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Northern Wisconsin Agricultural and Mechanical Association
Madison, Wisconsin: David Atwood, State Printer, 1881

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TRANSACTIONS

OF THE

NORTHERN WISCONSIN

AGRICULTURAL AND MECHANICAL

ASSOCIATION,

Including a Full Report of the Industrial Convention Held at Green Bay, Wisconsin, January, 1881, with other Practical Papers.

VOL. VIII. APRIL 1, 1880, TO APRIL 1, 1881.

Compiled by R. D. TORREY, Secretary.

MADISON, WIS.:
DAVID ATWOOD, STATE PRINTER.
1881.

78352
APR 21 1904

OFFICERS FOR 1881.

PRESIDENT.

C. HAZEN ..... LADOGA.

SECRETARY.

R. D. TORREY ..... OSHKOSH.

TREASURER.

E. W. VIALL ..... OSHKOSH.

VICE PRESIDENTS.

D. HUNTLEY, Appleton.
A. A. LOPER, Ripon.
J. O'BRIEN, Nekimi.
GEO. H. DAUBNER, Brookfield.
GEO. KEYS, Empire.
H. A. JEWELL, Oshkosh.
R. N. ROBERTS, Waupaca.
J. G. PARSONS, Oshkosh.

SUPERINTENDENTS OF DEPARTMENTS.

Division A, Stock Horses —
A. A. LOPER, Ripon.
Division B, Speed Horses —
H. A. JEWELL, Oshkosh.
Division C, Cattle —
G. H. DAUBNER, Brookfield.
Division D, Sheep —
C. P. HOUGHTON, Oshkosh.
Division E, Swine —
J. O'BRIEN, Nekimi.
Division F, Poultry —
E. R. MARTIN, Omro.
Division G, Field, Garden, Dairy and Household —
D. HUNTLEY, Appleton.
Division H, Fruit and Flowers —
J. M. SMITH, Green Bay.
Division I, Domestic Manufactures, Fine Arts, etc.—
K. M. HUTCHINSON, Oshkosh.
Division J, Manufactures —
GEO. KEYS, Empire.
Division K, Machinery —
J. G. PARSONS, Oshkosh.

SUPERINTENDENT OF GATES.

E. M. BRAINERD ..... OSHKOSH.

SUPERINTENDENT OF GROUNDS.

J. J. MOORE ..... OSHKOSH.

MARSHAL AND CHIEF OF POLICE.

F. M. POWERS ..... OSHKOSH.

INTRODUCTORY.

It is with no small degree of pride that this volume is presented to the people of the state.

Since the last volume was issued we have suffered the loss of our exposition building, erected by the earnest efforts of the society in 1879, and in which all took pride, as it was the only building of the kind in the northwest owned by an agricultural society; but while its ashes were yet hot, it was determined to rebuild on a better and larger plan, and the friends of the society joining together, have now completed the finest, in fact it is yet the only exposition building owned by a fair association in the country. The society is in better condition to-day than ever, and there is no reason in the world why it shall not now take its place as the leading society of the country.

Respectfully,

R. D. TORREY,

Secretary.

LIFE MEMBERS.

Names.	*Post Office.*
Abrams, Wm	Oshkosh.
Athearn, John	Oshkosh.
Allen, Albert	Oshkosh.
Allen, Nelson	Oshkosh.
Austin, A. C	Oshkosh.
Athearn, Geo. W	Oshkosh.
Arnold, Joseph	Oshkosh.
Amos, Frank	Oshkosh.
Ayres, Raymond	Oshkosh.
Allen, T. R	Butte Des Morts
Brainerd, James	Oshkosh.
Badger, Geo	Oshkosh.
Brainerd, E. M	Oshkosh.
Brainerd, A. M	Oshkosh.
Beals, P	Oshkosh.
Beardmore, Geo. W.	Vinland.
Babcock, H. A	Neenah.
Ball, J. M	Oshkosh.
Barber, Charles	Oshkosh.
Bray, J. M	Oshkosh.
Beckwith, S	Oshkosh.
Buckstaff, Geo. H	Oshkosh.
Buckstaff, Robert	Oshkosh.
Battis, M. T	Oshkosh.
Bauman, Geo	Oshkosh.
Beardmore, John B	Clemanville.
Bowers, A	Clemanville.
Beach, O	Oshkosh.
Boss, C	Clemanville.
Barnett, J. F	Omro.
Bemis, L. C	Clemanville.
Buckstaff, John	Oshkosh.
Bemis, L. B	Clemanville.
Bouck, Gabe	Oshkosh.
Brown, W. S	Oshkosh.
Burgess, Wm. R	Oshkosh.
Barnett, R	Oshkosh.
Brockway, J. C	Oshkosh.
Bentzel, E	Oshkosh.
Catlin, W. S	Elo.
Cotton, M. T	Oshkosh.
Chase L. S	Omro.
Cone, C. G	Chilton.
Cheney, Thos. H	Oshkosh.
Cross, I. W	Algoma.
Chase, James	Oshkosh.
Clapp, E. S	Winneconne.
Clough, W	Oshkosh.
Chase, O. F	Oshkosh.
Colvin, W	Oshkosh.
Cronkite, A. F	Neenah.

Names.	*Post Office.*
Campbell, Robert	Oshkosh.
Cameron, Geo	Oshkosh.
Campbell, R. C	Oshkosh.
Choate, L	Oshkosh.
Calkins, W. G	Winneconne.
Church, Geo. S	Neenah.
Carter, B. F	Sherwood.
Cook, W. H	Stockbridge.
Crary, O. F	Oshkosh.
Champion, Jas.	Winneconne.
Cox, R. B	Oshkosh.
Cross, J. S	Butte Des Morts
Cronkite, Geo. P	Neenah.
Daubner, Geo. H	Brookfield.
Dake, J. W	Omro.
Dale, H. B	Oshkosh.
Davis, J. B	Oshkosh.
Dobson, J	Oshkosh.
Duane, T. J	Oshkosh.
Eaton, Jefferson	Oshkosh.
Eastman, G. F	Oshkosh.
Ellsworth, W. T	Oshkosh.
Eaton, S	Winnebago.
Eaton, W. H	Oshkosh.
Ely, Cook	Oshkosh.
Foster, Carleton	Oshkosh.
Freeborn, John	Oshkosh.
Floyd, H	Berlin.
Finch, E. P	Oshkosh.
Forbes, D. H	Oshkosh.
Felker, C. W	Oshkosh.
Fraker, J. S	Oshkosh.
Ford, Milan	Nekimi.
Fisk, J. L	Omro.
Freeman, D. G	Oshkosh.
Fitzgerald, M	Oshkosh.
Felker, W. B	Oshkosh.
Goe, T. R	Oshkosh.
Green, M. B	Oshkosh.
Gove, John M	Winneconne.
Gordinier, John	Little Wolf.
Gillingham, Frank	Vinland.
Gustavus, H. C	Oshkosh.
Gould, Jas. P	Oshkosh.
Glass, J. H	Oshkosh.
Grimmer, T. D.	Oshkosh.
Goodfellow, T. M	Oshkosh.
Gillingham, F. J	Neenah.

Names.	*Residence.*
Hicks, J. H.....	Oshkosh.
Hawley, A. W.....	Waukan.
Heath, Irwin.....	Oshkosh.
Hubbard, Asher.....	Oshkosh.
Harding, George ...	Waukesha.
Hazen, C.....	Ladoga.
Huntley, D	Appleton.
Hoernig, John	Oshkosh.
Hart, A. H.....	Appleton.
Hall, Wm. M	Medina.
Hoaglin, J. H.....	Oshkosh.
Ham, J. D	Clemansville.
Hutchinson, K. M...	Oshkosh.
Hughes, Hugh F....	Oshkosh.
Hall, Elihu.....	Algoma.
Houghton, C. P	Algoma.
Huxley, H. E	Neenah.
Harmon, L. D.....	Oshkosh.
Heath, Charles D....	Oshkosh.
Holister, S. W.....	Oshkosh.
Harshaw, H. B.....	Oshkosh.
Hay, S. M.....	Oshkosh.
Hall, W. S.....	Neenah.
Hollister, Asa.....	Oshkosh.
Hale, A. M	Oshkosh.
Hume, J. W..... ...	Oshkosh.
Johnson, C. A	Oshkosh.
Jennings, W. J.. ...	Rosendale.
Jackson, F. J	Oshkosh.
Jackson, H. B.....	Oshkosh.
Jewell, H. A	Oshkosh.
Jones, J. V.....	Oshkosh.
Johnston, N	Oshkosh.
Keys, George	Empire.
Kezertee, Ira.....	Oshkosh.
Kenedy, J. E.....	Oshkosh.
Kenedy, J. B.....	Oshkosh.
Knapp, L. E	Oshkosh.
Loper, A. A	Ripon.
Lampard, G. R.....	Oshkosh.
Lewis, James	Winnebago.
Lane, Gib.....	Oshkosh.
Libby, D. L.....	Oshkosh.
Loper, J. R	Oshkosh.
Lawrence, Thad.....	Oshkosh.
Lane, Wm	Oshkosh.
Lawrence, S. B.....	Oshkosh.
Laabs, John	Oshkosh.
Laflin, J. W.....	Oshkosh.
Loademan, R.....	Oshkosh.
Mears, I. W	Vinland.
Mayhew, Leander ...	Greenbush.
Martin, E. R	Omro.
Musser, B. J	Oshkosh.

Names.	*Residence.*
McConnell, J. C ...	Dartford.
Meyer, Cornelius...	Appleton.
Miles, I	Oshkosh.
Moore, J. J.....	Oshkosh.
Miller, L. M	Oshkosh.
McConnell, Wm. N.	Bluffton.
McDougal, G. W...	Madison.
Morgan, F. B.....	Oshkosh.
Miracle, Joseph....	Oshkosh.
Merrill, S. R.....	Neenah.
McMillen, Robert..	Oshkosh.
Minckler, G. W....	Oshkosh.
Monahan, John....	New London.
McConnell, C. D...	Ripon.
Morrison, James...	Oshkosh.
McWilliams, J.....	Oshkosh.
Mettam, Edward...	Omro.
Nelson, J.....	Oshkosh.
Osborn, A. K.....	Oshkosh.
Olcott, J. B.....	Oshkosh.
O'Brien, J.....	Nekimi.
Paine, E. L..... .	Oshkosh.
Padelford, J. R	Omro
Padelford, S. D	Omro.
Pinning, B	Oshkosh.
Parish, B. T.....	Appleton.
Pilgrim, D. T.....	West Granville.
Paige, J. A	Oshkosh.
Pratt, G. W.....	Oshkosh.
Paine, G. M	Oshkosh.
Phillips, B. T.....	Marinette.
Peffer, Kate	Pewaukee.
Peck, O. D	Oshkosh.
Paige, S. B	Oshkosh.
Powers, F. M.....	Oshkosh.
Paige, C. C	Oshkosh.
Parkinson, M. B...	Oshkosh.
Porter, A. K.....	Shawano.
Parsons, J. G	Oshkosh.
Quinlan, C.....	Oshkosh.
Quick, H.....	Elo.
Rogers, A	Berlin.
Rollins, J. M	Oshkosh.
Rogers, George	Oshkosh.
Robinson, C. D	Green Bay.
Roblee, J. S	Clayton.
Roe, J. P.....	Oshkosh.
Russell, R C	Oshkosh.
Rockwell. A. G	Oshkosh.
Roby, A. F.....	Neenah.
Roberts, R. N	Waupaca.
Reed, J. S.....	Vinland.
Rich, Walter.....	Oshkosh.
Robbins, A. J.....	Oshkosh.

Names.	*Residence.*
Russell, T. P.....	Oshkosh.
Rumery, L. O	Oshkosh.
Rice, H. M.....	Oshkosh.
Robie, Rufus.....	Neenah.
Ransom, E. B.....	Fisks.
Stilson, Eli.....	Oshkosh.
Sherwood, J. C.....	Dartford.
Suydam, Fred.....	Oshkosh.
Sanders, E. W.....	Oshkosh.
Stoddard, Jonathan.	Greenbush.
Smith, J. M	Green Bay.
Stevenson, Isaac....	Marinette.
Sturtevant, N. G....	Oshkosh.
Stilson, Edgar.....	Oshkosh.
Sawyer, E. P	Oshkosh.
Servis, Wm	Sheboygan F'ls
Stroud, Geo. F	Oshkosh.
Sawyer, P.....	Oshkosh.
Scribner, Joseph....	Rosendale.
Sarau, C	Oshkosh.
Sanford, A	Oshkosh.
Scott, Geo. E.....	Neenah.
Simmons, Wm	Oshkosh.
Seely, Eli	Oshkosh.
Smith, C. R.....	Oshkosh.
Schomar, Frank....	Oshkosh.
Sherman, H. B.....	Burnett Junc.
Stevens, W. O.....	Oshkosh.
Streeter, G. B	Oshkosh.
Soper, B. H.... ...	Oshkosh.
Sheldon, Wm.....	Oshkosh.
Scovill, Geo	Oshkosh.
Torrey, R. D.....	Oshkosh.
Terrell, J. K.....	Omro.
Thompson, L. F ...	Oshkosh.
Thompson, J. R....	Fond du Lac.
Thomas, H. B	Oshkosh.
Thayer, P. S.....	Oshkosh.
Thurston, C. W....	Stockbridge.
Thompson, J	Neenah.
Viall, E. W.....	Oshkosh.
Vosburg, C. C	Clemanville.
Vosburg, G. H.....	Clemanville.
Vosburg, J	Oshkosh.
Wilson, M. C.....	Oshkosh.
Weyerhorst, Frank.	Black Wolf.
Woodward, W. W..	Port Hope.
Wade, A. B.... ...	Algoma.
Wakefield, G. M...	Oshkosh.
Weston, C. S.....	Oshkosh.
Weed, J. H.....	Oshkosh.
Whitney, S. L	Ripon.
Woolcott, H. W....	Ripon.
Washburn, G. W ..	Oshkosh.
Washburn, J. R ...	Oshkosh.
Wright, W. W.....	Oshkosh.
Weatherby, D . ..	Oshkosh.
Wood, S. E.....	Oshkosh.

CONSTITUTION OF THE SOCIETY.

ART. 1. The name of this society shall be the Northern Wisconsin Agricultural and Mechanical Association. Its object shall be the promotion of agricultural, mechanical and household arts.

ART. 2. *Membership.*— This association shall consist of the life members of the same, and the presidents of all agricultural, horticultural and stock growers' associations within its jurisdiction.

ART. 3. *Life Membership.*— Any person may become a life member by the payment to the secretary of the sum of $25, receiving from him a certificate of such membership, which shall not be transferable, but which shall entitle the person to whom issued, his wife and minor children, to free admission to all the fairs and exhibitions of the society.

ART. 4. *Officers.*— The officers of the association shall be a president, eight vice-presidents, a secretary and treasurer, who shall be elected by ballot at the annual election, and who must be life members of the association, and all of whom shall constitute and be designated the Executive Board, a majority of which shall constitute a quorum, and the officers named in this article shall hold their offices for one year from and after January first next succeeding their election, and until their successors are elected and qualified.

ART. 5. *President.*— The president shall be *ex officio* a member of the executive board; shall preside at all meetings of the association and of the executive board (but in case of absence or inability, one of the vice presidents shall act as president and discharge all the duties of that office). He shall sign all contracts or other instruments of writing which have first been approved by the executive board. He shall sign all warrants drawn on the treasurer (the account for which the same is drawn having been first approved by the board); he shall have the casting vote in all cases of a tie, and may call a special meeting whenever he may deem it necessary.

ART. 6. *Treasurer.*— The treasurer shall have charge of the funds of the association, and pay the same out only on the order of the president, countersigned by the secretary. He shall attend all fairs of the association, receive the entrance or admission fee, keep a correct account of all receipts and disbursements, and perform such duties as a majority of the executive board may direct, and give bonds for the faithful performance of his duties.

ART. 7. *Secretary.*— The secretary shall do all the correspondence of the society, keep a record of its proceedings and of the executive board, and prepare the same for publication. He shall collect all moneys due the society from any source, including receipts from grand stand (except fees for admission to fairs), and pay the same over to the treasurer, taking his receipt therefor; keep proper account books, and discharge such other duties as pertain

to his office, or as a majority of the executive board may direct. He shall also give bonds for the faithful accounting of all moneys that may come into his hands belonging to the association.

ART. 8. *Executive Board.*— The executive board shall have full power to manage the affairs of the association. They shall fill all vacancies, except that superintendents of departments may appoint judges by and with their consent, arising from absence or inability to serve; fix compensation of all officers of the association, appoint and remove at pleasure all appointed officers, agents and employes, prescribe their duties and fix their compensation; also to make rules and regulations for the guidance of the officers in the discharge of their duties; they shall classify by department, group and class, all articles likely to be entered for exhibition; appoint the time for opening and closing the annual fair; to prescribe and publish at least by the 15th of June of each year a schedule of premiums to be awarded; to fix the price of entries and admission; to appoint appropriate committees to superintend and to make awards in the several departments; to determine upon and fix up proper ground and place of meeting or exhibition, and to provide rules and regulations governing the same. They shall audit all bills and accounts, and cause to be kept a complete and correct record of all their proceedings, and to allow no moneys or disbursements of funds of the society, or any improvement of the property of the same, to be made without the recorded approval of a majority of the board. They shall as soon after the annual fair as practicable, pay to the exhibitors premiums which have been awarded from surplus funds of the association over actual expenses pro rated, and shall, within sixty days after the close of the annual fair, publish a full report of their proceedings and a complete detailed statement of the condition of the affairs of the association.

ART. 9. *Annual Meeting.*— The annual meeting of the association shall be held on Thursday of fair week at 7:30 o'clock P. M., at such a place as a quorum of the executive board may direct. At such annual meeting each life member present shall be entitled to one vote, and each agricultural, mechanical, horticultural and stock growers' association within the jurisdiction of the association, shall be entitled to three delegates, who shall be entitled to one vote each, when present, in the election of officers and the transaction of any other business proper to be done at such a meeting.

ART. 10. This constitution may be altered or amended at any annual meeting of the association by a majority vote.

THE NORTHERN FAIR.

BOARD MEETINGS.

The board of control of 1880 met as provided by the constitution, Monday, January 3, at 2 P. M.

There were present President Hazen, Vice Presidents Jewell, Loper, Huntley. Absent, Beckwith and Roberts. The treasurer made his report, which was carefully examined and found correct, and is as follows:

Northern Wisconsin Agricultural and Mechanical Association in account with E. W. Viall, treasurer:

Cr.

Paid directors' note and interest	$624 40
Paid defendant Chicago *Journal*	100 00
Paid 101 dinner tickets	30 39
Paid rent, Stilson	375 05
Paid warrants	10,679 35
	$11,809 10

Dr.

Balance as per settlement 1880	$274 13	
Received from state	1,200 00	
Received advertising	97 50	
Received annual ball	118 14	
Received ground rent	721 00	
From Secretary Torrey, from entries, etc	2,119 81	
Gate receipts	5,046 45	
Life member	10 00	
Received for plow and mill	36 00	
		$9,623 03
Overdraft		$2,186 07

Of the amount of overdraft, between $1,500 and $1,600 was from the indebtedness of the previous year and for expenses of new sheds, which were burned on October 5.

There being no further business the old board adjourned.

Immediately on the adjournment of the old board the executive board of 1881 met. Present, President Hazen, Vice Presidents Huntley, Jewell, Loper, Parsons, Keys, O'Brien, Daubner, Secretary Torrey and Treasurer Viall.

A motion prevailed to postpone the revision of the premium list to the next meeting.

A motion prevailed fixing the time for holding the fair of 1881 for September 12, 13, 14, 15 and 16.

An invitation of the Brown County Agricultural Society for holding the convention in that city was accepted, and the time fixed for January 18 and 19.

A resolution was adopted appropriating $5,000 for a new exposition building.

Adjourned to 9 A. M. Tuesday.

The board reconvened Tuesday morning with full attendance except Vice Presidents Roberts and Parsons.

The following building committee was elected: H. A. Jewell, chairman, S. M. Hay, E. W. Viall, Geo. F. Stroud and R. D. Torrey.

This committee was instructed to procure plans and specifications at as early a day as practicable for the new building and report to a subsequent meeting of the board.

The board then proceeded to the election of superintendents for the fair of 1881, as follows:

Stock Horses — A. A. Loper, Ripon.

Speed Horses — H. A. Jewell, Oshkosh.

Cattle — G. H. Daubner, Brookfield.

Sheep — C. P. Houghton, Algoma.

Swine — E. R. Martin, Omro.

Poultry — J. O'Brien, Nekimi.

Agriculture — D. Huntley, Appleton.

Fruit and Flowers — J. M. Smith, Green Bay.

Domestic Manufactures and Fine Arts — K. M. Hutchinson, Oshkosh.

Manufactures — Geo. Keys, Empire.

Machinery — J. G. Parsons, Oshkosh.

Gates — E. M. Brainerd, Oshkosh.

Grounds — J. J. Moore, Oshkosh.

Marshal — F. M. Powers, Oshkosh.

There being no further business the board adjourned subject to call of the secretary.

A BUILDING MEETING.

A mass meeting of life members of the Northern Fair Society, and others interested, was held Monday, at the council room. There was a large turn out and much enthusiasm awakened over the project of rebuilding the exposition building. Quite a number were present from out of town. Among those from abroad were George H. Daubner, of Brookfield, George Keyes, of Fond du Lac, Mr. McConnell, of Green Lake, Babcock, of Clayton, Chester Hazen, of Ladoga, A. A. Loper, of Ripon, D. Huntley, of Appleton, R. N. Roberts, of Waupaca, and a number of the immediate vicinity of Oshkosh. Chester Hazen, president of the association, took the chair and called the meeting to order, and stated the object of the meeting, which was to consider the project of rebuilding the exposition building.

L. M. Miller asked to know the number of life members of the association. Secretary Torrey replied that the enumeration ran up to 264, but three of this number were dead and a few moved away. Mr. Miller said he had been thinking that inasmuch as the Stock Growers' Association owned the fair grounds, its members might increase the amount of their stock sufficiently to rebuild the building, with the aid of the $5,000 insurance money now on hand.

Mr. Torrey said that the members of the Stock Growers' Association were the largest subscribers to the building fund, and that the impression that had gone abroad that the fair society was erecting a valuable building, and turning it over to the stock growers as a gift, was a false and unjust one.

In answer to a question, Mr. Torrey stated that competent builders had estimated that it would cost $7,800 to replace the old building. Mr. Torrey also read the resolution passed by the executive board in the afternoon, appropriating the $5,000 insurance money toward the erection of a building, and recommending that life members subscribe $15 each to supply the balance necessary to erect a new building.

K. M. Hutchinson said the merchants and business men here who held stock in the building were as much interested as anybody, for that stock was valueless unless the building was rebuilt, and that to make it valuable they could afford to increase their stock from 25 to 50 per cent. He thought little could be accomplished at a

public meeting, but that a committee could work the thing better, as much depended on personal solicitation.

E. P. Finch moved that the secretary draw up a subscription paper for free contributions and pass among life members and others present for subscriptions. He himself would head it with $25. This resolution passed. Mr. Keyes, of Fond du Lac, suggested an assessment of $10 on all life members.

Mr. Finch said that would be a good thing if it could be made binding, but the constitution gave no authority for an assessment upon members. Mr. Hazen thought that life members ought to be willing to subscribe $10 each; for they only paid $10 for membership, whereas the fee now was $25, and even then this would make their fee less than that of new members. The building destroyed was the finest of the kind in the northwest and gave this society advantages over the state fair which its members should appreciate.

A question was asked as to the amount of stock certificates on the building now out.

Mr. Torrey replied that the amount was $4,300, on which an interest of seven per cent. was guaranteed to be paid out of the receipts, the same as other expenses. Finch said these certificates of stock were no lien whatever on the building; they were only an agreement by the society to pay interest annually and pay the principal upon certain conditions. Neither were they a lien on a new building.

By this time the secretary had finished drawing up the subscription paper, making the amounts payable on May 1. While it was being circulated the discussion and suggestion went on.

W. B. Felker advocated the enlargement of the new building. It was to be built, not for the next year or two, but for years to come, and it would be economy to erect it plenty large enough on the start.

Hazen said the board would have to be controlled by the amount raised.

Torrey said many opinions were prevalent regarding the size of the new building. Almost everybody thought it should be at least fifteen feet wider and the machinery department taken out of it, either into an open shed, if one could be built next the building, or else placed in the open field. Some suggested a veranda along the entire west side of the tract to accommodate ladies and children, and others who wanted to view the sights of the track.

J. V. Jones offered a suggestion to the effect that if a contract was let immediately for the new building it would save $500, as it would give the contractor a long time to complete it in, and they could work on it fair days this winter and spring before the summer rush of work came on. Besides the assortment of lumber on hand now was greater than it would be by April next, after which certain kinds of timber would be scarce, and it would cost more to get it.

Messrs. Finch, Robert Campbell and others heartily indorsed the suggestion of Mr. Jones, and hoped the executive board would profit by the suggestion.

Finch moved to make subscriptions payable April 1, instead of May 1, in pursuance to this suggestion of Mr. Jones. The motion was carried.

Felker thought that if the building was made twenty feet wider than the old one it would make the second story available, whereas before it was virtually useless. This suggestion also received favor.

By this time the subscription paper had been around the room and the secretary announced that the amount subscribed was $590.

Finch moved that the secretary be instructed to present this subscription paper not only to life members but also to everybody else, not only in Oshkosh but in other places, where an interest was taken in the fair. Oshkosh had two congressmen and one expectant United States senator, all of whom would be anxious to subscribe liberally. The motion prevailed. Mr. Torrey stated that he would make it his business during January to make a thorough canvass for subscriptions.

Some discussion took place on the amount which ought to be expended in a new building, and considering the enlargement and improvements suggested, it was the general opinion that at least $5,000 ought to be raised in addition to the insurance money, putting it all (about $10,000) into the building, and as much more as could be raised.

J. V. Jones offered a resolution that this winter an appropriation to this fair be asked for from the legislature equal to that asked for by the State Fair, whatever that might be. The resolution prevailed.

ANNOUNCEMENTS.

The secretary announced that the annual agricultural and industrial convention of the society had been located this year at Green Bay, to be held on the 18th and 19th of the present month. One of the interesting papers to be read on that occasion was one on the horse by Rev. H. Stone Richardson. He explained that Mr. Richardson was an able writer on the horse; he once wrote a prize article for a sporting paper, in which the price of a horse was to be given to the writer of the best paper on that subject, and Mr. Richardson got the horse.

Mr. Huntley said Mr. Richardson was not only an eloquent man in the pulpit, but he was the best writer on the horse that he had ever listened to. Mr. Huntley further announced that another of the papers to be read at that convention was one by our worthy secretary, Mr. Torrey, on "What I know about Fairs," which would pay any one to go to Green Bay to hear.

The meeting here adjourned.

ANNUAL MEETING OF THE NORTHERN STATE AGRICULTURAL SOCIETY.

The society met, pursuant to the constitution, with a good attendance.

The meeting was called to order by President Hazen. The object of the meeting being stated, its pleasure was awaited.

Mr. Jones moved to elect a president; seconded by Mr. Felker.

Mr. Finch asked how it was proposed to elect.

Mr. Jones — "In the manner directed by the constitution."

Constitutions were immediately distributed.

It was moved and seconded to appoint a committee on credentials. Carried.

Considerable discussion was occasioned on the order of previous motions, the result of which was a motion to reconsider. Carried.

A motion then prevailed that the chair appoint a committee of three on credentials. Carried.

The chair appointed Messrs. Osborn, Hay and Finch.

The chair stated that each agricultural and horticultural society was entitled to three delegates, having one vote each.

Committee reported as delegates:

Calumet: C. G. Cone, W. H. Cook, C. W. Thurston.

Winnebago: Edgar Stilson, John O'Brien, James Brainerd.

Grand Chute: A. Stone, D. Huntley, H. M. Jones.

Oshkosh Stock Growers appointed Mr. S. M. Hay with three votes.

It was moved to adopt the report.

Mr. Felker asked who were to be regarded as agricultural societies. He objected to what he termed defunct organizations, and quoted the Winnebago County Society. This remark caused some denying of the soft impeachment.

The report was adopted.

It was then moved to elect a president. Carried.

It was moved that the chair have the roll of members called and tellers appointed. Carried.

Messrs. Brainerd and Huntley were appointed tellers.

Mr. Felker moved that the secretary be instructed by the members of the society to cast the vote of the society for President Hazen.

Mr. Finch objected. Motion was withdrawn.

Roll called. Result of vote was as follows:

Whole number of votes cast, 82, out of which Mr. Hazen received 81; A. A. Loper 1.

Mr. Hazen was declared elected. With a few remarks Mr. Hazen accepted.

It was moved to accept eight vice presidents. Motion withdrawn.

Mr. Finch asked to submit a resolution to amend the constitution.

The secretary then read the resolution, which favored the amendment of article 4 of the constitution so that it should read as follows:

"The officers of the association shall consist of a president, secretary and treasurer, and eight vice presidents, who shall hold their respective offices for one year from the first day of the date of January next succeeding their election, and until their successors shall have been elected, and all of whom shall constitute an executive board."

Minor changes were made to agree with the amendment.

Mr. Felker moved to amend the constitution as directed by the resolution. Carried.

It was moved to elect a secretary and to dispense with the roll call. Carried.

Votes cast, 76; Torrey, 72; scattering, 4.

Moved to elect a treasurer. Votes cast, 79; Viall, 63; scattering 16; made unanimous.

C. G. Cone moved that the chair appoint a committee of five to submit, for vice-president, eight names to the association for their consideration. Carried.

Chair appointed C. G. Cone, A. C. Austin, Earl Finch, D. Huntley and F. Gillingham.

The committee retired to agree upon the names.

A speech was then called for from Secretary Torrey, who responded substantially as follows:

MR. PRESIDENT AND GENTLEMEN — I am proud to be able to state that the Northern Fair can hold up its head as the peer of any fair in the northwest. It has the only exposition building in the entire west worthy of the name, outside the city of St. Louis. We have some of the men and best fair managers in the United States, and men that represent millions of capital. And, Mr. Chairman, I think that with the capital which we have that the time ought soon to come when the society shall strike from its constitution the words, pro rata; and pay, without fail, one hundred cents on the dollar. [Applause.] The time shall come when the obligations of the society will be as good as a certificate of deposit in S. M. Hay's bank. [Applause.] The St. Louis fair is a success, because it never fails to pay dollar for dollar, and the words pro rata do not appear in its laws. For a number of years it lost money, but it was promptly made up by the private funds of the members. And to-day it is unexcelled. It is the same way with the Minnesota fair. Col. King has made it a success, and farmers come from Iowa, Wisconsin and other states, because they know they will get every dollar of premium money, and because he has a good show also.

Committee submitted the following names as vice-presidents:

J. G. Parson, Oshkosh.

R. N. Roberts, Waupaca.

D. Huntley, Appleton.

A. A. Loper, Ripon.

John O'Brien, Nekimi.

George H. Daubner, Brookfield.

Geo. Keys, Fond du Lac.

H. A. Jewell, Oshkosh.

Secretary instructed to cast vote for same.

Moved by Mr. Viall to amend constitution as to read $25 instead to $10 for life members.

Motion to amend the amendment to $20.

Remarks by Mr. Torrey in favor of $25. Motion carried.

It was moved by Mr. Chas. Felker the society tender Mr. Torrey a rising vote of thanks for the interest he has taken in making the exposition a success. Carried.

Mr. Torrey acknowledged the compliment.

A motion to adjourn then prevailed.

SECRETARY'S WARRANT ACCOUNT.

For the year 1880.

