too much salt injures both texture and flavor, as also does too little salt, but the character is not the same in both cases. We prepare our own anotta.

Treatment of milk and curd: the morning's milk being mixed with the night's, the temperature is raised to 82 degrees, when the rennet is applied. Coagulation occupies 30 to 45 minutes. The curd is then cut with a 14 bladed knife lengthwise and crosswise; allowed to stand 15 to 20 minutes, when it is gently rolled by passing the hands through it. It is again allowed to rest 15 minutes, when the same process is repeated, and the temperature raised to 88 or 90 degrees. The agitator is now used, and the heat raised to 98 or 100. The curd now remains in the whey until sufficiently matured, the time varying from 1 to 3 hours. We prefer to get a mature curd without the presence of acid. We now draw down the whey and drain,—cool and salt the curd in the vat; with scoops it is passed into the hoops and goes to the press; press about 24 hours. If the curd is not sufficiently matured before the whey is drawn off, think the cheese will be soft and porous. We commenced operations May 7th, and closed Oct. 31st. No milk received at the factory Saturday night or Sunday morning. Sunday night's being received, and made up in Monday's cheese.

WM. BLANDING, Manufacturer.

Bridgewater Factory, Susquehanna Co.—Number of cows, 200; number of pounds cured cheese made, 62,000; number of pounds milk to one lb. cured cheese, 9 06-100; average price—about 17 1-2 cents; size of cheese 16 inches by 9; weight 70 lbs. Management of curd, whey, &c., same as in Springville Factory.

WM. BLANDING.

Spring Hill Factory, Bradford Co.—Average number of cows, 148; made cheese 145 days; pounds of milk received, 420,705; pounds of green cheese made, 46,982; pounds of cured cheese made, 44,016; pounds of milk for one lb. green cheese, 8 95-100; pounds of milk for one lb. cured cheese, 9 55-100; cheese sold at prices ranging from 16 1-2 to 20 cts.; average 17 61-100.

LEVI WELLS, Proprietor.

VERMONT.

Valley Factory, Hinesburgh.—Whole number cows about 500; average number cows not known, as this is our first year, and small dairies were continually coming in. Commenced making cheese

June 4th; closed Sept. 29th; whole number lbs. milk received, 1,259,043; number lbs. cured cheese, 128,196; number of lbs. milk to lb. cured cheese in June, 10.11-100; July, 10.26-100; August, 9.81-100; September, 9; for the season, 9.82-100; number cheese made, 2,057; average weight of cheese, 62 lbs.; average price on the ranges, $16.60 per hundred lbs.; shrinkage at 30 days old per hundred lbs., 3.67; at 60 days old, 4.37; cost of boxes, boxing, marking, &c., per hundred lbs., 0.375; number rennets used, 417; size of cheese 16 by 9 inches; use Ralph's vat; set at 84 to 86 degs.; time required to coagulate sufficient to commence working, from 50 to 65 minutes; go through and break by hand, and as soon as the curd settles, raise the heat to about 94; draw off part of whey and raise heat to 97 to 100; let stand in vat till acid is perceptible in the whey; salt in sink at rate 2.7 lbs. per 1,000 lbs. milk; press lightly at first; turn and bandage in from 1 to 1 1-2 hours; press 22 hours. Price received for making, salt, bandage, rennet, anotta, $1.50 per hundred lbs.; adopted "coarse curd" process: length of time required in cooking, from 1 1-2 to 6 hours, according to condition of whey. C. G. Peck, Sec'y.

MASSACHUSETTS.

[The annexed report is taken from the Boston *Cultivator.*]

The third annual meeting of the Massachusetts Cheese Manufacturers' Association, was held at the Town Hall, in West Brookfield, on Thursday week, Capt. Hollis Tidd, President, in the Chair. Renewal of annual memberships was the first business in order. T. P. Root, of Barre, moved, while pending, that the Constitution be so altered that $1 shall make a life, instead of an annual member, and it was so voted. The Treasurer reported $32 in the treasury, after having paid all current expenses.

Officers elected for the current year, were, for President, Hollis Tidd; Vice-Presidents, D. S. Ellis, Warren, and J. F. Davis, Barre; Secretary, N. S. Hubbard, Brimfield; Treasurer, B. F. Hamilton, New Braintree. The Executive Committee is constituted of the foregoing list of officers.

The next business was the hearing of the reports of the various cheese factories represented in the association, a synopsis of which is given, as follows:—

Barre Central.—Capital invested, $7,800. Began making cheese, April 30, and ended, Nov. 3; whole amount of milk in lbs., 1,531,-219; lbs. of milk to one lb. of cured cheese, 9.77, a little more than 9 3-4; cheese was kept on an average about 35 days before marketing; help, 2 men and 1 woman, at a cost, including board, of $992.23; cost of making, $1.94 per 100 lbs.; amount of cured cheese, 156,711 lbs.; net return to farmers or milk furnishers, $15.91 per 100 lbs. of cheese; average number of cows, 462; lbs. of cheese per cow, 335.

Barre South.—Capital, $5,053; began making April 24, and ended November 8; amount of milk, 707,297 lbs.; pounds of milk to 1 lb. of cheese, 10.46, or nearly 10 1-2; cheese kept before sending to

market on an average, about 55 days; size, 853 weighed from 70 to 80 lbs. apiece, and 726 from 18 to 22 lbs.; help, 1 man and 1 woman, at a cost, including board, of $575.93; cost of making per 100 lbs. $1.93; amount of cured cheese, 67,570 lbs.; average number of cows, 175; pounds of cheese per cow, 406; average market price, $19.85 per 100; net return to farmers, $16.92 per 100.

Hardwick Center.—Capital $4,213; began making April 2, and ended November 24; amount of milk, 2,049,600 lbs.; pounds of milk for 1 lb. of cheese, 9.54, or a little over 9 1-2; cheese kept before marketing from 22 to 30 days, or an average of 26 days; help, 2 men and 1 woman, costing, with board, $1,566.35; cost of making per 100, $2.35; cured cheese, 215,832 lbs.; net return to farmers, $15.55.

Hardwick South.—Capital $4,500; began making May 10, and ended Oct. 15; amount of milk 722,526 lbs.; pounds of milk to a lb. of cheese, 10.3, a little over 10 1-4; cheese kept before marketing, from 3 to 6 weeks; help, 1 man and 1 woman, costing $511.56; amount of cured cheese, 70,963 lbs.; net return to farmers $15.60 per 100.

Petersham Factory.—Capital, $3,000; began making May 14 and ended Oct. 14; amount of milk, 819,714 lbs.; pounds of milk to a lb. of cheese, 9.4, nearly 9 1-2; cheese kept before marketing, from 1 month to 6 months, (a large amount still remaining unsold); help, 1 man and 2 women, costing $535; cost of making per 100, $1.66; amount of cured cheese, 87,138 lbs.; net return to farmers, $16.50 per 100.

New Braintree Factory.—Capital, $8,000; began making April 16, and ended Nov. 18; amount of milk, 1,714,172 lbs.; pounds of milk to a lb. of cheese, 9.84, over 9 3-4; cheese kept before marketing, about 40 days; av. wt., 40 lbs. apiece; help, 2 men and 2 women, at a cost, with board, of $1,311.68; cost of making per 100 lbs., $2.78; amount of cured cheese, 174,203; net return to farmers, $17.02; average number of cows, 400; pounds of cheese per cow, 435 1-2.

Process of manufacturing, as stated by Mr. Green, was as follows. Heat the milk before putting in the rennet to 84 degrees; then let it stand from 1 to 1 1-2 hour before crossing; cross and let it stand 15 or 20 minutes, then break up the curd carefully with the hands and heat from 90 to 98 degrees, and cover up warm and let it stand until cooked; then dip out into a sink and let it drain dry and salt at the rate of 2 7-16 lbs. per 1,000 lbs. of milk, then press 24 hours.

Worcester Co. Factory, Warren.—Capital, $4,600; began making April 2, and ended Oct. 31; pounds of milk for a lb. of cheese,

10.17, or 10 1-6; cheese kept before sending to market from 30 to 60 days, or an average of 45 days; help, 2 men and 2 women, costing with board, $1,249.23; cost of making per 100, $2.36; amount of cured cheese, 142,767 lbs.; net return to farmers, $16.59 per 100; average number of cows 475; pounds of cheese per cow, 300.

South Adams Factory.—Capital, $3,000; began making April 9, and ended Nov. 30; amount of milk, 1,194,708 lbs; cheese kept before marketing, on an average, 60 days; help, 1 man and 2 women, at a cost, including board, of $826; cost of making, $1.20 per 100; amount of cured cheese, 119,805 lbs.; net return to farmers of $15 per 100 lbs.; pounds of cheese per cow, 399.

Blanford, Westborough.—West Brookfield and Wilbraham factories made no formal returns.

After the reports were in, Dwight Ellis offered a resolution, that it is unprofitable for factories to make cheese weighing less than 75 lbs. apiece. S. L. Lincoln, while the resolution was under discussion, called on Leander Wetherell of Boston to state what he knew of the market size of cheese in that city; he responded by saying, that small cheeses, if of equal quality, are more desirable for the retail trade, as less surface in cutting is exposed to the air. In this connection, he invited attention to the fact, that the report just made showed that the two factories that made the smallest cheese had returned the largest amount per 100 lbs. to the farmers of any on the list, and these are Barre South and New Braintree, the latter $17.02 and the former $16.92 per 100 lbs., while South Adams, that had made the largest cheese, as stated by Mr. Lincoln, had made the lowest return of any factory reported, or $15 per 100 lbs. Why this is so the speaker did not know, but desired to invite attention to the facts as reported. The resolution was further discussed by Messrs. Hamilton, Root, Hubbard, Ellsworth, Powers, Robinson, Ellis, Greene, and others, and was adopted, few voting for, and none against it.

It was voted to hold a semi-annual meeting in August, to be called by the Executive Committee; and it was also voted, that said committee visit the different factories during the season to learn how things are done, and report thereon to the next annual meeting.

Facts or statements came out in the discussion, incidentally, of great interest, such as this: a man who kept 3 cows, sent his milk to the factory, who got but $20 return from them before, per annum, got $40 return per cow after sending his milk to the factory. Mr. Greene, of New Braintree, made some interesting statements on this point, such as it took a lb. less milk at the factory than in the house dairy to make a lb. of cheese, ascertaining, meanwhile, that it cost 2c. a lb. less to make cheese at the factory than at home. His statements were founded on actual experiment, and are therefore worthy of consideration by farmers. One gentleman stated, that the net return to the farmer from the milk sent to the factory would exceed what he could get from the cheese made at home, thus showing the

labor of home-making, with rennet, fuel, marketings &c., may be reduced to that of carrying the milk to the factory, and he be the gainer.

The question of heating in the cheese-factory, whether with steam or by the old way, was raised for future consideration, and to be reported on at the next annual meeting. Not a factory reported the fuel expense as a separate item, which should be done by all, where wood is so costly an item as in the neighborhood of most of the factories. The reports, though still susceptible of much simplification and greater accuracy, are a very great improvement over those of last year, whose defects were then pointed out in the *Cultivator*. We are glad to note this improvement.

The whey and hog account was not a matter of boasting at this meeting, as was the case one year ago: judging from the reports, it would seem to have left money in the pockets of the directors, had the whey been suffered to run off with the waste water, instead of their having bought hogs to drink it.

Our readers interested in dairy-husbandry will be likely to scan with care and compare the statements of one factory with another, to see which has made the best returns to its patrons, to ascertain why New Braintree should return $17.02 per 100 lbs., Barre South, $16.92, Barre Central, $15.91, and Hardwick Centre, $15.55—a difference between N. B. factory and H. Centre of $1.47 per 100 lbs., and $1.37 between the latter and B. South, and between H. Centre and B. Central 36c. in favor of the latter; was it cost of help, amount of capital invested, or something else, that occasioned this difference?

The convention took a recess at about 1 P. M., and adjonrned *sine die* about sundown, after voting thanks to the authorities of West Brookfield for the free use of the Town Hall. The Convention was well attended and harmonious in its action, which taking it all in all, was by far the most profitable meeting of the association yet held; thus demonstrating that the association of those engaged in associated labor, tends to promote progress and improvement by the diffusion of useful knowledge.

MICHIGAN.

Fairfield Factory, Fairfield.—Whole number of cows, 260; average number of cows, 230; pounds of milk received, 970,931; pounds of cured cheese made, 101,335; pounds of milk to one pound cured cheese, 9 58-100; average price obtained per cwt., $16.42; average pounds per cow, 440; greatest average per cow, from any one dairy, 550 lbs. cured cheese. Season began April 23d; closed Nov. 17th. RUFUS BAKER.

WISCONSIN.

Wilder's Factory, Evansville, Rock Co.—Commenced making cheese April 26th, and closed Oct. 15th, 1866. Average number of cows for the season, 339; number of lbs. of milk received, 995,757; num-

ber of lbs. of cheese made, 103,650; average number of lbs. of cheese per cow, 305; number lbs. milk per lb. cured cheese, 9 6-10.

The cheese business being entirely new to the officers, patrons, and all connected, except the manufacturer—the market unestablished, (this being the first factory built in the State, of which I have any knowledge,) and this being the first season, we have not realized as much for the cheese as we should have done under other circumstances. The cows were nearly all bought last spring, and were generally in poor condition,—were selected by persons unaccustomed to judge of good milchers, consequently were far from being as good as those generally kept by dairymen; but, considering all things, we have succeeded beyond our expectations.

The following are the names of some of the patrons, the number of cows kept by each, and the amount realized in calves, butter and cheese:

Names.	*No. of Cows.*	*Amount Realized.*	*Average per Cow.*
L. Spencer,	23	$943.07	$41.00
G. A. Dibble,	10	443.92	44.39
H. Bigelow,	4	183.23	45.80
F. Emery,	8	409,95	51.23
B. F. Emery,	3	156.63	52.21
C. Preston,	10	524.14	52.41
E. Blakely,	7	383.59	54.79
G. F. Spencer,	10	562.67	56.26
D. M. Rowley,	15	868.03	57.86
H. Weber,	4	241.60	60.40

It will readily be seen that with the comparatively low price of land, cows, hay and grain here at the West, we can successfully compete with Eastern cheese producers, consequently we need not fear but that we will have a market for our cheese that will pay, until we have driven them from the market, and overstocked it ourselves; or until our land, stock, and other productions rise comparatively as high. C. H. WILDER.

Evansville, Jan. 21, 1867.

OHIO.

[Condensed extracts from a communication received from Joseph Pelton, Lindenville, Ashtabula Co.]

I had designed being present at the Annual Meeting, but now find myself unable to meet you. I therefore venture to send to you in this form, my ideas on some of the topics that are to be discussed.

As I understand it, the prime objects of our Association are these: The best practical plan to realize the greatest profits from the capital invested by American dairymen in the business of manufacturing cheese and butter; and

To produce a product that will suit the tastes of the largest number of consumers at home and abroad. And here I cannot but say, that the private circulars from our agent in Europe, X. A. Willard, A. M., have, in my judgment, been of exceeding value to me.

An experience and practice of over half a century has led me to the conclusion that some of the processes of cheese making, as practised by dairymen generally, can be greatly improved upon.

Briefly, I will endeavor to make clear my ideas.

In the first place, we all agree that the milk must be perfectly sweet, and free from odor, and that the rennet, which ought never to be incorporated with the milk, except by a skilled hand, must likewise be entirely free from taint. I differ but little from the general custom of good dairymen in the working and perfecting of the curd, but when ready for the press, my practice is opposed to theirs. I require the hoop into which the curd is placed to be of great strength, as the pressure applied is at least four times that ordinarily used. Ice must now be placed about the hoop so as to reduce the temperature as near as possible to the freezing point, and this must continue for three days, (the cheese being turned once or twice daily,) and longer, if the cloth around the cheese is damp or wet.

The cheese should now be removed from the hoop, and placed in a room having a uniform temperature of 80 to 90 degrees. After remaining here twenty-four hours, it should be placed for the same space of time in a cold room, with an atmosphere near the freezing point. This daily alternating from heat to cold, should be continued for fifteen days, and the cheese be then placed in a curing room of a temperature of 65 degrees.

I claim that at the end of 30 days, a cheese is thus produced, which, for perfect solidity, and excellence of flavor and of texture, cannot be surpassed.

I was led into this manner of pressing and curing cheese some years ago, while making butter and cheese from 30 cows, near Nashville, Tenn. My press stood where it was exposed to the cold of the autumn and winter nights. Experiment followed, and now I am fully convinced that my practice is the best now known to man. Rennet and salt, if impure, or used to excess, injure the character of the cheese,—but, in my view, a judicious use of nature's great agents—*heat and cold*, have infinitely larger influence upon the cheese.

Regarding the kind of cheese preferred by most consumers here in America, may I add one word.

I have had large experience in cutting cheese,—and have frequently tried this experiment. I cut three cheese and place them side by side.

No. 1, would be a new cheese, of mild flavor,—not more than 20 to 30 days old. No. 2, of medium age, and of a more decided flavor. No. 3, a cheese four to six months old, with a sharp, high flavor.

I have invariably found that I could sell from 4 to 6 lbs. of No. 1, at a price from 2 to 4 cents per pound higher, while I was selling one pound of the others.

In my judgment if cheese can be made to suit the tastes of our people, the consumption of this article can be so immeasurably increased as to preclude all danger of too large a production in America.

JOS. PELTON.

CANADA EAST.

Compton Factory, Compton.—Began cheese-making June 7; closed Nov. 7; number of cows, 250; about 60,000 pounds of cured cheese made; size of cheese 15 inches; pounds milk to a pound cured cheese, 9¼. Buildings have the capacity for the milk of 800 cows.

SMITH & COCHRANE, Montreal.

CONDENSED REPORTS.

The following Table gives the number of cows, amount of cured cheese, average price, average pounds of milk to one of cured cheese, and average weight for the several Factories from which full Reports have been received.