No.	To whom and for what.	Amount.
1	G. H. Daubner, expense account	$15 20
2	A. A. Loper, expense account	11 20
3	J. K. Terrill, premium	2 00
4	Mrs. G. W. Pratt, premium	1 50
5	Mrs. E. A. Young, premium	50
6	E. B. Wood, premium	2 00
7	R. D. Torrey, expense account	25 00
8	R. D. Torrey, one quarter salary	250 00
9	Mrs. Burtis, loss of cloak	5 00
10	C. C. Paige, account for shafting	152 00
11	A. P. Dickey, balance on mill	10 00
12	Freight and drayage	8 37
13	D. Huntley, paid expense, Appleton convention	10 50
14	Postage	24 39
15	W. Colvin, expense account	3 50
16	Wm. H. McConnell, premiums, 1879	93 00
17	W. W. Daggett, premium writing	1 00
18	J. B. Davis, balance due on gas	19 40
19	H. B. Harshaw, postage	43 24
20	F. B. Ward, bill postage	1 50
21	American Express Company, expense account	6 65
22	Foster & Jones, lumber, 1879	8 18
23	R. D. Torrey, salary for quarter	250 00
24	G. H. Prine, work repairing	9 38
25	H. B. Sherman, premiums in part, 1879	4 00
26	W. Colvin, expense account	6 50
27	E. W. Viall, paid labor for repairing grounds	113 07
28	J. R. Thompson, premium of 1879	10 00
29	J. A. Cole, premiums	19 00
30	S. H. & A. E. Joiner, premiums	96 00
31	J. C. Kiser, premiums	175 00
31½	Geo. E. Bryant, premiums	80 00
32	T. W. Laramy, premiums	285 00
33	A. O. Fox, premiums	26 00
34	E. J. Austin, premiums	51 00
35	A. Malone, premiums	8 00
36	Geo. Baker, premiums	40 00
37	E. Houiston, premiums	20 00
38	E. Houiston, premiums	10 00
39	H. R. Clark, superintendent of grand stand	19 00
40	Geo. H. Daubner, services and expenses	40 00
41	A. A. Loper, services	.....
42	A. J. Pierce, services	25 00
43	Peter Reese, money refunded	25 00
44	A. Custard, premiums	15 00
45	W. L. Wells, premiums on running races, No. 2, No. 5	150 00
46	W. L. Wells, entry money on Nos. 2 and 3 races	30 00
47	Dexter Curtis, premium on races and money refunded	90 00
48	L. E. Whiteman, premium	50 00
49	W. L. Wells, premium	10 00
50	Joseph O'Brien, assistant superintendent	14 00
51	A. H. McDonald, chariot	500 00
52	C. M. Culbertson, chariot	250 00

No.	To whom and for what.	Amount.
53	Morgan & Cotton, premiums	$64 00
54	A. Z. Blodgett, premiums	74 00
55	A. Rickey, assistant superintendent	18 00
56	A. Rickey, labor	3 50
57	Lucy Andrews, premiums	11 00
58	P. Baker, watch services	9 00
59	Geo. Allen, premiums	6 00
60	J. O'Rourk, watch services	9 00
61	S. B. Paige, premiums on extra race	75 00
62	Ernst Yeger, premiums	2 00
63	C. Bunker, premium	8 00
64	Joel Johnston, premium	8 00
65	H. Janicke, premium	1 00
66	A. E. Bates, premium	12 00
67	J. & G. Morris, premium	50 00
68	J. R. Padelford, premium	39 00
69	C. Beglinger, premium	12 00
70	C. Scott, premium	4 00
71	C. L. Bartlett, premium of B'l Frank Forager	30 00
72	T. R. Goe, premiums	13 00
73	Sallie Hatch, premiums	2 00
74	E. R. Martin, premiums	21 00
75	J. M. Rollins, premiums	4 00
76	E. H. Neigenfind, premiums	3 00
77	Wm. Ogilvie, premiums	30 00
78	H. A. Jewell, premiums	20 00
79	Henry Abrams, premiums	1 00
80	W. A. Giddings, premiums	15 00
81	J. S. Holmes, premiums	139 00
82	Wm. Sheldon, premiums	11 00
83	Mrs. Juno, premiums	1 50
84	M. B. Green, premiums	16 00
85	F. E. Morehouse, premiums	4 00
86	Parsons & Goodfellow, premiums	19 00
87	Allen & Hicks, premiums	11 00
88	Mrs. F. A. Jones, premiums	2 50
89	W. W. Daggett, premiums	4 00
90	F. N. Benedict, premiums	2 00
91	H. B. Harshaw, postage	112 28
92	H. C. Gustavus, premiums	7 00
93	Thomas Davis, premiums	91 00
94	Chas. McCulloch, premiums	6 00
95	H. A. Clum, premiums	1 00
96	Mrs. H. J. Clum, premiums	2 50
97	Willie Bell, premiums	1 50
98	Rus Hopson, premiums	150 00
99	Eli Seely, work	55 86
100	Jas., Clara and Lillie Brainerd, premiums	25 00
101	Maggie McCourt, premiums	3 00
102	Jas. Dougherty, premiums	5 00
103	S. B. Paige, premiums	8 00
104	Mrs. M. J. Smith, premiums	6 00
105	J. P. Roe, premiums	34 50
106	C. Morgan, premiums	50
107	Julia Morgan, premiums	5 50
108	Edith Randall, premiums	7 00
109	E. Seely, labor	6 75
110	E. McDonald, premiums	20 00
111	Mrs. M. B. Parkinson, premiums	3 50

No.	To whom and for what.	Amount.
112	J. A. McCourt, premiums	$5 00
113	Mrs. Russell, premiums	2 50
114	Minnie Arnold, premiums	4 00
115	Mrs. L. M. Taylor, premiums	4 50
116	E. Hall, premiums	5 00
117	L. F. Thompson, premiums	5 00
118	F. Weyerhorst, premiums	25 50
119	C. A. Johnson, premiums	5 00
120	C. E. McDonald, premiums	30 00
121	James Ryan, printing	18 00
122	Mary Washburn, premiums	4 00
123	Nettie and Minnie Ray, Mrs. Capron, premiums	4 50
124	C. Derber, premiums	2 00
125	Flora Houghton, premiums	13 00
126	Mrs. C. P. Houghton, premiums	7 00
127	Wm. White, premiums	1 00
128	Millie Rich, premiums	1 00
129	Mary Parsons, premiums	1 50
130	Emma McIntyre, premiums	1 00
131	John Nelson, premiums	44 50
132	Mrs. Ammond Brown premiums	5 00
133	John Buskirk, premiums	4 00
134	Louisa Mears, premiums	2 00
135	Mrs. H. Moreley, premiums	2 00
136	Mrs. F. Burgess, premiums	1 00
137	Mrs. I. W. Spencer, premiums	2 00
138	Wm. Spikes, premiums	8 00
139	W. G. Calkins, premiums	10 00
140	John Edwards, premiums	9 00
141	A. H. Bartlett, premiums	7 00
142	W. F. Pierce, premiums	25 00
143	F. J. Jackson, premiums	10 00
144	C. E. Angell, premiums	12 00
145	Streich Bros., premiums	8 00
146	J. O. Brien, premiums	42 00
147	Mrs. C. B. Crehare, also Mrs. Jas. Gould, premiums	3 00
148	M. V. Spebeck, premiums	4 00
149	James Morrison, premiums	5 00
150	Mrs. H. W. McKoy, premiums	2 50
151	Jessie Goe, premiums	50
152	Sadie C. Goe, premiums	2 00
153	Stella Morrison, premiums	1 00
154	Mrs. J. B. Devault, premiums	6 50
155	Cook Ely, premiums	16 00
156	H. L. Peck, premiums	7 00
157	B. H Loper, premiums	11 00
158	Bertha Scram, premiums	2 00
159	F. W. Appleyard, premiums	25 00
160	Bertha Kaehler, premiums	7 50
161	W. F. Stroud, premiums	12 00
162	Katie Glynn, premiums	2 00
163	E. W. Sanders, premiums	29 50
164	J. P. Roe, premiums	1 00
165	J. N. Hoaglin, premiums	102 50
166	W. R. Pryne, premiums	2 00
167	E. M. Goff, premiums	4 00
168	H. B. Harshaw, postage	3 00
169	E. W. Vial, dinner tickets	152 80
170	George Rogers, premiums	15 30

No.	To whom and for what.	Amount.
171	Wm. N. McConnell, premiums	$135 00
172	D. Huntley, premiums	117 50
173	D. Huntley, superintendents' services and expenses	53 50
174	Arion Band, music	150 00
175	D. Huntley, premiums	10 00
176	S. Beckwith, premiums	15 00
177	E. Nye, premiums	6 00
178	C. Hazen, premiums	186 00
179	C. Hazen, services	23 50
180	S. Beckwith, services	5 00
181	John Meyer, premiums	9 00
182	J. M. Smith premiums	6 00
183	C. Hazen, services	29 00
184	J. H. Hicks, services as superintendent	3 70
185	C. P. Houghton, superintendent services	24 50
186	G. P. Houghton, services, assistant superintendent	12 00
187	Willard Wright, police services	9 00
188	R. Hudson, police services	14 50
189	Asa Worden, police services	4 50
190	John Williams, police services	19 50
191	A. Northrop, police services	19 00
192	Allen & Hicks, printing	346 90
193	A. J. Bryant, police	13 00
194	K. M. Hutchinson, merchandise, supt. and assistant	121 94
195	P. T. Parish, premiums	22 00
196	Theo. Grube, hay	489 15
197	J. O'Brien, superintendent's services	24 00
198	W. O. Stevens, superintendent's services	12 00
199	E. M. Brainerd, superintendent's services	23 50
200	Fernandez & Bright, printing	566 00
201	Fernandez & Bright, printing	20 00
202	Y. R. Goe, marshall	24 00
203	J. Freeborn, premiums	6 00
204	Bert Osborn, police	6 00
205	Mabel Harney, premiums	50
206	J. Riordan, drayage	4 00
207	C., M. & St. Paul Railway, freight on McDonald's chariot	21 50
208	Gary & Harmon, insurance on exposition building	20 00
209	M. McCarthy, police	9 00
210	J. Dobson, ice	1 94
211	Oshkosh Telephone Co., use of telephone	10 00
212	R. D. Torrey, disbursements	80 44
213	E. J. Kempf, posting bills	1 28
214	N. H. Biddlecorn, premiums	35 00
215	O. W. Clark, premium, exhibition race	50 00
216	Frank Bieber, bill posting	3 93
217	F. B. Ward, bill posting	75
218	Swift & Co., bill posting	5 59
220	Clerk service	110 00
221	Fred Jones, assistant superintendent, horses	14 00
222	F. M. Powers, superintendent of gates	18 00
223	G. F. Stroud, merchandise	5 91
224	Wm. Sheldon, assistant superintendent	21 00
225	K. Kimball, police service	11 19
226	J. L. Fisk, assistant superintendent	13 00
227	Frank Schomer, water	22 50
228	Kohlman Brothers, printing	27 00
229	E. R. Dalton, superintendent's service	24 00
230	Albert Martin, drayage	1 25

No.	To whom and for what.	Amount.
231	E. W. Viall, merchandise	$5 70
232	E. W. Viall, treasurer's help	66 00
233	N. Potter, labor	35 25
234	H. C. Adams, police	1 50
235	David Chapman, police	4 50
236	Thos. McIntosh, police service	1 75
237	Mrs. Rollins, labor	9 00
238	John Lucy, gate service	15 00
239	Peter Hoefler, police service	12 75
240	John Westfall, police and labor	25 00
241	F. Pierson, police	10 75
242	C. A. Vanvalkenburg, premiums	1 00
243	H. A. Jewell, superintendent services	21 75
244	J. J. Moore, premiums	12 00
245	J. J. Moore, superintendent grounds	44 78
246	C. Barnes, water	6 50
247	Hattie Ashley, premiums	2 50
248	Mrs. Bloss, premiums	2 00
249	M. Quackenbush, premiums	1 00
250	Mrs. Williams, premiums	4 00
251	A. Ward, gate service	15 00
252	Irene Kezertee, premiums	4 00
253	Esther Ward, premiums	1 00
254	C. M. Coulee, premiums	7 00
255	T. W. Rhodes, premiums	9 75
256	Belle Baker, premiums	1 00
257	Mrs. Sarah Bennett, premiums	3 00
258	C. Lucas, premiums	7 00
259	Hulda Linde, premiums	1 00
260	H. B. Sherman, premiums	139 00
261	Christina Thompson, premiums	1 00
262	W. S. White, premiums	190 00
263	W. N. Webster, police	8 75
264	Isaac Miles, premiums	39 00
265	W. W. Wright, premiums	6 50
266	Jennie Wright, premiums	6 50
267	A. B. Hooper, premiums	2 00
268	A. M. Brainerd, gate service	12 00
269	R. H. Sawyer, reporting convention	125 00
270	D. D. Sloat, telegraphing	9 97
271	W. Clough, pumps	40 00
272	R. D. Torrey, salary for quarter ending Oct. 1st	250 00
273	Daniels & Luscher, insurance	40 00
274	H. L. Lawson, insurance	40 00
275	Emma Dimpsey, premiums	4 00
276	L. Dimpsey, premiums	2 00
277	Wm. Dimond, premiums	65 00
278	J. Dobson, premiums	12 00
279	H. H. Babcock, premiums	81 00
280	H. M. Quick, premiums	15 00
281	Mary Wanless, premiums	1 00
282	J. F. W. Decker, merchandise	8 70
283	J. F. W. Decker, premiums	3 00
284	J. Sullivan, premiums	10 00
285	E. R. Martin, premiums	8 75
286	H. Lloyd, premiums	45 00
287	J. N. Hoaglin, premiums	12 00
288	E. M. Brainard, interest on certificate	1 75
289	Brainard Bros.	2 00

No.	To whom and for what.	Amount.
290	J. N. Hoaglin, interest	$1 75
291	E. Lyness, premiums	5 00
292	Mrs. Lucy Spore, premiums	2 50
293	Thos. Bowles, premiums	41 00
294	John Meyer, premiums	5 00
295	Calkins & Watrous, printing	25 00
296	Albert Randall, premiums	68 50
297	G. W. Mickler, premiums	7 00
298	Mrs. C. Overton, interest	1 75
299	Kate Peffer, premiums	10 00
300	G. P. Peffer, premiums	12 50
301	D. H. Sheffield, premiums	20 00
302	R. D. Ketchum, premiums	10 00
303	Northern Hospital, premiums	6 00
304	F. D. Cross, premiums	1 00
305	Mattie Campbell, premiums	2 00
306	K. M. Hutchinson, interest	14 00
307	C. W. Mihill, premiums	16 00
308	E. R. Bennet, premiums	41 00
309	Gib Lane, interest	1 75
310	Isaac Cox, premiums	8 00
311	Bassler & Goe, premiums	5 00
312	S. R. Jones, premiums	22 00
313	S. E. Wood, watch	9 00
314	Mrs. C. H. Root, premiums	25 50
315	Georgiana Root, premiums	2 00
316	Wm. Wakeman, premiums	4 50
317	Geo. S. Church, premiums	19 00
318	Collins & Ryan, premiums	2 00
319	E. Doherty, premiums	25 00
320	D. H. Hillman, premiums	49 00
321	G. M. Beardmore, premiums	34 00
322	Jaenike Reuzt, premiums	2 00
323	Mrs. Stringham, premiums	1 50
324	Geo. Harding, premiums	126 00
325	Almon Stone, premiums	36 75
326	Peck's Sun, advertising	39 85
327	John S. Scott, premiums	4 00
328	Chas. Bentley, posting bills	4 00
329	W. T. Baltic, interest	1 75
330	W. R. Thomas, premiums	10 00
331	Pitcher & Sprague, interest	1 75
332	E. W. Viall, interest	3 50
333	Mrs. L. L. Thompson, premiums	2 00
334	Meville & Holden, premiums	15 00
335	J. H. Ruby, marshal	15 00
336	H. Sauran, posting	2 00
337	Chas. B. Ferson, straw	143 00
338	Mrs. W. C. Hubbard, premiums	1 00
339	Gertie Torrey, premiums	50
340	J. Riordan, freight on books	14 42
341	A. Sanford, interest	7 00
342	Mrs Tesch, interest	3 50
343	O. D. Peck, interest on certificate	21 00
344	Foster & Jones, interest	14 00
345	W. Colvin, express	5 45
346	E. B. Rawson, premiums of '79	10 00
347	Johnson & Wright, premiums of '76 and '77	7 00

PREMIUMS AWARDED AT THE FAIR OF 1880.

DEPARTMENT A.—STOCK HORSES.

Class 1.— *Roadsters.*

A. A. LOPER, SUPERINTENDENT.

Best stallion 4 years or over, C. Roys	$20 00
Second best, J. S. Holmes	10 00
Best stallion 3 years and under 4, E. Doherty	15 00
Second best, P. T. Parish	7 00
Best stallion 2 years and under 3, E. Doherty	10 00
Second best, S. B. Paige	5 00
Best stallion 1 year and under 2, C. W. Mihills	8 00
Second best, John Freeborn	4 00
Best stallion foal, J. S. Holmes	4 00
Second best, S. Beckwith	2 00
Best mare 4 years with colt by side, A. E. Bates	12 00
Second best, S. Beckwith	6 00
Best filly 3 years old, C. Bunker	8 00
Second best, C. W. Mihills	4 00
Best filly 2 years and under 3, Geo. Allen	6 00
Best filly 1 year and under 2, Enos & Davis	4 00
Second best, John Freeborn	2 00
Best filly foal, G. W. Winkler	2 00
Second best, E. R. Martin	1 00

Class 2.— *Horses for all Work.*

Best stallion 4 years and over, J. Dobson	$12 00
Second best, Thos. Bowles	6 00
Best stallion 3 years and under 4, Wm. Sheldon	10 00
Second best, Ed. Lyness	5 00
Best stallion 2 years and under 3, T. J. Norris	8 00
Second best, H. A. Babcock	4 00
Best stallion 1 year and under 2, T. J. Norris	6 00
Second best, E. H. Liegenfund	3 00
Second best stallion foal, J. R. Padelford	2 00
Best brood mare and colt, C. Beglinger	10 00
Second best, John Edwards	5 00
Best filly 3 years and under 4, F. N. Appleyard	8 00
Second best, W. G. Calkins	4 00
Best filly 2 years and under 3, W. G. Calkins	6 00
Second best, Thos. Davis	3 00
Best filly 1 year and under 2, C. Scott	4 00
Best filly foal, C. Beglinger	2 00
Second best, M. Campbell	1 00

Class 3.— *Imported Thoroughbred Normans.*

Best stallion 4 years old and over, Thos. Bowles	$20 00
Second best, J. R. Padelford	10 00

Best stallion 3 years old and under 4, H. A. Babcock	10 00
Second best, F. N. Appleyard	7 00
Best stallion 2 years and under 3, J. R. Padelford	10 00
Second best, M. W. Cellier	5 00
Best brood mare and colt, H. A. Babcock	12 00
Second best, H. A. Babcock	6 00
Best filly 3 years and under 4, J. R. Padelford	8 00
Second best, J. R. Padelford	4 00
Best filly 2 years and under 3, F. N. Appleyard	6 00
Best stallion foal, H. A. Babcock	4 00
Best filly foal, H. A. Babcock	2 00

CLASS 4.—*Imported and Native Pure Bred Clydesdale and other English Draft Horses.*

Best stallion 4 years old, A. Z. Blodgett	$20 00
Second best, D. H. Sheffield	10 00
Best stallion 2 years and under 3, C. B. Culbertson	15 00
Second best, A. Z. Blodgett	7 00
Best stallion foal, A. Z. Blodgett	4 00
Best brood mare and colt, A. Z. Blodgett	12 00
Best filly 3 years and under 4, A. Z. Blodgett	8 00
Best filly 2 years and under 3, A. Z. Blodgett	6 00
Best filly 1 year and under 2, A. Z. Blodgett	4 00

CLASS 5.— *Sweepstakes — Rings.*

Best stallion and 4 of his get under 3 years of age, H. A. Babcock	$30 00
Second best, W. A. Giddings	15 00

CLASS 6.— *Sweepstakes — Roadsters.*

Best stallion any age, C. Royce	$10 00
Second best, Dexter Curtis	5 00
Best mare any age, S. B. Paige	8 00
Second best, C. W. Mihills	4 00

CLASS 7.— *Sweepstakes — Horses for all Work.*

Best stallion any age, Thos. Bowles	$10 00
Second best, H. A. Babcock	5 00
Best mare any age, Thos. Davis	8 00
Second best, J. Edwards	4 00

CLASS 8.— *Sweepstakes — Thoroughbred Normans.*

Best stallion any age, H. A. Babcock	$10 00
Second best, Thos. Bowles	5 00
Best mare any age, H. A. Babcock	8 00
Second best, J. R. Padelford	4 00

CLASS 9.— *Sweepstakes — Clydes, etc.*

Best stallion any age, D. H. Sheffield	$10 00
Second best, A. Z. Blodgett	5 00
Best mare any age, A. Z. Blodgett	8 00

CLASS 10.— *Farm Teams.*

Best single mare, Thos. Davis	$7 00
Second best, F. N. Appleyard	4 00
Best pair matched horses, R. D. Ketchum	10 00
Second best, J. Morrison	5 00

CLASS 11.— *Carriage Teams.*

Best single gelding, H. L. Peck $7 00
Second best, L. F. Thompson 5 00
Best single mare, S. Beckwith 7 00
Second best, G. W. Winkler 5 00
Best matched carriage team, A. Custard 15 00
Second best, H. C. Gustavus 7 00

CLASS 12. — *Speed of Horses.*

H. A. JEWELL, SUPERINTENDENT.

3 minute class. Eight entries, purse $200, mile heats, best three in five. Winning horses were:
Oxford, owner, W. S. White, first $100 00
Col. Cloud, owner, J. and G. Morris, second 50 00
Lady Hopeful, owner, C. E. McDonald, third 30 00
Lady Hess, owner, Dexter Curtis, fourth 20 00
Time, 2:44½, 2:43, 2:41, 2:41, 2:39½.
Judges, C. E. Westbrook, E. P. Finch, A. C. Austin.

2:48 class. Five entries, purse $200, mile heats, best three in five. Winning horses were:
Oxford, owner, W. S. White, first $90 00
Silver Cloud, owner or driver, Ed. Bentley, second 50 00
Lady Hess, owner, Dexter Curtis, third 40 00
Lady Hopeful, owner C. E. McDonald, fourth 20 00
Time, 2:41½, 2:39½, 2:38½, 2:39½.
Judges, E. S. Hammond, W. A. Boyle, A. C. Austin.

2.38 class. Five entries, three starters, purse $250; mile heats, best three in five. Winning horses were:
Dutch Frank, entered by J. S. Holmes, first $125 00
Little Mack, entered by Chas. Clifford, second 65 00
Furnace Charlie, entered by N. H. Biddlecorn, third 35 00
Time, 2:37, 2:37¾, 2:38.
Judges, W. A. Boyle, Benj. Rogers, A. C. Austin.

No. 1. Running, mile heats, best two in three, purse $100; four entries. Winning horses were:
Burglar, entered by Rus. Hopson, first $60 00
Big Indian, entered by W. L. Wells, second 30 00
Wild Irishman, entered by C. E. McDonald, third 10 00
Time, 1:49½, 1:50½, 1:54.

No. 2. Running, mile heats, best two in three. Winning horses were:
Burglar, entered by Rus. Hopson, first $60 00
Big Indian, entered by W. L. Wells, second 30 00
Time, 1:51, 1:51.

Novelty running, one and a half mile dash, purse $150. $25 to each quarter.

It does not matter which horse won, but one did the whole purse, and we don't want any more novelty in ours. Yours respectfully,
Time, 2:55¾. R. D. T., Sec'y.

DEPARTMENT C.— CATTLE.

C. P. HOUGHTON, SUPERINTENDENT.

CLASS 13.— *Short-Horns.*

Best bull 3 years old and over, J. C. Kiser	$20 00
Second best, Geo. Harding	10 00
Best bull 1 year and under 2, J. C. Kiser	20 00
Second best, Geo. E. Bryant	10 00
Best bull calf over 6 months and under 1 year, Geo. Harding	10 00
Second best, Albert Randall	5 00
Best bull under 6 months, J. C. Kiser	10 00
Second best, Geo. Harding	5 00
Best cow 3 years and over, J. C. Kiser	15 00
Second best, J. C. Kiser	10 00
Best heifer 2 years and under 3, J. C. Kiser	15 00
Second best, J. C. Kiser	10 00
Best heifer 1 year and under 2, J. C. Kiser	15 00
Second best, J. C. Kiser	10 00
Best heifer over 6 months and under 1 year, Geo. Harding	10 00
Second best, Francis Brinkerhoff	5 00
Best heifer under 6 months, D. H. Hillman	10 00
Second best, D. H. Hillman	5 00

CLASS 14.— *Ayrshires.*

Best bull 3 years and over, C. Hazen	$20 00
Best bull 2 years and under 3, D. Huntley	20 00
Best bull 1 year and under 2, D. Huntley	20 00
Second best, C. Hazen	10 00
Best bull calf over 6 months and under 12 months, C. Hazen	10 00
Second best, D. Huntley	5 00
Best bull calf under 6 months, C. Hazen	10 00
Second best, C. Hazen	5 00
Best cow 3 years or over, C. Hazen	15 00
Second best, D. Huntley	10 00
Best heifer 2 years and under 3, C. Hazen	15 00
Second best, D. Huntley	10 00
Best heifer 1 year and under 2, D. Huntley	15 00
Second best, C. Hazen	10 00
Best heifer calf under 6 months, C. Hazen	10 00
Second best, D. Huntley	5 00

CLASS 15.— *Jerseys.*

Best bull 3 years and over, W. N. McConnell	$20 00
Second best, C. Hazen	10 00
Best bull 2 years and under 3, H. A. Jewell	29 00
Second best, N. N. Palmer	10 00
Best bull 1 year and under 2, W. N. McConnell	20 00
Second best, Geo. E. Bryant	10 00
Best bull calf over 6 months and under 12 months, Geo. E. Bryant	10 00
Second best, W. N. McConnell	5 00
Best bull calf under 6 months, N. N. Palmer	10 00
Second best, N. N. Palmer	5 00
Best cow 3 years old and over, N. N. Palmer	15 00
Second best, Geo. E. Bryant	10 00
Best heifer 2 years old and under 3, W. N. McConnell	15 00
Second best, J. N. Hoaglin	10 00
Best heifer 1 year and under 2, N. N. Palmer	15 00
Second best, W. N. McConnell	10 00

Best heifer calf over 6 months and under 12 months, W. N. McConnell	$10 00
Second best, N. N. Palmer	5 00
Best heifer calf under 6 months, W. N. McConnell	10 00
Second best, Geo. E. Bryant	5 00

CLASS 16.— *Herefords.*

Best bull 3 years old and over, C. M. Culbertson	$20 00
Best bull 2 years old and under 3, C. M. Culbertson	20 00
Best bull 1 year old and under 2, C. M. Culbertson	20 00
Best bull calf over 6 months, C. M Culbertson	10 00
Best cow 3 years old or over, C. M. Culbertson	15 00
Second best, C. M. Culbertson	10 00
Best heifer, 2 years and under 3 years, C. M. Culbertson	15 00
Second best, C. M. Culbertson	10 00
Best heifer 1 year and under 2, C. M. Culbertson	20 00
Second best, C. M. Culbertson	10 00
Best heifer over 6 months, C. M. Culbertson	10 00
Second best, C. M. Culbertson	5 00

CLASS 17.— *Holsteins.*

Best bull 3 years and over, T. W. Laramy	$20 00
Second best, T. W. Laramy	10 00
Best bull 1 year and under 2, T. W. Laramy	20 00
Second best, T. W. Laramy	10 00
Best bull over 6 months, T. W. Laramy	10 00
Best bull under 6 months, T. W. Laramy	10 00
Second best, T. W. Laramy	5 00
Best cow 3 years old, T. W. Laramy	15 00
Second best, T. W. Laramy	10 00
Best heifer 2 years, T. W. Laramy	15 00
Second best, T. W. Laramy	10 00
Best heifer 1 year old, T. W. Laramy	15 00
Second best, T. W. Laramy	10 00
Best heifer calf over 6 months, T. W. Laramy	15 00
Second best, T. W. Laramy	10 00
Best heifer calf under 6 months, T. W. Laramy	10 00
Second best, T. W. Laramy	5 00

CLASS 18.— *Devons.*

Best herd, Geo. Baker	$40 00
Second best, E. Homiston	20 00

CLASS 19.— *Galloways.*

[No entries.]

CLASS 20.— *Grade and Native.*

Best cow 4 years old, E. W. Saunders	$8 00
Second best, T. W. Laramy	4 00
Best cow 3 years old, T. R. Goe	8 00
Second best, M. V. Sperlock	4 00
Best heifer 2 years old, Thos. Davis	6 00
Second best, Thos. Davis	3 00
Best heifer 1 year, T. R. Goe	4 00
Second best, Thos. Davis	2 00
Best heifer calf, Thos. Davis	2 00
Second best, T. R. Goe	1 00

CLASS 21.— *Oxen and Steers.*

Best yoke of steers, E. Homiston	$10 00
Second best, Thos. Davis	5 00

CLASS 22.— *Herd Premiums — Short-Horns.*

Best herd, J. C. Kiser	$50 00
Second best, Geo. Harding	35 00

CLASS 23.— *Herd Premiums — Ayrshires.*

Best herd, C. Hazen	$50 00
Second best, D. Huntley	35 00

CLASS 24.— *Herd Premiums — Jerseys.*

Best herd, W. N. McConnell	$50 00
Second best, Geo. E. Bryant	35 00

CLASS 25.— *Herd Premiums — Herefords.*

Best herd, C. M. Culbertson	$50 00
Second best, C. M. Culbertson	35 00

CLASS 26.— *Herd Premiums — Holsteins.*

Best herd, T. W. Laramy	$50 00
Second best, T. W. Laramy	35 00

The show of blooded cattle was conceded by all to have been the best ever seen in the state.

DEPARTMENT D.— SHEEP.

E. R. MARTIN, SUPERINTENDENT.

CLASS 27.— *Pure Bred American Merinos.*

Best ram 2 years old, S. R. Jones	$10 00
Second best, C. D. McConnell	6 00
Best ram 1 year old, C. D. McConnell	10 00
Second best, S. R. Jones	6 00
Best pen 3 ram lambs, C. D. McConnell	8 00
Second best, C. D. McConnell	4 00
Best pen 3 ewes 2 years old, E. S. Corliss	6 00
Second best, R. S. Rich	4 00
Best pen 3 ewes 1 year old, E. S. Corliss	6 00
Second best, E. S. Corliss	4 00
Best pen 3 ewe lambs, E. S. Corliss	4 00
Second best, E. S. Corliss	2 00

CLASS 28.— *Pure Bred Downs.*

Best ram 2 years old, A. O. Fox	$10 00
Second best, Morgan & Cotton	6 00
Best ram 1 year old, Morgan & Cotton	10 00
Second best, Morgan & Cotton	6 00
Best pen 3 ram lambs, A. O. Fox	8 00
Second best, Wm. Ogelvie	4 00

Best pen 3 ewes 2 years old, A. O. Fox	$6 00
Best pen 3 ewes 1 year old, Morgan & Cotton	6 00
Second best, Morgan & Cotton	4 00
Best pen 3 ewe lambs, Morgan & Cotton	4 00
Second best, A. O. Fox	2 00

CLASS 29.— *Pure Bred Cotswold.*

Best ram 2 years old, Geo. Harding	$10 00
Second best, Geo. Harding	6 00
Best ram 1 year old, Wm. Ogelvie	10 00
Second best, Morgan & Cotton	6 00
Best pen 5 ram lambs, Morgan & Cotton	8 00
Second best, Wm. Ogelvie	4 00
Best pen 3 ewes 2 years old, Wm. Ogelvie	6 00
Second best, Morgan & Cotton	4 00
Best pen 3 ewes 1 year old, Morgan & Cotton	6 00
Second best, Wm. Ogelvie	4 00
Best pen 3 ewe lambs, Morgan & Cotton	4 00
Second best, Wm. Ogelvie	2 00

CLASS 30.— *Pure Bred Leicester.*

Best ram 2 years old, Geo. Harding	$10 00
Second best, J. N. Hoaglin	6 00
Best ram 1 year old, Geo. Harding	10 00
Second best, S. R. Jones	6 00
Best pen 3 ram lambs, Geo. Harding	8 00
Second best, J. O'Brien	4 00
Best pen 3 ewes 2 years old, Geo. Harding	6 00
Second best, J. O'Brien	4 00
Best pen 3 ewes, 1 year old, Geo. Harding	6 00
Second best, J. O'Brien	4 00

DEPARTMENT E.— SWINE.

J. O'BRIEN, SUPERINTENDENT.

CLASS 31.— *Berkshire.*

Best boar 2 years old, Albert Randall	$10 00
Second best, F. Brinkerhoff	5 00
Best boar 1 year old, Albert Randall	8 00
Second best, Thos. Davis	4 00
Best breeding sow with litter of pigs, Albert Randall	12 00
Second best, Albert Randall	6 00
Best breeding sow 2 years old, Albert Randall	10 00
Best breeding sow 1 year old, A. Malone	8 00
Second best, Albert Randall	4 00
Best boar pig under 6 months, Albert Randall	4 00
Second best, Albert Randall	2 00
Best sow pig over 6 months, E. Bement	6 00
Best sow pig under 6 months, Albert Randall	4 00
Second best, Albert Randall	2 00

CLASS 32.— *Poland China.*

Best boar 2 years old and over, E. J. Austin	$10 00
Second best, John A. Cole	5 00
Best boar 1 year old, John A. Cole	8 00
Best breeding sow with litter, John A. Cole	12 00
Best breeding sow 2 years old, E. J. Austin	10 00

Second best, E. R. Martin	$5 00
Best breeding sow 1 year old, E. R. Martin	8 00
Second best, E. J. Austin	4 00
Best boar pig over 6 months, E. J. Austin	6 00
Best boar pig under 6 months, E. R. Martin	4 00
Second best, E. J. Austin	2 00
Best sow pig over 6 months, E. J. Austin	6 00
Second best, E. J. Austin	3 00
Best sow pig under 6 months, John A. Cole	4 00
Second best, John A. Cole	2 00
Best show of Small Yorkshire, E. J. Austin	10 00

CLASS 33.— *Chester Whites.*

Best boar 2 years old, M. B. Green	$10 00
Second best, E. R. Bement	5 00
Best boar 1 year old, Beardmore	8 00
Second best, E. R. Bement	4 00
Best breeding sow with litter, Beardmore	12 00
Second best, M. B. Green	6 00
Best breeding sow 2 years old, E. R. Bement	10 00
Best breeding sow 1 year old, E. R. Bement	8 00
Second best, Beardmore	4 00
Best boar pig under 6 months, Beardmore	4 00
Second best, E. R. Bement	2 00
Best sow pig over 6 months, E. R. Bement	6 00
Best sow pig under 6 months, Beardmore	4 00
Second best, Beardmore	2 00

CLASS 34.— *Essex.*

Best boar 1 year old, J. O'Brien	$8 00
Best breeding sow with litter, D. H. Hillman	12 00
Best breeding sow 2 years old, Thos. Davis	10 00
Best breeding sow 1 year old, D. H. Hillman	8 00
Best boar pig over 6 months, D. H. Hillman	6 00
Best boar pig under 6 months, J. O'Brien	4 00
Second best, D. H. Hillman	2 00
Best sow pig over 6 months, D. H. Hillman	6 00
Best sow pig under 6 months, Thos. Davis	4 00
Second best, Thos. Davis	2 00

CLASS 35.— *Suffolks.*

Best boar 2 years old, S. H. and A. E. Joiner	$10 00
Second best, S. H. and A. E. Joiner	5 00
Best boar 1 year old, S. H. and A. E. Joiner	8 00
Second best, S. H. and A. E. Joiner	4 00
Best breeding sow with litter, S. H. and A. E. Joiner	12 00
Best breeding sow 2 years old, S. H. and A. E. Joiner	10 00
Second best, S. H. and A. E. Joiner	5 00
Best breeding sow 1 year old, S. H. and A. E. Joiner	8 00
Second best, S. H. and A. E. Joiner	4 00
Best boar pig over 6 months, S. H. and A. E. Joiner	6 00
Second best, S. H. and A. E. Joiner	3 00
Best boar pig under six months, S. H. and A. E. Joiner	4 00
Second best, S. H. and A. E. Joiner	2 00
Best sow pig over 6 months, S. H. and A. E. Joiner	6 00
Second best, S. H. and A. E. Joiner	3 00
Best sow pig under 6 months, S. H. and A. E. Joiner	4 00
Second best, S. H. and A. E. Joiner	2 00

CLASS 36.— *Poultry.*

Best B. B. red game bantam fowls, E. W. Saunders	$2 00
Second best, Willis H. Bell	1 00
Best B. B. red game bantam chicks, E. W. Saunders	1 00
Second best, Willis H. Bell	50
Best Houdan fowls, J. N. Hoaglin	2 00
Best Houdan chicks, J. N. Hoaglin	1 00
Best black Spanish fowls, Joel Johnson	2 00
Second best, Joel Johnson	1 00
Best S. S. Hamburg fowls, E. W. Saunders	2 00
Second best, Joel Johnson	1 00
Best S. S. Hamburg chicks, E. W. Saunders	1 00
Second best, E. W. Saunders	50
Best red Pyle fowls, Joel Johnson	2 00
Best S. duck wing fowls, Joel Johnson	2 00
Best L. Brahma chicks, Joel Johnson	1 00
Second best, Joel Johnson	50
Best Partridge Cochin chicks, Joel Johnson	1 00
Second best, Joel Johnson	50
Best Buff Cochin chicks, H. B. Harvey	1 00
Second best, Collins & Ryan	50
Best Buff Cochin fowls, Collins & Ryan	1 00
Best Plymouth Rock fowls, E. W. Saunders	2 00
Best Plymouth Rock chicks, Albert Randall	1 00
Second best, Albert Randall	50
Best pair bronze turkeys, John O'Brien	3 00
Best pair black turkeys, John O'Brien	3 00
Best pair Aylesbury ducks, John O'Brien	2 00
Best pair Pekin ducks, John O'Brien	2 00
Second best, Collins & Ryan	1 00
Best pair black Cayuga ducks, John O'Brien	2 00
Best pair Rouen ducks, John O'Brien	2 00
Best pair white crested ducks, John O'Brien	2 00
Best pair wild geese, John O'Brien	2 00

DEPARTMENT F.— AGRICULTURE.

D. HUNTLEY, SUPERINTENDENT.

CLASS 37.— *Grains and Seeds.*

Best bushel winter wheat, W. R. Thomas	$4 00
Best bushel Fyfe wheat, Thos. Davis	4 00
Second best, John S. Scott	2 00
Best bushel Rio Grande wheat, F. Weyerhorst	4 00
Second best, Thos. Davis	2 00
Best bushel white Russian wheat, E. M. Goff	4 00
Second best, J. N. Hoaglin	2 00
Best bushel rye, Thos. Davis	4 00
Second best, John S. Scott	2 00
Best bushel Navy beans, Thos. Davis	4 00
Second best, C. E. Angell	2 00
Best bushel barley, W. R. Thomas	4 00
Second best, C. F. Rogers	2 00
Best bushel white oats, J. N. Hoaglin	4 00
Second best, C. E. Angell	2 00
Best bushel yellow oats, F. Weyerhorst	4 00
Best bushel buckwheat, Thos. Davis	2 00
Second best, John Meyer	1 00
Best display of yellow dent seed corn, H. M. Quick	2 00
Second best, J. P. Roe	1 00

Best display of white dent corn, C. E. Angell	$2 00
Second best, C. E. Angell	1 00
Best display of yellow flint seed corn, John Meyer	2 00
Second best, J. N. Hoaglin	1 00
Best display of white flint seed corn, John Meyer	2 00
Second best, Elihu Hall	1 00
Best display of seed sweet corn, Isaac S. Cox	2 00
Second best, J. N. Hoaglin	1 00
Best display of pop corn, W. W. Wright	2 00
Second best, C. E. Angell	1 00
Best bushel early Compton corn, W. R. Thomas	2 00
Best bushel timothy seed, Thos. Davis	4 00
Second best, C. M. Conlee	2 00
Best bushel clover seed, Isaac S. Cox	4 00
Second best, C. M. Conlee	2 00
Best bushel flax seed, Thos. Davis	4 00
Second best, John Meyer	2 00
Best six samples of corn on the stalk, J. N. Hoaglin	1 00
Second best, E. W. Saunders	50
Best half bushel peas, Thos. Davis	2 00
Second best, Thos. Davis	1 00
Best bushel Marrowfat peas, Thos. Davis	2 00
Best bushel red-top, C. E. Angell	4 00
Best collection of grains and seeds, Thos. Davis	10 00

CLASS 38.— *Dairy.*

Best 3 factory cheese, C. Hazen		$10 00
Best 100 pounds of butter, T. W. Rhodes		8 00
Best plate of butter, E. R. Martin		3 00
Second best, H. M. Quick		2 00
$35 divided equally between the following persons on two cheese each, grading not less than 42 pounds in a scale of 50	H. J. Bamford	7 00
	C. Hazen	7 00
	C. Hazen	7 00
	C. Hazen	7 00
	A. H. Wheaton	7 00
$35 divided equally between the following persons on 25 lbs. butter each, grading not less than 42 points in a scale of 50	E. R. Martin	8 75
	Mrs. Jas. Wilson	8 75
	N. N. Palmer	8 75
	T. W. Rhodes	8 75

CLASS 39.— *Apiary.*

Largest product of extracted honey from one swarm of bees and increase, A. A. Winslow	$4 00
Largest product of box honey from one swarm and increase, W. L. Stroud	3 00
Best swarm of bees, W. S. Stroud	4 00
Best extracted honey, A. A. Winslow	3 00
Best honey extractor, A. A. Winslow	2 00
Best sample box honey, W. L. Stroud	3 00
Best beeswax, A. A. Winslow	2 00
Best bee hive, W. L. Stroud	2 00

CLASS 40.— *Bread and Cake.*

Best white bread, hop yeast, Mrs. C. P. Houghton	$2 00
Second best, Tallie Hatch	1 00
Best white bread, milk yeast, Mrs. S. A. Russell	2 00
Second best, Mrs. C. P. Houghton	1 00
Best Indian bread, Mrs. C. P. Houghton	2 00
Second best, S. A. Van Valkenburg	1 00

Best graham bread, Mrs. C. P. Houghton	$2 00
Second best, Josie Peffer	1 00
Best sponge cake, Jennie Wright	1 00
Second best, Josie Peffer	50
Best delicate cake, Flora Houghton	1 00
Second best, Josie Peffer	50
Best jelly cake, Jennie Wright	1 00
Second best, Clara Brainerd	50
Best silver cake, Flora Houghton	1 00
Second best, Clara Brainerd	50
Best gold cake, Jennie Wright	1 00
Second best, Flora Houghton	50
Best fruit cake, Flora Houghton	1 00
Second best, Josie Peffer	50
Best cocoanut cake, Flora Houghton	1 00
Best chocolate cake, Flora Houghton	1 00
Second best, Jennie Wright	50
Best spiced cake, Jennie Wright	1 00
Second best, Flora Houghton	50
Best basket fancy cake, Flora Houghton	1 00
Second best, Josie Peffer	50
Best pound cake, Flora Houghton	1 00
Best marble cake, Mrs J. A. Jones	1 00
Best coffee cake, Josie Peffer	1 00
Best basket of cookies, Flora Houghton	1 00
Second best, Josie Peffer	50
Best basket doughnuts, Flora Houghton	1 00
Second best, Mrs. J. A. Jones	50
Best exhibition of cakes. Flora Houghton	3 00
Second best, Jennie Wright	2 00

CLASS 41.—*Vegetables.*

Best Lima beans, J. N. Hoaglin	$2 00
Second best, W. F. Pierce	1 00
Best blood turnip beets, W. F. Pierce	2 00
Second best, Elihu Hall	1 00
Best long blood beets, W. F. Pierce	2 00
Second best, John Nelson	1 00
Best mangel wurtzel, mammoth red, J. N. Hoaglin	2 00
Second best, W. F. Pierce	1 00
Best mangel wurtzel, yellow oroid, John Meyer	2 00
Second best, Mrs. M. J. Smith	1 00
Best mangel wurtzel, Imperial, W. F. Pierce	2 00
Second best, John Meyer	1 00
Best orange globe beets, John Meyer	2 00
Second best, W. F. Pierce	1 00
Best drum head cabbage, J. P. Roe	2 00
Second best, J. Buskirk	1 00
Best Winningstadt cabbage, W. F. Pierce	2 00
Second best, F. Weyerhorst	1 00
Best short-horn carrots, Elihu Hall	2 00
Second best, W. F. Pierce	1 00
Best long orange carrots, J. Nelson	2 00
Best cauliflower, J. N. Hoaglin	2 00
Second best, Theo. Grube	1 00
Best celery, James Dougherty	2 00
Second best, James Brainerd	1 00
Best egg plant, J. N. Hoaglin	2 00
Second best, J. M. Smith	1 00
Best citron melon, Jos. Berling	2 00
Second best, J. N. Hoaglin	1 00

Best muskmelon, F. Weyerhorst	$2 00
Second best, W. F. Pierce	1 00
Best watermelon, J. N. Hoaglin	2 00
Second best, W. F. Pierce	1 00
Best red onions, J. N. Hoaglin	2 00
Second best, E. W. Saunders	1 00
Best white onions, W. F. Pierce	2 00
Second best, F. W. Harriman	1 00
Best Yellow Danvers onions, John Nelson	2 00
Second best, J. N. Hoaglin	1 00
Best onions, any variety, John Nelson	2 00
Second best, W. F. Pierce	1 00
Best parsnips, Jas. Doughty	2 00
Second best, J. N. Hoaglin	1 00
Best show of large red peppers, Brainerd Bros	1 00
Best show of seedling potatoes, W. F. Pierce	2 00
Best Early Parson potatoes, J. N. Hoaglin	2 00
Second best, W. F. Pierce	1 00
Best Early Rose potatoes, John Nelson	2 00
Second best, C. M. Conlee	1 00
Best bush King of the Earlies, J. N. Hoaglin	2 00
Best Peach Blow, J. N. Hoaglin	2 00
Second best, Wm. Sheldon	1 00
Best Shaker Russett, Mrs. M. J. Smith	2 00
Second best J. N. Hoaglin	1 00
Best Snow Flake potatoes, W. F. Pierce	2 00
Second best, J. N. Hoaglin	1 00
Best Alpha potatoes, J. N. Hoaglin	2 00
Best Early Ohio potatoes, W. F. Pierce	2 00
Second best, Elihu Hall	1 00
Best Peerless potatoes, J. N. Hoaglin	2 00
Best new variety potatoes, E. W. Saunders	2 00
Second best, H. B. Harvey	1 00
Best Yellow Nansemond sweet potato, J. M. Smith	2 00
Best sweet potato, any other variety, J. M. Smith	2 00
Second best J. M. Smith	1 00
Best potato, any other variety, J. P. Roe	2 00
Second best, C. M. Conlee	1 00
Best salsify, John Meyer	2 00
Second best, J. N. Hoaglin	1 00
Best Hubbard squash, J. N. Hoaglin	2 00
Second best, Jas. Doughty	1 00
Best fall squash, John Meyer	2 00
Second best, J. N. Hoaglin	1 00
Largest squash, John Meyer	2 00
Second largest, Brainerd Bros	1 00
Best tomatoes, J. P. Roe	2 00
Second best, J. N. Hoaglin	1 00
Best flat turnips, J. N. Hoaglin	2 00
Second best, W. F. Pierce	1 00
Best rutabagas, Isaac S. Cox	2 00
Second best, J. N. Hoaglin	1 00
Best pumpkins, J. Buskirk	2 00
Second best, J. P. Roe	1 00
Best Savoy cabbage, J. P. Roe	2 00
Best and largest show by one exhibitor, J. N. Hoaglin	12 00
Second best, Northern Hospital	6 00

DEPARTMENT G.— FRUIT.

SUPERINTENDENT — E. M. BRAINERD.

Best exhibit of deciduous trees, nursery grown, J. C. Plumb.
Best exhibit of evergreens, J. C. Plumb.

CLASS 42.— *Apples — Professional List.*

Greatest variety, H. Floyd	$8 00
Second best, Geo. J. Kellogg	4 00
Best ten varieties adapted to northwest, H. Floyd	4 00
Second best, J. C. Plumb & Son	2 00
Best five varieties adapted to northwest, H. Floyd	4 00
Second best, J. C. Plumb	2 00
Greatest variety of winter, H. Floyd	4 00
Second greatest, Geo. J. Kellogg	2 00
Third greatest, G. P. Peffer	1 00
Best five varieties of winter, H. Floyd	4 00
Best varieties without regard to adaptation, J. C. Plumb	4 00
Second best, Geo. J. Kellogg	2 00
Largest variety of autumn, Geo. J. Kellogg	4 00
Second largest, H. Floyd	2 00
Third largest, J. C. Plumb & Son	1 00
Best five varieties of autumn, H. Floyd	4 00
Second best, Geo. J. Kellogg	2 00
Best Alexander, J. C. Plumb	1 00
Best Utters, J. P. Roe	1 00
Best Willow Twig, J. P. Roe	1 00
Best Dutchess, H. Floyd	1 00
Best St Lawrence, H. Floyd	1 00
Best Fameuse, H. Floyd	1 00
Best Plumb's Cider, H. Floyd	1 00
Best Seek-no-Further, H. Floyd	1 00
Best Ben. Davis, H. Floyd	1 00
Best Golden Russett, H. Floyd	1 00
Best Wallbridge, H. Floyd	1 00
Best Pewaukee, G. P. Peffer	1 00
Heaviest apple, H. Floyd	1 00
Largest apple, H. Floyd	1 00

Pears — Professional List.

Best six varieties, G. P. Peffer	$3 00
Second best, H. Floyd	2 00
Best six varieties adapted to northwest, H. Floyd	2 00
Second best, G. P. Peffer	1 00
Best single variety, H. Floyd	1 00
Second best, G. P. Peffer	50

Plums — Professional List.

Best show, G. P. Peffer	$3 00
Second best, Jas. Brainerd	2 00
Third best, Geo. J. Kellogg	1 00

Grapes — Professional List.

Best twelve varieties, Jas. Brainerd	$5 00
Second best, J. P. Roe	3 00
Third best, Geo. J. Kellogg	2 00

Best six varieties, J. P. Roe	$3 00
Second best, Geo. J. Kellogg	2 00
Third best, John Nelson	1 00
Best five varieties adapted to northwest, John Nelson	2 00
Second best, Geo. J. Kellogg	1 50
Third best, J. P. Roe	1 00
Best three varieties adapted to northwest, J. P. Roe	2 00
Second best, Jas. Brainerd	1 00
Best two varieties adapted to northwest, John Nelson	1 00
Second best, Geo. J. Kellogg	50
Best single variety adapted to northwest, Geo. J. Kellogg	2 00
Second best, John Nelson	1 00
Best three clusters on one cane of Delaware, John Nelson	2 00
Second best, J. P. Roe	1 00
Best three clusters on one cane of Concord, Isaac Miles	2 00
Second best, Jas. Brainerd	1 00
Best three clusters on one cane of Isabella, Jas. Brainerd	2 00
Best three clusters on one cane of Walter, J. P. Roe	2 00
Second best, John Nelson	1 00
Best three clusters on one cane of Janesville, J. P. Roe	2 00
Second best, Geo. J. Kellogg	1 00
Best three clusters on one cane of Ionas, J. P. Roe	2 00
Second best, Jas. Brainerd	1 00
Best three clusters on one cane No. 3, J. P. Roe	2 00
Second best, John Nelson	1 00
Best three clusters on one cane No. 15, J. P. Roe	2 00
Second best, John Nelson	1 00
Best three clusters on one cane No. 19, John Nelson	2 00
Second best, Jas. Brainerd	1 00
Best three clusters on one cane No. 10, Jas. Brainerd	2 00
Best three clusters on one cane No. 22, Jas. Brainerd	2 00
Best three clusters on one cane No. 32, Jas. Brainerd	2 00
Best three clusters on one cane of Israella, Geo. J. Kellogg	2 00
Best seedling Wordens, Geo. J. Kellogg	2 00
Second best, Jas. Brainerd	1 00
Best single variety, quality to rule, Geo. J. Kellogg	2 00
Second best, Jas. Brainerd	1 00
Best three clusters on one cane of Martha, J. P. Roe	2 00

Crab Apples— Professional List.

Best exhibition, Geo. P. Peffer	2 00
Second best, J. C. Plumb	1 00
Best single variety, G. P. Peffer	1 00

Apples — Non-Professional.

Best and greatest variety, Nelson Olin	$8 00
Second best, Geo. S. Church	4 00
Third best, Mrs. M. J. Smith	2 00
Best ten varieties adapted to northwest, John Dey	4 00
Second best, D. Huntley	2 00
Third best, Nelson Olin	1 00
Best five varieties adapted to northwest, D. Huntley	4 00
Second best, E. W. Saunders	2 00
Largest variety of winter, Nelson Olin	4 00
Second best, Edwin Nye	2 00
Best five varieties of winter, G. S. Church	4 00
Second best, Nelson Olin	2 00
Best ten varieties without regard to adaptation, Nelson Olin	4 00
Second best, G. S. Church	2 00
Largest variety of autumn, Nelson Olin	4 00
Second best. G. S. Church	2 00

Best five varieties of autumn, G. S. Church	$4 00
Second best, E. W. Saunders	2 00
Best Astrachan, Nelson Olin	1 00
Best Duchess of Oldenburg, D. Huntley	1 00
Best St. Lawrence, Mrs. M. J. Smith	1 00
Best Fameuse, G. S. Church	1 00
Best Utters, T. W. Rhodes	1 00
Best Seek no Further, W. W. Wright	1 00
Best Willow Twig, G. S. Church	1 00
Best Ben. Davis, J. N. Hoaglin	1 00
Best Tallman Sweet, John Deyr	1 00
Best Golden Russets, G. S. Church	1 00
Best Walbridge, Edwin Nye	1 00
Best Pewaukee, John Dey	1 00
Best Alexander, W. W. Wright	1 00
Largest apple, John Dey	1 00
Heaviest apple, John Dey	1 00

Pears — Non-Professional.

Best six varieties, Nelson Olin	$3 00
Best six varieties adapted to northwest, Nelson Olin	2 00
Best single variety, Nelson Olin	1 00
Second best, J. N. Hoaglin	50

Plums — Non-Professional.

Best exhibition, Edwin Nye	$3 00
Second best, W. W. Wright	2 00
Third best, H. Denicke	2 00

Grapes — Non-Professional.

Best exhibition, J. N. Hoaglin	$5 00
Best six varieties, J. N. Hoaglin	3 00
Second best, F. Weyerhorst	2 00
Best five varieties adapted to northwest, J. N. Hoaglin	2 00
Second best, F. Weyerhorst	1 50
Best three varieties adapted to northwest, J. N. Hoaglin	2 00
Best two varieties adapted to northwest, J. N. Hoaglin	1 00
Best one variety adapted to northwest, J. N. Hoaglin	2 00
Best single variety, quality to rule, Nelson Olin	2 00
Second best, J. N. Hoaglin	1 00
Best three clusters of Concords on one cane, F. Weyerhorst	2 00
Second best, Th. Neilson	1 00
Best three clusters Delawares on one cane, F. Weyerhorst	2 00
Second best, J. N. Hoaglin	1 00
Best three clusters Janesville on one cane, J. N. Hoaglin	2 00
Best three clusters Isabella on one cane, Th. Neilson	2 00
Second best, Wm. White	1 00
Best three clusters No. 4 on one cane, J. N. Hoaglin	2 00
Best three clusters No. 9 on one cane, Th. Neilson	2 00
Best three clusters No. 15 on one cane, J. N. Hoaglin	2 00
Best three clusters No. 19 on one cane, J. N. Hoaglin	2 00
Best three clusters No. 28 on one cane, N. Olin	2 00
Best three clusters No. 22 on one cane, F. Weyerhorst	2 00
Best seedlings, Worden's, N. Olin	2 00
Second best, Th. Neilson	1 00
Best Janesville, N. Olin	1 00

Crab Apples — Non-Professional.

Best exhibition, John Dey	$2 00
Best single variety, John Dey	1 00
Second best, W. W. Wright	50

CLASS 43.— *Preserved and Canned Fruits.*

Best collection preserved fruit, Mrs. H. M. Quick	$3 00
Second best, Mrs. C. H. Root	2 00
Best preserved pears, Mrs. C. H. Root	1 00
Second best, Mrs. H. M. Quick	50
Best preserved raspberries, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. C. H. Root	50
Best preserved peaches, Mrs. H. M. Quick	1 00
Best preserved strawberries, Mrs. M. H. Quick	1 00
Second best, Mrs. C. H. Root	50
Best preserved blackberries, Mrs. H. M. Quick	1 00
Best preserved currants, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. H. M. Quick	50
Best preserved plums, Mrs. H. M. Quick	1 00
Second best, Mrs. J. N. Hoaglin	50
Best preserved grapes, Mrs. H. M. Quick	1 00
Second best, Mrs. C. H. Root	50
Best preserved tomatoes, Mrs. H. M. Quick	1 00
Second best, Mrs. E. W. Saunders	50
Best collection of jellies, Mrs. C. H. Root	1 00
Best currant jelly, Mrs. C. H. Root	1 00
Best crab apple jelly, Mrs. C. H. Root	1 00
Second best, Mrs. E. W. Saunders	50
Best apple jelly, Mrs. E. W. Saunders	1 00
Second best, Mrs. C. H. Root	50
Best raspberry jelly, Mrs. C. H. Root	1 00
Second best, Mrs. C. H. Root	50
Best blackberry jelly, Mrs. C. H. Root	1 00
Second best, Mrs. C. H. Root	50
Best grape jelly, Mrs. C. H. Root	1 00
Second best, Mrs. C. H. Root	50
Best apple butter, Mrs. C. H. Root	1 00
Best collection canned fruits, Mrs. C. H. Root	3 00
Best canned apples, Mrs. C. H. Root	1 00
Best canned pared peaches, Mrs. C. H. Root	1 00
Second best, Mrs. J. N. Hoaglin	50
Best canned whole peaches, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. C. H. Root	50
Best canned grapes, Mrs. C. H. Root	1 00
Best canned corn, Mrs. C. H. Root	1 00
Best canned plums, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. E. W. Saunders	50
Best canned cherries, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. E. W. Saunders	50
Best canned pears, Mrs. E. W. Saunders	1 00
Second best, Mrs. J. N. Hoaglin	50
Best canned strawberries, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. C. H. Root	50
Best canned raspberries, Mrs J. N. Hoaglin	1 00
Second best, Mrs. C. H. Root	50
Best canned blackberries, Mrs. J. N. Hoaglin	1 00
Best canned gooseberries, Mrs. J. N. Hoaglin	1 00
Best canned crabapples, Mrs. E. W. Saunders	1 00
Second best, Mrs. J. N. Hoaglin	50
Best canned currants, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. E. W. Saunders	50
Best canned tomatoes, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. C. H. Root	50

CLASS 44.— *Cut Flowers — Professional.*

Best floral ornament, Almon Stone	$3 00
Second best, Isaac Miles	2 00

Best basket of cut flowers, Almon Stone	$2 00
Second best, Isaac Miles	1 00
Best collection of immortelles, Almon Stone	1 00
Best collection of dahlias Almon Stone	1 00
Second best, Isaac Miles	50
Best collection of pansies, Almon Stone	1 00
Second best, John Nelson	50
Best collection of roses, Isaac Miles	1 00
Second best, John Nelson	50
Best collection of asters, Almon Stone	1 00
Second best, John Nelson	50
Best collection of balsams, Almon Stone	1 00
Second best, John Nelsoo	50
Best collection of verbenas, John Nelson	1 00
Second best, Isaac Miles	50
Best boquet, Isaac Miles	2 00
Best variety of cut flowers, Isaac Miles	2 00
Second best, Almon Stone	1 00

CLASS 45.— *Cut Flowers — Amateur.*

Best floral ornament, Mary Washburn	$3 00
Second best, Kate F. Peffer	2 00
Best basket of cut flowers, Kate F. Peffer	3 00
Best collection of asters, A. H. Bartlett	1 00
Second best, J. P. Roe	50
Best collection of verbenas, A. H. Bartlett	1 00
Second best, Christina Derber	50
Best collection of pansies, Christina Derber	1 00
Best collection of dahlias, K. F. Peffer	1 00
Second best, D. Huntley	50
Best collection of gladiolas, K. F. Peffer	1 00
Best variety of cut flowers, K. F. Peffer	2 00
Best boquet, K. F. Peffer	1 00
Second best, Christina Derber	50

CLASS 46.— *Plants in Pots — Professional.*

Best collection of green-house plants, Almon Stone	$5 00
Second best, John Nelson	3 00
Third best, Isaac Miles	2 00
Best collection of foliage plants, Isaac Miles	3 00
Second best, John Nelson	2 00
Third best, Almon Stone	1 00
Best collection of bronze geraniums, Almon Stone	2 00
Second best, John Nelson	1 00
Best collection zonale geraniums, John Nelson	2 00
Second best, Isaac Miles	1 00
Best collection double geraniums, Isaac Miles	2 00
Second best, Almon Stone	1 00
Best oleander in bloom, Isaac Miles	1 00
Second best, Almon Stone	50
Best display of pelargoniums, Isaac Miles	1 50
Best display of euoniums, Isaac Miles	1 00
Best display of fragrant geraniums, Isaac Miles	1 00
Second best, Almon Stone	50
Best single geranium, Isaac Miles	1 00
Second best, Almon Stone	50
Best variety of fuchsias in bloom, Almon Stone	2 00
Second best, Isaac Miles	1 00
Best single specimen fuchsias, Isaac Miles	1 00
Second best, John Nelson	50

Best display of roses, John Nelson	$2 00
Second best, Isaac Miles	1 00
Best single specimen of rose in bloom, Almon Stone	1 00
Second best, Isaac Miles	50
Best variety of carnations, Almon Stone	1 00
Second best, John Nelson	50
Best display of double petunias, Isaac Miles	1 00
Second best, Almon Stone	50
Best display of single petunias, Isaac Miles	75
Best hanging basket with growing plants, Almon Stone	1 00
Second best, John Nelson	50
Best display of cacti in variety, Isaac Miles	2 00
Second best, Almon Stone	1 00
Best single specimen of cacti, Almon Stone	75
Second best, Isaac Miles	35
Best display of begonias in variety, John Nelson	2 00
Second best, Isaac Miles	1 00
Third best, Almon Stone	50
Best single specimen of begonia, Isaac Miles	50
Second best, Almon Stone	25
Best display of stocks in bloom, John Nelson	50
Best English ivy on trellis, Isaac Miles	1 00
Second best, Almon Stone	75
Best display of tuberoses, Isaac Miles	2 00
Second best, John Nelson	1 00
Best poinsetta, Isaac Miles	1 00
Second best, Almon Stone	50
Best calla in bloom, John Nelson	1 00
Second best, Almon Stone	50
Best display of calladiums, John Nelson	2 00
Second best, Almon Stone	1 00
Best smilax on trellis, Almon Stone	1 00
Second best, Isaac Miles	50
Best fernery, Isaac Miles	2 00
Second best, John Nelson	1 00
Best single specimen house plant, Almon Stone	2 00
Second best, John Nelson	1 00

CLASS 47.— *Plants in Pots — Amateur.*

Best single specimen of house plant, any variety, Mrs. L. F. Thompson	$2 00
Second best, Mrs. C. Lambert	1 00
Best fernery, Miss Sadie C. Goe	2 00
Best English ivy on trellis, Mrs. Wm. C. Hubbard	1 00
Best display of zonale geraniums, A. H. Bartlett	1 00
Best display of double geraniums, A. H. Bartlett	1 00
Best single specimen of fuchsias in bloom, A. H. Bartlett	1 00
Best display of calladiums, A. H. Bartlett	2 00

DEPARTMENT H.— DOMESTIC MANUFACTURES AND FINE ARTS.

SUPERINTENDENT, K. M. HUTCHINSON.

CLASS 48.— *Cabinet Work and Upholstery, etc.*

Best exhibit of statuary, J. F. W. Decker	$3 00
Best bedstead, B. H. Soper	1 00
Best sofa, B. H. Soper	1 00
Best writing desk, B. H. Soper	1 00

Best spring bed, B. H. Soper	$1 00
Best hat rack, B. H. Soper	1 00
Best cane seat chair, B. H. Soper	1 00
Best set chamber furniture, B. H. Soper	3 00
Best set parlor furniture, Wm. Spikes & Co	3 00
Second best, B H. Soper	2 00
Best mirror, Wm. Spikes & Co	2 00
Best easy chairs, Wm. Spikes & Co	1 00
Best marble top table, Wm. Spikes & Co	1 00
Best dressing bureau, Wm. Spikes & Co	1 00

CLASS 49.— *Book Binders' and Printers' Work.*

Best ledger, Allen & Hicks	$1 00
Best record book, Allen & Hicks	1 00
Best specimen fancy binding, Allen & Hicks	1 00
Best set books for keeping farm accounts, Allen & Hicks	1 00
Best book printing, Allen & Hicks	1 00
Best cover printing, twenty specimens, Allen & Hicks	1 00
Best ornamental printing, Allen & Hicks	1 00
Best poster printing, Allen & Hicks	1 00
Greatest variety of work, Allen & Hicks	3 00

CLASS 50.— *Staple Goods — Household Manufacture.*

Best rag carpet, 20 yards, Hattie Ashley	$2 00
Second best, Mrs. S. Bennett	1 00
Best rag rug, Mrs. F. Burgess	1 00
Second best, Mrs. Anna Chamberlain	50
Best yarn rug, Bertha Kaehler	1 00
Second best, Bertha Kaehler	50
Best plain cotton knitting, Mrs. J. B. Denault	1 00
Second best, Mrs. Esther Ward	50
Best woolen knitting, Mrs. J. B. Denault	1 00
Second best, Mrs. J. B. Denault	50
Best fancy knitting, Mrs. J. B. Denault	1 00
Second best, Mrs. S. Bennett	50
Best fine shirt, machine made, Mrs. Ed. Kent	1 00
Best door mat, Ettie Buskirk	1 00
Best woolen yarn, home made, Mrs. Jas. Wilson	1 00
Second best, Mrs. S. Bennett	50
Best woolen mittens, Mrs. C. B. Howard	1 00
Second best, Mrs. J. Wilson	50
Best pair men's woolen stockings, Mrs. Lucy Spore	1 00
Second best, Mrs. Lucy Spore	50
Best women's woolen stockings, Mrs. J. Wilson	1 00
Second best, Mrs. J. Wilson	50
Best women's white woolen stockings, Mrs. Lucy Spore	1 00
Second best, Mrs. Esther Ward	50

CLASS 51.— *Quilts.*

Best cotton patchwork quilt, Katie Glyn	$1 00
Second best, Emma Dempsey	50
Best quilt by a lady over 50, Mrs. Harriet Huxley	1 00
Best knitted cotton spread by a lady over 50, Mrs. Harriet Huxley	1 00
Best knit bed spread, E. Jones	1 00
Best worsted and silk quilt, Christiana Thompson	1 00
Best fancy knitting, E. Jones	1 00
Best log cabin quilt, Mary Parsons	1 00
Second best, Mary Parsons	50
Best silk quilt, Mrs. H. F. Stringham	1 00
Second best, Mrs. H. F. Stringham	50

CLASS 52.— *Embroidery.*

Best bead and worsted embroidered lambrequin, Bertha Kaehler	$1 00
Second best, Jessie Goe	50
Best raised worsted embroidered Bible cushion, Mr. J. B. Denault	1 00
Second best, Clara Brainerd	50
Best worsted embroidered chair, Bertha Kaehler	1 00
Best plain worsted embroidered slipper case, Bertha Scram	1 00
Best embroidered scrap bag, Maggie McCourt	1 00
Best scrap bag, Mary Wanless	1 00
Best embroidered sofa pillow, Mrs. C. B. Crehone	1 00
Second best, Mary McKoy	50
Best silk embroidery, Mrs. Ed. Kent	1 00
Second best, Mrs. Ed. Kent	50
Best worsted canvas embroidery, Stella Morrison	1 00
Second best, Nettie Ray	50
Best silk embroidered child's blanket, Mrs. Ed. Kent	1 00
Second best, Mrs. J. B. Denault	50
Best plain worsted embroidered ottoman, Minnie Arnold	1 00
Second best, Delia Darrow	50
Best plain worsted embroidered foot rest, Mrs. M. B. Parkinson	1 00
Second best, Mrs. Wm. Wakeman, Jr	50
Best chenille embroidery, Mrs. Ed. Kent	1 00
Best plain worsted embroidered lambrequin, Mrs. G. W. Gould	1 00
Best cretonne applique, Lucy Andrews	1 00
Best silk embroidered child's skirt, Mrs. Ed. Kent	1 00
Second best, Mrs. W. S. Cooley	50
Best silk embroidered foot rest, Emma McIntyre	1 00
Best plain worsted embroidered sofa pillow, Minnie Arnold	1 00
Best chenille work on card-board, Magge McCourt	1 00
Best toilet set, muslin and silk, Lucy Andrews	1 00

CLASS 53.— *Cotton Embroidery, Laces, etc.*

Best silk and lace tidy, Katie Glyn	$1 00
Best set lace underwear, Emma Dempsey	1 00
Best Java canvas tidy, Bertha Kaehler	1 00
Second best, Minnie Arnold	50
Best display of lace goods, H. Quackenbush	1 00
Best Machrema lace, May Washburne	1 00
Best point Honiton lace, Mrs. Williams	1 00
Best point Honiton lace barbe, Mrs. Williams	1 00
Second best, Lucy Andrews	50
Best point Honiton lace tie ends, Mrs. Williams	1 00
Best hand embroidered lace, Mrs. Williams	1 00
Best point Honiton bib, Miss L. M. Taylor	1 00
Best point Honiton lace handkerchief, Lucy Andrews	1 00
Second best, Lucy Andrews	50
Best cotton embroidered handkerchief, Mrs. Williams	1 00
Best Java tidy, Mrs. F. A. Jones	1 00
Best lambrequin on card board, Lillie Brainerd	1 00
Best card board air castle, Minnie Ray	1 00
Second best, Mrs. C. B. Crehone	50
Best bed spread and pillow shams, Mrs. J. W. Spencer	1 00
Best embroidered pillow shams, Mrs. H. W. McKay	1 00
Second best chain stitched pillow shams, Gertie L. Torrey	50
Second best cotton embroidered pillow shams, Mrs. L. M. Taylor	50
Best card board match receiver, Bertha Scram	1 00
Second best, Mrs. L. M. Taylor	50
Best brush broom holder, Irene Kezertee	1 00
Second best, Minnie Ray	50

Best braided set underwear, Mrs. C. H. Root	$1 00
Second best, Mrs. Theo. Grube	50
Best card board hair receiver, Irene Kezertee	1 00
Applique work lamp mat, Mrs. L. M. Taylor	50