NAME OF FACTORY.	LOCATION AND COUNTY.	Whole number of Cows.	Shrinkage per cent.	Amount of cured cheese made, in pounds.	Ave. price per pound, in cts. and fractions.	Average Weight.	Aver. lbs. milk for one cured cheese.
Whitesboro,.....	Whitesboro, Oneida co.	865		311,881	18.07	65	9.88
A. Blue's,.....	North Gage, "	140		59,277	17.58	67	9.56
Robert's,.....	Floyd, "	275	5⅔	82,100	17.41	90	10.12
Dorn's,.....	Ava, "	350		96,716			9.75
Chuckery,.....	Paris, "	590	3	168,561	17.54	96	9.72
Weeks', ...	Verona, "	620	3¾	212,975	17.92	77	9.74
Cedarville,.....	Cedarville, Herk. co.	575		233,802	17.32	61	10.10
First National,.....	Frankfort, "	650		259,064	17.02		10.24
Lamunion & Clark's,	Stockbridge, Mad. co	400		118,412	17.50	72	9.86
Hunt's, ...	Hubbardsville, "	600		183,479	17.91	71	9.33
Excelsior, ...	Brookfield, "	300	4⅛	97,000	17.25	72	9.25
Empire,.....	Florida, Montgom. co.	260		77,784	17.25	61	10.00
Charleston 4 Corners,	Charlest. 4 Cor., "	525		168,896	17.25		10.00
Smith Creek,.....	Palatine, "	675		222,390	17.25	79	9.95
Gilbert's Mills,.....	Gilbert's Mills, Osw. co.	430		151,621	16.70		9.73
Ingell & Smith's,...	Volney, "	375		126,939	16.70		9.72
Prattville,.....	Mexico, "	516		134,181	14.83	102	9.96
Trumbull's,.....	Pulaski, "	270		67,406	16.00		9.62
Miller's,.....	Constablev'le, Lew. co.	650	6.45	229,852	18.01		9.51
Glensdale,.....	Glensdale, "	700		273,490	17.10	91	9.59
Sulphur Springs,....	Lowville, "	770		214,282	15.48	106	9.84
High Market,.....	High Market, "	450		136,157	17.21		9.35
Canton,.....	Canton, St. Lawr. co.	675		167,878		83	9.56
Adams,.....	Adams, Jefferson co.	800		248,376	16.76		9.98
Bonfoy, B. & A.,...	Lorraine, "	530		181,686	17.32		9.69
Collins Center,.....	Collins Center, Erie co.	662		246,739	15.86		9.88
First Collins,.....	" "	625		216,479	16.52	72	9.43
Brant Center,.....	Brant, "	300		105,466	16.75	70	
Canadawa,.....	Arkwright, Chau. co.	687		186,608	15.43	57	9.65
Sinclairville, ...	Sinclairville, "	1049		288,060	16.67	55	9.39
Beattie's, ...	Truxton, Cortland co.	468		150,720	17.59	83	9.85
Throopsville C. M. A.	Auburn, Cayuga co.	400		139,455	16.41	95	
Simpson's,.....	New Hudson, Alle. co.	400		136,030	16.13		9.29
De Witt C. M. A.,..	De Witt, Onondaga co.	300		103,453			10.07
Hawleyton,.....	Hawleyton, Broome co.	200		60,000	18.89		9.28
Springville,.....	Springville, Pennsylv.				18.00	75	
Bridgewater,.....	Bridgewater, "	200		62,000	17.50	70	9.06
Spring Hill,.....	" "	148		44,016	17.61		9.55
Valley,.....	Hinesburg, Vermont,	500	4⅞	128,196	16.60	62	9.82
Fairfield,.....	Fairfield, Michigan,	260		101,335	16.42		9.58
Wilder's,.....	Evansville, Wisconsin,	339		103,650			9.60
Compton,.....	Compton, Canada East,	250		60,000			9.25
		18,779	4.64	6,356,412	17.02	76⅓	9.68

THIRD ANNUAL MEETING

OF THE

OHIO DAIRYMEN'S ASSOCIATION,

HELD IN CLEVELAND,

Wednesday and Thursday, February 20, and 21, 1867.

The third annual meeting of this Association convened in Brainard's Hall on Wednesday.

At 11 A. M., H. N. Carter, Esq., of Lake County, one of the Vice Presidents, in the absence of the President, took the chair and called the Association to order, and, on motion, J. Smith, Esq., of Thompson, O., was appointed Secretary.

On motion the following Committees were appointed:

On Business—Messrs. A. D. Hall, Geauga; A. C. Benedict, Medina; and M. Roach, Summit.

On Membership and Finance—Messrs. A. Bartlett, Lake; E. Chase, Geauga; and J. C. Horr, Lorain.

A committee on the nomination of officers was also appointed.

Mr. James Roach offered a resolution to reduce the fee for membership from $2 to $1, which was for the present laid on the table, and the Association adjourned to 2 P. M.

At the hour designated, the Association again met, when the resolution to reduce the membership fee was considered, and its adoption advocated by Mr. A. Bartlett, of Lake.

Mr. J. C. Horr, of Lorain, suggested that action on the resolution be postponed until the reading of the Treasurer's report, which might have an important bearing on the question—which suggestion, on the motion of Mr. A. C. Benedict, of Medina, was adopted.

On motion of Mr. A. Bartlett, of Lake, such members of the Press as might be present were invited to sit upon the platform.

The Committee on Business, through its Chairman, Mr. A. D. Hall, of Geauga, reported, as a proper order for the business of the Convention, as follows:

1st. Reception of the Treasurer's Report.

2nd. Consideration of the Membership Fee.

3rd. Report of Committee on Nominations.

4th. Reports of other Committees, to be followed by discussions, as follows:

5th. Upon the advantage of connecting Butter with Cheese manufacturing.

6th. What are the requisites of purity of flavor in Cheese, and how can it be secured?

7th. Is the Branch Factory System practicable, and is its adoption to be advised?

8th. The preservation and preparation of Rennets.

9th. Taxing Cheese Manufactures.

10th. Best breed of Cows for the Dairy.

11th. Best Grasses for a Dairy Farm.

12th. The election of officers for the ensuing year—to be in order on Thursday, A. M.

The Treasurer's Report was submitted by A. D. Hall, Esq., of Geauga, showing the receipts to be $124.28; expenses $143.59, a deficit of $19.31: the report was, on motion accepted.

The motion to reduce the fee for Membership was then considered, and Mr. C. B. Chamberlane, of Summit, moved, in view of the financial exhibit just made by the Treasurer, to lay the motion for reduction on the table; carried.

The Committee on Nominations not being ready to report, the next subject in order, the reports from Committees was called up.

Mr. Bartlett, Chairman of the Finance Committee, first desired some further action from the Association, on the question of fee for membership.

Mr. Horr, of Lorain, preferred that the fee should be small, but thought the reduction proposed would not increase the membership sufficiently.

Mr. Hall, of Geauga, thought that factories would pay the fee cheerfully, but that dairymen who made their own cheese, would sooner join at $1 than at $2.

A report from the Finance Committee, in favor of fixing the fee from the factory men at $2, and for private dairymen at $1, and that names and funds be at once handed in, was unanimously adopted.

The Committee on Nominations reported the following list of officers:

President—J. C. Horr, Lorain.

Vice Presidents—J. F. Bruce, Geauga; H. N. Carter, Lake; J. M. Trew, Trumbull; John Snow, Lorain; C. R. Chamberlane, Medina; A. G. Bradley, Portage; Philip Coe, Union; Caswell Wright, Cuyahoga; H. F. Giddings, Ashtabula.

Corresponding Secretary—A. Bartlett, Lake.

Recording Secretary and Treasurer—A. D. Hall, Geauga.

The 5th question, in the order of business as above, the discussion of which had been appointed to be opened by Mr. S. A. Andrews, of Summit, was postponed for the present on account of his absence.

The 6th question was also passed for the present, and the 7th was taken up. After some remarks from Mr. Bartlett, of Geauga, it was laid aside.

The 8th question in order, the preservation and preparation of Rennets, elicited an interesting and general discussion and statement of experiences, by Messrs. Carter and Roe, of Lake, Snow, Jackson, Hovey and Horr, of Lorain, Johnson and Burgess, of Portage, Bartlett, of Geauga, Welton, of Summit, and Chamberlane of Medina.

The 6th question was then taken up, and discussed, in the absence of Mr. Cox, who had been appointed to open the subject, by Mr. Horr, of Lorain. The further consideration was then postponed until evening, and the Association adjourned until 7 P. M., when the first thing in order would be the delivery of the annual address by Anson Bartlett, of Lake Co.

At 7 P. M., the Association again convened, when Mr. Anson Bartlett, of Lake County, delivered the

ANNUAL ADDRESS.

Mr. President, Ladies and Gentlemen
of the Ohio Dairymen's Association:

It is with a feeling of diffidence, amounting almost to depression, that I attempt to address you this evening, well knowing there are those present, who, from age and experience as well as by natural and acquired abilities, are much better qualified than myself to impart information and give counsel and instruction of value to yourselves and the business you represent. Knowing my own imperfections, it is solely through the influence and importunity of friends that I am induced to appear before you. I therefore solicit your kind indulgence, hoping that, although I may not be as instructive as it is desired, you will recollect it is a difficult thing "to get grapes from thorns, or figs from thistles."