CLASS 54.— *Crochet, Tatting, etc.*

Best nedle work insertion, Emma Dempsey	$1 00
Second best, Emma Dempsey	50
Best crochet child's sack, Bertha Kaehler	1 00
Second best, Mrs. M. B. Parkinson	50
Best child's carriage afghan, Mrs. M. B. Parkinson	1 00
Second best, Mrs. J. B. Denault	50
Best carriage afghan, Mrs. H. W. McKoy	1 00
Best crochet tidy, thread, Mrs. C. H. Root	1 00
Second best, Hattie Ashley	50
Best crochet socks, infants', Mrs. C. H. Root	1 00
Best crochet table spread Mrs. F. Weyerhorst	1 00
Best crochet hood and sack, Mrs. M. B. Parkinson	1 00
Second best, Mrs. C. H. Root	50
Best crochet sack, infant's, Mrs. L. M. Taylor	1 00
Second best, Mrs. Ed. Kent	50
Best crochet sack, adult's, Mrs. A. J. Clum	1 00
Best crochet cotton tidy, Lucy Andrews	1 00
Second best, Mrs. Theo. Grube	50
Best crochet worsted tidy, Clara Brainerd	1 00
Second best, Bertha Kæhler	50
Best crochet scarf, Mrs. A. J. Clum	1 00
Second best, Mrs. A. J. Clum	50
Best crochet collar with braid, Mrs. W. L. Montgomery	1 00
Second best, Mabel Harney	50
Best crochet tie end with braid, Julia F. Morgan	1 00
Best crochet edging with braid, Julia F. Morgan	50
Best crochet bags, all kinds, Irene Kezertee	50
Best crochet edging without braid, Mrs. Theo. Grube	50
Best crochet inserting without braid, Mrs. Theo. Grube	50
Best knitted tidy, Mrs. F. Weyerhorst	1 00
Best tatted tidy, Lucy Andrews	1 00
Second best, Mrs. Theo. Grube	50
Best tatted collar, Mrs. J. B. Denault	1 00
Second best, Lucy Andrews	50
Best five yards tatted insertion, Mrs. Theo. Grube	50
Best one yard tatted insertion, Lucy Andrews	50
Best needlework embroidery with braid, Miss C. Morgan	50
Best display of jewelry, Birely & Son	1 00

CLASS 55.— *Fancy and Ornamental Goods.*

Best wax work, Emma Dempsey	$1 00
Second best, Mrs. C. B. Crebone	50
Best worsted flowers, Bertha Kæhler	1 00
Best hair wreath, Minnie Arnold	1 00
Second best, Minnie Arnold	50
Best pair of ornamental horns, Irene Kezertee	1 00
Second best, Irene Kezertee	50
Best ornamental wall pocket, Mrs. I. W. Spencer	1 00
Best feather work, Nettie Ray	1 00
Second best, Mrs. N. Capron	50
Best ornamental leather work, Nettie Ray	1 00
Best bead hanging basket, Mrs. H. M. Quick	1 00
Best ornamental shell work, Mrs. Armour Brown	1 00
Best shell flowers, Mrs. Armour Brown	1 00

Best skeleton leaves, Mrs. Armour Brown	$1 00
Best fern work, Mrs. Armour Brown	1 00
Best worsted fruit, Mrs. Armour Brown	1 00
Best moss work, H. Stolze	1 00

CLASS 56.— *Misses' Department.*

Best silk design on perforated card board, Georgie Root	$2 00
Best pencil drawing, Huldah Linde	1 00
Best map drawing, Louise Mears	1 00
Best wax flowers, Emma Cheney	1 00
Best worsted motto work on perforated card board, Millie Rich	1 00
Neatest darned stocking, Nellie Kent	1 00
Best worsted embrodiered towel, Nellie Kent	1 00
Best original worsted design, Matlie Campbell	2 00
Second best, Belle Baker	1 00
Best collections pencil drawings, Louise Mears	1 00

CLASS 57.— *Boys' Department.*

Best corner bracket, Ralph Burtis	$ 50
Best work box, Ralph Burtis	1 00
Best music rack, Ralph Burtis	50
Best specimen of writing, F. D. Cross	1 00
Best map of the United States, H. A. Clum	1 00
Best card receiver, Charles McCulloch	50
Best cabinet picture frame, Charles McCulloch	50
Best card photo frame, Charles McCulloch	50
Best easel, Charles McCulloch	50
Best doll's cradle, Charles McCulloch	50
Best doll's carriage, Charles McCulloch	50
Best exhibition bracket work, Charles McCulloch	3 00

CLASS 58.— *Natural History.*

Best collection mineralogy, Mrs. H. Morley	$2 00
Second best, Miss A. McCourt	1 00
Best collection entomology, F. E. Morehouse	2 00
Best collection woods of Wisconsin, F. E. Morehouse	2 00
Best Wisconsin lead ore, R. Bennett	1 00

CLASS 59.— *Works of Art.*

Best pencil drawing, Chas Lucas	Dip. and $3 00
Second best, Mrs. Bloss	2 00
Best exhibition of drawings, Chas Lucas	4 00
Second best, Lucy Andrews	2 00
Best collection of oil paintings, Edith Randall	5 00
Best original oil painting, Mrs. Wm. Wakeman	3 00
Second best, Edith Randall	2 00
Best portrait in oil, F. Weyerhorst	3 00
Best original painting in water-colors, Julia F. Morgan	3 00
Second best, Chas. Lucas	1 00
Best specimen bird painting, Julia F. Morgan	1 00
Best pastel portrait, Cook Ely	2 00
Second best, Cook Ely	1 00
Best ink portrait, Cook Ely	2 00
Second best, Cook Ely	1 00
Best water-color portrait, Cook Ely	2 00
Second best, Cook Ely	1 00
Best solar photograph, Cook Ely	2 00
Best crayon portraits, Cook Ely	2 00
Second best, Lucy Andrews	1 00

Best exhibition of sun pictures, Cook Ely	$3 00
Best specimen of off-hand flourishing, W. W. Daggett	2 00
Second best, F. M. Benedict	1 00
Best specimen business penmanship, W. W. Daggett	2 00
Second best, F. M. Benedict	1 00
Best specimen of sculpture, J. J. Moore	2 00
Best model of a dwelling, Henry Abraham	1 00
Best carving on wood, Emil Zager	2 00
Best steel engraving, Mrs. Wm. Wakeman	1 00
Best collection of stamps, A. B. Hooper	2 00

CLASS 60.— *Textile Fabrics, Clothing, etc.*

Best exhibit of men's clothing, W. Leard	$3 00
Best exhibit of woolen goods, W. Leard	3 00
Best exhibit of furs and fur goods, J. A. McCourt	3 00
Best exhibit of men's and boys' hats and caps, J. A. McCourt	2 00

CLASS 61.— *Manufactures of Iron, Stone and Clay.*

Best iron chair, J. J. Moore	$2 00
Best fruit and flower stand, J. J. Moore	2 00
Best monuments and head stones, J. J. Moore	5 00
Best exhibit of drain tile, Cook, Brown & Co	2 00
Best exhibit of brick, Cook, Brown & Co	2 00

CLASS 62.— *Leather and Leather Manufactures.*

Best calf skin, Jaenecke & Roenitz	$1 00
Best exhibition of leather, Jaenicke & Roenitz	1 00
Best single or buggy harness, F. J. Jackson	2 00
Best farm wagon or double harness, F. J. Jackson	2 00
Best gents' riding saddle, F. J. Jackson	1 00
Best horse collar, F. J. Jackson	1 00
Best harness, F. J. Jackson	1 00
Best fancy blanket, F. A. Jackson	1 00
Best single wagon harness, F. J. Jackson	2 00
Best cow hide boots, C. A. Johnson & Co	1 00
Best ladies' summer boots, C. A. Johnson & Co	1 00
Best gents' slippers, C. A. Johnson & Co	1 00
Best exhibit of India rubber goods, C. A. Johnson & Co	2 00
Best gents' summer boots, J. M. Rollins & Co	1 00
Best gents' winter boots, J. M. Rollins & Co	1 00
Best ladies' winter shoes, J. M. Rollins & Co	1 00
Best ladies' slippers, J. M. Rollins & Co	1 00
Best exhibit of boots and shoes, J. M. Rollins & Co	Dip.

CLASS 63.— *Wagons and Carriages.*

Best extension two-seat carriage, Neville & Holden	$5 00
Second best, Parsons & Goodfellow	3 00
Best two-seat family carriage, Parsons & Goodfellow	5 00
Best phaeton, Parsons & Goodfellow	5 00
Second best, Neville & Holden	3 00
Best single top buggy, Neville & Holden	5 00
Second best, Wm. Servis	3 00
Best single open buggy, Wm. Servis	2 00
Second best, H. Schuman	1 00
Best track wagon, Neville & Holden	2 00
Second best, Wm. Servis	1 00

Best two-seat platform spring wagon, Streich Bros	$5 00
Second best, Thompson & Hayward	3 00
Best lumber wagon, Streich Bros	2 00
Second best, Streich Bros	1 00
Best single cutter, Wm. Servis	2 00
Second best, H. Schuman	1 00
Best display of carriages, Parsons & Goodfellow	6 00
Second best, Wm. Servis	3 00

Not in Premium List.

Best Surrey or T cart, Parsons & Goodfellow.
Best canopy top phaeton, Parsons & Goodfellow.
Best jump seat family carriage, Parsons & Goodfellow.

CLASS 66.— *Bells, Stoves, Copper, etc.*

Best coal stove, Bassler & Goe	$2 00
Best coal furnace, L. Dempsey	2 00
Best cooking range, Bassler & Goe	3 00
Best heating furnace, Bassler & Goe	2 00
Best parlor heater, Bergstrom Bros. & Co	2 00
Best cook stoves, Bergstrom Bros. & Co	2 00
Best church bell, Campbell & Son	1 00

CLASS 67.— *Household.*

Best cream extractor, Geo. H. Church	Dip.
Best culinary slicer, J. H. Hicks	Dip.
Best clothes dryer, C. M. Coulee	$1 00
Best sad-iron heater, C. E. Rogers	Dip.

No entries in classes 64 and 65.

LETTER FROM JOHN L. FISK.

OMRO, WIS., January 13, 1881.

FRIEND TORREY:

Dear Sir — By request of many friends for me to write up a list of hardy ornamental trees, shrubs, climbers, roses, bulbs and perennial plants for beautifying our Wisconsin homes, I will give you the following list, having lived in Wisconsin since 1838, and my father being something of a florist and fruit grower ever since he came to the state. From the knowledge I gained of him, and for the past twenty years I have made fruit growing, floriculture and landscape gardening my business and study; have purchased myself, and sold to others, hundred of varieties that proved too tender for our Wisconsin winters. The following varieties of trees, etc., I have growing on my own grounds, with two or three exceptions. I have many other varieties of shrubs not mentioned in this list that need protection.

LIST OF HARDY DECIDUOUS TREES NOT COMMONLY KNOWN TO WISCONSIN AMATEUR PLANTERS.

Oak Leaf Mountain Ash.
European Mountain Ash.
European White Birch.
Wier's Cut Leaf Maple.
Cut Leaf Weeping Birch.
Elm Fulva pendula.

Top grafted. Two of the most beautiful and graceful weeping trees in cultivation; perfectly hardy; should be planted separate from other trees on the lawn.

EVERGREEN TREES.

Hovey's Golden Arbor vitæ.
Siberian Arbor vitæ.
Pyramidalis Arbor vitæ.
Occidentalis Pendula Arbor vitæ.
Scotch Pine.
Montana Pine.
Austrian Pine.
Balsam Fir.
Norway Spruce.
Juniper Keel Cedar.
Juniper Alpina, suitable for rock work.
Savin Juniper, a spreading shrub.

DECIDUOUS SHRUBS FOR GROUPING OR PLANTING ON THE BORDER.

Purple Leaf Berbery.
Common Berbery.
Euonymous Burning Bush.
Spirea Bilardii.
Spirea Cullosea.
Spirea Grandiflora.
Weigelin Rosea and Weigelin Nana Verigata need slight protection.
Honey Suckle Tartarian.
Sringea Philadelphus.
Hydrangea Grandiflora (Paneculata).

CLIMBING VINES.

Joy American Ampelapsis.
Clematis Flamula.
Clematis Jackmanii, one of the best.
Clematis Cerulea Odorata.
Clematis Viticelea Rubra.
Clematis American White.
Lonicera.
Honeysuckle Scarlet Trumpet.
Honeysuckle Cerula Oderata.
Honeysuckle Monthley Belgica.
Honeysuckle Chinese Twining.

Aristolchia Siphoor Dutchman's Pike requires shade; one of the best and most hardy of all the climbers; should be more generally known and have a place in every ground.

ROSE CULTURE.

We say plant the Hybrid perpetual roses; they need no more room nor no more protection than the common June rose, and your compensation will be four fold over the latter variety. The Hybrid perpetual roses, being hardy and embracing nearly all colors, from the purest white to the richest crimson, are deservedly a very popular class of roses. They are of easy culture, by bending them down as winter sets in, cover with earth or litter of some kind, let them remain covered in the spring until it has done freezing, then open them out, top-dress with well rotted manure; during the summer apply liquid manure water three or four times to the roots. They thrive well in any rich soil, but best in a well prepared, stiff, loamy soil, carefully top-dressed with good rotted stable manure in the fall or spring. Follow the above instructions, and I will insure you roses at intervals from June until it freezes them up in the fall.

The following varieties I have tested, and know them to be free bloomers and worthy of general cultivation:

Augusta Mie.
Baron Proust.
Caroline de Sandel.
General Jacqueminot.
General Washington.
Marquis Bocella.

Pius IX.
Paeonia.
Sydonia.
La France.
La Reine.
Baroness Rothschild.
Perpetual Moss Roses.
Alfred de Dalmas.
General Dronat.
Salet (best of the Mosses).
Madam Planties should have a place in every collection of roses.
Climbing Roses.
Queen of the Prairie.
Gem of the Prairie.
Russell's Cottage.
Baltimore Bell, more tender than the others.

Will write you an article next year treating on bulbs, tubers, perennial plants and half-hardy shrubs.

Yours respectfully,

JOHN L. FISK.

ACCOUNT OF THE FAIR,

As published in the Daily Northwestern.

The somewhat cloudy weather of Sunday and the appearance of rain, which made the prospects of the week look a little uncertain, changed to brightness this morning. The sun rose clear and the day has been bright, although cold and chilly on the grounds. The prognosticators on every side predict fine weather for the week, although a shower would be fully as acceptable, to lay the dust which is flying on Jackson street, leading to the grounds, and which rolls up in clouds on the race course.

This morning was an extremely busy one at the grounds. Never before has there been so large an arrival of goods and stock on the opening day. On Saturday and Sunday a large amount of stock arrived from the state fair at Madison, and was immediately driven to the grounds and stalled. Goods arrived by the same trains and were carried there this morning. The arrival of articles from home exhibitors has been constant all day, although much stock and indoor exhibits from abroad seem to have arrived and have been placed in position more promptly than others.

At noon the exposition building was teeming with activity, and goods were rolling in fast. "Lack of room" is the cry of all the superintendents. The horse stalls are about all taken and more horses still coming. The superintendent of cattle says there are only fifteen stalls left for all the entries hereafter. He says the exhibition of cattle will be five to one over last year. There are more trotting and running horses on the grounds than have attended any previous fairs, and the number of roadsters entered is unprecedented.

The new poultry house is not half big enough to hold the arrivals of coops, and rows will have to stand outside unless some other arrangement is made. The superintendents of fruit and vegetables

say their respective departments will exceed anything ever before witnessed in the state.

In machinery hall large numbers of agricultural implements are being belted to the shafting ready for running.

The department of domestic manufactures and fine arts, up to noon was probably the most backward of any; but this department depends mostly upon home exhibits, which will probably come in more abundantly later in the day. As a whole, the fair never opened the first day with such pleasing prospects, and the superintendents never were so enthusiastic relative to the coming exhibit in their respective departments.

SEASON TICKETS.

Yielding to the outside demand for season tickets and the expression of dissatisfaction because no season tickets were offered, the board of control at a meeting this morning decided to rescind their former determination and issue season tickets for the price of $1.50. At the same time extra precautions will be taken to guard against any imposition in the use of them.

THE ENTRY BOOKS.

It had been arranged to have the entry books open at the Beckwith House until 9 P. M. to-night; but it having transpired that the room which the secretary has been occupying will be filled with cots for the accommodation of the guests of the house, and for the further reason that it will be lumbersome to transport the books down and back again, the secretary has determined to remain at the exposition building during the evening, and will receive entries there in person or by telephone.

THE RACES.

The entries for the races now stand as follows; all but two being filled, the 2:30 trotting race for Wednesday, and the No 8 running race for Saturday, which are still open and will probably fill:

TUESDAY.

Three minute race. Purse $200; first horse, $100, second $50, third $30, fourth $20; best three in five.

Dexter Curtis, Madison, b. m. Lady Hess.
C. E. McDonald, Nunda, Ill., b. m. Lady Hopeful.

W. S. White, Appleton, b. s. Oxford.
Chas. Clifford, Marinette, w. g. Silver Cloud.
J. Dobson, Oshkosh, b. s. Oshkosh Boy.
J. & G. Morris, Appleton, b. s. Col. Cloud.
G. R. Thamer, Kaukauna, b. s. Ethan Allen.

Running race No. 2. Mile heats, best two in three; first home $60, second $30, third $10.

Rus Hopson, Lodi, b. g. Burglar.
C. E. McDonald, Nunda, Ill., b. g. Wild Irishman.
J. R. Bielly, Appleton, g. m. Louis B.
D. J. Flack, Appleton, b. g. Livery Bill.
Wm. Sweetzer, Greenville, b. g. Sweetzer.
Wm. Hall, Medina, b. s. Trouble.
W. L. Wells, Lodi, b. g. Big Injun.

WEDNESDAY.

2:30 class. First horse $125, second $65, third $35, fourth $25.

S. B. Paige, Oshkosh, c. g. Akbar.
Dexter Curtis, Madison, Kate Howard.

Not filled; still open.

Novelty running race; five to enter, three to start. Purse $150; $25 to the horse reaching each quarter post first.

Wm. Hall, Medina, b. s. Trouble.
E. McNutt, Red Ribbon.
C. Royce, ——.
W. L. Wells, Lodi, b. g. Big Injun.
Rus Hopson, Lodi, b. g. Burglar.

This race is still open for entries.

THURSDAY.

2:38 class. First horse, $125, second $65, third, $35, fourth $25.

G. R. Thamer, Kaukauna, b. s. Ethan Allen.
Chas. Clifford, Marinette, b. g. Little Mac.
N. H. Biddlecom, Marinette, c. g. Furnace Charley.
A. O. Hobart, g. g. Dutch Frank.
Dexter Curtis, Madison, b. m. Lady Hess.

Running race No. 5. Best two in three; first horse $60, second $30, third $10.

W. L. Wells, Lodi, b. g. Big Injun.
C. E. McDonald, Nunda, Ill., b. m. Lucy Taylor.
Riley, Appleton, g. m. Louis B.

D. J. Flack, Appleton, b. g. Livery Bill.
Wm. Hall, Medina, b. s. Trouble.
Wm. Sweetzer, Greenville, b. g. Sweetzer.
Rus Hopson, Lodi, b. g. Burglar.

FRIDAY.

2:38 class. First horse $90, second $50, third $40, fourth $20.

C. E. McDonald, Nunda, Ill., b. m. Lady Hopeful.
Dexter Curtis, Madison, b. m. Lady Hess.
G. R. Thamer, Kaukauna, b. s. Ethan Allen.
Ed. Bentley, Oshkosh, g. g. Silver Cloud.
W. S. White, Appleton, b. s. Oxford.

SATURDAY.

2:25 class. First horse $125, second $65, third $35, fourth $25.

Dexter Curtis, Madison, b. m. Kate Howard.
Peter Reas, Racine, b. g. Dictator.
Chas. Clifford, Marinette, w. g. Silver Cloud.
S. B. Paige, Oshkosh, c. g. Akbar.

Running race No. 8. First horse $60, second $30, third $10.

Rus Hopson, Lodi, b. g. Burglar.
W. L. Wells, b. g. Big Injun.
C. E. McDonald, b. g. Wild Irishman.

Not filled; still open.

When the rush and turmoil of yesterday was over and the officers of the fair and board of control gathered to compare notes of the first day's battle, the result exceeded the wildest anticipation of the most sanguine. "Must have more room" was the universal demand from the superintendents. The department of horses was particularly crowded, and the urgent demand for "more room" was one that had to be met. In the emergency carpenters were summoned, lumber ordered, and a large force was at once set to work to erect fifty or sixty more horse sheds. The crew worked nearly all night by the light of lanterns. Such an inrush of horse flesh was never known before in the state. The superintendent of sheep reported "not a pen" left, while new arrivals were known to be on the way. The swine pens are nearly full and new sheep pens will have to be made to-day. The other superintendents reported the same state of affairs in their departments.

Last evening almost a train load of stock and articles for exhi-

bition arrived here from the Minneapolis fair, including a car load of horses, one of sheep and one of Hereford cattle, the property of Mr. Culbertson, of Chicago; and also several car loads of machinery and miscellaneous articles.

Telegrams were received during the afternoon regarding stock and articles on the way which could not arrive and be entered by 9 o'clock P. M., and the board of control held a meeting last night to consider the propriety of holding the books open longer.

The board decided to hold the books open for entries until 10 o'clock this forenoon.

Never have the prospects in all particulars opened more favorably for a big fair and a large attendance. The weather is as fine as if manufactured to order, and could not be made more agreeable or pleasant — beautiful, mild, sunny and cheerful. The scene at the grounds has been unprecedented. The arrival of stock this morning continued until every stall and shed was filled, even with animals doubled up in the stalls, and two herds of cattle had to be tied to the fences while workmen were engaged in putting up additional sheds. The machinery department is beyond all bounds. Machinery hall is overflowing, and the space between the building and the track is completely filled with agricultural implements of all kinds, from crowbars to steam threshing machines in full operation. The fruit and vegetable departments are overloaded, and the fine arts department exceeds all expectations, and the quality of the exhibits far surpasses that of all former years. The secretary and clerks worked till after midnight last night recording entries, and it was found impossible to close the books before noon to-day, so steadily did the stream of entries come in all the forenoon.

The exposition formally opened this afternoon. At 1:30 President Hazen delivered his opening address. He did not give it in full, merely making a few opening remarks, stating that the people were more interested in the exposition than in listening to long speeches at such a time, and that the address he had prepared would be published, so that all could read at their leisure what they might not care to stop and listen to. He formally declared the exposition open to the inspection of the public.

The big rush may be expected to begin to-morrow. Governor Smith will arrive on the six o'clock train this evening, and is ex-

pected to deliver a brief address at the exposition building to-morrow at 1 P. M.

HORSES.

The exhibition of horses on the grounds is simply unprecedented. Every stall is filled, and thirty or forty new ones are being completed to accommodate the late arrivals. S. B. Page's stable is one of the attractions in this department, and is constantly crowded with visitors. Mr. Page has had cards of names and pedigrees tacked up on his stables for the convenience of spectators. The entries in the various classes are as follows:

ROADSTERS.

W. D. Gidding, two stallions; C. Bunker, filly; F. Bunker, mare and filly; J. Russell, stallion; J. & G. Morris, Appleton, stallion; E. Madison, Menasha, gelding; S. B. Page, two stallions; S. Beckwith, brood mare and colt, and sucking stallion; Wm. Hall, Medina, stallion; G. W. Turner, Appleton, stallion; J. Dobson, stallion; A. A. Bates, Menasha, brood mare and colt; J. O'Brien, brood mare and colt, for Holmes & Jackson's special premium; E. M. Pratt, Appleton, filly; M. Campbell, Omro, brood mare and colt; P. T. Parish, Omro, stallion; H. Curran, Stevens Point, stallion; G. W. Minkler, brood mare and colt, and filly; Geo. Allen, Ripon, mare; E. R. Martin, filly foal; N. G. Sturtevant, stallion; J. Ashby, stallion; E. Doherty, Berlin, two stallions; J. S. Holmes, eight brood mares with colts, four filly foals, four stallion foals; Dexter Curtis, Madison, stallion; Enos & Davis, Neenah, two mares; John Freeborn, stallion and mare; L. F. Thompson, mare and colt, and stallion foal; John Cross, Buttes des Morts, stallion, filly foal; E. W. Sanders, Oshkosh, brood mare and colt, and stallion foal; C. W. Mihills, filly and two stallions.

HORSES FOR ALL WORK.

A. Z. Blodgett, Waukegan, stallion; E. Lyness, Oshkosh, stallion; W. Sheldon, Clemansville, stallion; J. Dobson, stallion; F. N. Appleyard, Oshkosh, filly; J. R. Padelford, two stallions, two mares and brood mare, filly and stallion foals; C. Scott, filly; C. Biglinger, brood mare and filly foal; M. Campbell, stallion and filly foal; J. W. Cross, stallion; John Athearn, brood mare and filly foal; E. H. Leigenfiend, Neenah, stallion; F. N. Appleyard, filly;

John Edwards, brood mare and colt, and stallion foal; H. A. Babcock, Clayton, three stallions, brood mare, four fillies; W. G. Calkins, three stallions, two mares; T. J. Morris, two stallions and stallion foal, and brood mare and colt; Thomas Davis, filly.

NORMANS — IMPORTED.

Thomas Bowles, Janesville, stallion; F. N. Appleyard, Oshkosh, filly and stallion; J. R. Padelford, two stallions and two mares; H. A. Babcock, Clayton, one stallion, stallion foal, two brood mares with colts, filly foal; M. W. Collins, stallion; Frank Schomer, stallion.

IMPORTED AND NATIVE PURE BLOOD CLYDESDALE.

A. Z. Blodgett, Waukegan, two stallions, stallion foal, brood mare with colt, three fillies; D. H. Sheffield, Madison, stallion; C. M. Culbertson, stallion; Austin and Watson, stallion.

RINGS — SWEEPSTAKES.

J. and G. Morris, Appleton, Col. Cloud and four of his get; J. R. Padelford, stallion St. Cloud and four of his get; H. A. Babcock, stallion Babcock Norman and four of his get; W. A. Giddings, stallion Giddings' Hambletonian and four of his get.

ROADSTERS — SWEEPSTAKES.

J. and G. Morris, Capt. Cloud stallion; S. B. Paige, stallion and mare; G. W. Turner, stallion; John Dobson, stallion; John Holmes, stallion; F. M. Pratt, Appleton, mare; P. T. Parish, stallion; John Freeburn, stallion and mare; C. W. Mihills, mare.

SWEEPSTAKES — HORSES FOR ALL WORK.

A. Z. Blodgett, stallion; Thomas Bowles, stallion; F. N. Appleyard, stallion and two mares; M. Campbell, stallion; I. W. Cross, stallion; —— Edwards, stallion; H. A. Babcock, two stallions and two mares; Vet. Eaton, mare; C. G. Luce, mare; T. J. Morris, mare; Thomas Davis, two mares.

NORMAN AND OTHER FRENCH BREEDS — SWEEPSTAKES.

Thomas Bowles, stallion; H. A. Babcock, stallion and two mares; J. R. Padelford, stallion and mare.

CLYDESDALE AND OTHER ENGLISH DRAFT BREEDS.

A. Z. Blodgett, stallion and mare; D. H. Sheffield, C. M. Culbertson, Austin and Watson each one stallion.

FARM TEAMS.

A. Z. Blodgett, pair mares and single mare; J. Morrison, Oshkosh, pair geldings; F. N. Appleyard, single mare; G. W. Beardmore, team; R. D. Ketchum, pair matched horses; Thomas Davis, single mare and gelding.

CARRIAGE TEAMS.

S. B. Paige, mare; S. Beckwith, mare; Mrs. L. F. Thompson, gelding; O. W. Clark, Appleton, gelding; W. J. Wagstaff, mare; A. Custard, Lind, matched and mated team; H. B. Dale, two single geldings and mare; E. M. Pratt, mare; M. Campbell, matched and mated team; F. B. Grover, Rolling Prairie, two matched teams, single mare and gelding; G. M. Beardmore, matched team; J. Blark, Manitowoc, gelding; John Athearn, same; F. A. Jones, mare; G. W. Minkler, same; H. L. Peck, gelding; H. C. Gustavus, carriage team; E. Doherty, team and single mare; L. H. Eaton, mare; Dexter Curtis, team; W. A. Dexter, gelding; Mrs. J. Wilson, Berlin, matched and mated team; Vet. Eaton, Geo. Athearn, John Freeborn, each single mares; L. F. Thompson, M. H. Eaton, each gelding; C. Bunker, mare.

MORRIS' SPECIAL.

John Cross, stallion and filly foal.

CATTLE.

The department of cattle was never so crowded as this year. Two herds arrived this morning for which there was not a stall left. A force of men was put to work to erect fifty more stalls, in hopes of providing shelter for all the stock to-night. The principal exhibitions of stock are as follows:

C. M. Culbertson, Douglass county, Ill., fine stock of Hereford cattle, numbering eighteen head, including a pair of beautiful twins eighteen months old, also a pair of grades.

F. Brinkerhoff, of Brandon, exhibits ten Short-horns and three graded cattle.

J. C. Kiser, of Oregon, Dane county, exhibits eleven head of Short-horns.

T. W. Laramy, of Beloit, shows a herd of twenty-three head of Holstein cattle, a fine and attractive herd. C. Hazen enters sixteen

head of Ayrshires, and D. Huntley, of Appleton, has eight head of the same. Geo. Baker, of Hustisford, Dodge county, has sixteen head of Devons, including a handsome pair of twin calves. E. Homiston, of Fond du Lac, has a fine herd of Devons, including a pair of yoked steers, the handsomest animals shown on the grounds. The owner can't tell one from the other.

Geo. E. Bryant, of Madison, shows thirteen head of Jerseys and two of Short-horns. T. R. Goe exhibits two Jerseys; J. N. Hoaglin, one; H. A. Jewell, one thoroughbred bull; Willard Wright, one bull; H. B. Harvey, of Neenah, thoroughbred bull.

N. N. Palmer, of Spring Valley, Rock county, has fourteen head of thoroughbred Jerseys and eight grades.

Wm. McConnell, of Dartford, has a fine herd of Jerseys, fifteen in number, thoroughbred and registered.

Harding exhibits ten head of Short-horns.

There are but few grade and native cattle. Nelson Olin, of Omro, and Mat Sperbeck are the only exhibitors. The exhibition of cattle is indeed very fine. Several breeds are on exhibition for the first time at this fair, and some of them for the first time in the state. The quality of the exhibits can't be beat in the same number of exhibits. Nearly all the herds are thoroughbreds, and in the finest and handsomest condition.

THE RACES.

In the three minute race this afternoon six horses entered; the first heat was won by Col. Cloud. Time, 2: 44.

A chariot race followed.

After the chariot race, a heat was run in the running race, four starters. Big Injun took the heat. Time, 1: 49.

The second heat of the three minute race was then trotted, which was won by Col. Cloud. Time, 2: 43.

The Northern Wisconsin Agricultural and Mechanical Society can now put its best foot forward as the greatest success of any fair in the state and take its place as the peer of any fair in the northwest. It is no longer an experiment; it is an established, permanent fact; an unquestioned success in every particular. Yesterday was naturally the best day of the week, and a big day it was,

and no mistake. The incoming trains from every direction brought thousands of people, who fairly blockaded the sidewalks along the main streets in the morning and crowded the fair as soon as transportation could be had to the grounds. All the forenoon there was a constant and incessant stream of people moving towards the grounds. The busses and vehicles were all packed, and hundreds unable to get a ride footed it to the grounds. Just after noon the rush still further increased, mostly townspeople, until the jam in and around the exposition building was fearful. Many of the stores, mills and factories closed in the afternoon and there was a general stampede for the fair. The jam in the exposition building was terrible and little comfort could be taken by anyone. In fact people generally could get but a poor idea of the exhibits within on account of the crowded condition of the aisles and passage ways. At the time of the races, therefore, some relief was gained by the rush to the grand stand and along the race track. The grand stand was literally packed, while along the track on both sides as far as the first quarter post in one direction and the third quarter post in the other, were crowds upon crowds of people intent upon witnessing the races. About this time a brisk little shower came up, cool and refreshing, lasting about five minutes, laying the dust beautifully. The shower passed on, the sun came out again in all its brightness, and all nature seemed to have conspired to afford every favorable aspect to the occasion. It is estimated that there were from ten to twelve thousand people on the grounds at one time.

Bands playing, the races in progress in one direction, the criers in refreshment stands yelling in another, the peddlers screaming the virtues of their wares in another, the rattling of machinery, the neighing of horses, the tumult of the ever changing and passing throng, formed a most lively and exciting scene. Never had the Northern Fair seen such a day.

THE GRAND CAVALCADE.

The special feature of Thursday forenoon was the grand cavalcade of premium stock on the track, headed by J. I. Case's self-propelling steam engine, drawing a threshing machine, on which the Arion cornet band was loaded. A Depere threshing machine followed, drawn by Schomer & Gallagher's steam road wagon, and

after this came the premium horses and cattle. The affair turned out a bigger advertisement for J. I. Case than a display of stock, for the reason that after the stock was led out, ready to take its place in the procession, the steam wagons came puffing along, and created a panic among the stock to such an extent that horses reared and pitched and became unmanageable, and many of the finest and most spirited horses had to be taken back to their stalls, and did not appear in the cavalcade, while the same thing existed among the cattle. This, in reality, spoiled the exhibition of stock in the track, although the display, limited as it was, was very attractive. As an advertisement of threshing machines, the grand cavalcade of premium stock was a success, and Case ought to pay the association something for the privilege.

THE RACES.

The races, Thursday, formed the big attraction of the afternoon. In addition to the 2:38 race, a match had been arranged between Akbar and Longfellow, as an exhibition race. The race proved satisfactory to the backers and friends of Akbar and equally unexpected to the other side. In the first the horses did not get a very good send-off, Akbar leading at the word "go" by more than a length. Both horses trotted square in this heat, and although poor time was made, the spurt on the home-stretch was exceedingly fine. Akbar kept the lead, although not pressed by Longfellow up the third quarter. Up the home-stretch both made a fine spurt, and Longfellow crawled up considerable, and came under the wire lapping Akbar's wheel, a gain at least in his position at the start. Time, 2:38. In the second heat Longfellow went off his feet just after the word was given and fell back sadly. He failed to overcome his loss even on the home-stretch, and was beaten by two or three lengths. Time, 2:40½. The last heat was faster, but Longfellow repeated his misfortune of breaking soon after the start. He recovered, and gave Akbar more of a pressure than in the former heat, reducing the time to 2:33, but still following Akbar under the wire nearly a length behind.

An exciting chariot race followed.

In the 2:38 race, Dutch Frank, Little Mac and Furnace Charley were the only starters. Dutch Frank took three straight heats, to the surprise of those who knew that Little Mac had previously

beaten Furnace Charley, and Furnace Charley only a week or so ago had defeated Dutch Frank. It was charged that the race was fixed up in hopes of securing bets, after a heat or two, whereby it would be profitable to send Little Mac to the front. The heats were as follows:

Dutch Frank	1	1	1
Little Mac	3	2	2
Furnace Charley	2	3	3

Time, 2:37, 2:37¾, 2:38.