I suppose Mr. President, we are here for the purpose of seeking more light, and I know of no surer way to obtain it than for each individual to contribute to the common stock of information; that is all I propose to do, and still I cannot escape the feeling that I am in a measure repeating a thrice-told tale. In fact, I do not expect to be original. All I can hope to do will be to present some few facts which may be and doubtless are familiar to most of you, but which, from that very familiarity, you may never have chanced gravely to consider.

Milk, and its products in some form or other, as forming part of our daily food, has become an imperative necessity in civilized life; hence the dairy has acquired an importance second to but few of the food producing agencies of the land. True, it is but few years since the economic value of milk and its products as food has been understood, and even now butter and cheese are considered as luxuries by most American people, to be used and dispensed with according to the ability of the consumer to indulge in luxurious living, and this more especially in regard to cheese. In England the case is quite different, cheese as an article of food there forms a part of the daily living of almost every Englishmen, and particularly with the laboring classes; as one writer observes, "Bread, cheese and ale is the English laborer's breakfast; ale, bread and cheese his dinner, and cheese, ale and bread his supper."

English laborers, as is well known, receive less money for a day of labor than do laborers in this country, being for the majority barely sufficient for their subsistence, consequently cheap food is sought by them in preference to dearer kinds, and it is found that the same

money expended for cheese affords more sustenance to the physical system, than it would, if expended for meat, besides it possesses this advantage over meat, it is always ready, requiring no fire to cook, or time to prepare it, and where will you find a more robust and healthy people than the laborers of Old England? I venture to assert that if the American people consumed less meat and more cheese, in fact if the amount of cheese produced was four-fold what it now is, and was all consumed in our own country, instead of living so much upon meat, the health of the people would be benefited, and their welfare promoted by the change. This subject is now attracting considerable attention, and the consumption of cheese is largely increasing. A great deal of this inquiry and investigation is due to the efforts and influence of Dairymen's Associations, and if proper efforts are made to keep alive this spirit of investigation and diffuse the information obtained, we may confidently expect the increased consumption of cheese to keep full pace with the increase of production for years to come, and this, too, at remunerative prices to the producer.

Perhaps I ought to say a few words here in relation to the wants of the trade. Interested parties have taught us to believe that cheese suited to the trade in one place was entirely unsuited to the wants of the trade in another place. To a limited extent this may be partially true, but the great want of the cheese trade everywhere is, a cheese that will please the tastes of a great majority of consumers. And what is that? I think I hear you ask. When a person proposes to use anything as an article of daily food, he invariably seeks that which is pleasing to the palate, and which may be partaken of without disagreeable sensations, or leaving an unpleasant taste in the mouth. Hence a cheese possessing a rich, creamy quality, and a sweet, mild flavor, one which may be eaten as you would eat bread, is the cheese which suits the majority of tastes, and of course will meet the requirements of the trade everywhere. And this is the universal testimony of cheese consumers. For the New York and English trade we all know this to be the description of cheese most in demand, as well as for our own vicinity, and the West, and in the South, I have it from the lips of Southern gentlemen themselves, that the cheese which suits their market best is one rich, sweet and mild, and that can be eaten like bread. In fact there is no place and no people where or of whom I can learn that a sharp-flavored, or a bitter or strong-flavored cheese finds favor. True it is that a cheese of a certain form and size is preferred, and in others a different form and size is the favorite; and I look to the efforts of this and kindred Associations for some device for overcoming this difficulty, so as to produce a cheese of uniform shape and size that will find favor in every market. And here let me suggest—cannot a cheese of a square or oblong form be produced that will give better satisfaction in every market than the present circular form? It would certainly be more convenient for boxing and transportation, besides being a better form for cutting.

There is no branch of rural economy in regard to which greater improvement has been made within the last twenty years, than in

the management of the dairy and the manufacture of butter and cheese; while at the same time there is scarcely another to be found which has not received more attention from scientific men, from the press, from Agricultural Societies, from Associations and from Government, than this, and I hope before I close to show that this interest deserves more notice, and is susceptible of still greater improvement.

Many of us recollect the time when the cheese was made in a tub, all the heating for the process being performed in a kettle on the stove or over the fire in a fire-place, the press a log hewn on its upper side, with posts in one end and a huge lever attached to them, with a pile of rocks on the other end for giving the pressure; the cheese were placed on rude shelves and benches up chamber, in the woodshed or some other out of the way place, the whole a spot to be avoided by persons of delicate nerves, especially if possessed of a keen appreciation of foul, disgusting odors. I would like to say all this is changed; some of it is, and very much for the better, but truth and candor compel me to say that in one very important particular, American cheese-makers are still greatly in fault, and I hardly know where a dairy room can be found that is not susceptible of great, yes, radical improvement in regard to cleanliness and freedom from foul odors. I wish in this connection to call your attention to the composition of milk, in order to illustrate the imperative necessity of perfect and exact cleanliness in every department of the dairy if we expect to produce a really fine article of butter or cheese.

In 1,000 parts of milk are 837 of water.
In 1,000 parts of milk are 57 of butter.
In 1,000 parts of milk are 46 of milk sugar.
In 1,000 parts of milk are 47 of casein.
In 1,000 parts of milk are 7 of albumen, and
In 1,000 parts of milk are 6 of salt, mostly phosphates and sulphates.

Water is a compound substance, composed of one atom of hydrogen, and one of oxygen, or as some other writers have it, H, 2; O, 2. Butter consists of several different fatty substances, the principal of which are margarin, 68 parts, and olein, 30 parts in 100; the remainder butyrin, caproin, and caprylin, composed of butyric, caproic, and caprylic acids united with the common base, glycerin. The characteristic flavor and odor of butter are owing to the presence of these latter substances, the caproic and caprylic acids, receiving their name from capra, a goat; the odor of these acids resembling the well known charateristic odor of that animal. Margarin and olein are severally composed of margaric and oleic acids, combined with the base glycerin. The atomic constitution of margaric acid is C, 34; H, 34; O, 4; of oleic acid, C, 36; H, 34; O, 4; of glycerin, C, 6; H, 8; O, 6; of sugar of milk, C, 24; H, 24; O, 24; of casein, C, 288; H, 228; O, 90; N, 36; S, 2; of albumen, C, 216; H, 169; O, 68; N, 36; S, 3; and the salts contained in milk are composed of phosphoric and sulphuric acids, and chlorine combined with the bases, lime, potash and soda, and of these six, only one, chlorine, is

elementary, all the rest being compound, and their atomic arrangement is as follows: Phosphoric acid, P O, 5; sulphuric acid, S O 3, H O; lime Ca O; potash, K O; soda, Na O. Thus we see that milk is a very complex substance, and that in many of its constituent parts their elements have very high combining numbers, and it is a well known fact in chemistry, that with all substances whose elements have high combining atomic numbers, their combinations are more easily broken up, and new combinations formed than those more simple in their chemical composition, this explains why milk is so susceptible to external influences and conditions of change, it being the most complex organic substance, and as a consequence the most readily decomposed.

All who have anything to do with milk know very well that it will change and become spoiled or soured very much sooner if placed in contact with any substance already soured, than if such contact is avoided, but we are apt to forget that actual visible contact is by no means a necessary condition for milk to become impregnated, the chemical combinations being so feeble and so easily broken up, that milk may be effectually spoiled for a really fine article of either butter or cheese by an exposure to a bad air, even a short length of time. This subject, in my opinion, has hitherto been too much neglected, in fact inquiry and investigation are but just begun in this direction, and I look to this Association to pursue the investigation.

Not only does the atmosphere surrounding the milk after it is drawn from the cow, have an influence upon it, but the food and drink of the animal, and even the very air she breathes during the time the milk is being elaborated and secreted, has its influence for good or ill on the flavor of the milk. During the heated term of last summer I had frequent opportunities of noticing the effect produced on milk by these external influences, and the result of my observation is that there is not within my acquaintance a cheese factory or a private dairy but that is very defective in this respect. I received a letter last summer from a dairyman in the State of New York, giving an account of the tainting of the milk from his entire dairy, by the stench from the carcass of a dead horse, being blown over and among his cows from an adjoining field throughout a hot summer day, and I can bear witness myself that the milk will possess the odor of a foul stable, imbibed by the animal in breathing. In view of all these facts, I beseech you, dairymen of Ohio, to give this subject more attention, to resolve that you will introduce radical changes in regard to the condition of your milk and cheese-houses; let cleanliness, absolute, immaculate cleanliness, be your watchword and rallying cry, until Ohio butter and Ohio cheese shall stand in the foremost rank in all the markets of the world.

In this connection, I would like to suggest an improvement in the management of cheese factories; and that is to banish the whole hoggish multitude of swine from the precincts of every factory, and in their stead to feed the whey to calves. Get your patrons to save and teach to drink, all their best calves for you, and the whey that will keep a full grown hog, will, with a *little* pasture, feed two

calves. The pecuniary profit will be greater, and the labor, except a little time in the spring, is no more; and the calves are clean and tidy, no rooting up the ground, and making unfathomable seas of mud; and when you come to contract the odor produced by a yard of filthy porkers to a lot of clean calves—oh faugh! it's of no use; words cannot do justice to the subject.

While on the subject of improvement, I will speak of a few items of importance to all dairy farmers, and suggest some improvements.

FIRST—PRODUCTIVENESS OF LAND.

I believe that the soil of nearly all Northern Ohio contains all the essential elements of fertility required for the dairy. But when we look around we discover scores of farms that will not keep as much stock as those same farms would twenty years ago. This, to my mind, shows that these farms are becoming to some extent exhausted of certain elements of fertility, and it is a subject worthy the earnest inquiry of dairy farmers. Experiments should be tried, and results carefully noted. Bone dust, lime, plaster and salt, are each and all fertilizers to some extent. Let experiments be tried with each. Save and use all the manure that can be made, for after all is said about other fertilizers, barnyard manure must continue to be the principal and most reliable fertilizer—the sheet anchor of the dairy farmer.

I have it from a very successful dairy farmer, that a top-dressing of common soil, or even a clay subsoil, is as beneficial on grass land as a dressing of barnyard manure.

I know that in many places in Northeastern Ohio, there exists a species of blue clay, which being spread on the surface, acts as a powerful fertilizer on some soils.

Inquiry and investigation should be set on foot, for there is no good reason why one farm should keep, and keep well, a cow to every three acres, while another will only keep a cow to six acres.

SECOND—BREEDS AND BREEDING COWS.

Every dairyman, I presume, knows of some particular breed or family of cows, among which a poor cow is an exception. In my own experience, I have been acquainted with two such families, bred and owned by my father and myself, each one springing in the first instance from a single cow, and I do not recollect a single instance of a cow from either family that was not more than medium for milking qualities, and at least four out of every five were first rate cows. It may be an improvement to mix with our best native stock a strain of imported blood of choice milking stock, such as Ayrshire or Alderney, but I am certain that with judicious breeding from our native stock, an increase might be made in the amount of milk produced of at the least one-third from the same number of cows.

There can be no doubt that the practice now so generally pursued by the dairymen, of slaughtering all their calves, and depending on buying cows south and west to replenish their stocks, is fast deterio-

rating the dairy stock, besides it increases the risk of dairying, in that, cows which are driven long distances, are more liable to be attacked by disease; especially garget and puerperal fevers, and large losses are yearly sustained by our dairymen from this source, nor is this all; a cow in milk, in order to her well being and yielding a profitable return, should be kept as quiet as possible, hence anything that disturbs her, any extra irritation, is detrimental, diminishing the flow of milk and deteriorating the quality, and these effects are by no means transient, not unfrequently continuing through an entire season.

Dairymen, I am aware, are of the opinion that it is cheaper to buy their cows than to raise them; that the time, trouble and feed, required to raise a calf and keep it until it becomes a cow, is worth more than the cost of a cow already grown to their hands; although this may be true in so far as the cash value of the feed consumed by the growing animal, if it had been given to cows in milk, and thus converted into cash, and that cash used to buy an average southern or western cow is concerned; still, I believe, if we examine the matter closely, we shall find that the cows we purchase, are, in the end, much dearer than those we raise.

I have bought cows for our dairy quite extensively, I have also raised quite a number at one time and another, and so far as my experience goes, I can conscientiously say, that two cows of my own raising are worth more; that is, will give more milk in a given length of time, than three of those purchased from the south and west, taking the average of each, and I think the experience of others generally coincides with mine. If this be a true view of the matter, how can it be cheaper to buy cows to replenish our stocks than to raise them? For in the one instance we have not only to pay for a cow and a half, but to feed, risk and pay taxes on the same, as well as to milk them, and I had much rather milk a pail full of milk from *one* cow, than to milk a half a pail full each from *two;* in fact, I would quite as soon milk a cow giving twelve quarts of milk, as one giving only six quarts. Now, when we consider that this is not for one season only, but for the whole life of the cow, I certainly can see but little room for doubt that it is better and cheaper to raise cows to replenish a dairy stock than to buy them. In raising calves for cows, attention must be paid as a matter of course to the milking qualities of the dam, but at the same time I regard it as of equal importance that the sire should be from stock noted for good milking qualities.

With dairymen there need be no difficulty in obtaining both sire and dam from good milk stock, and in that event you need no warranty as regards the milking qualities of the progeny.

THIRD—FEEDING COWS.

There is probably no feed for cows in milk equal to fresh pasture of white clover; but as this is by no means always to be had, or even *fresh* pastures of any variety of grass, it becomes a matter of interest to dairy farmers to find a substitute, to be used when pastures begin to fail, as they generally do about midsummer. Al-

though on account of scarcity and high price for labor, and comparative cheapness of land, the system of greensoiling cattle may not be applicable to dairy farming in Ohio at present, still I am of opinion that they would do well to study the system carefully, and so far as may be applicable, adopt it. Pastures in this State usually afford abundance of feed for farmers' herds, during the months of May, June and July, while throughout the remainder of the season, grass is more or less scant in growth, and feed more or less short. To meet this deficiency, and provide a supply of green food for the dairy stock, I know of no crop equal to Indian corn, grown in drills. Sorghum, I am well aware, has its friends and advocates; that it is a first rate feed for cows in milk I know from experience; that in some of the best dairy districts of the State it is difficult to grow, I know as well. Other crops, such as rye, Hungarian grass, clover, millet, oats, peas, &c., are highly spoken of, and might be profitably grown for this purpose; but in Indian corn we have a plant possessing all the requisite qualities, and when properly put into the ground and tended as it should be, about as certain to yield a large crop as the seasons are to return in their order. I am very sure I have received more net profit from an acre of drilled corn, cut and fed green to cows, than from any other acre of forage crop I ever grew. For growing this crop, I would recommend to prepare the ground as for planting. If green sward is used, I would advise to break early, harrow well and cross-plow, harrow again, and then with a light plow furrow out the ground about two feet apart; then with the hand scatter the seed along the furrow, and cover it with the same plow you made the furrow with. When the young plants are about six inches high, go through between the rows with a shovel plow, and the same once more, when the corn is from one foot to fifteen inches high; cultivated in this way, it leaves the ground as clean and free from weeds as any crop I ever grew, and no matter whether the season was wet or dry, a heavy crop is almost certain; in fact I have yet to learn of a single failure, and I believe I can give dairy farmers *no better* piece of advice than this: let not a single season pass without growing at least an acre of drilled corn for every ten cows you keep, and if not needed for summer feeding, cut and cured, it makes the best of winter feed for milk cows; or almost any other stock.

An objection is made to feeding cows while at pasture with any such green crop, on account, as they say, that having fed the cows, they will lie down and wait for another feed, and will not range the pasture for what they might get there; that, consequently, unless you are prepared with a sufficient quantity to feed them all that is requisite for their full keeping, it is better to keep it from them altogether. I will not stop to inquire whether this is fallacious reasoning or not, but admitting its full force, the difficulty is very easily obviated in this way: Give the cows no feed in the morning at all, but turn them to the pasture as usual after milking; at some time during the latter part of the day, cut and load on a cart or wagon a sufficient quantity of the green corn for a good feed for the cows; then either while the milking is being done at night, or after you are through, and before you turn out your cows, haul your fodder into the pasture

and scatter it thoroughly, and let your cows go to it. They will eat, lie down and ruminate through the night, quiet and peaceable; in the morning they do not expect any thing, and will range the fields and feed as usual through the day.

ORDER AND SYSTEM IN MANUFACTURE.

The introduction of factories has done much towards establishing order and system in the manufacture of cheese, although much still remains to be accomplished, and as the present modes of manufacture as pursued in factories, as well as machinery and fixtures used in the same were not all perfected at one time, or by one person, so we must not expect that any one person will be able to bring forward and perfect all necessary improvements in the future; hence the advantages to be derived from the interchange of thoughts and opinions. Here let every one bring his improvements and make his suggestions, let each and every point be thoroughly and fairly canvassed, and do not let it stop here, but during the season of active operations in the dairy, let visits from one to another be frequent. Much, very much may be learned of each other in this way towards perfecting order and system in manufacture.

The manufacture of butter has not received that attention in Ohio that it has in some parts of New York, it having been reduced in some parts to an almost perfect system, and Orange county is famous for her fine butter all over the land, while in Ohio guess work or accident in butter manufacture is the order of the day; this is all wrong: perfect order and system are as necessary in the manufacture of butter as anything else.

Two things are essentially requisite to enable one to produce good butter. First, good, pure milk; and second, a good milk room, or house. The milk room should be so constructed as to preserve a low, even temperature, with just enough ventilation to secure a pure atmosphere, and if cold spring water can be had it adds greatly to the value of a milk house; for a dry air is injurious to the cream, forming a hard crust over the top, which is apt to make the butter spotted and oily.

In some of the best Orange county butter dairies, the milk is set in deep instead of shallow vessels, and these stand in cold spring water, the water rising a little higher around them than the surface of the milk inside. This secures a low temperature and a moist atmosphere. The cream, when it rises, is dipped off and churned, producing an article of butter as fine as can be imagined, and always selling for the highest price.

It is highly essential that the cream should be of the proper temperature when the churning is performed, in order to secure a fine article of butter. This should be from 50 degs. to 55 degs. when the churning is begun, rising to 60 or 65 degs. during the process. This can be secured in warm weather only by the use of ice, and ice I regard as indispensable in the management of a butter dairy when a truly fine article of butter is sought. After the butter is churned, take it from the buttermilk and work in the salt, adding a little more salt than is needed. Set in a cool place—the ice-house in warm

weather is the best—let it be there from twenty-four to thirty-six hours, and then work it over and pack, or make into rolls, as the market for which it is intended requires.