The running race elicited much interest, especially in the second heat, where the horses were all bunched nearly to the half mile, when they began to string out, Burglar taking the lead to the wire. The positions were as follows:

Burglar	1	1
Big Injun	2	2
Red Rover	4	3
Wild Irishman	3	4

Time, 1:51, 1:51.

MACHINERY HALL.

In this department all former displays have been eclipsed, not only in numbers, but in variety of exhibits by each exhibitor. The lower floor is crowded, the upper floor is well filled, while the ground west of the building and close to the race track barely leaves room for any additional display, while visitors are required to pick their way through.

The Kalamazoo Harrow Company are the first in line, and display their fine tool. Hitched to a miniature harrow are a pair of oxen, carved out of a solid piece of wood, the work of a crippled soldier who resides in Michigan. It is a curiosity, and visitors should not overlook it.

The Harris M'f'g Co., Janesville, exhibit a mower, harvester, drill and seeder.

The Johnston Harvester Co., Rockport, N. Y., a reaper and mower.

The McCormick Harvester Company make a fine display. A harvester and binder is in constant operation. A new patent, handled by this company only, is Hall's patent wire cutter. They have also on exhibition an iron mower, Imperial reaper and combined mower.

Gorby Agricultural Works, Manitowoc, shows a hand feed cutter, power feed cutter, farm feed mill, farm horse power.

The Knowlton M'f'g Co., Rockford, Ill., have some excellent farming tools, consisting of new independent reaper, a combined reaper and mower, riding and walking cultivators and hay rakes.

C. Aultman & Co., Canton, Ohio, have a harvester and threshing machine on exhibition.

Walter A. Wood, Hoosick Falls, N. Y., harvester and twine binder.

Warder, Mitchell & Co., Chicago, Champion reapers and binders.

Wm. Deering, Chicago, shows a twine binder in motion, and crowds look on to see it work.

Esterly & Son, Whitewater, make a display of a harvester and automatic twine binder.

Outside the building. Russell & Co., Massillon, O., have a thresher.

The J. I. Case Co., Racine, sent here to this exhibition an engine, separator and water tank.

Van Brunt & Barber, and Van Brunt & Davis, both of Horicon, made a display of drills and seeders.

W. D. Stroud has on exhibition the Furst & Bradley plow, the Moline plow, John Deere's plow and his own plow and sulky rake.

J. S. Rowell Sons & Co., Beaver Dam, have both drills and seeders for examination.

B. D. Buford, Rock Island, Ill., make a very fine display consisting of three steel plows, a Buford chilled plow and a Brown sulky plow.

The Peerless Reaper Co., Canton, O., show reapers.

Appleton Manufacturing Co. show a cultivator, harrow and seeder.

Utter Manufacturing Co., Rockford, Ill., sulky plow, rake and seeder.

Emerson, Talcott & Co., Rockford, reaper, mower, horse corn planter, sulky corn plow.

West Depere Agricultural Works, West Depere, show harrows and harvesters.

Philip Maiers, Mapleton, two horse wheel cultivator.

J. Little & Sons, Menasha, exhibit two feed cutters.

Silberzahn & Young, West Bend, have an excellent improved feed cutter.

The wind mills are represented by S. Hazen & Son, Ripon; Horicon Wind Mill Co., Horicon; Althouse, Wheeler & Co., Waupun.

J. W. Stoddard & Co., Dayton, Ohio, Tiger self operating sulky, hay rake, Triumph grain drill, straw cutter and broadcast seeder.

Enos & Davis, Neenah, the Eclipse automatic entrance gate.

Kohler, Hayssen & Stein, Sheboygan, feed cutter and horse power.

Tolman & Clough's patent pump is the center of attraction and they are taking a great many orders.

W. G. Packard, Oshkosh, has some pumps on exhibition, close to the south end of the building.

Stump pullers are also on hand, and Bibinger & Day, Manitowoc, Jno. Platten, Fort Howard, and the Chamberlin Company, Olean, N. Y., make very creditable exhibits.

B. F. Luce, Janesville, is exhibiting his automatic self-adjusting gate.

B. E. Sanford, Sheboygan Falls, has two of his plows in the upper hall for inspection.

Mr. Jno. Phillips is on hand with all five styles of John Dodd's sulky rakes. He is also supplied with other farm implements.

A. Streich & Bro., Oshkosh, were awarded premiums on their display of lumber wagons.

THE ANNUAL MEETING.

The annual meeting of the association was held Thursday evening at the council rooms. There was a large attendance, and much interest was manifested.

ADDRESS OF PRESIDENT HAZEN.

Fellow Citizens — Fairs have been in existence from time immemorial. Anciently they were, and in some European countries still are, markets or meetings held at stated points or places for the purpose of trade and traffic. They probably are coeval with commerce itself. French historians place their origin to the time of King Dagobert, about the tenth century. The articles brought to these gatherings for sale or exhibition were not only horses, cattle, sheep, fowls, fruits, grains and similar farm products, but all kinds of rare and costly merchandise from the loom and the

workshop. Sale, instead of competitive laurels and glory, seems to have been the chief aim of the contributors. The occupants of the permanent and substantial booths erected and maintained for that purpose, displayed in good profusion all manner of exquisite silks, needle work, laces, jewelry, and other fancy and useful articles. Hilarity and social enjoyment went hand in hand with trade and business. In Great Britain, during the reign of Queen Elizabeth, fairs lost their popularity in consequence of the preponderate attendance of the vile and dissolute populace, and did not regain their favor until the accession of Queen Victoria. They are again in a flourishing condition. At the Ipswich and Horncastle fairs, thousands of horses, cattle, sheep, etc., are annually sold to English and American dealers. Fairs are also popular in Scotland, Ireland, France, Holland, Italy, Spain, Hungary, China, Siberia, Russia and Germany. The most celebrated fairs on the globe are probably those of Leipsic and Frankfort, in the latter empire. They are held triannually, on New Year's, Easter and St. Michael's Day. The total amount of mercantile transactions on these occasions is upwards of $75,000,000. The world famed fair of Russia is of like proportions, and probably eclipses all similar gatherings in the display of the picturesque variety of oriental costumes.

In the northwest, the most noted exhibitions of agriculture and mechanical industry are the Chicago exposition, St. Louis fair, Indianapolis fair, the Minneapolis exposition and the Northern Wisconsin exposition. The latter, on account of its excellent management, increases in favor and popularity each year. The display may not equal the gigantic fairs of the old continent, yet there is always enough of interest to merit the attendance of every man, woman and child.

The eleventh annual fair is but the expression of one more year of the existence of the Northern Wisconsin Agricultural and Mechanical Association, a year of prosperity with nearly all of the industrial pursuits of our state. Crops, with the exception of wheat, are first rate, corn and oats are an average, in northeastern Wisconsin. The wool growers, pork producers and dairymen are prosperous and happy.

But what encouragements have we to offer for the wheat producers of northeastern Wisconsin? The wheat producing properties of our soils are being exhausted by perpetual use, the climate has

changed materially since this country was first settled, the extreme hot weather appears to come earlier in the season, when the wheat is in the condition to be blasted or burned by the rays of the hot sun. The chinch bugs are on the increase. The long distance our sample wheat has to be shipped would seem to be a serious objection to making wheat growing the leading crop of our farms. Winter wheat has been a much better crop for several years than spring wheat, and a large amount of winter wheat is being sowed this fall. I think a mixed system of farming, that is, a variety of crops, much the safest course to pursue here in northern Wisconsin. The tobacco crop in some of the southern counties in this state is becoming quite an important crop. Dane and Rock counties have planted this season thirteen thousand (13,000) acres of tobacco, and the crop is a good one. The amount of tobacco is estimated at 1,500 pounds to the acre, and selling at eight cents per pound (which is considered a low estimate), amounts to $1,560,000. A pretty good showing for two counties.

Sugar cane is receiving considerable attention in our state. Some experiments were tried last season with the early amber sugar cane which fully met the expectation of all who gave it a trial. One hundred and fifty to two hundred gallons of syrup per acre is considered an average yield in Minnesota. And the syrup is very fine. This sugar question is a very important one to our country. From the estimates of the chief of the bureau of statistics, we find since the gold mines were discovered in California in 1849, that the United States has paid for foreign sugar $180,000,000. This amount, I believe, exceeds all the gold that has been mined on the Pacific coast since the discovery of gold in 1849. The early amber sugar cane is being more extensively tested this season than it has been before, and if it proves as successful as many now anticipate, the time is not far distant when we shall be able to produce our own sugar, and save the enormous expense of importing our sugars from foreign countries.

The dairy interest in Wisconsin is fast taking the place of wheat raising. In 1864 the first cheese factory was built in Wisconsin. To-day we have 360 cheese factories and creameries, which produced in 1879, 843,549,956 pounds of cheese, and 434,506,250 pounds of butter, including private dairies. In 1878 there appeared to be a surplus of dairy products, and prices ruled rather low, leav-

ing the markets overstocked in the spring of 1879. The supply seemed to more than equal the demand until about the first of September, during which time a large amount of dairy products was sold at prices much below the cost of production. Since September, 1879, butter and cheese have commanded fair prices, such as will pay costs of production and give the producer a fair profit on money and labor invested. Why not condense our farm products so they will pay for transportation, and save the hard feeling that often exists between the producers and the transportation companies and railroads. While farmers in the northwest complain of high freights, eastern farmers (dairymen in particular) complain because the railroads carry our goods for such low rates that they cannot compete successfully with our western dairymen.

In order to make this point more clearly understood, I will make some comparisons between wheat, and, say cheese, the least in value per pound of the dairy products. One pound of butter should be worth about two and a half pounds of cheese, and one pound of wool worth from three to four pounds of cheese. But we will take cheese for the standard.

One car load of cheese at present is worth $3,000, while one car load of wheat (allowing 24,000 pounds for a car load) is worth at $1 per bushel $400.

While it costs the railroad company just as much to haul a car of wheat to New York as it does to haul a load of cheese, it will take seven and one-half car loads of wheat to equal in cash value one car of cheese, while the difference in favor of butter and wool is from two and one-half to four times greater. Why not convert our farm products into wool, beef, pork, butter or cheese, and save the enormous expense of freight.

We have as healthy a climate, as productive soils, as pure water, and our people and domestic animals are as healthy here in northeastern Wisconsin as anywhere on this continent or the globe. We have as many natural advantages as any country that I know of. In addition to our soils, climate, etc., we have an abundance of pine and hard wood lumber, iron, copper and lead ores, navigable rivers and lakes, and as many railroads as the business of the country needs. Added to this, we have the extensive water powers on the lower Fox river, which have an inexhaustible supply of water, with Lake Winnebago for a mill-pond, or reservoir — a lake some thirty

miles long by twelve wide. This extensive water power is being improved as fast as the necessities of its surroundings demand, as the products of its mills, factories, foundries and work-shops here on exhibition to-day proves.

Eleven years ago the people of northern Wisconsin felt the necessity of something more than a mere county agricultural society and an annual county fair. The long distance and inconvenience of shipping direct to our State Fair made it impracticable for a large portion of our people to attend those fairs. Consequently a call was made by the people of northeastern Wisconsin to organize an agricultural society here in Oshkosh. The call was heartily responded to, and an organization was perfected, and up to this present time the people have manifested a great interest in supporting and maintaining these annual fairs.

In 1879 the interests and exhibits of our society had become so extensive that more and better accommodations seemed actually necessary. A requisition was made on the citizens of Oshkosh to provide better accommodations for our fairs. This call was readily and heartily responded to by the public-spirited citizens of Oshkosh, and in less than three months this magnificent exposition building we now occupy was completed.

The building is admirably adapted to the uses for which it was built, and is undoubtedly the largest exposition building in the northwest, and one Oshkosh may justly feel proud of.

SUSTAINING PUBLIC FAIRS.

When you go into a town where a public fair is being held and call at the stores, shops or mills and inquire for the proprietors, and are informed that they are on the fair grounds tending to the interests of the fair, you can rest assured that they mean business and will be very sure to succeed.

Such has been the case years past in Oshkosh, and we have no reason to doubt but what it will continue so in the future. This society has located its annual fairs in Oshkosh for ten years at least, and I consider it not only the privilege but the duty of the citizens of Oshkosh to turn out *en masse* and support these fairs. The future success of the society depends very much on the interest the citizens of Oshkosh take in it, and judging from the past, we have no fears for the future.

To the citizens of northwestern Wisconsin I wish to state that this is your fair; your exhibits have been cheerfully brought forward and put on exhibition. Thus far you have acted well your part, especially for our present fair, as the increased number of entries in all the departments show for themselves. Still more could be done in this direction. If all the people in this part of the state will take the interest in our annual fairs that a portion of them do now, in less than five years we will be obliged to build another building as large as this to accommodate our society.

THE RAILROADS.

In behalf of the management of this society I feel it my duty to express our thanks to the managers of all the railroads, that have so generously transported the stock and all articles for exhibition at this fair, free of expense to the exhibitors, and have run extra trains, at reduced rates, to accommodate the masses of people that attend our fair. Without their liberal co-operation with us in this work, it would have been impossible for us to have succeeded in such an extensive exhibition as is now prepared for the inspection of the people.

It now becomes my pleasant duty to proclaim to the citizens of northern Wisconsin that the eleventh annual exhibition of the Northern Wisconsin Agricultural and Mechanical Association, the finest exhibition, I trust, that ever was held in this state, is now formally opened to the inspection of the public, and for those purposes which, it is to be hoped, will be mutually beneficial to us all.

ADDRESS OF GOVERNOR SMITH.

Tuesday afternoon Gov. Wm. E. Smith, being on the grounds, was invited to do a little talking. The governor said:

Mr. President, Ladies and Gentlemen — I did not understand when I came here, neither do I understand now, that it is expected of me to make a speech. I came here as a private citizen to visit with your people and see your fair, and consequently am not prepared to say much. But, Mr. President, I congratulate you on the magnificence and abundance of the articles here on exhibition. But it is not for me to talk of the articles you have here on exhibition or the excellence of this stock, which I spent a long

time this morning in examining, or to dilate upon the excellence of the various articles here, gathered in such profusion. These all do great credit to all who are connected with the fair, and I desire to congratulate the president and members of this society upon the success of this eleventh annual exhibition. I spent several hours this morning in walking over the grounds and examining the stock, the cattle and horses, and the various implements and machines that are there on exhibition, and the thought in my mind was as I did so, that they afforded the most abundant evidence that the people of Wisconsin are in a prosperous condition, that they are now enjoying a season of great prosperity, great business prosperity throughout the state, and I have been glad to look at your faces here to-day and there read your judgment of the success of this exhibition and the lesson it teaches. And I rejoice with you that this prosperity with the very few other nations has extended to all parts of our common country.

Our manufactories have largely increased throughout our land; so that to-day we are able not only to supply our domestic markets with all that is essential to human life, but we are also able to export largely to other nations.

It is with the present condition of our affairs, the great industries of our country, agriculture, manufacturing and mining. With our education we hold our position among nations of power, with other countries, not only Europe, but with all countries. And we may soon expect to be able to supply them with all the articles of foreign provision that they may require. This indeed may be very encouraging to us. Another evidence of the prosperity which has befallen us is the fact, which is now well known, that a very large proportion of the government debt has been largely, almost entirely, held abroad, but it has now been brought around so that it is held at home. This is a most gratifying fact to know, that we are no longer obliged to send off our gold and silver to pay interest on these debts, but it is paid to our own people. This great element of prosperity does add greatly to our success. And now another very gratifying fact is another that is well known, that the mortgages upon our lands, upon our farms and upon real estate, not only in this state but all the states, is rapidly being paid off; that to-day this class of indebtedness does not exceed one-third of what it was a few years ago.

Our imports — our exports rather, I would say, have largely increased; they are increasing from year to year, so that foreign countries are no longer able to send back our bonds in payment of our exports, but they are now obliged to ship us gold in payment of the productions which we send to them, and through these circumstances we should take courage. And I may say, judging from this exhibition for one, that all circumstances and elements that indicate increased wealth and prosperity seem to combine the fact, that in the immediate future we have assurance and reason to look for better times, and we may be reasonably assured that the future is bright and encouraging.

I have recently had the pleasure of spending a few weeks in traveling through the western portion of our land. In making my way toward the land of the setting sun, I passed through the states of Illinois, Iowa, Colorado, territory of Utah, and the states of Nevada and California, and while there I had opportunity — through the courtesy of the steamship line, which tendered me the service of its transportation — I had the opportunity of sailing out through the Golden Gate, along the coast of Oregon and Washington Territory, passed up the Columbia river, saw something of that state and territory. Saw very much that was interesting. I was very much pleased with the prospects of Oregon and Washington territory. Their winters are much milder than Wisconsin's, and while they have a pure coast range running up and down through the length of the state, they are very rich. And while in California, I saw and heard much to interest. I visited Yosemite Valley, and looked upon the wonders of that place, and passed up and down through the same rich valleys, saw the productions, saw hundreds and hundreds of acres of land under cultivation, saw cattle and horses in fine herds, saw some magnificent crops of wheat and corn both in states and territorities, saw something of the wonderful wealth in their mines, and all. And I am here to-day, to tell you, my friends, that, take all in all, I saw no state, no territory, no country, that in my estimation is equal to that of Wisconsin, our own favored state. And I do not make these remarks with a view of entertaining and pleasing you, but it is my honest conviction, taking all things into consideration. Take our commercial condition, take our own mines, take the wealth in the various enterprises, take our hard coal and our soft coal, and in my judgment, there is

no one case to which I have alluded to compare with us. We are a highly favored people, and we ought to make the best of our advantages. I know we will remember all these advantages.

But we sometimes have cause to complain of the severity of our winters, but they are beneficial. The severe frosts have destroyed the germs of disease throughout our country, and this insures the health which we now enjoy.

And I am here to say, too, that in morality, in our educational institutions, both public and private, in our public and in our private character, and in all that tends to develop independent manhood, in all that goes to make the people prosperous and happy, Wisconsin is the peer of any state in this Union, or any other country on this globe. And I desire in closing to say, that to raise corn and wheat, that to make butter and cheese, that to add acre to acre and dollar to dollar is not the true goal of our ambition, which, though these things are desirable, they are not the true goal of our ambition; they are only and no more to the true end that they have an exact following; but our success in life is not to be measured by the number of bushels a man raises or by the extent of his herds, by the number of acres he owns nor the number of days he has; therefore my closing words to you, my friends, they are, I would not have you neglect the development of the material in the state, particularly affairs of state, but our mind and heart, the education of the hand, of the head, and of the heart, to rear good men and noble women, is of vastly greater importance. Let me say now in conclusion — because I have spoken and detained you longer than I intended to — that I hope we shall all be benefited by the blessing experienced in attending this exhibition, that it shall make us very thankful, make us more appreciate the blessings we enjoy. And where we have the satisfaction of knowing that no state and no country surpasses us at the present time. And I hope that we can continue in sound minds and in sound bodies — to the end.

A PLEASANT CLOSING OF THE GREAT EXPOSITION OF 1880.

THE SECRETARY, R. D. TORREY, "WATCHED" — A COMPLETE SURPRISE.

At the closing of the fair, the members of the association presented Secretary Torrey with an elegant gold watch of the Elgin

make, hunting case, stem winder. Hon. Earl P. Finch made the presentation speech in the presence of several hundred of Mr. Torrey's personal friends, who had gathered in the exposition building for that purpose. The surprise was complete, so much so that the recipient could hardly find words to reply to Mr. Finch, who spoke substantially as follows:

Secretary Torrey: — The friends and the members of this association have for the long number of years that you have so ably filled the position of secretary recognized the ability with which you have managed the affairs of the society. They have noted the earnestness with which you have labored in season and out of season for its success, that no task was so great that you would not willingly undertake, and, we are pleased to know, accomplish it, for such has been your record from the beginning. These friends, appreciating your services and desiring to give public and tangible expression of their acknowledgment, have directed me to present to you at this time this elegant gold watch as a slight testimonial of such appreciation. It gives me great pleasure, therefore, to occupy this position to-day and to present this evidence of our high esteem of your efforts. May this watch "tick, tick, tick till the old man dies," and then, in the happy beyond, may you receive the "Blue Ribbon" from the Great Judge.

Secretary Torrey said in response that he had been "cornered" several times in his life, but this was the tightest place he ever was in, for he did not feel competent to suitably express his thanks for the kindly words that had been spoken by Mr. Finch, nor for the elegant gift of the friends. He desired to answer all, however, that he was thankful, with all the emphasis that could attach to the English language, and that in the future, as in the past, he should do all that he could for the success of the association.

The watch was appropriately inscribed, as follows: Presented to R. D. Torrey by his friends of the Northern Wisconsin Agricultural and Mechanical Association, September 18, 1880.

Thus closed the most successful fair ever held in Wisconsin.

EIGHTH ANNUAL CONVENTION.

HELD AT

Green Bay, January 18, 1881.

Klaus Hall, Green Bay, January 18, 1881.

Convention called to order by Mr. J. M. Smith.

Mr. Smith said: As this convention of the Northern Wisconsin Association have agreed to pay for the reporting of this convention, and expect to have the address and papers that are read here put into the next volume of the transactions, it would be the proper thing that the president of that association should be the presiding officer of this convention; therefore I will assume the privilege of nominating Mr. Chester Hazen, president of the Northern Wisconsin Agricultural Association, as chairman of the convention.

The motion was seconded and carried.

Mr. Hazen — Ladies and Gentlemen: In assuming the responsibility, I shall endeavor to do the best I can to conduct the affairs of the convention. Being president of the Northern Wisconsin Agricultural Society, I came here with the hope and expectation of having an interesting meeting and to get better acquainted with the agriculturists and industrial classes of the northeastern part of our state, a territory which our society, as a district society, naturally covers. The last season has been a very satisfactory one with most of the industrial branches in our state. Our national finances are much improved from what they were at former meetings of this society, and we meet together under much more favorable circumstances than at many of our previous meetings. This is a meeting where the different industries are to be presented, and we hope and expect all present will take a deep interest in the matter. We will consider the meeting now open for business. The

first business on our programme is short congratulatory speeches. First we will call on J. M. Smith, of Green Bay.

Mr. J. M. Smith — I think I shall have to talk a great deal here, for the society of which I am president has not had a president for a good many years and the members of that society are noted for their modesty, and the result has been I have had to carry impudence enough for the society. Sometimes I have had to assume a great deal of it, and I am afraid that will be the case during this convention. It may be asked why there are so few farmers here this morning. The facts are that most of our prominent farmers, upon whom we rely to support such things as this convention and our agricultural societies, live from ten to fifteen miles from town. The few we have here now have driven some ten or twelve miles to get here, and when we know, also, that farmers always have more or less work to do in the morning, it will be at least a partial excuse for there not being more present. Another thing is, we have not got thoroughly under way. Our county being originally thickly timbered, and the opinion getting abroad, as it did in an early day, that it was worthless for agriculture, it has been a work of a great many years to get that idea dispelled. We know now that we have a county, so far as some branches of agriculture are concerned, that is exceeded but by very few counties in the state of Wisconsin. The farmers in Sheboygan county are probably, as a county, the wealthiest in the state. Men who are thoroughly posted in regard to the capabilities of both counties, I think, almost universally agree that this county is equal in its capacity to Sheboygan county. Yet in reality we are very far behind. Our timber has only lately given out, and during the past five or six years of very hard times we have been making a change from lumbering to agriculture, and not only the farmers but the business men of Green Bay have felt it terribly. It has been terrible hard times, and perhaps a worse time to have made that change could hardly have been chosen, but we are now getting on a solid foundation. We have got a thorough, strong working agricultural society in the county. It has been to work for quite a number of years and is doing good work, and the influence has been felt all over the county; the influence has been felt in Oconto county and other counties adjoining us. Although our farmers may not be largely represented in this convention, still they know that they will read

your addresses and your discussions. They know that they are to be printed, and that fact will prevent a good many from coming here and becoming acquainted with you. I regret that there are so few here, but it is not in my power to prevent it, and I do not want those who are here to think that they are talking to an empty house. I think there is no county in the state in which the volumes of the State Horticultural Society, the Northern Agricultural Society and the State Agricultural Society are more read than in this county. The books are mostly sent to me for distribution, and they are sought for with a great deal of interest, and are read more from year to year. They are asked for very often. Although we do not have the farmers here, I do not want you to think your addresses will not be read; such is not the case. They will be read all over the county as well as in other counties in the state.

Mr. Huntley — Mr. President, Ladies and Gentlemen: I had not seen this programme until I came into town. I was not aware that I was to be called on so early. I will say that I too am sorry that our county is not represented more largely. Our people promised to come. I think, however, there will be more during the day. It is pretty early to get up and have to come several miles to take the train, especially when the thermometer is down as low as it has been for a few days past; but I feel paid for coming. While on the cars, I got into the company of some of the representative men of the county, and got some good ideas. I asked a dairyman if he attended the dairymen's convention. He said he did. I asked him if these ideas were discussed there. He said they were not. I added that I hoped they would be discussed here. I hope to get a good deal of benefit myself from those present. Here we see representatives of agriculture and the dairy, and as Mr. Smith said, I think we shall be benefited ourselves, and the people in reading our volume will also be benefited. It is sometimes very difficult to get out to these meetings. Even an agricultural club represents but few of a township, and the working part of a convention or a society like the Horticultural or State Agricultural Society consists of but very few individuals. You are all aware of that; but the influence of a few good working members will be felt not only at the meetings, but by the reading portion of the community.

Mr. C. Hazen — I find on the programme the names of some who

are not present this morning. Hon. T. O. Howe was on the programme as the next.

Mr. J. M. Smith — I saw Judge Howe yesterday. He has been sick and confined to his bed, and was not really able to be up. He told me that they had telegraphed for him to go to Madison, and I presume if he is able to be up that he has gone there.

Mr. Chester Hazen — The next in order will be Mr. R. D. Torrey, secretary of the Northern Agricultural Society.

Mr. R. D. Torrey — Mr. President, Ladies and Gentlemen: It was left to me by brothers Huntley and Smith to arrange this programme, and really I had almost forgotten that I was on this part of it. I have been so accustomed to writing my name that I think that perhaps I wrote it there unintentionally.

Mr. J. M. Smith — Don't be so modest. Just say that you wished to be in this part of the programme.

Mr. R. D. Torrey — I wanted to get in good company. I congratulate myself upon being here at all. I wish to say that the small attendance does not discourage, and should not be thought a feature of discouragement, in meetings of this character. The few who gather here can create an influence that shall not only do good to those who are present, but shall be lasting and shall increase the interest in meetings of this kind. The second convention held under the auspices of this society was at Fond du Lac, and we were snow bound. A few got there. The many were away. The few staid and worked earnestly. I think Mr. Smith was the presiding officer at that time, and with the exception of one extraordinary occasion, which was a debate upon the currency question, I do not think at any time there were to exceed twenty or twenty-five present at the meeting. That evening the secretary of the State Agricultural Society was present and had a paper upon the interest question. Of course, many of the monied men of Fond du Lac and manufacturers and bankers, etc., were interested vitally in the question, and it was discussed thoroughly. With that exception there were but few present, but it was one of the best meetings, I think, we ever held. It is not numbers always that constitutes success. It is that earnest goaheadative feeling and spirit in meetings of this character which makes them successful. The great element of success is, that each person present shall fill a part in the meeting. If they feel they have any thought of value

to themselves, they have no right to it exclusively. For instance, if I have a thought that is of value to myself, I have no exclusive right to that thought, provided it can benefit somebody else; and as a person who desires the advancement of any interest that develops the resources of this country, I should give that broadcast to the world. I don't say this because I think I ever have any thoughts of value, but simply as an illustration. I do hope that all who attend the sessions of this convention will be prompt and ready to take part. Papers will be read, and some of them, I presume, have been written for the purpose of provoking discussion, or at least will provoke discussion, and all should feel free to engage in the discussions that take place, whether they be farmers, manufacturers, bankers, lawyers or ministers, or in any of the other callings of life. I think I may say without egotism on the part of the agricultural society that is represented here, that its volume of transactions have accomplished a vast amount of good, in this portion of the state especially. I think the papers and discussions that have been had for the last eight years have been read as extensively as any papers and as any volumes that have ever been issued in the Northwest, and perhaps in the Union. As secretary I have been frequently called upon for these volumes from distant portions of the United States. The volume containing the address of Charles Francis Adams at the fair at Oshkosh, I was requested to send to no less than seven different persons in England. I suppose on account of that address; in fact I know it was mainly on that account. In all the horticultural and agricultural societies of the country the volume is on file. Before taking my seat, I wish to say that Mr. Loper is present with us, and has furnished this society two very valuable papers upon the subject of manures, a vital subject to farmers and to everybody else. He has come to stay with us during this convention, but has not prepared a paper; but at any time when the convention shall see fit, he will address the convention on that subject, continuing the papers before given.

Mr. J. M. Smith — Mr. Richardson has come in since friend Torrey took the floor and his name was omitted. I suggest that he be called upon next.

Mr. C. Hazen — The next in order will be remarks from the Rev. H. Stone Richardson.

Mr. Richardson — Mr. President, Ladies and Gentlemen: I was

pleased with the remark made by the secretary, Mr. Torrey, that every man should feel, being present in this convention, that he has has no right alone to any thought, or to any other influence beneficial to himself and that would be beneficial to others. He has no right to keep it in his own heart or mind and so prove himself to be selfish and narrow. This is the advantage of conventions. We have conventions of all kinds. I have been very forcibly reminded of this during the present week. I have read in the various newspapers which come into my house, which are very many, of the meeting together of almost all classes and all kinds of people, for the promotion of various ends and purposes. I want to say to you that in my estimation, and I suppose you will indorse what I say, that we, as a convention, are not in importance and value to the world second to any one of them. The agricultural convention in its influence upon the world is not second to any of them that I know of. You understand, gentlemen, that this is not a new interest that you are here to represent. Adam, by divine ordination, was an agriculturist. It has been sometimes said that without an agricultural society, or without the experiment and work of the agriculturist, the world would not have starved, not have perished. There is a theory that God provided that spontaneous growth should supply the wants of men. Now you know I have no sympathy with this idea at all; I am not among the clergy who look upon labor as a curse. I do not believe that the "Thou shalt toil or labor and in the sweat of thy brow shalt earn thy bread," is any part of the curse — the labor part. The anxiety and care incidental to it is the part, perhaps, that might be called the curse, or rather, negatively, not a blessing. Adam was commanded to till the garden. Spontaneous growth never does sustain and never will sustain any people in anything like civilization.

It is true that there is a date tree that will supply a family of ten persons with food and clothing. There is one single tree in some parts of Persia that is able to supply the necessities of ten persons. You can imagine what their necessities would be. They are not what we would call necessities, but it is my opinion that God intended, in that command to Adam to till the soil, to establish this great thought and idea— that by tilling the soil we are going to be able to get what we need or what we must have for civilization and for the purposes of the world and the people. You know

that I am not expected to make a formal address this morning, and let me talk in this informal way a few moments. I am not going to take very much of your time. I want to get at this thought, that Cain and Abel came into the history of the world and to the knowledge of men as agriculturists, and I want to say I gather a good deal of a lesson out of the study of those two characters. Cain was a tiller of the soil and Abel was a keeper of sheep, and here were inaugurated two great branches of agriculture. In this early age of the world these two branches of agriculture were inaugurated by the presentation of the two characters of Cain and Abel, and you will understand that agriculture did not cease, but you will find that Elijah, looking after the old prophet upon whose shoulders the mantle to be laid aside was to fall, found the prophet Elisha plowing with twelve yoke of oxen. We sometimes get the idea that the theory of deep plowing was not accomplished until more recent years. If we look into the Old Testament we find men used twelve yoke of oxen away back in the dawn of history. So the great prophet was an agriculturist; knew how to drive twelve yoke of oxen. I suppose if his mantle has fallen upon any of the ministry in these days we ought not to call it dishonor. I feel that the cloak of Elijah fell upon the edge of my shoulders when I was a boy. My father was a farmer, afterwards a speculator, and I left home with my stockings and shoes tied up in a bundle to walk to the town that I might secure the ringing of the bell in a neighboring academy and so pay my board and schooling. I began to learn early how to work, and among the things I lean on with a good deal of confidence, is the ability that is in my arm to do a good deal of hard work. I never have allowed my muscles to wither; and I feel that if everything else should forsake me, it would be a very honorable thing for me to do to go to work on a farm, to go to work on a wood pile, and so secure what I might need for myself and family.

Now I want to say that the Greeks never prospered in agriculture, and I will tell you why. Because the menials, the slaves, were looked upon to do the work. In old Greece they looked down upon the men who did the agricultural work. The Romans considered it the highest possible honor that a man was a farmer; and right in those two ideas we find the difference in the prosperity of this branch of art. In the Greek it failed. In the Roman it succeeded. There was one obstacle to agriculture in Rome,

namely: No man was allowed to own more than six acres of ground; and it is a little wonderful to look at the history of agriculture in Rome. On this six acres of ground men worked with spades and hoes, rakes and plows. They had a very rude plow, but on that six acres of ground men accomplished wonderful things. But you can imagine Cincinnatus, or Cato, or Pliny, couldn't accomplish very much on six acres. They could not get the broad ideas that we have in America. In America we are not limited, only by our purse, to the number of acres a man can own, or I don't know but we ought to be limited. I am inclined to think we should be. So far as the Greek idea is concerned, the manual part of this country, the slavish part of it, is in the professions. The farmers that are successful in this country, the agriculturists, and that takes in both branches, takes in the horse as well as the hill, I say they are becoming men of intelligence. They make our best statesmen, and they accomplish more for the world than any other class that I know of. I am not comparing them to the ministry. I consider there is no work like the work of the ministry to which I am called. The moral influence of the agricultural class and agricultural conventions cannot be estimated. I am thankful I have met so many of you. I am thankful that you invited me to talk, and without any invitation at all you would have found me in some corner of your convention, an interested spectator of all you have to do. I thank you for the honor you have conferred in inviting me, but without an invitation, I consider myself honored in meeting you and hearing you speak and hearing your reports. [Applause.]

Mr. J. M. Smith — Before we go any further I want to take back what I said about having to do all the talking for our society; I forgot Mr. Richardson, who is a member of our society.

Mr. J. M. Smith then introduced Miss J. M. Lewis, who entertained the convention with a piano solo.

Mr. C. Hazen — As Mr. Plumb is not present, I will call on J. S. Stickney.

Mr. J. M. Smith — Mr. Stickney can talk for two or three men at any time.

Mr. C. Hazen — Mr. Stickney is ex-president of our State Horticultural Society.

Mr. J. S. Stickney — Mr. President and Ladies and Gentlemen:

Last June I spent two very pleasant days in Green Bay. It was my first visit to Green Bay. It was at our horticultural and agricultural convention combined; perhaps as much one as the other. I found everybody then very busy and under an unfortunate combination of circumstances, weather, etc., too pressingly busy to give much attention to the convention. I notwithstanding would liked to have seen ten or twenty times as many as I did see, but I felt pleased at what I did see. It is a very good thing to be busy. As far as I could see, everybody was busy and to a purpose, and profitable business. I certainly was as much interested in the business that I saw, particularly in my direct line, horticulture, as I have been in any business interests that I have met in a long time. The idea of it is just here, that the largest, and I presume by far the most profitable gardening business of the whole state, or of anywhere northwest of Chicago, should spring up here, and be carried on so successfully as to call into requisition special efforts in the way of irrigation and drainage, and all those things that go with advanced cultivation, was very pleasing to me, and I think it has been the subject of a little astonishment to a good many others that have been made aware of the fact; and I believe also that the dairying interests and other interests of agriculture are coming right along to astonish people in this same way in this very locality, where you have been considered lumbering, more particularly timber and wood and interests of that kind. I think all are waking up to new ideas, advanced ideas, in that direction; new discoveries of the capabilities of the resources and facilities that you hardly dreamed of ten years ago. To-day we find the elements against us again as to a full attendance. It is true that we shall have a good time. Where two or three are gathered together there is something accomplished, and if we do not have a full house, we shall have a pleasant time; and it is equally true, what we say and do will be reported and go out to be read, and will carry its influence far and wide, and that I almost dread for fear it will not be what it ought to be; that while we are trying to advance we may still be very far from just what we would like to teach in the way of books that go out to be read by hundreds and thousands. I have often almost trembled at the responsibility that we really do assume through our reports, horticultural and agricultural, of our state society and our two agricultural societies in the state. It stands us in hand to be careful to

do our level best, more perhaps than before. Those reports, I don't know how many volumes altogether. Perhaps Mr. Torrey can tell.

Mr. R. D. Torrey — Probably 10,000.

Mr. J. S. Stickney — Those reports are read largely by ten, or twenty, or thirty thousand people, and read by many of them with an earnest attention and an inquiry with a view of sifting out things from them that they can put into useful practice and be benefited by them. And really they do sift them out and work on them, sometimes successfully, sometimes otherwise. If we do not have a hundred or two hundred agriculturists here to-day, we can be sure of one other thing, we do have them with us practically. And out of every neighborhood which they come from, there is somebody doing good missionary work. It is good missionary work to buy and bring into a community a good breed of hogs, or poultry, or cattle, or horses. The best a man can do is to bring in something a little advanced of the others. It does good. If one man does that his neighbors are all looking, perhaps a little bit skeptical, and perhaps with a little bit of a sneer on the start. If it pans out, there are converts all the time, and in that way there is a good work going on all the while, and our teachings and the influence that we exert are all the time doing good. We can't estimate it, so if there be but a handful present, there is nothing discouraging about it. There is everything to encourage and to lead us to greater efforts from time to time, and this ought to be so, and I think will be so with increased force, until we arrive at the point that we can see that we have made every acre of land we cultivate available to its utmost capacity. I will stop right here and leave you all to judge how soon that work can be done. [Applause.]

Mr. C. Hazen — Voluntary speeches from gentlemen that have not been called upon are now in order. We call on any others present that will volunteer to talk to us. We will be pleased to hear from them.

Mr. J. M. Smith — I would like to ask Mr. Stickney about how near he has got his land to do its utmost. If he has got somewhere near it, I would like to come and see him next summer, and perhaps he can tell us how near he is to it.

Mr. J. S. Stickney — I have just begun. This week a man comes to commence on my property; a hole 1,500 feet deep will be dug

right down in the earth, after some water to irrigate, and get a little further with it. I have just begun. I find I need a little more than I have, and the work starts to-morrow.

Mr. J. M. Smith — I didn't know how you were going to cultivate that deep.

Mr. J. S. Stickney — I wish I could, but I think eighteen inches or two feet would be as deep and profitable as I could cultivate. Bye and bye, I hope, the time will come when I can ask some questions of what to do to get the most perfect results out of our manure; what to do in the way of irrigation when our land is dry and parched; if we had water facilities, how to use them. But as Prof. Daniells said when he heard me ask some questions once, "You can ask more questions in five minutes than a philosopher can answer in half a lifetime." I suppose that is true. Speaking of deep cultivation, I think we can bury fertilizers too deep. I have done it in good faith; but that is one of the lessons I bought and paid for pretty dearly.

Mr. Richardson — I was very much interested in the remark to-day, namely, that though our numbers may not be large, it does not necessary follow that our influence may not be as wide as though our numbers were greater. We have found in all our missionary work that it was thought that unless we had large missionary meetings there was nothing accomplished. We have found now if a few men and women who are interested come together, that they accomplish more work than though the numbers were very much larger. We found that to be true in our missionary labor, from the fact that those who are present know why they are present, and see things that are of very great importance and have time to see to them; and when it is reported and published, those who do not come get the news, and they get better news than though they were present. I hope the remark will be valuable to us and strengthen our confidence, and I hope although our numbers may be small our influence may be widespread.

Mr. J. M. Smith — I am as anxious as Mr. Stickney to hear the manure question and the question of deep cultivation discussed. I have done a good deal of experimenting in that line for the last twenty years. I prefer that we should wait until we have more present than we have this morning. We have a number of persons here that know something about farming. Some of them know

a good deal about it. Mr. J. N. Loper, of Oshkosh, the chairman of the society of another portion of Brown county, and other gentlemen. I propose that the president call upon them.

Mr. Hazen — Will Mr. Loper, of Oshkosh, respond to the call.

Mr. Loper — I feel as though I would like to be excused from saying anything, for the very good reason that I have nothing whatever to say. I have lived long enough to know that if one has nothing to say he better say nothing. But this subject of fertilizers must be an important one, and no doubt there are farmers here that know something about it. Mr. Hazen and Mr. Torrey have asked me to stand up before the convention in the shape of a cold link in a chain that is broken. For two years I have appeared before you with a paper each year, but this year I have prepared none, but I have been requested to try and give you one next year; and that the chain may not be broken entirely, I will stand up in that capacity and say that the subject is one that interests me, because it tends to benefit the farming community, if they will apply the knowledge that they can get in different ways. Of course, if land is not fed it will starve and die out in its producing qualities just the same as the body will if we stop feeding it. Crops, of course, take that from the land which must be replaced, or the farmers will be losers thereby. I will be as much interested in the discussion which may follow as any of you can be, for I want to learn all I can about this thing. I know just enough about it to feel that I am ignorant on the subject, and will simply say that if it is desired I will do my best to give you something next year.

Mr. Hazen — We have a little more time before the adjournment. We shall be glad to hear from any one who will favor us with a few remarks.

Mr. Smith — Come, Mr. Potter, don't keep all your wisdom to yourself.

Mr. Potter — I little thought of being called upon to say anything here to-day, from the fact that Mr. Smith knew I was not capable of saying anything, but I do not know but that it is meet and proper that you should hear something from the A B C part of farming. I heard some remarks here about the work that has been put out by the Northern Agricultural Society. Now I have read those books with a great deal of interest and they have been a great benefit to me in my calling as a farmer. One gentleman

here made a remark about the masterly paper that Mr. Adams gave you in Oshkosh a few years ago. I have read that paper, and I will say I was but very little interested in it, although it called for a good deal of brain work. I took a great deal more interest and a great deal more pleasure, and received a great deal more benefit from some of the other papers; for instance, the one by Mr. Curtis, of Rocky Run, Columbia county, on butter making. I adopted his plan and I think it has well paid me. Also one other paper on manure for clover. From those two papers I received more benefit than probably from any of the others. There is hardly an evening that I do not take up one or more of those volumes and read. If I want to find out about corn, or anything I am planting, I most always turn to those volumes before I commence or sometime during my work, and it is difficult to estimate the real value of those works among the farmers. We don't come here to make speeches. We come here to learn, but I wish to give my testimony to the fact that we can hardly estimate the value of those volumes to us farmers.

Mr. Richardson — I would like to hear from Mr. Stickney about digging his artesian well; what his hopes are about it. Whether he has hopes of getting water above the ground, and so on. What the cost will be.

Mr. Stickney — I suppose it will cost too much to be profitable for agricultural purposes. The cost will not be less than $3,000. The expectation is to get water flowing above the surface from 30 to 60 feet with quite a force. It is to be what is spoken of as a 6-inch well. It is 4½ inches actual bore. It is dug in the interest of manufacture, not agriculture, but it is dug on my part secondarily with a very strong hope that I may derive great benefit from it for irrigation, particularly in the growth of small fruits, which is a branch of my work, and especially in the time of strawberries. There are seasons when you see a crop of strawberries come forward almost to maturity, and, as it were, if not fade entirely out, deteriorate one-half to three-quarters of their value on account of the lack of moisture. The only question is whether such moisture, having abundance of water, equally, can be applied equally over the surface to make it as beneficial as it looks to be.

Mr. Richardson — Why not?

Mr. Stickney — My idea would be that it would be so difficult to

spread it so evenly over the whole surface, and with volume enough to go to the roots of the roots of the plants. Superficial watering, half watering, is worth less than nothing. If you can put it on so as to do the foliage no injury and then go to the roots, you have accomplished your work. Whether you can accomplish that, as you think you can, I doubt. It takes a good deal of water to moisten the ground to the depth of an inch or two below the surface. It takes a good deal of skill to apply it unless you drench it on in spray. If you do it in the bright sunshine, moderate sunshine, there is a probability of injuring your fruit or foliage.

Mr. Smith — Are you sure of that?

Mr. Stickney — No. Perhaps it is only imagination. But that doubt arises in my mind. I hope to know some day. The well I hope to get will discharge probably 500 barrels an hour — from 300 to 500 barrels an hour; but whether one can so spread that and utilize it so as to do just what he wants, I don't know. One thing I am very sure I can do with it. We haul from 300 to 500 loads of manure from the city annually. That comes in the shape of litter from the horse stables, and is coarse, light and loose, and by the very best management we have been able to give it in years past, I think one-third of it is wasted, except we spread it out and plow it immediately under the soil. The little we can do that in the spring and fall all goes under the soil, but the balance we have to hold for future use in what we call compost heaps, and it wastes. We put it in piles, 15 feet wide and 3 or 4 deep, and endeavor to cover it with earth and hold the moisture in, so it will not burn and fire fang. It is only partially successful. If I had a jet of water so I could keep it thoroughly wet, not exactly wet, but just moist, so as to keep it from burning, I think I should save from one-third to one-half of that manure.

Mr. Smith — Why don't you haul water?

Mr. Stickney — I have not time. I have too much to do, too many other things to distract my attention at that season of the year. If we had a faucet and a little hose to turn the water on, I think we could accomplish it. I have no doubt it would pay me to haul water and put it on there. I think I would gain enough in that way to pay the interest on the investment, and I hope to gain enough by the way of irrigation to crops to do more. I imagine a space of ground 20 or 30 feet wide, as long as you please, concave,

paved and cemented on the bottom, also elevated ground back, and into that bed-work piling this manure, then drench it with water so as to carry the liquid manures down to the bottom, and then draw it out on the lands below, so as to fertilize with liquid manure instead of irrigating with water. If that is too strong you can have it where that is taken out, so as to introduce a jet of water, and mix it with the liquid manure so it will not be so strong.

Mr. Smith — Why so, instead of using the liquid manure?

Mr. Stickney — I think it is possible to make it too strong for direct application. There are certain places where a little encouragement will do a great deal of good. I think a strawberry bed starting out in the spring, throwing out fruit stalks and blooms, and carried along from that time to maturity, would be benefited by something else than simple water, and so with many other things. Now we grow two or three acres of currants. We all think currants will grow anywhere and take care of themselves without any special encouragement. You are as mistaken as can be. Special encouragement will pay on them. We grow them for the markets, ship to Chicago and other points; and I believe hardly a year passes but in the course of the maturity and growth of the currant fruit a little liquid manure thrown down among the rows, not too strong, but strong enough to nourish and help, would improve the crop. All those things I hope to reach with this water; perhaps not all of them, but some portion of them. I am not so sure, but while I have faith to test it, I shall test it very moderately, but enough to know whether it will pay in dollars and cents. If I discover anything worth knowing I am very apt to tell of it, but if I get terribly beaten, I shall keep as still as posssible.

Mr. E. W. Daniels — I am not a public speaker. I intended to write a paper for this convention and would have done so had I known I was coming here. I expected to go to Madison until Sunday evening; some of my friends were coming and they induced me to come this way, so I have nothing written. About these artesian wells or fountains, I suppose Bros. Smith and Torrey have seen our place and know that we have plenty of them, and some very large ones, throwing an abundance of water, and I have been making that my study for some years since we have had them, and I think I have arrived at a correct conclusion. I have never heard any geologists dispute the theory which I have laid down, and if the

people wish to hear, I can give them my theory of it in a few minutes.

A voice — Let us hear it.

Mr. E. W. Daniels — Those that know the country north and west of me, know that it is a light sandy soil, undulating somewhat, higher than it is where we live in the timber. In the make-up of that alluvial country that was a little lower, and it was deposited entirely with clay and alluvial soil, whilst the sand a little north of us and west of us is a loose soil on top, and and of course it has a substratum somewhere. If it is 10 feet, 100 feet, or 1,000 down, it is all the same thing. We have over eight inches of rainfall each year, and the larger part of that water must pass down through that sand, and it comes to the impervious strata that holds it, and if it is 10 feet, or 100 feet, or 1,000 feet, it stays there. This overlay or clay lies on top of a large body of sand, and it is like a large bellows. This vein we get the water from is the nozzle that carries off the water, and it is a declination; and as we bore down through the overlay, the water passes up as high as the formation where it started. It finds its level. We have two veins there; the top one is soft water and the lower one is hard. We get water from 50 or 60 feet in the upper, and it is not so strong as the lower vein, and the water is soft. The lower vein is stronger. At the cheese factory in our town they have two wells — one of soft water and one of hard. The lower one passes almost to the top of the factory and comes down into their vats, any place they want it. That is hard water, and it is always cold, and both of them are pure.

Mr. Stickney — What depth do they go?

Mr. E. W. Daniels — From 90 to 120 in the lower vein, and it rushes up very strongly. Years ago there was one very near my saw mill. It was a very large one, almost as big as my arm. I guess a two-inch bore, and I thought I would try an experiment, but it didn't cost very much. It only cost $15. I thought I would dig several wells around the large one, and take them all down onto my saw-mill wheel and get 15 feet fall. I had only eight feet. I dug the second well, but it decreased the volume of the first one and I abandoned it. We have something over 50 artesian wells in the village. We can contract with a borer to get us one in any of our pastures for $10. They sink the well and warrant it for $10.

Mr. Huntley — I want Mr. Daniels to tell us what the agriculturists have been doing to utilize this water on the farm.

Mr. E. W. Daniels — I will tell you all I know about that. I was going to say to Mr. Stickney that I really had not had any experience in distributing this water evenly over the surface for the purpose of irrigation. Our country being clay or sandy loam, it hardly ever dries up. My soil I guess is better adapted to holding moisture than any other. On top we have sandy loam for about 18 inches; about 20 inches we have coarse sand and a little gravel, and about the same depth of clear gravel; then we come to red clay, and when it rains the water passes readily down through that strata of gravel and stands there until it is needed, until it is dry weather; then it evaporates up through and keeps our land moist. We hardly ever see any corn curl. The longer the country is cleared there, the drier, I think, it gets. We never have used the water much for agricultural purposes. Our soil does not dry up. We never have needed to utilize it for that purpose.

Mr. Huntley — Your compost heap don't heat.

Mr. E. W. Daniels — I would say that we don't pile up any to heat. We get out what we have in the barnyard. We don't make any compost heaps. We are in a dairy country and make all we need and we get good crops. If there are any further questions they wish to ask about those fountains I will try and answer them. There is one topic I would like to hear discussed. There is a class of traveling agents, they hail from Ohio, mostly, that have fruit in bottles that I am down on.

Mr. Stickney — Did you apply water to them.

Mr. E. W. Daniels — I would like to apply something to them, even if it was electricity. I do not intend to hit Wisconsin nurserymen, because if I do I would hit myself, as I am in that branch a little. I have talked with our sheriff about it, who travels a good deal, and he says that those agents have taken out of the county of Waushara $8,000 in the last few years. In my paper there you see I estimated it at $4,000, but Mr. W. W. Beach, the sheriff, and his son, think that they have taken $8,000 out of that sandy country, or rather the west part of it. They don't come into my part; we are better posted. They were talking of making some law for the benefit of the cheese-makers. Perhaps that is requisite. Now I think if there could be some legislation to stop

those miserable fellows from getting three or four prices for a worthless article, it would be well. They certainly sell a wild plum. It is between a tame and a wild one. It is this De Soto plum, and they sell them for $1.00 or $1.25. They represent them as from Ohio, and I guess a great many of them are from the Hicks nursery. I think if the nurserymen here want to sell good trees, and sell them honestly, that it is all right; but to have these Ohio fellows come in with their stock and sell at these enormous prices, it is entirely to the great damage of our horticultural friends. Now if there is any way to stop it, I would like to hear some discussion on that matter. How are you going to stop it? That is the question.

About your numbers. You will undoubtedly have more here. Those that come here look like earnest workers, and will undoubtedly impart what instructions they can to us. I came to learn, and I hope I shall. I don't know that I need say anything about the apple. I introduced this apple two years ago at Madison. This year we had an awful gale in our part of the country, and they blew off in September, and they are only about half as large as they ought to be. I know it is a seedling; they almost thought of reporting it as the Rhode Island Greening. They resemble it some. If they stand this winter, I have got quite a large number of trees, and I am in hopes they will be a real acquisition to Wisconsin fruit. We have not really had yet a good winter apple, and a good keeper, too.

Mr. Stickney — Very few.

Mr. E. W. Daniels — That is what I am trying to get. I don't pay any attention to seedlings unless they are a long keeper. If this winter carries them through without killing the bud, I will think I have got a good thing. If they kill, I will let them go. I won't misrepresent them. I hope they are an acquisition.

Mr. Huntley — I want to say just a word with regard to this humbugging. I don't think any law can be passed to touch those fellows. I think what you want in your vicinity is a live club that will educate those people to know the difference between something that is worthless and something that is good, and if you can get the people interested and have them attend the meetings and discussions, and have them take agricultural and horicultural journals, you will be doing the right thing.

Mr. E. W. Daniels — That is just where it pinches. In our part of the town they do not come around. In our town we have a farmers' club, and we meet every month, and those agents do not come around there. They know their men before they come, and they always ask if they take an agricultural paper, the Western Rural, for instance, or some leading paper; but it is the west part of our county where the people have not done much towards raising fruit. Some of them think they cannot raise any fruit but crab-apples. These Ohio fellows make them think they have Russian stock. They say that all these winters nothing has hurt their stock, when in fact it is more tender than any we raise. I can't extend this knowledge all through the county. I guess they didn't sell but $25 worth around in the neighborhood where I live, but I went up in the western part of the county a week or two ago, and about every fourth man had subscribed and got some trees, and they were ashamed to tell what they paid for them, but I found out by others. I was at a tavern where two or three of the agents put up. They were telling how much they made. One of them made $30 that day; the other had made $50, $60, $40, and so on. Their stock don't cost more than five or eight cents on the dollar. I know they can buy that kind of stock for from five to eight cents on the dollar. I don't know as there is any law that can reach them. Prof. Daniells told me last winter that the only way they could stop them from selling the hill-less oat, was to get up circulars and stick them up at every crossing.

Mr. Richardson — I felt very sorry a few years ago for a gentleman living near Janesville. He had prepared a piece of land of six acres; had by consultation with his neighbors and friends decided that it was the most favorable location that he had for a beautiful orchard. He bought the largest trees, if I understood what he said. I have no knowledge particularly of the matter. He bought expensive trees, the best looking trees, and set them out in the best manner with underdraining, and at last found out after a number of years that they were absolutely worthless. It is one of those frauds that perpetuates itself, and it seems to me a fraud of almost abyssmal darkness, because it perpetuates itself so long. It seems a very great crime against a man that he should labor so long, and then find out that he has been defrauded. I wish there could be some way to stop them, but I don't know but the best way would

be the way suggested, information; and then they want some few nurseries in every community, where they can put perfect confidence in the man, and then I think the time will come when they will not buy these things unless they know what they are.

Mr. Torrey — Before adjournment I would like to call attention to the afternoon programme. I understand that Mr. Angus, of Appleton, is not in the city. I would suggest that as Mr. Wheaton, of Auroraville, is present and has written a paper upon the dairy interest, that he be requested to read his paper this afternoon; and if Senator Howe is not in the city, that we request Mr. Stickney to furnish his paper this evening in place of Senator Howe. If we get the dairy interest scattered all through the volume we shall not find it.

Mr. Smith — There is another reason why I would like to hear the dairy interest discussed this afternoon, and that is that Mr. Hazen is with us. He is one of the officers of the State Dairymen's Association and one of the best dairymen in the northwest, as well posted as any man in the United States in that interest, and he will talk to us this afternoon and explain to us his system of dairying and cheese-making; and Mr. Wheaton is also a good dairyman, and we may expect a good discussion which will be thorough and practical.

Mr. Torrey — I would move that Mr. Wheaton's paper be taken up this afternoon.

Motion carried.

Convention adjourned until half-past one o'clock P. M.

1:30 O'CLOCK P. M.

Convention called to order by Mr. Smith.

Mr. Smith — At the request of our president, I take his place for a short time, as he is the first on the programme this afternoon on the dairy interest.

Ladies and gentlemen, I introduce to you Mr. Hazen, president of the Northern Agricultural and Mechanical Association, a gentleman who is thoroughly posted, perhaps as well posted, particularly in cheese dairying, as any gentleman in the northwest, and he wants and we all want you should ask him questions, and the answers,

perhaps, will be of more value, or as valuable as anything contained in his paper. He is recognized as a standard authority in dairying.

Mr. Hazen — Ladies and Gentlemen: I don't come before you expecting to fill the bill as stated by your worthy president, Mr. Smith, by any means. I presume you are all acquainted with him. If you are not, you want to weigh him and see what he is worth. He places too high an estimate altogether upon some people's ability.

Mr. Hazen then read a paper entitled

"THE DAIRY INTERESTS."

Mr. President, Ladies and Gentlemen: The duty of trying to interest the members of the Northern Wisconsin Agricultural and Mechanical Society on the important subject of dairy-farming, has a second time been assigned to me. As a dairy-farmer and manufacturer of cheese, I ought to be able to present some ideas that would interest at least some of the farmers present. But as a writer and speaker, I feel entirely incompetent to perform the duties assigned me.

The past season has been a very favorable one for dairymen in this country. The season has been very good. The quantity of butter and cheese produced has been more than an average. The quality has been better than for several years, that is, in northeastern Wisconsin, and prices have exceeded those of any season for several years, and I believe, cheese has brought as good prices the past season in real cash (gold) as we ever have realized for it in Wisconsin. With the high prices we have received the past season, a large increase in the quantity to be produced the coming season will naturally be expected. Still, there are good prospects for as large an increase for the demand for fine goods.

New markets for our dairy goods are continually being opened up. Quite an extensive trade is now being carried on with the southern states, which take large quantities of skim-milk cheese, a very fortunate thing for our Wisconsin dairymen that are doing all within their power to maintain the reputation of Wisconsin full-stock or full-cream cheese. In addition to the new markets being developed, there is a steady and rapid increase of population in

our own county, which must necessarily create an increased demand for our dairy products.

It is estimated that the increase of population in the United States the past five years has been in a greater ratio than the increase of cows. Allowing this to be the case, there is little fear of the dairy business being overdone very soon, at least. In order to give you some idea of the extent of the dairy products of our country, I will quote from official reports of the New York markets, receipts and exports.

COMPARATIVE RECEIPTS AND EXPORTS OF CHEESE FROM 1874 TO 1880.

YEAR.	Receipts. Pkgs.	Exports. Pounds.
1880	2,673,500	123,241,490
1879	2,600,242	129,624,260
1878	3,172,767	136,384,523
1877	2,420,601	106,361,454
1876	2,171,617	93,475,659
1875	2,322,331	92,840,086
1874	2,026,468	94,717,810

The following interesting letter from Prof. Willard to Dr. A. S. Heath, and incorporated by him in his lecture on Food and Our Agricultural Resources, delivered before one of the largest and most intelligent audiences of the course of Saturday night lectures of the Cooper Institute, on January 8, 1881, speaks for itself:

"LITTLE FALLS, N. Y., December 30, 1880.

"DR. A. S. HEATH, New York.

"MY DEAR SIR: Your inquiry concerning the dairy industry of the state of New York is received.

"In reply, I would state that so far back as 1864 the butter product of New York was nearly 85,000,000 of pounds, and the cheese product 72,000,000 pounds. The value of these products at that time, at a very moderate estimate, was more than $50,000,000.

"The wheat crop of the state in 1864 was 6,000,000 bushels; oats, 19,000,000; rye, 2,000,000; barley, 3,000,000; and corn, 17,000,000. The product of New York dairies, therefore, sold for more than the entire grain crop of the state.

COMPARATIVE RECEIPTS AND EXPORTS OF BUTTER FROM 1874 TO 1880.

YEAR.	Receipts. Pkgs.	Exports. Pounds.
1880	1,474,551	28,188,364
1879	1,581,825	36,153,444
1878	1,377,863	23,029,732
1877	1,269,759	19,686,447
1876	1,292,577	10,045,434
1875	1,080,899	4,216,548
1874	994,430	4,695,111

"The wool clip of the state that year was not quite 16,000,000 of pounds, which, at 70 cents per pound, would amount to $11,200,000, a little more than one-fifth of the value of butter and cheese sold. But, if we add to the butter and cheese sold in 1864 the milk sold in towns and cities, the calves raised and the pork fed on sour milk and dairy slops, you will see that *even at that time* the dairy was by far the most important agricultural interest in the state.

"In 1875 the butter made in the state in families and factories, is put by the state census at 111,087,486 pounds, of which 107,873,-361 pounds were made in families. The cheese of all sorts made in families and factories amounted to 98,725,166 pounds.

"The milk sold was reported by the census of that year at 51,911,509 gallons."

Perhaps it might interest some now present to know where the butter and cheese shipped from New York city goes to. This, however, is not the only export city we have. Boston is doing quite a heavy export business; also Philadelphia; and Montreal in Canada is an important shipping port. Some of our Wisconsin butter and cheese fall off through Montreal.

EXPORTS OF BUTTER.

The following are the exports of butter from New York to the under-mentioned ports since May 1, 1880 (beginning of the trade year), and for the week ending January 12:

PORTS.	This week.	Previously.	Total.
Liverpool	35,760	8,931,117	8,966,877
London	3,220	702,372	705,592
Glasgow	57,069	5,627,889	5,684,958
Bristol	.....	1,554,878	1,554,878
Cardiff	12,980	929,793	942,773
Hull	.....	108,130	108.130
Newcastle	.....	168,280	168,280
Havre	16,547	235,301	251,848
Hamburg	3,950	1,216,969	1,220,919
Bremen	5,000	1,014,072	1,019,072
Other ports	85,557	3,197,319	3,282,876
Totals	222,063	23,486,120	23,906,205

EXPORTS OF CHEESE.

The following are the exports from New York to the under-mentioned ports since May 1, 1880 (beginning of the trade year), and for the week ending January 12:

PORTS.	This week.	Previously.	Total.
Liverpool	369,245	69,161,651	69,530,896
London	223,980	11,813,699	12,037,679
Glasgow	271,517	15,962,205	16,233,722
Bristol	101,640	10,571,488	10,673,128
Cardiff	78,450	1,084,391	1,162,841
Hull	19,020	356,821	375,841
Newcastle	.....	514,654	514,654
Havre	.....	121,145	121,145
Hamburg	.....	119,373	119,373
Bremen	.....	575,480	575,480
Other ports	98,560	2,001,837	2,100,397
Total	1,162,412	112,282,744	113,445,156

EXPORTS OF OLEOMARGARINE.

The following are the exports of oleomargarine from New York to the under-mentioned ports since May 1, and for the week ending January 12:

PORTS.	This week.	Previously.	Total.
Liverpool		673,325	673,325
London	2,578	48,347	50,925
Glasgow		1,078,718	1,078,718
Bristol		164,430	164,430
Rotterdam	98,540	4,868,117	4,966,657
Antwerp		485,870	485,870
Hamburg	9,000	30,724	39,724
Bremen		81,712	81,712
Other ports	10,750	338,064	348,814
Totals	120,868	7,769,307	7,890,175

PRICES OF BUTTER IN NEW YORK JANUARY 8, 1881.

Creamery, western, choice	33 @34c
Creamery, western, fair to prime	28 @32c
Creamery, state, good to prime	27 @30c
Creamery, poor to fair	20 @25c
State, dairies entire, choice	25 @—c
State, dairies entire, fair to prime	22 @24c
State, firkins, best	23 @24c
State, firkins, fair to prime	19 @22c
State, pails and h. f. tubs, fine fall	28 @—c
State, pails and h. f. tubs, fair to prime	24 @27c
State, pails and h. f. tubs, poor	19 @20c
State, Welsh tubs, fine fall	26 @27c
State, Welsh tubs, good to prime	22 @23c
State, Welsh tubs, poor to fair	19 @21c
Western, imitation creamery	23 @28c
Western, dairy, fresh, extra	23 @24c
Western, dairy, good to prime	21 @22c
Western, dairy, poor to fair	15 @20c
Western, factory, special marks, fancy	22 @—c
Western, factory, prime	20 @21c
Western, factory, fair to good	14 @16c
Western, factory, poor	12½@13c
Roll butter, fair to choice	18 @20c

Receipts for the week, 19,013 packages; last week, 16,537 packages; corresponding week last year, 25,631.

I have not yet noticed any exports of butterine, better known as lard butter. This appears to be the last, but I fear not the least, in point of deception, and the amount now being manufactured and put upon the market. Butterine is a mixture of butter and lard, in proportion to one-third or one quarter or less of butter, as the

case may be, colored and manipulated, so it is a very good imitation of genuine cow butter. This seems to be a western product, and I fear is working a great injury to our dairy interests. It is now being extensively manufactured in Chicago; some in Milwaukee, and reports say there is an establishment in Jefferson county, Wisconsin, that is making some of their surplus lard into butterine to feed the hungry people with.

Skim-milk cheese, oleomargarine-butter and butterine are the principal obstacles now arrayed against, and interfering with the dairy interests of our country.

Skim-milk cheese, because it is a tough, indigestible, unwholesome article of food, and prevents the sale and consumption of many times its weight of good, rich, mellow, wholsome, all-milk cheese.

Oleomargarine, because it is a fraud and imposition on both the producers and consumers of good creamery and dairy butter, and the same may be said of butterine.

All that can be done that I know of to prevent the sale and use of those adulterated goods is to have a law passed compelling the venders of such goods to brand them in plain, legible letters just what they are, under penalty of fine and imprisonment. Such laws are now in force in New York and Chicago, and will soon be in Wisconsin, and a delegation is now in Washington to present such claims for the protection of our dairy interests to congress, requesting a general law that will include the United States.

When such laws are passed, it will be the duty of our Wisconsin dairymen and manufacturers of dairy goods, to see that none but gilt-edged butter and fine cheese are produced, so that the consumers of dairy goods can easily distinguish between the genuine and the adulterated articles.

With the good prospects before us for favorable markets for years to come, and one of the finest countries on the continent, everything considered, for the production of fine butter and cheese, it seems strange to me that so many of the farmers here in northeastern Wisconsin will continue to sow wheat year after year, when, on an average, there has not been more than one year in five that wheat, on an average, in our state has payed cost of production, and at the same time impoverishing their lands, when dairying or many other branches of stock-raising, such as beef, pork, wool, raising horses, are all remunerative, if well managed by thorough, skill-

ful and educated farmers. When I say educated farmers, I mean farmers that take pains to investigate, experiment and inform themselves in their particular line of farming.

I do not attempt to convince the farmers of Wisconsin that dairying is the only or the best paying business that they can pursue. But I simply wish to state that I believe, everything consid ered, and for the average farmer, it will, if intelligently managed, pay as well as any line of farming that we can pursue.

While I believe I have stated the truth, I would not advise any of my brother farmers to invest his means, or a very large portion of it, in dairying, unless he has some qualifications for dairying.

First, and not least, a man should take a deep interest and a liking to for any occupation he intends to pursue. And strive to be content with his lot or occupation, and willing to labor for an honest living.

It is no disgrace to any man to labor, and there is no industry more honorable than the tillers of the soil. And I know of no class of agriculturists that are any better posted in their profes-sion, or such occupation that requires a better knowledge of their business, than the dairy farmer. In a convention of the industrial pursuits of a country like this, there is not timet o discuss the vari-ous subjects relating to the dairy interests.

Those wishing for a more detailed statement or fuller discussion on dairy topics, would do well to procure the annual reports of the proceedings of our State Dairymen's Association.

The subject of green feed for cows or any other stock during the entire year, is a subject rather new to most of us. And many farmers are waiting with a great deal of anxiety to know what the final results of the siloes will be. This is a system of cutting corn, clover, or any other crop desired, and packing in an air tight cellar or room when green, and holding it in that condition until it is to be fed to stock during the winter. For further information I will read an article which is published in the American Dairyman, Jan-uary 13, 1881:

THE BUCKLEY SILOS.

"The Messrs. Buckley, of Port Jervis, N. Y., have the largest dairy in this section, milking over fifty cows summer and winter, and keep altogether between sixty-five and seventy head of cattle.

It has been their practice for many years to put in a large lot of sowed corn, which was stacked near the barn, and in the winter cut fine and mixed with feed. Last year, having determined to erect silos, and ensilage a part of their corn, they put in a much larger crop than usual. They also raised a large quantity of beets, as they have done for several years. There being no sidehill near their barn, they decided to build the silos in it, and for that purpose removed a portion of the cow-stable floor. Here a pit was prepared fifteen and a half feet deep and twenty-five by twenty-three feet surface measure.