In working the butter, care should be taken to work it sufficiently thorough to expel all the buttermilk, and at the same time not so much as to injure the grain and make it oily. I have seen a great many rules for salting butter, but still prefer to salt by the taste, and at the second working, if more salt is required, it should be added. Salting at the first working insures a more even salting, and also as the salt dissolves and forms a brine which is brought out at the last working, it assists in removing the buttermilk more effectually.

You may consider these as rather brief directions for butter making, and perhaps their brevity is the best part of them, but I am very confident that vastly more butter is spoiled when it leaves the churn, than is ever injured by overworking, underworking and defective salting, all put together. Pure milk, cream formed in a cool, moist, sweet place, and proper temperature in churning, are the greatest requisites for the production of good butter. And so it is in cheese-making; pure, raw material, a proper temperature, good and pure rennet, salt, &c., being absolutely indispensable to secure satisfactory results, as J. C. Smith, of Cortland Co., N. Y., once said to me, "Any fool can make a good cheese of pure, sweet milk, but it is a trick of the trade to do it with sour milk."

I have been solicited to give a description of my own process of cheese-making, but having repeatedly written out full and detailed statements of the same, which have been published and widely circulated, it seems to me it would be a work of supererogation to give it here at this time, I therefore beg leave to refer to those articles, and particularly to one in the Ohio Agricultural Report for 1865, pages 170 to 176, to which I have but few suggestions to add. I would recommend the use of whey for soaking rennets instead of water, having found by experience that rennets soaked in whey will keep perfectly sweet any length of time, while it is very difficult to keep rennet sweet and clear from taint during the warm weather when water is used. Use salt the same as if water was used, and I find that the whey which flows from the cheese while in press to be as good as any for this purpose, thereby making a saving of salt. Another suggestion I would add is, that when working milk in which putrefactive fermentation exists, or as some would express it, when the milk is tainted, or if the milk is fresh from the cow, and is perfectly sweet, to add with the rennet from one half gallon to a gallon of *very sour* whey to each one hundred gallons of milk. The whey for this purpose should be two weeks old at the least, and possess a clean vinegar taste. I find a very good method is, to take the requisite quantity of the proposed rennet, together with the requisite amount of coloring and mix all with the sour whey, and then dilute with an equal quantity of water and stir all into the milk together. One other suggestion is, when your milk is fresh from the cow, in other words, when you are making cheese twice each day, to have

the temperature of the milk 86 to 88 degs. when the rennet is added, instead of a lower temperature.

It seems to me that an exhibition of dairy products might be made a feature of the meetings of this Association by the members, incurring but a trifling addition to the expenses, and would be a very instructive as well as attractive feature, and the articles exhibited might be sold at the close of the meeting, and no doubt would bring good prices.

You are all well aware, I believe, of the facts in regard to the mission of Mr. Willard to England, last summer, in the interest of the American Dairymen's Association, but perhaps not as well aware that the information of most importance to dairymen on this side of the Atlantic, collected by Mr. Willard, was embodied in ten letters to the Chairman of the Committee appointed to raise the necessary funds to send Mr. Willard to Europe, and by him copy-righted and published in circular form, and issued only to subscribers to the fund. But, notwithstanding the copyright, I can not forbear making a few extracts.

Under date of May 11, Mr. Willard says: The average price paid in New York by exporters for cheese, taking the five years from 1857 to 1861 inclusive, was 9 17-100 cents per pound; average price received at New York by exporters, during the same five years, was 11 7-100 cents per pound; net profit one cent and nine mills per pound realized by exporters. Foreign markets, when taken for a series of years together, yield remarkably steady prices. Under date of June 27, he says, "There is a great desire here for obtaining American cheese, and parties are anxious for factories to ship direct. They are willing to place funds in New York, ordering their agent to pay, on carefully selected grades, the highest prices that are paid in New York. Then, in addition, they are willing to hand over all surplus that will accrue from the sales of cheese after paying freight and commission. More attention must be paid to the manufacture of boxes. Many are insufficiently nailed, and with hoops too weak. The boxes fall to pieces, get broken, the cheese get marred or injured, which knocks off a considerable per-centage on sales. The dealers here must have an article on which there is no loss, and as soon as factories take it in hand to have boxes made substantial, average prices will advance in consequence."

June 16, Mr. W. says:—"In looking up brands of different factories, I find in a great number of cases the factory mark on the box cut away, and the name of the New York dealer substituted."

July 18, he says:—"I wish our factories could see the importance of sending only the small cheese at this season of the year. If they *will* make the large cheese, they ought not to damage their reputation by sending it forward in hot weather."

Under date of Sept. 15, Mr. Willard says:—"I regret to say that between my first circular and that of 25th of July, there are two of my circulars evidently not received by you. That of the 18th of July was important, as I advised in it, among other things, the branding of factory names on the bandage of cheese, in order to reach those dishonest persons who erase the names of factories from

the boxes. I explained why it was important that good brands should be known in England, because a higher price would result from such knowledge to the producer. All the cheese I have seen, both in London and Liverpool, for the last three weeks, has been more or less injured in flavor by heat. It is my impression that a considerable portion of the cheese has been heated up before leaving America, either in the dry house, or on its passage and stay in New York."

I had marked several other extracts which I proposed to make from these circulars, but time will not allow their production here.

The idea of establishing agencies in New York and elsewhere for the sale of butter and cheese, has already been brought out in the meetings of this Association, but as yet nothing has been accomplished. Believing as I do that were such an agency established, great benefit would accrue to the producer, I ventured to bring forward my views on the subject. Objections I am aware exist, which to many seem insuperable. First, it is objected that in so great a diversity of interests, a want of confidence will be an effectual bar to any such arrangement; that owing to the large amounts of property thus to be placed in the hands of the agent, a great opportunity for embezzlement would be given; that it would be difficult, not to say impossible, to find a man to act as agent who would or could give the necessary surety, or who would act impartially in the sale of cheese, as every man would be supposed to have his particular personal friends and favorites, and it would be an easy matter to let a man's cheese lie in store a long time, while others, no better or not as good, were being sold on arrival. Most of these are serious objections, still I believe not altogether insurmountable.

The plan I would recommend is briefly this: Let all those manufacturers who are willing to enter such an arrangement, unite and rent a building suitable to the purpose, select their agent, and establish necessary rules; then, whenever a manufacturer has ready for market say fifty, one hundred, or more boxes, of cheese, or a lot of butter, all of same quality, let him place in store a certain limited amount of the same as a sample of the lot,—make it imperative that the agent, on receipt of a sample, shall give it display equal to all other samples in store, the cheese by turning out of the boxes and placing on suitable shelves, or ranges, so as to be easily seen and examined, and samples of butter to be displayed in a suitable manner, with cards attached to each sample lot, giving the amount to be disposed of by that sample, and any other items of importance in the sale. Immediately on making sale of a lot by sample, notify the proper person by mail or telegraph, as may be agreed, and on its arrival at the store, let the purchaser deposit the pay in some bank previously agreed on, to the credit of the owner or shipper, to be drawn from thence only by his check.

This plan, given here only in outline, seems to me, when fully elaborated in all the necessary details, would obviate or neutralize all the objections heretofore urged to the establishment of an agency for the sale of dairy products, and would possess decided advantages over the present mode of marketing butter and cheese.

I had prepared, with the intention of presenting here, a large amount of statistics of the dairy business in this country, embracing the whole period of our history from 1790 to the present time, but as statistical matter is always dry and dull, and especially so in an otherwise dull public address, I will refrain, giving only a few facts and items and conclusions drawn therefrom. It appears the number of milch cows in the whole United States from 1790 to 1860, in proportion to the population, has remained a constant number, being twenty-seven cows to each one hundred inhabitants; and that at each successive decennial census, this proportion has not varied more than one cow to each one hundred people. It further appears that while the proportion for the whole country remains thus constant, the proportion in the older States of cows to population is constantly decreasing, while the Western and newer States alone keep up an excess of the proportional number; thus, Massachusetts has only twelve cows to each one hundred inhabitants, while Oregon has one hundred and one, or more than one cow to each person. In view of these facts, what becomes of the assertions of croakers, that the dairy business is likely to be overdone? that the production of butter and cheese is bound to outrun the demand for consumption? Why, butter and cheese to-day are worth as much in gold in New York as at any time within the last thirty or forty years, and with a prospect of a still further advance.

Allow me to call your attention to the amount of capital invested in the dairy interest of Ohio. According to census reports, there were in Ohio in 1859, 696,309 milch cows, and in 1860 the amount of butter manufactured in the State, according to Assessor's returns, was 33,078,750 pounds, and of cheese, 20,788,074 pounds, but in 1865 the number of milch cows had fallen off to 690,337, and of butter products to 32,554,835 pounds, and of cheese 16,940,213 pounds.

Allowing an average of six acres of land for each cow, we have 4,142,022 acres devoted to keeping cows. Calling each cow worth $50, and each acre of land $50, and supposing that for each fifteen cows there must be a team and farm implements, &c., of the value of five hundred dollars, we have—

For value of cows	$ 34,516,750
" " land	207,101,100
" teams, implements, &c.	23,011,000

Which gives a total of two hundred and sixty-four millions six hundred and twenty-eight thousand eight hundred and fifty dollars, as the amount of capital invested in the dairy interest of Ohio, the interest of which at 6 per cent. is $1,587,131 per annum.