"Outside concrete walls were erected, and a two-foot wall to divide it into two equal parts, making two silos twenty-two by nine. These were given a lining of cement, and made perfectly water and air-tight. The cost of these silos was about $300, the labor costing $218.44, the lime (twenty-five barrels) and cement (fifty barrels), $78.10. Eight barrels of the lime were Glen Falls; the remainder a low grade. The earth from the excavation furnished the other material, besides filling the stable yard, over 100 wagon loads being used. This has long been a necessity, and in Messrs. Buckley's opinion was a saving of $75. These silos were not finished until late in the season, and the corn was a trifle past the proper stage. The filling was performed in about a week. The cutter and power were placed at one end of the silos; a strong team of mules supplied the power, and it took three men to run the cutter — two to feed it and one to keep the ensilage passing into the silos. Here another man spread it evenly as possible.

One man and one team were required to haul the corn from the field. So soon as a wagon load was brought into the barn, the team was unhitched and put to the empty wagon. In the field there were three men cutting the corn and loading the wagon. This made a total of eight men and two teams. With this force twenty tons a day were prepared, ten tons in each silo, and about sixty tons were put in each, or a total of one hundred and twenty tons; that is, fifty pounds to the bushel, a small estimate, and two thousand and four hundred bushels each. When the corn had attained a height of three or four feet above the walls, it was covered with boards, and stones piled on the top of these, until it had settled for a day or two, when the operation was repeated. This occurred three times before Mr. Buckley was satisfied. Even then it settled

about two feet below the top of the wall. The last time six inches of rye straw was put between the ensilage and the boards.

The floor was then laid, and the silos left until January 4, when one of them was opened in the presence of several interested persons gathered to witness the operation. Immediately under the rye straw the ensilage was found compacted into a crust about one inch and a half thick; under this it remained in very near the same condition as when put in last September, and had a very agreeable odor. The only difference was its color, which had become a light-brown, or straw color; an impression had prevailed that it should retain its green hue, and this was the only disappointment. Fifty-five cows had received their usual morning ration of feed and hay before the opening, and were each given half a bushel of ensilage; the crust was also given, and at the end of a few minutes the crust was all that was left, the cows eating the ensilage with avidity. The Messrs. Buckley were highly pleased with the result of the opening, and should the experiment meet with continued success as the contents are removed, two additional silos will be constructed next summer."

This new process of preparing green feed for stock, if it should prove to be a success, is going to be the greatest improvement of the nineteenth century, for the feeding of dairy and other stock. This will enable dairymen to run their their dairies summer and winter, and with as little expense in winter as summer. And bntter and cheese invariably bring a higher price in winter than in the summer season.

With a hope that some of the ideas I have presented may call out some discussion that will prove beneficial to our dairy interests, I will leave this subject for your further consideration.

(Signed) CHESTER HAZEN.

January 18, 1881.

Mr. Hazen — I am entirely, as I stated before, unaccustomed to preparing and reading papers, and in our convention here of the farmers and industries of the northeastern part of our state, we cannot enter into a detailed account in any one direction, of the operations or benefits of dairying, as we do in our State Dairymen's Association. There we have a meeting of two days, and sometimes more, devoted entirely to the dairy business. Here I have merely sketched a kind of an outline, perhaps, of what I

thought might draw out some little discussion. If any person has any questions to ask I will try and answer them.

Mr. Smith — I think it might possibly be better for us to listen to Mr. Wheaton's paper, and then have the discussion following. If there are any objections to that way, and the gentlemen will state them, we will listen to them. If there are no objections, I think it would perhaps be better to listen to Mr. Wheaton's paper, and then have the discussion afterwards. But previous to listening to Mr. Wheaton's paper, I propose we listen to a song from our friend, Mr. Davis. He is one of our Green Bay singers, whom we are not ashamed of by any means. At the close of the music, Mr. Wheaton will read his paper.

Song by Mr. Davis, accompanied by Miss Lewis.

Mr. Wheaton — I didn't have but a very short time to prepare anything for this meeting, not knowing I was to be present here. I did not make any calculations to be present, and what few remarks I have prepared, will be more for the purpose of drawing out discussion than anything else.

A paper was then read by Mr. Wheaton, entitled:

THE DAIRYMAN A PUBLIC BENEFACTOR.

Being a manufacturer of dairy goods, it is but natural that I should wish to raise the calling of dairymen to that plane of excellence to which it properly belongs, and to the appreciation to which, in my mind, no other product of the farm is justly entitled to; and, being a young man, you will please pardon me if in my hastily prepared paper I shall make any statements which shall not meet with your approval. We cannot all be dairymen, it is true, but a great many more of us can be, than are, and more of us that are can and ought to be better dairymen. The time has at last come when dairying is to be recognized in Wisconsin as the farmer's saviour and protector. Methinks I see a smile flit over the faces of this intelligent audience at that, in your minds, presumptious statement. But I shall insist that it is a stubborn fact nevertheless. It is suicidal almost, for the farmer of Wisconsin to think for a moment that he can utilize his farm in grain raising and compete with the grain farmers of the great Northwest. Would any

of the farmers here present want to entrust their farms to the management of a man who would persist in seeding the land year after year to a crop or crops which, taking the cost or value of said land into consideration, could be raised one thousand miles west of here and shipped here for absolutely less than the cost of producing the same amount here? I think not; and I also think you would be loud in your condemnation of such management; yet there are farmers all over this, the northern part of the state of Wisconsin, who are doing this very thing and will persist in so doing as long as they live, or until the land becomes exhausted, and they become bankrupt farmers. Then, instead of attributing the cause of their failure to their own short-sightedness, they will curse the commercial monopolists and the railroads for all the trouble and financial embarrassment that has come to them, and their advice to the young man will be, "go west;" while the dairyman will look calmly on with a smile that is child-like and bland, and say, I will take your worn out farm at its value, fifty cents on the dollar, on the first investment, for my son, who is a dairyman; he will recuperate and reclaim your old worn out farm, and cause it to blossom like the rose. But some will say, as I have already stated, we can not all be dairymen, because if we were, there would be an over-production and a collapse in the prices of dairy goods. True, but I will answer that, by stating what the best dairymen of Wisconsin and the United States will bear me out in, it takes brains to become a successful dairyman, and not brains alone, but a utility of brain power not required in the pursuit of grain raising; also it requires all the patience, perseverance and indomitable will of the strongest and best men of our land. It is true that many men of moderate minds become good dairymen and are fairly successful. But I would also call your attention to the fact that they all succeed to a less or greater degree, according to their ability and sticktoitiveness. Again, dairying cannot be practiced successfully over a very large area of country, as where the climate is too warm, it is very unfavorable to the production of the finest dairy goods, be it either butter or cheese, that is desirable.

We in Wisconsin have the most desirable temperature for the finest of these products. But temperature is not the only thing necessary; good soil, good water and pure air are also very necessary in connection with this rapidly growing industry in our state.

These we have in this particular locality in great abundance, and nowhere probably in the state more abundantly than where I live, in Waushara county, especially water, and many localities between your city, Green Bay and there, and the great wonder, to me at least, is, why it is not utilized to a much greater extent for the production of dairy goods, which I am very sure would bring the owners of this section more satisfactory returns than the business they are now engaged in, wheat or grain raising. Now a word in support of the title of this paper, "The Dairyman, a Public Benefactor." Is he a benefactor or contributor to any one's good or comfort besides himself and family and friends? Well, I will leave it to you to judge and will abide by your decision. Ten years ago dairying was so little practiced in this state that the name Wisconsin, as applied to butter and cheese, was not known outside its limits. Ten years ago this winter, the Wisconsin Dairymen's Association was formed at Watertown, in this state, with a membership of eight, through the co-operation and earnest determination of some of its members to compel the markets of the world to recognize Wisconsin as one of the first states of the United States in the production of dairy products. The first car-load of cheese was shipped to New York with the grave admonition from dealers in New York to abstain from putting upon it any mark or brand by which it might be known as emanating from Wisconsin. From that little grain of mustard seed has sprung the now great industry of the state, and from this industry has sprung up a great production from which millions of people have partaken with satisfaction and delight. This product has knocked at the doors of commerce in the old world and been admitted, causing her to unlock her vaults and send a stream of gold, flowing to this, her daughter country. It has also caused this state to rise in prominence among her sister states of the Union, until to-day they do not turn away in scorn when the cheese or package of butter which takes the highest award at international fairs is marked Wisconsin. New York state more than two years ago proclaimed to the world that she could not compete with us in the manufacture of butter and cheese except in quantity, and I will give you a little insight into the possibilities of our future in this product by stating that as I have been informed the product of Sheboygan county alone this year has amounted to more than $750,000. Let me ask the thinking farmer (for here we find them;

we don't, as a rule, find the dead-heads in conventions of this kind), what would be the increase of wealth in this state if all the counties in the state adapted to dairying should follow her example; and then let me ask you whether the dairymen of Wisconsin have or have not done anything for the public welfare of our state. They, I do not take much credit to myself, because I have not done much to merit it, but they, the pioneer dairymen of Wisconsin, have taken hold of the pauper by the hand, the personification of rags and disgrace, and perched her upon the pedestal of affluence and renown, striking out and crushing as the heel of man crushed the serpent's head, the stigma cast upon her fair name, and forever may she stand a warning to defilers of her fair name and an honor to the men who placed her there in this connection. It may be well to look back and over the ground these men have traversed and see how these results have been accomplished. In the first place, they commenced the advancement of dairying by holding conventions similar to this one, and later by having printed reports circulated among the more negligent and penny wise and pound foolish ones who thought they could not afford to attend the meetings. They never made a greater mistake, however.

No farmer can afford to be absent from a meeting of this kind, if held within fifty miles of his home. Books are dumb instructors, while here we have live instructors; besides, no man knows so little that any man cannot learn something from him. Thus the interchange of views at conventions of this kind has promoted the dairy interest, and placed it where we may well feel proud of its success. As this part of the state is not very well supplied with cheese or butter factories, it might be well to mention a few of the things necessary to produce a first-class article, and I will commence by giving a few ideas as to how butter should be made, and what rules must be observed to make it.

First, get the cow, and be sure you get a good one. It costs no more to keep a good one that will give forty pounds of milk per day, than it does to keep a poor one that will give but twenty pounds per day, while the receipts will be twice as large. Then having obtained the cow, feed her; it has been said that God loves a cheerful giver, and it might be said the dairymaid loves a liberal feeder. The cow is the machine, the feed the material. Next in order are the implements to make the butter with, which should be of the most improved pattern, and those the most conducive to

economy and cleanliness. Next, get the right person to make the butter, which should be one that is very particular and very exacting, and the personification of neatness. I have often heard ranting men say that old maids were of no earthly use in this world, but I beg leave to contradict that opinion. I think they can be utilized as butter-makers, and the more exacting they are (for which I believe they maintain a reputation) the better, and the better the butter. The same requisites are necessary in the manufacture of cheese, with the exception of the old maid, which should be instead, an old bach; one that was not so sour as to coagulate the milk without the use of rennet, but one that would be imperative in his demands upon the patrons for good milk, and nothing but good milk, and conservative enough not to think he knew it all quite, and therefore would be eagerly seeking after knowledge by reading and attending and taking part in conventions, and a lively interchange of views contrary to his own, that might be sifted and the best preserved, by which method the greatest good is derived.

Mr. Smith — I would like to ask Mr. Hazen how Brown county compares with Sheboygan county in natural resources, in capacity for dairying?

Mr. Hazen — I am not very well acquainted in Brown county. I have traveled through it many times, but it would seem to me that that county would be as good for dairying as Sheboygan county. It has very nearly the same climate. I do think that these lake counties have a little advantage over the counties back from the lake in extreme hot weather. I reside in Fond du Lac county; that lies west of Sheboygan. Along fifteen miles from the lake, in extreme hot weather, they have a little cooler atmosphere, a little damper atmosphere, which is a little better adapted to the manufacture of butter and cheese than where I reside. In fact in the hottest weather, some of the time, when the thermometer goes up to ninety in the shade, we cannot produce good butter and cheese. I speak more particularly about cheese than butter, because I am more acquainted with the manufacture of cheese. We cannot get as good cheese as in cooler weather. It is not in the milk. The milk, I believe, is deteriorated in that hot weather before it is drawn from the cow. Take as good care of it as you can, you can't make as good cheese as you can in cooler weather.

Mr. Huntley — While Mr. Hazen is speaking I would like to ask

him a question. He spoke of oleomargarine, butterine, and that laws be passed against selling them. I would like to ask Mr. Hazen whether any poisonous compounds enter into that manufacture? Whether it is detrimental as far as health is concerned?

Mr. Hazen — I think there is nothing detrimental. Oleomargarine is made principally from beef suet. I don't know but that they are just as clean in manufacturing it into butter as we are with our dairy butter. The only difference is, it is tallow with a small mixture of cream, which takes away the tallow taste to it. It is difficult to detect. I have tested it; I have eaten it; had it on the table at the International Dairy Convention, one and two years ago. I think there is nothing injurious to health. It is an article of commerce, and has its use in its place, but not to the extent of butter. Butterine is lard principally, with also a small proportion of butter mixed with it. I am not prepared to state the process of preparing it. The wholesomeness of it as food compares with butter and lard. You can all judge for yourselves. It is so manipulated that it resembles a good article of butter. It has as good a grain as any butter you can find, so also has oleomargarine. It does not have the taste of good fine butter. It does not have the fine desirable taste and has no bad taste. It is used for cooking purposes and it will take the place of lard and tallow. If they cannot get good butter, they buy that and use it in the place of the poorer grades of butter. You can buy it in the markets. It does not come in competition with our good creamery butter, but with low grade butter, and it will be bought and consumed by the people in manufacturing towns at the same price or even higher price than our low grade butter. I think it will retain its good qualities, if you may call them so, longer than low grade butter. No objections can be found against oleomargarine and butterine. People will manufacture them. All that dairymen ask is, that they sell them under the right name, so that the purchaser and consumer knows what he is buying. Where dairymen expect to avoid competition with it, they must do it by their judgment and skill in the manufacture of a finer article of butter that cannot be imitated by tallow and lard.

Mr. Loper — I can indorse just what has been said, that so long as oleomargarine is made in a clean way, it must be fit to eat. I have sold thousands of pounds of suet this winter for that purpose,

and the man I sold it to was very particular to have it clean. It must be sweet and clean, and even after sending it away as clean as possible, it would be sorted over again. The manufacture of it was carried on clear through as cleanly as it was started. It certainly must be fit to eat. No doubt the best dairy butter will always be in better demand than that, but that certainly would be above the grade of poor dairy butter.

Mr. Smith — I know that there are some of our farmers here that are anxious to get at the cost of getting up a moderate sized cheese factory. Will Mr. Hazen or Mr. Wheaton, either of them, give us the cost of getting up one, say that will manufacture the milk from one hundred and fifty to two hundred cows or thereabouts.

Mr. Wheaton — A factory of that size for that number of cows, including the building and everything, can be gotten up now for about $1,000. It would require one vat of six hundred gallons. You would not want any smaller than that, because a man building a factory would have to expect more milk, and probably a six hundred gallon vat now would cost about $60. A press, the screws cost $2.75 each and the hoops $2 each. I could give a list of the articles needed, but the whole cost could be about $1,000, with a good substantial building, and one I would deem sufficient to make cheese in. It wants a good building to make cheese in, and pure cheese, and any old shell of a building won't do. It wants a building you can keep warm and one that you can keep cool.

Mr. Campbell — How much water is required to run a cheese factory?

Mr. Wheaton — If you have running water, an inch and a half stream in diameter would be large enough, and the only object in having it as large as that would be to have it fresh and cool and just as you wanted it. It wants cool water and fresh water, because if you want to use it to cool the milk or anything of that kind, you want to run a pretty good stream all the time and want it cool. You don't want to run it into tanks and leave it for a hot day to get warm.

Mr. Campbell — Might not ice be used to cool the water?

Mr. Wheaton — Yes, sir. Where you had ice it would require less water.

Mr. Huntley — If the farmers cooled their milk before it left the dairy would it require any cool water at all?

Mr. Wheaton — No, it wouldn't.

Mr. Huntley — Then about how much water would it take?

Mr. Wheaton — Probably five to ten barrels of water a day.

Mr. Huntley — Wouldn't one barrel of water a day do if that water was economized and was stored away for heating purposes?

Mr. Wheaton — I don't think it would.

Mr. Huntley — The reason I ask this is, a good many get the idea that it requires a large quantity of water. There is a small factory at our place and the cheese-man says he thinks by economizing the water, using it over, that a barrel or a barrel and a half of water a day would be sufficient.

Mr. Wheaton — He could if he had a tank. When you let down the vat you let down the curd. It keeps springing the bottom of the vat up and down, up and down, and bye-and-bye it cracks.

Mr. Huntley — A good many get the idea that it requires so much water to run a cheese factory. There are a great many places where the water couldn't be had. I think it no objection to starting a factory. Of course the patrons would have to cool the milk. I think it a good deal better way.

Mr. Wheaton — Yes. I think no manufacturer can take the milk in the factory and cool it and have it in so good a state of preservation as it can be had by cooling it at home. If there is not any water at the factory, I think it one of the best things for a factory man.

Mr. Huntley — Not to have water?

Mr. Wheaton — Not to have water. I have got an unlimited supply, twenty feet high. It is almost impossible for me to get the patrons to cool their milk on account of that fact.

Mr. Huntley — I was aware of this fact. I was talking to a gentleman on the cars coming up, and drew out from him that it was better not to have a supply of water.

Mr. Hazen — Perhaps I might say a word here that would interest some people who are thinking of starting a factory. My experience was to receive milk at the factory once a day. Our patrons have to cool the milk to deliver it at the factory before it is sour, and take care of it at home. I don't know as it would make any difference how much water I had at the factory, the patrons want to attend to this. Any man who has a large dairy, and milks and puts it in the cans and starts for the factory without cooling it,

will have that milk damaged before he can get to the factory. Nobody can make cheese out of that milk; milk should have the animal heat out of it after it comes from the cow. I have a great deal more trouble in my factory from the morning's milk from some patrons, than I do with the evening's milk, for the reason that they cannot get it to the factory before it gets tainted.

It seems to be the height of their ambition to get the milk there as soon as possible. I don't say it is so with all the patrons, but there will be some of that kind. The only way to do with them is to require them to cool the milk at home. Many of them live a good ways off.

Mr. Smith — How far?

Mr. Hazen — Some of them bring it four or five miles. My heaviest patron brings it four and three-quarters miles, and if that milk is not taken care of before it starts for the factory, it will get damaged before he delivers it. In building a cheese factory and starting a manufactory of this kind, farmers have got to organize themselves into some kind of a society. It is a co-operative society. Every member is interested then in the success of the association in proportion to the amount they deliver, and it is their duty, every one of them, to see that their milk is brought and delivered at the factory in good condition, and see that their neighbors do the same; not to wait until some trouble comes up and then turn around and say such a man has been tampering with his milk, after it is too late to do anything about it, as it is the case sometimes, in my experience with some honest farmers, honest grangers. One told me his milk was getting pretty thick, pretty rich, and he watered it a little. Some of them, I have no doubt, think that their milk is a little richer than their neighbor's, and will stand a little water and then be just as good as their neighbor's; at least they practice that sometimes and then get caught at it. It has been so with some of my own patrons even, and I have known of others having the same difficulty. Running a cheese factory is not a pleasant task for any man to take upon his shoulders. He will have fault found with him, do the best he can. Some men are addicted to finding fault. Some men are not strictly honest. (A voice, *whew!*) You will find honest men in all classes, and some dishonest men. You find the temptation to put in a little water, or take a little cream off in the morning to put in the coffee, is very strong for a man who thinks he can do it without being detected.

Mr. Huntley — How are you going to get the cream to put in your coffee?

Mr. Hazen — Let him skim his milk in the morning and use the skim milk himself.

Mr. Huntley — I will bet you $100 there is not one in a hundred does that.

Mr. Torrey — I think if this cheese business makes dairymen dishonest, we had better waive the discussion, and not recommend it to Brown county farmers.

Mr. Smith — You spoke once about not being able to make as good an article of cheese in the hot summer months as earlier or later in the season. That the material to make it was not in the milk. Suppose extra care was taken with the feed during these months, and care of the milk before it was taken to the manufactory, would that go any extent towards obviating the difficulty and make it better?

Mr. Wheaton — Yes; I said that during the hot summer months there was not the element in the milk to make as good cheese. It is in the milk in the first place, but the animal is out in the hot sun all through the day, and the blood gets heated up, and more or less feverish, and the milk partakes of that heat more or less, and will spoil quicker. That milk should be cooled, and more pains taken with it, and cooled better and cooler then, than at any other time. It should be cooled sooner after it is milked. I think if it was attended to strictly, if the man who made the cheese had the milk to handle, and had it where he could handle it all, and would do it just as he would like to have the dairymen do it, I think he could lay out his labor there and then, to a great deal better advantage than he does afterwards, when he gets it to the factory, and has to work over it, and often produces a poor result. If the animal heat is not entirely taken out of the milk, it spoils. It is not the heat of summer that spoils the milk after it is drawn from the cow. It is the animal heat that is in it, when it is drawn from the cow. If that is once taken out, the milk will stand a great deal of heat and not spoil. If it is not taken out, there is no science or patience, or anything else, that will make a first-class prime article of cheese out of it. There are some makers who will make a fair cheese out of it, and a cheese that will pass in the market. When I had such a cheese, not quite up to the standard, I would

make it a little softer, and sell it out around home. I was ashamed to put it with cheese, and send it to New York city, and perhaps that is the reason our cheese has stood so well in New York city as it has.

Mr. Smith — I think I have had some of that cheese.

Mr. Hazen — Yes; we used to ship some north.

Mr. Stickney — They call a cow a machine, and that feed played a large part in the dairying products; so I suppose it might be proper to inquire at this point, what can we use for feed, or rather what additional and extra supply of feed we can produce upon our farms, besides buying grain, as a part of our farming. We like to produce everything we can and carry this thing on within ourselves as far as possible. I would like some of them to state what are the best extra feeding products of the farm for cows, both in the spring and winter and fall of the year. Autumn is usually supplied, very fully supplied, but it is in the early spring. Is soiling desirable; if so, what do you use?

Mr. Hazen — I would state that Prof. Henry, of the State Agricultural College, is expected here. At our dairy meeting at Waukesha last week, he gave us a table of the foods and their properties throughout, which I consider a very valuable article for the farmer, at least for the dairymen, showing the feed, its qualities, and the proportions that should be fed to cows to produce the best results, from thorough researches and investigations. Prof. Henry will be here undoubtedly this evening and will address the meeting to-morrow morning.

Mr. Stickney — I asked the question because I think it goes further than dairying. I believe it goes to all kinds of farming. I believe it is one long step towards that result I spoke of this morning, when every acre shall be made to produce to the utmost of its value. I think the subject of the soil and the production of feed is a very important one, and while we want Prof. Henry's paper, fully embodying scientific facts, I believe that anything that comes from a practical farmer or dairyman or stockraiser, will be very interesting and very useful as being more in our way and more immediately acceptable to us than any scientific researches that can be presented. I would like to ask Mr. Hazen what he uses for feeding his stock.

Mr. Hazen — The extra feed that I provided for my stock cows in milk, for I keep a summer dairy.

Mr. Smith — How many cows?

Mr. Hazen — From forty to fifty. I calculate to have good pastures for them; good tame grass, which is much better than wild grasses; and the same variety of grass grown upon rolling land is richer and more productive of good milk than that grown on wet, lowish land, where it is grown coarse. I think I can detect a difference in the quality of the milk from the different dairies, where the cows run in the pastures on rolling lands. I would call it good grain land, good corn land. I think I can detect the difference in the quality of the milk between them and the dairies that are on low lands, in the swamps and marshes, and in the openings. I think it is claimed, and I think justly so, that the upland grasses are much the richest and best. I would state that some of our factories up north here, I would mention one run by Mr. Gibson, at Lynn, Waupaca county, up there on the sand — his sister, Mrs. West, is the cheese-maker — and a few years ago when we offered $25 for a kind of a sweepstakes premium on cheese at the state fair, his cheese took the first premium. I have attributed it, in part, to the fact that the cows had pure water. I don't think that that part of the country could make as large a quantity from the same number of acres of land as some other parts, but the quality was better. Pure water and good sweet grasses that grow on upland ought to produce a good quality of butter and cheese. For feeding cows in the summer time, I usually sow a crop of fodder corn. I sow it in drills three feet apart, putting about three pecks, perhaps, of seed to the acre. I feed it after my pastures get short. Every dairyman should provide some green crop to soil his cows with to provide himself against a drought. We have some pretty dry, hot weather in July and August, and in order to make a success of the dairy, the cows must have something to keep up the flow of milk. Corn fodder is very good for that purpose. We commence cutting it along the middle of July, and to keep up a good supply of milk, we commence feeding corn fodder. I feed it every year. I cut it the day before I feed it and let it wilt. It makes it better. I think it changes the nature of the feed. There is a kind of acid in it. The stalk is hard and the cows get their mouths sore sometimes. I have failed to see where it increased the flow of milk much, if any, if it was cut up and fed directly to the cows. I cut it up and let it lie twenty-four or forty-eight hours.

Mr. Smith — What kind of corn do you have?

Mr. Hazen — I have a kind of corn they call Sanford corn. Most any kind of corn will do.

Mr. Smith — Have you ever experimented with varieties of sweet corn?

Mr. Hazen — I never have.

Mr. Stickney — Do you pile it up to wilt?

Mr. Hazen — No. I feed my cows a little bran. I put my cows in the stable to milk them. The cows go in and take their places. We fasten them and milk them, and turn them out. We feed them a little wheat bran. All you feed in that respect improves your milk. It makes them docile. It is worth all it costs for that purpose. Bran is one of the best foods for milch cows that we have. If I were going to buy corn meal and bran, I believe a ton of corn meal and a ton of bran mixed together really worth as much as two tons of corn meal for milk purposes. The value of bran has been underestimated, in my opinion.

Mr. Stickney — Do you feed the bran dry or wet?

Mr. Hazen — Dry. I have fed it wet. I have fed corn meal, boiled it up and made a thin gruel of it. It was rather expensive and required a good deal of work, and I quit feeding it in that way. I think it hardly pays for the extra trouble. In the winter good hay, cut early, and wheat bran and corn meal mixed about one-half of each, makes a very good feed for cows where a man has no roots. Mr. Hiram Smith, who keeps a very large dairy, has a great many roots. I heard one of our best dairymen in the state, Mr. White, of Kenosha, state repeatedly that he couldn't afford to raise roots to feed his cows. He makes the best report of a dairy of sixty cows of any man in the state or on the continent.

Mr. Smith — State what its yield is?

Mr. Hazen — I think six hundred and forty pounds of cheese to the cow during the season — an average of six hundred and forty pounds, from a dairy of sixty cows.

Mr. Smith — Didn't he report eight hundred four years ago?

Mr. Hazen — No. I think it never went more than six hundred and fifty-five. When we are estimating we call it ten pounds of milk for a pound of cheese. That is about the average with me during the season — one thousand pounds of milk for one hundred pounds of cheese.

Mr. Huntley — Is it always the case that the best butter cow is the best cow for cheese?

Mr. Hazen — The benefit to the cheese dairyman is that he delivers his milk to the factory and gets his pay by the hundred for it. The one that gives the most milk is the best cow for him. It is the rule that the cow that gives the largest flow of milk is the poorest cow for butter.

Mr. Huntley — Is not it a fact that some cows' milk is richer in caseine, or the cheese, and not so rich in butter?

Mr. Hazen — It may be the case; still we get an all skim milk cheese.

Mr. Huntley — Isn't it true that a cow whose milk is longer in coming, or suppose one takes you ten minutes to churn it, and another forty minutes, is not that milk that will take forty minutes to churn better for the cheese dairyman than the milk that only takes ten minutes?

Mr. Hazen — The milk that takes the longest for the cream to separate from the milk, provided it produces in the end the same amount of cream, would be preferable to manufacture into cheese, for this reason: that the manufacture requires some time to get the milk to the right temperature, and apply the rennet and coagulate, and the milk that separates from the cream the quickest would have more cream to be wasted than the other would. That is all the difference I know of in that.

Mr. Huntley — I understand from all breeders of Ayrshires that that is the best breed for cheese dairying purposes for that very reason, and that it is not disputed by any breeders of other varieties.

Mr. Smith — I want to ask another question. I know that you have been experimenting with different breeds of cows in dairying. Will you inform the convention what has been the result of your experiments with the differents breeds. It is a question that was before our Brown county farmers. Some of them are buying one breed, some another, and so no particular breed. Please give the results of your experiments.

Mr. Hazen — I have experimented some with the different breeds. For a cheese dairy there is an advantage in having milk that the cream is longer in separating from. In the Jersey milk the cream separates very rapidly, really in half the time that it will in the milk of the Ayrshire, or perhaps in the milk of the native cow,

while the Ayrshire milk will raise perhaps a heavier cream, when it has time to separate, being in every respect as rich in cream and fully as rich in caseine, and, I think more so, than the milk of the Jersey cow. The milk of the Jersey cow is claimed to be superior for butter. It gives the butter a good flavor if used fresh. It churns very quickly. Milk from the Jersey cow will churn in half the time of that from the Ayrshire, or perhaps of the native cow, feed and everything being equal. Jersey grade would be a very desirable cow for any dairyman to have. For the cheese dairy I prefer the Ayrshire. They give a good flow of milk, and I think for cheese it is as fully as rich as the Jersey. They are perfectly hardy and stand any kind of feed that the native stock will and do as well. For the ordinary treatment of the average farmer, the Ayrshire is a very good cow; good milkers, giving a good flow of milk, and they hold out well. I make butter in the fall and spring. I can get as good a quality of butter as you can from any other stock, but the cream will not raise as quickly as from the Jersey. You cannot churn it as quickly. When in New York attending the International Dairy Convention, two years ago this winter, I asked a gentleman there that breeds Ayrshire, Jersey and Guernsey stock, what the difference was in the quality of the butter. He says the Jersey butter for present use is preferable. He says the Ayrshire cow's butter has better keeping qualities than the Jersey. That gentleman was Mr. Crosier. Everybody is acquainted with him. He is one of the largest breeders we have on the continent. He says the Jersey butter is the best, if used up when fresh, and the Ayrshire is the best keeping butter. His statement as to the hardiness of the stock does not differ from my own experience. I am not as good a feeder as some. I do do not feed as well as my brother White, of Kenosha. I lack considerable of it. My friend Mr. Smith has an Ayrshire cow, and I believe I heard him make some statements of what she had done under his treatment.

Mr. Buckman — I wish to ask Mr. Hazen if he has kept data in regard to both breeds, Ayrshire and Jersey. If so, what has been his experience?

Mr. Hazen — I am breeding grades from both. My experience is that the Ayrshires are the hardiest. The Jerseys want better keeping than the Ayrshires. The Ayrshires are a little better milkers. They give a larger flow of milk as a class. If you set the

milk and test it for the cream, the Jerseys have the best-colored cream. They give a better color, but no thicker cream. I have never tested it for butter by setting the milk of the two breeds separate and churning it separate. For the cheese dairy I prefer Ayrshire. I have been breeding Ayrshire and Jersey grades for several years. I don't think the Jersey full-bloods are as good for the common dairyman, unless he wants to breed full-blooded stock. I consider that the Ayrshire or Jersey grades from strong native cows will produce a grade that will be as profitable to the dairyman as the pure blood. I think either of them is an improvement on the common stock.

Mr. Potter — I would like to ask a question in regard to butter. You say you make butter in the spring and fall. I would like to ask you how you set your milk — whether you set it in pans or in cans? Do you use a creamer?

Mr. Hazen — I make it both ways. I have made it by deep setting, submerging it. I have made it with common open pans. I don't see much difference in the result. If I can have a good clean room to set the milk in, I can make as much butter, I think, in the old-fashioned way as I can to submerge it. In hot weather I have not had any experience. I only make it in the fall and spring. If I made butter in the summer time, I would prefer to submerge my milk. As soon as it is submerged, it is out of the reach of the surrounding atmosphere. Your results will be more uniform than they can be in setting it in the open atmosphere in open pans. You can count on the same results all the time, provided you attend to it and keep the water that your milk is submerged in at a certain temperature, and hold it there. You get a larger quantity of cream by submerging, but you won't get any more butter. You set your milk, and in twenty-four hours you will have as much cream as you will in twelve hours; but you will have it compact and solid. A uniform result can be relied upon from deep setting, with the rules strictly complied with, at most any season of the year, more so than in open setting. I have made as good butter from setting in the old-fashioned way as I have in any other.

Mr. Potter — You do not get through making cheese until it begins to freeze, I suppose from what I have read. You make cheese as long as you can carry the milk comfortably without freezing.

Mr. Hazen — Yes, sir. We usually close our factory sometime from the first to the middle of November.

Mr. Potter — Heat does not trouble you then; therefore you can set the milk in pans without heat affecting it. I know many times in the summer when we used to set our milk on the shelves, that our evening's milk would not be fit to use in the morning for coffee or tea, and I ask the question to find out how you handle your milk.

Mr. Hazen — If you would cool that milk down to sixty degrees as soon as it is milked from the cow, and set it in the same temperature, you would find it would keep sweet much longer than it would to set it without cooling, and you would get a better result, more cream.

Mr. Potter — Do you imagine it would make any difference in getting cream whether you submerged the can entirely in cold water, ice water, or set it in the water as far as your milk filled the can. I have tried Mr. Curtis' manner of raising cream. I set it in cans, and set them in water about as deep as the milk was in the cans, but I never tried submerging. Those cans we get made at a country tin store would not keep the water out of them. Do you imagine submerging the can is more profitable for making butter than setting it in the water as far as the milk fills the can?

Mr. Hazen — I have tested that matter, setting them in the same tank of water; one can submerged, the other raised up enough so the top of it would come up above the top of the water, setting a basin in that can right side up, and putting some ice in it and ice water around it, and the other can right by the side of it submerged in cool water, and I could see no difference in the result. You can submerge any common can with a basin somewhat larger than the top of the can, by turning the basin bottom side up with the edge over the can, and putting a stick across to hold it down. I have tested it both ways in the same tank of water many times, and I couldn't see any difference in the result.

Mr. Hazen — The next subject on the programme is a paper on the amber sugar cane, by Mr. Huntley.

Mr. Huntley then read a paper entitled:

AMBER CANE CULTIVATION.