The value of the butter made in Ohio in 1865, at 30 cents per pound, is $9,766,450, and of cheese in 1865, at 15 cts. per pound, is $2,541,047, and allowing one-third of the milk produced in the State to have been consumed in its unmanufactured state, we have a total value of $18,461,245 for the dairy product of Ohio in 1865.

Of wheat there was produced in Ohio in 1865, 13,224,097 bushels, which, at $2 per bushel, gives $26,448,194, being not quite once and a half the value of dairy products of the State. Again, of wool

there was produced in Ohio in 1865, 23,927,714 pounds, which at 60 cents per pound, amounted to $14,356,628, being much less than the value of dairy products of the State.

The total value of all the sheep in Ohio in 1865, was $20,081,914, being less than two-thirds the value of milch cows; and the total value of horses in Ohio in 1865, was $45,608,350, which is not once and a half the value of the cows.

Now take the lists of premiums of our agricultural societies, both county and state, and tell me does the dairy there stand on an equality with wheat, wool, sheep, or horses? Or look through the annual reports of our State Board of Agriculture, and what do we discern? twenty pages, at the least, devoted either to wheat, wool, sheep or horses, where you will find one devoted to the dairy; every means used, every inducement held forth, line upon line, precept upon precept, to improve the quality and increase the production of sheep and horses, wheat and wool, while the dairy interest is left comparatively to shift for itself. Torture the foregoing facts in any shape you please, this fact stands glaringly forth, one of the leading agricultural interests of the State is comparatively neglected. Is this right? Is it just? I fancy I hear an emphatic No! And now who are to blame that these things are so? We are all to blame, for we have heretofore shut ourselves up in our own conceits, every one fancying his own process to be the best there was practiced or in existence; that his own butter and cheese were only deserving a first premium; inquiry has slumbered, investigation has been hoodwinked, each one content to pursue his own unvarying tread-mill round, neither asking, giving, or receiving assistance, advice or counsel, and only when startling innovation or radical change is brought to his notice, will he arouse from his Rip Van Winkle slumber, and shake off his frigid apathy, and begin to inquire if the world does really move, if he indeed has rights that others are bound to respect.

Dairymen of Ohio, let us from this moment resolve that this shall all be changed; that we will diligently seek and bring out improvement; that from now and henceforth the progress of the dairy in Ohio shall be onward toward perfection. And what instrumentality presents itself so well calculated to contribute to this result, as this and kindred associations? I think of none. Therefore let us all place ourselves at the work, sustain our association, attend its meetings, relate our experience, give our counsel in its proceedings; keeping alive a spirit of earnest inquiry, and awaken careful investigation, noting facts and results, and each one contribute his share of information for the enlightenment of the whole.

On motion, the thanks of the Association were unanimously tendered to Mr. Bartlett for his address, and a copy requested for publication in the report.

By request, Mr. Riggs, of Lewis county, N. Y., who was present, presented to the Association a brief description of the patented process of Riggs & Markham, for manufacturing butter from whey, also exhibiting a sample of the butter so made, which elicited considerable discussion.

Mr. Bartlett, of Lake, thought that if butter could be manufactured from whey, as was stated by Mr. Riggs, it was well worth while for factories to look into it. He, however, doubted the ability of the gentleman to get a paying quantity of butter from all whey; had himself made whey butter; had made as much as six or seven pounds from 100 gallons of whey, though this is a wasteful process of cheese manufacture; tried experiments from that time, not so much to see how much butter might be made from whey, as to determine whether it could not be kept in the cheese; finally succeeded in obtaining a whey, from 500 gallons of which, a half pound of butter could not be made; thought it better to keep the butter in the cheese than to make whey butter; thought that New York State manufacturers might make more butter from their whey than most Ohio manufacturers, as in New York the rake and agitator were largely used, and in his opinion, no implement was suitable to manipulate a cheese curd with, that did not possess the sense of feeling, and that, in his opinion, it was owing to the different methods of handling the curd, that the whey of New York factories, contained so much butter.

Mr. Riggs stated that the sample of butter shown, was made from whey of milk that yielded one pound of cheese, green weight, to 8 29-100 of milk, and 136½ pounds of this whey yielded one pound of butter; that the experiment was tried on the 12th of October last, and that he considered such a yield of cheese, showed that it was carefully worked. He was quite willing to come to Ohio in the spring and test his process, and if it was worth nothing, he would ask nothing for it, and moreover, was quite willing to let Mr. Bartlett make the whey for him.

Mr. Bartlett, of Geauga, thought the yield of cheese mentioned, was less than should have been produced at that season of the year; that in his factory an average yield for the month of October, of cured cheese was made, nearly equal to the green weight of cheese mentioned by Mr. Riggs; was quite willing, however, to see the experiment tried.

The following resolution was offered by J. C. Horr, of Loraine:

Resolved, That Messrs. Riggs & Markham be requested to introduce their process of making butter from whey, at the factories of J. C. & C. W. Horr, of Loraine Co.; G. Roach, of Summit Co., and A. D. Hall, of Geauga Co., which was adopted, and Mr. Riggs gave assurance that they would do so at the earliest practicable time the coming spring.

Quite an animated conversation here arose on the merits of the letters patent of Mr. Rufus Scott, of Watertown, N. Y., for the turning cover and range, some members evincing a determination to litigate Mr. Scott's claim, while others thought it would be better to buy the whole State of Mr. Scott, and make it public property.

On motion, adjournment to meet to-morrow morning, at 8 o'clock.

Thursday, January 21st, meeting called to order, Vice President Carter, in the chair.

The adoption of the report of the Committee on Nominations, being the first business in order, on motion of Mr. Bartlett, of Lake, was postponed until 11 o'clock, A. M.

The committee appointed to examine the churn exhibited by Mr. Hewit, reported that they had examined the same and considered it to be a very good churn, but wanting the cream to make an actual test of its working qualities, they did not feel like giving any decided recommendation.

The question of purity of flavor in cheese, and how to secure it, was then taken up and discussed at length.

Mr. Chamberlane, of Medina county, made a statement of his process of manufacture. He said pure, sweet milk is the first great requisite, good rennet is essential; secures his rennets by slaughtering the calf at four to six days old; let him stand 30 to 40 hours after sucking, take out the stomach, tie up the lower end, add to the contents a table spoonful of sharp vinegar, salt; hang up by the upper end and dry; heat to 80 degs. for setting the milk; cut carefully; heat to 90 degs. for highest heat in manufacture; in reply to a question, said he did not use a thermometer; could always tell by his hand whether the temperature was right; too high heat made the curd salvy like toasted cheese.

H. F Giddings, of Ashtabula county, said he had always used a thermometer in cheese-making; thought the cheese-making of those who did not use it but little more than a batch of guess-work, and a good cheese as much the result of accident as anything else; the feeling of the operator's hand was no guide to temperature; different states of temperature of the air rendering it difficult, if not impossible to determine the degree of heat by feeling on the skin; agreed with the gentleman from Lake, who spoke last evening, that no implement for manipulating a curd was so good as a man's hand, except a woman's hand in conjunction therewith; had heard a great deal said about the necessity of having an acid action in making cheese, but was not a convert to the doctrine; yet thought if a purity of flavor was aimed at, no acid should be present at any time, and curd put in press sweet if possible.

J. C. Horr, of Loraine county, thought sweet milk, rennet, &c., with pure salt, indispensable to purity of flavor; that a proper development of the acid had much to do with it, and from his own experience, was confident the amount of salt used had a great influence on preservation of good flavor in cheese; that as a general thing, our cheese-makers used too little salt, especially if it was intended to keep the cheese any length of time, or ship to New York or England; emphatically condemned the use of the rake unless in the hands of skillful cheese-makers, and then would not use it until the curd was partially consolidated.

A. Bartlett, of Lake, gave a brief description of the Cheddar process of cheese-making, as described by Mr. Willard in his letters from England.

Mr. Giddings thought Mr. Bartlett was mistaken in saying that the Cheddar cheese-makers waited for the development of an acid, before taking the whey from their curd.

Mr. Bartlett was confident that their rule was to have an acid perceptible in the whey before drawing it off, at all events it was so

stated by Mr. Willard in one of his circulars from England last summer.*

The proper development of the acid was, in his opinion, one great point to be attended to in securing fine flavor in cheese, in fact, he did not believe a really fine flavored cheese could be made without the acid reaction at some time during the process; rennet coagulates the casein of the milk, acids coagulate the albumen, and in his opinion the loss of flavor in curing cheese was mainly owing to the putrefaction of the albumen which was not coagulated, but held in a state of solution in the cheese; that coagulated albumen was as easily preserved as coagulated casein.

Mr. Bartlett spoke at some length, in answer to various inquiries, but as the principal ideas advanced by him, are embodied in articles from his pen, already published, it is unnecessary to insert them here.

On motion, this subject was laid on the table.

The hour of eleven o'clock having arrived, the adoption of the report of the Committee on Nominations was called up by the Chair. An amendment to the report was offered by J. C. Horr, of Loraine county, that the name of S. A. Andrews, of Twinsburg, Summit county, be substituted for that of J. C. Horr for President of the Association; which was adopted, and on motion of A. Bartlett, the report of the committee as amended, was adopted, and the officers therein named declared elected for the ensuing year.

The chair then designated H. F. Giddings and J. C. Horr, to conduct the newly elected President to the chair, who, upon being introduced to the Association by H. N. Carter, Vice-President, returned his thanks to the Association for the honor shown him, and took the chair.

The subject of taxing cheese manufacturers was stated by the chair to be the business next in order, and on motion of J. C. Horr was laid on the table.

The subject of best breeds of cows for the dairy, was then stated by the chair as next in order, to be opened by H. F. Giddings, of Ashtabula. This subject elicited but little discussion, and on motion of H. N. Carter, was laid on the table. The subject of best grasses for a dairy farm, was also laid on the table, on motion of J. C. Horr.

Mr. Chamberlane offered the following:

Resolved, That this Association recommend the introduction and use of tin pails for milking.

Several gentlemen expressed their views and experience on this subject, and their united testimony was that wooden pails were unfit to be used for milk, from the tendency of the wood to absorb and retain taint, thereby endangering the sweetness and purity of the milk, and the resolution was unanimously adopted.

Mr. Bartlett offered the following:

Resolved, That tin is the best material now known for the manufacture of milk cans.

Mr. Horr thought galvanized iron in some respects superior to tin, in that it was not as liable to get jammed in using as tin; that he had had some experience with galvanized iron; thought there would be

*Circular No. 3, June 16.

no more difficulty in keeping milk in galvanized iron than in tin; that in Australia and New Zealand, where he had resided, it was used for water tanks; he had drank water which had stood in a galvanized iron tank three months, and found it good.

Mr. Bartlett, of Geauga, thought galvanized iron not as good as tin.

Mr. Bartlett, of Lake, said the resolution was not intended so much to condemn the use of galvanized iron for the purpose named, as vessels of wood; as he knew it to be the practice in some places to not only use wooden milk pails, but to store and keep milk in wooden vessels, and even in some instances send it to the factory in wood. This he considered highly reprehensible, and he wanted this Association to put its seal of condemnation on the practice of using wooden utensils for milk under any and all circumstances. Wooden churns were another thing. The churn was not wanted to preserve its contents from acidity. Chemical change was what was desired there; not such an action, however, as would be produced in using metalic churns, therefore considered wood the most proper material for churns, but for milk pails, cans, &c., as well as cheese vats, would reject wood altogether, and recommend tin exclusively.

H. A. Roe, of Lake, had been engaged many years in the manufacture of cheese vats, and all kinds of dairy utensils and factory fixtures, in which tin or galvanized iron are used; thought tin preferable.

J. F. Bruce had been engaged in the same business as Mr. Roe; was decidedly of opinion that tin was to be preferred; could state from his own personal observation that galvanized iron was not suitable for vessels to keep water in for drinking; had tried to use a pail in his own shop, for that purpose, made of galvanized iron; tried water from five or six different wells, and as many springs, and in each case found the water totally unfit to drink after standing two or three hours.

Resolution adopted unanimously.

H. F. Giddings offered the following:

Resolved, That it is the sense of this Association, that the calf to be killed for the rennet, should be at least six days old, and remain some 20 to 24 hours after sucking, that the milk should be nearly all passed off from the stomach, and in curing, the use of so much salt as to act upon and neutralize the active principle of the rennet, should be avoided, and rennets not used until six months old.

This resolution called out considerable discussion, in which Mr. Giddings and Bartlett, of Lake; Coffin, of Wisconsin, and Chamberlane, participated, and was finally passed without a dissenting voice.

J. P. Hovey, of Loraine, offered the following:

Resolved, That the practice of making cheese in factories on the Sabbath, should be avoided as far as possible.

The question was quite freely discussed by several members, and the general impression seemed to be, that the sin, or wrong, if any existed, was in keeping cows for profit, thus necessitating Sunday labor, and that making the cheese in factories was the quietest, easiest way to dispose of Sunday milk; and the resolution was lost by a large majority.

On motion of A. C. Chamberlane, the Association adjourned to meet at the call of the Executive Board.

S. A. ANDREWS, *Pres't.*

A. D. HALL, *Sec'y and Treasurer.*

OHIO—FACTORY REPORTS.

CHARDON FACTORY—CHARDON, GEAUGA CO.

Worked the milk of some 775 cows. Cheese made in 9 inch hoops, weighing from 15 to 18 lbs.; 10 inch hoop, 25 lbs.; 15 inch hoop, thin Derby, 30 to 35 lbs.; 15 inch hoop, &c., high Cheshire, 60 lbs.; 31 inch hoop, 360 to 380 lbs.; cheese sold April for 15 cts. on shelves; May 16.67 on shelves, the balance of the season boxed and delivered at station, from 15½ to 18 cts. Received 276,628 gallons milk, which made 284,000 lbs. cheese; butter 3,857 lbs.; will probably have 600 cows this season, and at a branch factory, 400.

A. D. HALL.

NEWBURY FACTORY, NEWBURY, GEAUGA CO.

Worked the milk of some 550 cows; received 189,052 gallon, milk, making 202,752 lbs. cheese; cheese made in 17½ inch hoops and weighing, when made thin, 48 to 50 lbs., and when thick, 85 to 90 lbs.; amount paid to patrons after deducting drawing milk, commissions, and stock used in manufacturing, boxing, and freight to depot, $25,545.59; average yield per 100 gallons 107.75 lbs.; average price paid per gallon at house, 13.50.

HALL & FREEMAN.

BARTLETT'S FACTORY, CHESTER CROSS ROADS, GEAUGA CO.

Number of pounds of milk received, 3,887,405; number of pounds cheese sold, 396,674; average number of cows, 1,200; pounds milk to make 1 pound cheese, 9.8; expenses of making 100 pounds cheese, 75 cts.; selling price of cheese per pound on the range, 15 7-100 cts. The above is *very* nearly accurate, as our cheese has been all shipped off, and there is to get returns on only 300 cheese in Cincinnati, which I think must tend to raise the price above the estimate, rather than diminish it.

LUCIUS BARTLETT.

TWINSBURG C. M. ASSOCIATION, TWINSBURG, SUMMIT CO.

Average number of cows, 1,008; whole number pounds milk, 3,109,440; whole number pounds cured cheese, 320,171; pounds of milk to one of cured cheese, 9 7-100; average price for cheese, 14 9-10 cts.

E. L. PARKS, *Sec'y.*

C. B. CHAMBERLIN'S DAIRY, MEDINA, MEDINA CO., OHIO.

Number of cows, 64; pounds cheese made, 28,175; average price for cheese sold, 15 cents; received for cheese sold, $4,226.25; butter, sold and used, 1,000 lbs., at 30 cts., $300.00; received for calves raised on the whey, $450.00; pork, sold and used, $200.00; total, $5,176.25. Cheese all sold to near markets. The amount of rennet used has been about one to 450 lbs. cheese; milk heated to 80 to 85 degs.; after cutting, turn over with a dipper and stir gently while heating, until it is heated to about 90 degs.; the whey is then partly drawn off, after which the heat is raised to about 95 to 98 degs., according to the weather. The heat is then shut off, and it is stirred for about 20 minutes. The warm water is then drawn off, and cold water or ice water put in its place to cool the curd; it is allowed to cool down to about 70 degs., when the whey is all drawn off, and the curd carefully worked with the hands until the whey is thoroughly out of the curd. It is then salted with about a teacup full of salt to 18 or 20 lbs. curd; the curd is then put in the press, and pressed about 1½ hours, when it is turned and bandaged. It should be turned once more at least before taking out. It is better to press two days if it is convenient to do so. C. B. CHAMBERLIN.

WARD C. WHITE'S DAIRY, PLEASANT PRAIRIE, KENOSHA COUNTY, WISCONSIN.

Whole number of cows, 75; average number, 70; commenced making cheese March 20th, and closed in December; total amount of cheese sold, 45,768 lbs.; cows fed with bran wet with whey, during the whole season; in the fall green corn and pumpkins given them; most of the above amount was sold for 16 cts., without boxes.

AN ACT

To Amend an Act entitled "An Act to Protect Butter and Cheese Manufacturers." Passed April 10, 1865.

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

Section 1. Section one of the act entitled "An act to protect butter and cheese manufacturers," is hereby amended so as to read as follows:

§ 1. Whoever shall knowingly sell, supply, or bring to be manufactured to any cheese manufactory in this 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;" or whoever shall knowingly bring or supply milk to any cheese manufactory that is tainted or partly sour from want of proper care in keeping pails, strainers, or any vessel in which said milk is kept, clean and sweet, after being notified of such taint or carelessness; or any cheese manufacturer who shall knowingly use, or direct any of his employees to use, for his or their individual benefit, any cream from the milk brought to said cheese manufacturer, without the consent of all the owners thereof, shall, for each and every offense, 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 or association or corporation, or their assigns, upon whom such fraud be committed.

§ 2. This act shall take effect immediately.

STATE OF NEW YORK,
Office of the Secretary of State.

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom, and of the whole of said original law.

CHAUNCEY M. DEPEW, *Secretary of State.*