Experiments in producing sugar in the more northern states has engaged the attention of some of the best and most practical minds of this country. The sorghum grown in this and other northern states to a limited extent for the last few years has not been considered a success, it being so difficult to make it granulate, and many object to its rank or sorghum taste. The commissioner of agriculture states that of the thirty-two varieties now being experimented with in the department of agriculture, the Minnesota Early Amber is the best for this latitude, ripening its cane earlier, more rich in saccharine matter, easier to granulate, and of the best quality, being nearly equal to the Louisiana sugar cane. When the growing of this cane was under discussion by the Farmers' Industrial Association, many objected to even giving it a trial, and many more doubted if it could be made profitable, and of course it is yet an unsolved problem whether it becomes one of the leading industries. But it was necessary that enough should be grown to warrant some one to buy the machinery for its manufacture. We had seen occasional articles in the agricultural journals, some of them very glowing accounts of large yields of excellent syrup and sugar. We know, too, that the agricultural department at Washington were experimenting and investigating and sending out seed, but none reached us in time for planting, and we bought our seed of a Minnesota firm. We also knew that if we only succeeded in growing enough to supply our own table, a large grocery bill would be saved, and we should know at the same time that we were taking no chances of being poisoned with an article that was adulterated. I think these two reasons influenced more to try the experiment than any idea of its proving a profitable crop. I know this was the case with myself. It is not certain yet whether it will become one of the staples, like wheat raising, wool growing or dairying, but I am quite sure that for every one who grew any last season, there will be fifty that will raise some next season. Nearly every farmer, so far as I know, intends to plant some. Only a few days ago I had a call for a bushel of seed from one man, who had agreed to supply a few of his nearest neighbors. But others will find out only by accident that sugar cane can be grown and sugar

made here. I met one at the cane mill last fall, a young farmer living near Appleton, with mouth open and eyes protruding, who said: "Why, I should have planted some if I had only known it." "Do you not take the papers?" I asked, "The reports of our discussions were published in the *Post* and *Crescent*." "I take no papers," was the unblushing reply.

Another I met at his own home near the city, and seeing quite a pile of home-grown tobacco in his kitchen, I took occasion to remark that I thought he would find it more profitable to grow his own sugar than tobacco. He said it could not be done; and when I told him that not only myself but several of my neighbors made enough for our families, and some to sell, he looked very incredulous, and said it was the first time he had heard of it. I hope you have none of this kind in Brown county.

After it became certain that we should have quite a crop to manufacture, many began to feel quite uneasy about the sale, for at twenty cents per gallon for making, every acre would cost the grower from $20 to $50 cash for manufacturing, and all of us would like to sell enough to pay this. In conversation with the grocer we got but little encouragement; I could hardly account for this, but when I learned that they were selling syrups for seventy and seventy-five cents per gallon, for which they paid only thirty or thirty-five cents, the mystery was solved. These were all the higher grades, "honey drips" they were called, and of course consisted mostly of glucose; the wholesale dealer dividing the profits with the retailers. Of course, if the farmers produced a good article, it must come in competition and affect this nefarious business.

I think there will be no trouble about selling all that we can make.

There are very many intelligent persons who will not use commercial syrups, but who are quite ready to use a good article, that they know to be unadulterated. If it shall be generally grown, there will be mills of large capacity, and sugar refineries, in every town of any importance, as we now have flouring mills. There were twenty-eight persons who raised sugar cane, and had it manufactured at the mill of A. H. Burch. Twenty-two of these planted one-half acre or less, while six planted more than that and less than two acres. So you see our experiment was quite limited. Of these, more than one-quarter had a yield of less than seventy-

five gallons; the general average was about one hundred gallons; the three best pieces averaged two hundred and eleven gallons. These three pieces were grown in Grand Chute, and each grower has given me his manner of cultivation, expense of labor and cost of manufacturing, price of syrup and net profit. Mr. Burch states that each had a first-rate article of syrup.

The first was grown by J. Montgomery, and cost as follows:

Rent of one and one-half acres of land	$4 50
Preparing land for seed	4 50
Cost of seed, four pounds	80
Cultivating	2 00
Hoeing	5 00
Sowing plaster	1 00
Twenty-one and a half days work harvesting cane	26 87
Hauling to and from mill	7 00
Total cost of sowing and harvesting	$108 47
For manufacturing two hundred and eighty-four gallons at 20c	56 80
Total cost	$108 47
By two hundred and eighty-four gallons syrup at 50c	142 00
One and one-half tons fodder	15 00
Total value of crop	$157 00
Net profit	48 53
Net profit per acre	32 34

Number of gallons of syrup per acre, 189. Planted the 22d and 24th of May; commenced harvesting, September 17.

Statement of Myers Bros.:

Rent of one hundred and nine rods of land	$1 00
Two pounds seed	60
Plowing and preparing soil	2 00
Planting	1 50
Hoeing	3 00
Stripping, cutting and binding	12 00
Hauling to mill	4 00
Total	$24 10
Manufacturing one hundred and forty-four gallons at 20c	28 80
Total cost	$52 90
By one hundred and forty-four gallons at 50c	72 00
Leaves and tops	6 00
Total value of crop	$78 00
Net profit	25 10
Net profit per acre	36 75

Number of gallons per acre, 211.

Statement by D. Huntley:

Rent of ground	$3 00
Plowing, harrowing, etc	4 00
Planting	1 50

Seed	$ 75
Cultivating three times	3 00
Hoeing twice	4 00
Cutting, stripping and tying	15 00
Hauling to mill	4 00
Total	$34 25
Cost of manufacturing at 20c per gal	49 40
Total cost	$83 65
Two hundred and forty-seven gallons of syrup at 50c	123 50
Value of leaves for fodder and seeds	12 00
Total	$135 50
Net profit	51 85
Net profit per acre	48 51

Number of gallons per acre, 233.

I have reckoned the labor at $1 per day. The labor of harvesting and the limited time in which it must be done is quite a drawback on the profits of the crop, many losing a portion by not harvesting before frost, the stalk and leaves remaining green after the seed is fully ripe. Others, and nearly all, failed in not planting earlier. I planted the 14th of May, the same day in which it was plowed, harrowed and fitted, which was ten days or two weeks earlier than others planted. In three weeks from the time of planting I ran through it with a cultivator, about as soon as I could see the rows, and hoed it immediately, weeding by hand. One great secret of success is the first hoeing being well done, after which there is no trouble; but the plant when it first comes up is very small and much like chicken grass; in fact you have to get right down and look close to tell the difference. If this chicken grass gets the start, you have a big job on hand, and the cane gets a setback and remains behind all the season. The soil should be finely pulverized before planting. I pressed each hill after it was covered, with my feet, which I think is a great benefit to early germination if the ground is in the right condition, not so damp as to bake. It should not be planted as deep as corn; one-half to three-fourths of an inch, if everything is right, is better than deeper.

I have seen it stated that poor land is best, even where other crops would not grow to be worth anything. Some of our people must have followed that plan. A good soil naturally, or made so by good farming, gives the best results, but no manure the season you plant, as it gives the syrup a dark color and a rank taste. My preceding crop was barley, which had no manure. I do not believe

that anybody will find it profitable to engage in the growing of sugar cane on poor soil. It is a crop that necessitates a good deal of labor, and to make it pay a good crop should be grown. Poor soil may do for a sheep pasture, where the only expense would be the fencing; but put on from twenty to thirty dollars expense in labor to each acre, and then a poor crop, and bankruptcy would be the result. You will also find it much easier to *plant* a number of acres than to cultivate, hoe and harvest it. I have heard of many acres going to waste the past season for want of help to take care of it, and the necessary machinery to work it up in season, but the labor of women and children can be utilized in stripping off the leaves, cutting tops and tying in bundles. The bundles must be quite small, and two bands are necessary, some tied with the leaves, some with rye straw. I used the common sheep or wool twine, but rye straw is best if it costs no more than twine. Some cut their cane and haul it to the barn before stripping, but it costs twice as much as to strip the leaves before cutting, using a piece of lath or wooden sword. Most of the growers hauled their cane as soon as harvested to the mill and corded it up like wood. This will do in small quantities, but in large piles there is danger of molding or heating. I think it is better to pile where cut, a load or two in a place, with something like poles or rails to keep it from the ground, crossing cob house fashion, piling the butts one way so as to give inclination enough to carry off the rain; then throw a few leaves on top to protect it from the frost, and it will keep in this manner several weeks without injury.

The mill used by Mr. Burch is the Star Cane mill, manufactured by J. A. Field & Son, St. Louis, price $100, with the Dixe evaporator, price $40, manufactured at St. Louis by Ingsland & Furgeson, both at a discount for cash down. Its capacity was about seventy-five gallons per day. He averaged fifty-four gallons per day for thirty-one consecutive days, amounting to some one thousand six hundred gallons; he used a two-horse power to run it, and three hands are all that are required to tend pan, feed the mill, prepare wood and remove the pomace. This is one of the smallest mills manufactured, but does good work.

As to the arrangement of hills, I think nearly all rowed but one way, using their corn-marker the same as for corn, planting from eighteen to twenty-four inches apart in the row. Others advocate

three feet apart each way as being easier to cultivate than to hoe; but this gives only half as many hills to the acre; from five to seven seeds to the hill is thought to be better than more, but mine averaged nearer ten. Leave six to eight inches of the bottom of the cane and twelve to eighteen inches of the top, as there is no sweetness in either.

To repeat: 1st. Pulverize the soil finely, getting a good tilth, as gardeners say. 2d. Plant early, but not until the ground is warm. 3d. Cultivate and hoe as soon as you can see the rows. 4th. Cultivate often, but not deep after each heavy rain, until the cane is three or four feet high. 5th. Have your help engaged for harvest and commence as soon as the seed is in the dough.

I have never used it for feeding stock, but experiments made last year on the grounds of the University of California with several varieties of sorghum, gave precedence to the Early Amber sugar cane, which yielded forage at the rate of thirty-seven and three-fourths tons per acre. An Imphes produced at the rate of thirty-two and one-fourth tons, and a Chinese variety twenty-six tons. Each kind was planted in drills three feet apart and eighteen in the drills, with cultivation such as is given to corn. Pearl millet, in a parallel experiment, made but sixteen and one-half tons, and Egyptian corn (a sorghum) twelve and one-half tons. As it is deemed best to feed it only after considerable development of the sugar, it is recommended as the last of the series of fodder plants. In California it endured extremes of wet and dryness quite as well as alfalfa.

The consumption of sugar in this country is simply enormous, and constantly on the increase. During the decade from 1850 to 1860, it was twenty-five pounds per capita; from 1860 to 1870, thirty pounds; and now it is over forty pounds, amounting to two billions. One billion, seven hundred and forty-three million, five hundred and sixty thousand pounds of this, besides thirty-eight million, three hundred and seventy-five thousand, five hundred and seventy-five gallons of molasses were imported. The whole valued duty added at $114,516,745; perhaps you will more easily comprehend this amount by this statement, that it will take five vessels of five hundred tons each, loaded with sugar, arriving at our ports each day in the year, to bring us this vast amount. Wisconsin's proportion of this, according to population, would not be far from seventy-

five million pounds, costing over six million dollars, only a small fraction of which is produced in the state.

The question, can this amount or a good portion of it be produced here, is of vital importance, not only to the individual, but to the state. If it can it will be a new industry, and each farmer will be directly interested in its production, and should commence the coming season, and in so doing benefit himself and assist in stopping this outflow of money and capital. It is a principle not only of domestic, but of political economy, not to send abroad for what you can produce or manufacture at home. Still another benefit would be derived, and not the least, either; it would necessarily check, if not wholly stop the sale of adulterated goods. I presume many are not aware to what an extent this is carried, how it is made, and its effects upon those who use it; besides, glucose is a fraud, even if it were harmless in its effects upon the system, containing but a small per cent. of sweet. It was selling on the streets of Appleton, just before Christmas, in the form of candy gum drops, etc., for seven cents per pound, with which to feed our children during the holidays. Let me give you a few items that came under my observation quite recently, and those could be multiplied almost indefinitely.

The following is from a Desplaines, Iowa, correspondent of a Chicago paper:

"A large glucose factory is in operation in the center of the city, and there is a vast amount of trouble growing out of it. It has adopted all known measures to carry off the obnoxious gases, but not yet successfully. They are conducted into a high smoke stack, which answers the purpose when the upper air is lightest, but when it is heavy it forces the glucose gas to the earth and the effect is terrible.

"By force of public protest, the board of health has taken the matter in hand, and Saturday, Prof. Hinrichs, of the state university, was called here to investigate the matter and report as to whether or not there was anything in the manufacture of glucose injurious to public health. Several prominent citizens testified that their families were made sick by the nauseous smell, which causes sore throat and severe vomiting. Families are moving out of the vicinity. Twigs of fruit trees were shown the board, taken from the south side towards the works, which were colored and

withered. House plants exposed to the gas withered and died. Its effect upon children is decidedly bad and dangerous. Suits for damages have already begun by citizens who live near the works. It is probable the factory will be closed up, unless some means can be devised to stop the stench." Mr. George T. Angell, of Boston, in a public address stated that samples of glucose examined, contained sulphuric acid, copperas and sulphate of lime. Dr. R. C. Kenzie, professor of chemistry in the Michigan State Agricultural College, analyzed seventeen specimens of common table syrups, and found fifteen of them made of glucose. One of them contained one hundred and forty-one grains of oil of vitriol, and seven hundred and twenty-four grains of lime to the gallon, and another which had caused serious sickness to a whole family, contained seventy-two grains of the oil of vitriol, twenty-eight of sulphate of iron (copperas) and three hundred and sixty-three grains of lime to the gallon.

As the glucose is made by boiling corn starch in sulphuric acid (oil of vitriol) and then mixing it with lime, the presence of these deleterious articles is easily explained.

There are fifteen of these factories in operation in this country, producing five hundred tons daily, or enough to load a train of fifty cars of ten tons each every day in the year. Most table syrups contain seventy-five per cent. of glucose; candy is but little else than glucose.

There has been much discussion and a good deal of excitement over the manufacture of oleomargine and butterine, and laws have been passed regulating its sale, and that it shall be labeled what it really is; yet no one pretends that poisonous compounds enter into its manufacture, but it comes in competition with the genuine article of butter and thus injures its sale. Is it not a thousand times more necessary that some stringent law be passed to protect us from glucose with which our syrups, sugar and honey are so largely adulterated? Is it not as necessary to protect our health as our pocket? Not one farmer in a hundred ever saw any oleomargarine or butterine. They have no occasion to eat any, but everybody uses sweet in some form; the infant, the sick and the aged as well as the person in robust health. Why do we allow these poisons to be mixed with our food? We are not ignorant of the fact, and we know that men can be found who will be as dishonest as the law

will allow. Let a law be passed at this session of our legislature, with heavy penalties attached, prohibiting the mixing of glucose with our molasses and sugar and honey; let them manufacture poison, but compel them to label it poison or glucose, or what it really is, and let us have no mixing. Send in the petitions, see to it that your member does his duty. Let him know that you are in earnest, and the end will soon be reached.

Mr. Hazen — I will say to the convention that there is one more paper that should have come up this afternoon on tree culture. It is now too late to take up the paper on timber culture.

Mr. E. W. Daniels — There was one little item Mr. Huntley omitted which I have spoken of in our farmers' club, which I think would help the cane grower. In planting apple seeds we soak them until they sprout, and I think that would be requisite with cane. Our farmers have spoken of the fact that pigeon grass looked so near like the cane that it is almost impossible to discriminate between them; but if you get your ground in good condition and soak your seed before you plant it, it will come up so much earlier and quicker. That is one thing I wanted to speak of. Our farmers thought that was a good idea and I thought I would speak of it here. Our way is to sprout apple seeds a little and they will come up in a very few days. I would like to say a little about adulteration. I have been reading a great deal about it. The adulterated article comes in competition with our box honey. The article is made up of slippery elm and a little sugar and a little honey, and I don't know of what other substances, glucose, perhaps. The Germans very often say they would have extracted honey. There is some extracted honey that is pure. There is so vast an amount of it made up as all adulterated goods are, that we should be cautious. I have never used any of those syrups for a good many years. I guess it is over five years since I have bought a gallon of syrup. I have been afraid of it. If I can get good maple syrup that is the kind I use.

Mr. Wheaton — I would like to ask Mr. Huntley if he knows of any one cribbing up his cane, as it is called, without stripping the leaves and keeping it a long time?

Mr. Huntley — I have no personal knowledge of that fact. I have seen it stated, I think, in the Minnesota convention, that some parties claimed that they kept it an almost indefinite period

with the leaves on, or as long as the weather would admit of its being kept without freezing, which I suppose is true. I know some of our farmers, for want of time, cut it and carried it to the barn with the leaves on and stripped it in the barn.

Mr. Buckman — I would like to ask Mr. Huntley what is known in regard to raising that cane on the same kind of soil where they raise corn. Would it grow well on good fair corn land? Also, whether he thinks it would be a safe crop to plant with the frosts we have here. I understood him to say that he plants rather earlier than we usually plant corn, and that it was fit for harvesting sometime about the 15th or 20th of September, which is later than we have to let our corn stand to ripen.

Mr. Huntley — There were a good many of our farmers who didn't ripen their cane. I think the fault was principally their own. They got in their other crops, and some of them planted their corn first. I think it takes a little longer to ripen than the earlier varieties of corn. I planted mine the 14th of May, and commenced harvesting as soon as I returned from the fair, which was the 17th of September. My corn was also standing. The season was not a very long one. We had early frosts. Some of my corn got frosted, but the frost that will injure corn will not bite the leaves of the cane at all. I think we should take a little more pains in getting the cane in early. I would plant it before I planted corn, because, of course, the corn can stand, and the frost does not injure the crop. If the frost bites the cane to any great extent, it injures the syrup. I know a gentleman who spoke to me a few days ago of making $30 or $40 an acre; and if you made $30 or $40 an acre on ten acres, it would be $400, and so *ad infinitum*. So he planted forty acres. What was the result? He harvested about ten acres, and had the other thirty acres all destroyed. A man don't want to get the big-head in that way. Any good ground that will grow corn will grow cane. After the first hoeing, it takes possession of the ground, and moves right by corn. Some of them claim that you can hardly see the difference in the syrup if the cane is not fully matured. It is better to cut it before the frost injures it, even if it is not fully matured. It throws out quite a number of suckers. Some advocate removing those. I did not; but when I got it to the mill, they complained that they were afraid it wouldn't make a first-class syrup. I went right to the mill my-

self and sorted it, and thought I would have some good syrup. I spent three days right there at the mill. I sorted out all I thought was second growth, and ran that through by itself. They said they couldn't see any difference but what it made just as good syrup. The suckers were ripe. It changed to sugar. We had a four-gallon jar in use that we found half sugar. In a barrel of the syrup from the smaller cane we found a foot or eighteen inches of sugar in the bottom.

Mr. Buckman — Have there been no experiments at that mill in regard to making sugar?

Mr. Huntley — There have not. They merely boiled it, without adding any foreign matter. They merely boiled the juice and skimmed it, as in making maple-sugar, and it made a very nice article of syrup. There is a demand for it. I sold four barrels at wholesale at fifty cents a gallon, and could have sold a dozen more if I had had them.

Mr. Torrey — How does it compare in quality with ordinary syrups? I mean in weight and flavor.

Mr. Huntley — I can hardly answer that question. I selected some of my syrup, and put it in a small bottle, and took it down town. I could not sell it at first at the groceries. I took two or three gallon jugs, and left them at the grocery. I went in, in the evening, when there were fifteen or twenty persons around, and compared the syrups with these. Put it on a paper. Of course, it was not quite as light-colored as what they called their "honey drip," but every one that tasted it said it was from fifteen to twenty per cent. sweeter. These syrups are three quarters corn and glucose, with sulphate of iron and sulphate of lime mixed in. It has a cane taste, but nothing like the old-fashioned sorghum. A great many like it, I presume, for the reason that it is unadulterated.

Mr. Torrey — Can the cane taste be entirely removed?

Mr. Huntley — Sugar refineries, I think, say that New Orleans molasses is the only unadulterated molasses. That is what I have seen stated, not only in the agricultural reports, but from the departments at Washington.

Mr. Torrey — Isn't twenty cents a gallon an exorbitant price to pay for manufacturing?

Mr. Huntley — Yes, sir; it is.

Mr. Torrey — Doesn't that make a poorer showing than actually exists, in raising sugar cane?

Mr. Huntley — It does.

Mr. Torrey — It seems to me that twenty cents a gallon for manufacturing is out of all proportion to the balance of the cost of raising your crop.

Mr. Huntley — There is no doubt of that.

Mr. Torrey — In other words, you raise your crop, and give the most of it to somebody to make it into syrup for you?

Mr. Huntley — That is so. The trouble was right here. There was no one wanted to take the responsibility of buying the machinery, and working it up on guess work. We knew nothing about it, and if he could be secured at that price, he agreed to buy the machinery and work it, and I figured it with him. It was only $140 expense. It is a little house put up with boards for the mill and power. He had the power. He cleared over $5 a day over and above all expenses.

Mr. Buckman — It seemed to me that twenty cents per gallon was an exorbitant price when the syrup would only bring fifty, and for that reason I thought that perhaps where one or two might be interested enough to try and raise it, that still the price might deter others; and I was going to ask Mr. Huntley if he didn't think that a man, buying the machinery at that price, could afford to make the syrup for less than twenty cents a gallon. He has already stated, and I am satisfied with the answer.

Mr. Torrey — I would like to ask you one question touching the maturity of the cane. How is it in regard to the length of our seasons?

Mr. Huntley — From ninety to one hundred days is the time given it to ripen by some growers, but this last season I put in about one hundred and fifteen days. As I said, with those that planted on poor soil, who took no pains with its cultivation, it grew slowly on the start, like any other crop of small seed, and grew very fast after it got started. I think it will require a little more care than corn in regard to its being put in. The smaller the seed, the better you want your ground. You want your ground in nice tilth and everything all right when it is planted. Of course, if it takes more labor, and you lose on the crop, you lose more money. You can make better wages at ten cents a gallon than you can by

working at days' wages. It is a good profit if you have got to pay ten shillings a day for your labor right straight through. The wheat crop won't begin to do that, nor any crop.

Mr. Hazen — I would state that quite a large quantity was manufactured in our part of the state. The price charged for manufacturing was twenty cents a gallon, or one-half. I don't know but that had something to do with fixing the price of it; but syrup can be bought, and I can furnish any man fifteen barrels of it, at forty cents a gallon. I know parties that have it there now. Mr. Huntley has placed the price at fifty cents. It can be bought for forty cents. We like it better than the other syrups. I have bought very little syrup, if any, on account of the adulterations. This syrup is sweeter by twenty-five to fifty per cent. than some of them. There is a good deal of work taking care of the cane and getting it to the mill. It will do better, perhaps, in some localities than in others. The same rule will apply to this that will to the dairy interest. Some large farmers who have all they can attend to outside of that would not care to embark in it. It requires a good deal of labor. Land is plentier than labor is. I think this Amber cane sugar and syrup is going to be a success. There is a necessity for it. Even at forty cents a gallon, if the manufacturing was put down to a fair price, there would be a profit in it. I think it can be manufactured for ten cents a gallon; in fact, parties stated last winter, in the Minnesota Amber Sugar Cane Association, that they could manufacture it at eight cents a gallon and make good wages at it.

Mr. E. W. Daniels — Have you or Mr. Huntley seen this syrup of any age? I have seen it one year old, and it grows much better. The little raw, old fashioned sorghum taste seems to have gone out of it after it has some age, and it continually granulates at the bottom of the vessel.

Mr. Huntley — In regard to regulating the price, we struck at fifty cents, for the reason that what was called New Orleans molasses was selling in our place at fifty cents. It was certainly a much superior article to that. These adulterated syrups were selling at seventy and seventy-five cents a gallon. I could have retailed all of mine at the house. They came after five and ten gallons at a time. Now I saw an article where a gentleman stated that he could take the cane, stripped and in good condition, and deliver

the sugar for $1.75 a hundred — one and three-fourths of a cent a pound — to a firm by the name of Russell, in Janesville, and then make a profit.

Mr. Wheaton — I would say that we have it manufactured up in our county at fifteen cents a gallon; and they make a superior quality up there from the cane grown on the sand — superior to any New Orleans molasses, and almost as light as syrup. We have one man that has an establishment costing $600.

Mr. Smith — Some two or three years ago I wanted to test it, and I planted a little piece in my ground. It was land that would have raised a large crop of corn. I planted it and attended to it just as I would a crop of corn. It grew very handsomely and ripened. There was no machinery here. I simply cut it up and bound it in stacks, and let it stand until the next spring, until April. It stood out all winter. I then hauled it in. I had a good quality of hay, the best I could buy, and was feeding it to my cows. They would leave the best hay I could get, and eat the cane leaves and stalks and all, and eat it up clean. I think I never raised the same amount of feed with the same amount of labor as I did that. I have been trying to make arrangements to grow some for feed if I can't get it manufactured.

Mr. Potter — Did your cane ripen?

Mr. Smith — Ripened sometime before frost.

Mr. Potter — Do you recollect what time you cut it up?

Mr. Smith — No, I don't.

Mr. Potter — I had a package come from Washington and I planted a little of it, but through mismanagement in hoeing and planting it did not get ripe. The seed was in the dough. I had read but very little on the subject and didn't know but it was on account of my cultivation, in letting it take too long to get a start. I made up my mind that our season was a little too short. I think it was about the 10th the frost came.

Mr. Huntley — More than half the seasons we don't have any frost at all in September.

Mr. Potter — We often don't get frost here until late in September, but we frequently get a frost early in September.

Mr. Thomas — I wish to ask Mr. Huntley about what percentage of juice is lost in this cheap mill he spoke of?

Mr. Huntley — About half of one per cent. It came out so dry

that it would burn about as quick as tinder. They had a very good mill, cast iron rollers. It came out so dry it didn't feel damp to the touch. One would suppose you could not get any more juice out of it by any sort of pressure. I think there is a great loss undoubtedly in mills of home make, but you can buy mills that are cheap and yet are good ones. In a mill of a capacity of five hundred gallons a day, syrup can be made for less than it can in a mill that is cheaper. Probably a mill worth $1,000 would make it for eight cents, where one worth only $100, that couldn't make only fifty or sixty gallons a day on an average, couldn't make it for twenty. Of course the profit would be in the quantity made.

Mr. Stickney — Just a word in connection with this paper. The first thought is the statement of facts and figures and estimates of different growers. I would like to commend that principle to every agriculturist in every crop that grows. I wish everything could be put down and kept track of in black and white, as these statements are. Another little thought; and that is, that the estimate of the rent of land is put in very low. One I think as low as $1 an acre.

Mr. Huntley — That was $1 for one hundred and nine rods.

Mr. Stickney — It strikes me that here is a little peculiarity. If the farmers of Brown county can afford as good land as is necessary for sugar cane at one or two dollars an acre, I think they are to be congratulated. It strikes me that any good agricultural land in the State of Wisconsin ought to bring $5 an acre, net.

Mr. Torrey recited a German poem.

Mr. E. W. Daniels also recited a poem entitled "Warren's Last Visit to Earth."

Adjourned until 7 o'clock P. M.

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7 O'CLOCK P. M.

Convention called to order by President Hazen.

Mr. Hazen — The next subject in order is an address by Hon. H. J. Huntington.

Mr. Huntington — Mr. President, and Ladies and Gentlemen of the Convention: I hardly know how to meet the requirements of the advertisement to-night for a welcoming address. Words of welcome ought generally to be brief. A very simple matter it is to

extend to visitors the invitation to make themselves at home with you. Such things are demonstrated more by conduct than they possibly can be by words, yet I do not know whether simply rising and saying "We welcome you," would answer quite the advertisement, when you are supposed to deliver an address of welcome. Perhaps if I were going to talk to any considerable extent I might talk a little about our city and our homes here, to which you are invited. If there is any topic upon which a Green Bay man is supposed to be fluent, it is on the subject of his residence. Green Bay has always been noted as a place where the people were sociable and hospitable. It is a place where all people like to come, and are reluctant to leave. We claim a great deal for the social character of our city, and the source of its foundation may be easily traced. There is a charm in the story of the old citizen as he relates the pleasures of early life in this city, which at once elicits our warmest sympathy and attention. They were hemmed in here by dense forests and swamps, and were scarcely accessible except in the summer time, when the coming of a boat was an event of excitement and interest. There was a military fort across the river, and from that many of the officers and their families located here and became citizens. This was also a trading post. Many eastern families of wealth and refinement became residents here. There were able and ambitious men that were led hither by the belief that a great city was to be built here in a short time. These were blended in one social organization which has been known as Green Bay society, and from that source come the people who have a social name all over the land, in which we have an excusable pride. That is the source of the qualities which they possess, who welcome you here to-night, and we do it more earnestly, my friends, because you are representatives of the branch of industry which we have but lately discovered to be most vital to our interests, and to which, hitherto, we had paid but little attention — the science or art of agriculture. It was generally supposed that that was an industry that had no particular abiding place in this region, but lately we have ascertained that this soil which we pronounced worthless has producing qualities of the highest order; and your coming among us, and all that you do that stimulates activity, that stimulates enterprise of this character, can but receive our hearty welcome. The whole country is deeply

interested in these associations. There can be nothing of greater importance than the study of agriculture and its pursuit. The earth is, indeed, our mother from which we sprung. All our worth comes from her. She provides most liberally and abundantly for all our material wants, and we need only to understand the secret process by which she may be induced to yield her greatest abundance, and we are possessed of the means of wealth and happiness. This is a great study, as I said before, and I think that we are fast getting disabused of the idea that once prevailed, that anybody had wit enough to be a farmer. I claim that it takes more brains to run a farm than it does to run a bank. I have seen it demonstrated. The farmer not only finds it necessary to understand the nature of the soil and its needs, but also the great problem of supply and demand is always a vital question with him; there is such a diversity of avenues that may attract his attention, such as there seems to be in no other calling; and so I think if any man should be liberally educated, it is he, the farmer. I have a little boy, six years old, who has long been hesitating on the choice of a profession, whether he shall be a farmer or a lawyer. His earliest ambition was to be a 'bus driver, but he passed from that to the settled purpose of following his father's calling and being a lawyer, until the idea of being a farmer took possession of him, and he adheres to that choice with a great deal of tenacity. The idea of raising grain and of having horses and stock, and wagons, and machinery, is very attractive to him; still he has not entirely relinquished the law. He has an idea that his father wants him to study that profession, perhaps, to assist him. I suggested to him the other day, that perhaps he could have a farm and be a lawyer, too; that he could attend to the law business and have a hired man on the farm, going out occasionally himself to see how the hired man got along with the things out there. He reflected a moment, and said: "Papa, I guess I will attend to the farm and let the hired man come in and do the law business." [Applause.] I am inclined to think that under his plan the farm would be better attended to and perhaps the law business done just as well. It is our fortune to live in a great country which is pre-eminently the agricultural region of the world. This is not only a land of liberty but it is a land of plenty. Not only do the oppressed of other countries look to us and to our insti-

tutions with longing eyes and hopeful hearts as fostering the freedom and independence of man, but the hungry and homeless millions of the old world look to us with the hope that the day may not be far distant, when they, too, may become happy dwellers in this favored country. Let the American farmer, I say, stand at the head of his calling throughout the world. There is a grand future before him, and there is a grand record behind him. When great public questions were to be decided, it was rural sense and rural virtue that turned the scales of the balance in more instances than one in this country in favor of truth and justice; and when the nation was imperiled and cried out in its distress, it was the farmer's uplifted brawny arm that came to the rescue; and so when peace came with its victories of no less renown than those of war, we see him digging the earth, reclaiming the waste places, analyzing the soil, studying the great problem of supply and demand, of economy, and trying with his might to solve this great question of bread for the million, and of comfort for all. Any men or any association of men that aid in this thing, that belong to that class of people, are welcome anywhere and everywhere, and I need not say to you that you are most heartily welcome here. [Loud applause.]

Mr. Hazen — His honor the mayor of the city, Mr. Neville, will now address you. Ladies and gentlemen, I have the pleasure of introducing to you the honorable mayor of Green Bay, Mr. Neville.

Mr. Neville — Mr. President, Ladies and Gentlemen: I did not think that my name was down in the bill for anything, particularly, to-night or during this convention. I have been taken rather unawares to-night, and don't know what experience in farming I can conjure up in order to make myself interesting to you. I heard my friend, who has just so eloquently addressed you, allude to the fact that it took as much brains to make a farmer as it took to make a banker. A thought struck me at the time that it takes a great deal more brains to make a good farmer than it does to make a lawyer, and as I am in that condemned class, as a matter of course I can speak without any sort of imputation upon my distinguished friend.

The fact is that it would be a great blessing to this country if we had fewer doctors and lawyers, and clerks in stores, and railroad speculators, and stock brokers and bankers, and more agriculturists. Shortly after they got through their fighting times in

England, and in the old country generally, they began to think that there was something else more important in the world than slaughtering each other, and living upon oxen and wild animals that they would catch in the forests; and even in those benighted times they did struggle to form agricultural societies. They derived their principal impetus from those men of freedom that lived in Greece, where agriculture was studied as an art, and also it descended to the Romans, and the Romans understood how to use their soldiers for the purposes of agriculture. In times of peace, and in the early days of that republic, when the war was over, instead of allowing their legions to slumber upon their arms, and in their encampments, they made them construct roads and cultivate the soil, and teach the savage nations that they conquered how to cultivate the soil; and they understood it very well, too, taking into consideration the rude implements they had in those days. And what is more strange, I think I recollect distinctly reading in history that the Romans actually used guano for the cultivation of their lands; not those deposits we get in the isles of the ocean now, but those deposits of guano which they got from the multitudes of pigeons that inhabited their country.

That is a fact that I think history vouches for. I am not prepared to deliver an address upon the subject of agriculture tonight, but I can say this, that agriculture, being that science which produces all those articles of food which man requires for his own support, and the support of the domestic animals which he keeps and which serve him, should be brought to its greatest perfection. It is the art of all arts, and the foundation upon which the superstructure of all our civilization must be built. As my friend very correctly remarked, it is to the farmers of this or any other land that we must look for the preservation of its morals and of its religion. They are emphatically beyond our statesmen, our president, our senators, and our members of congress, the conservators of our liberty, independence, and the integrity of our country. Take away from us agriculture and what would become of us. Why, all these avenues of commerce which we see, these railroad tracks that traverse the great commercial cities of the United States, in one short generation, and less than that, would become totally useless. Those magnificent steam ships and sailing vessels that traverse the ocean in commercial pursuits would no longer travel

over the great deep. Those commercial marts that now exist in our country and in other countries, in the short space of less than one century would crumble into ruins; and those splendid temples with their spires reaching almost to heaven, where we congregate Sunday after Sunday to worship our God, would sink down to the level of the plain if they were not all supported by the agriculture of the country. Gentlemen, you are engaged in a noble work. I hope to see in these United States you and kindred associations reaching out your hands to each other through all this broad land, forming one grand brotherhood for the purpose for which you are organized, namely, the production of those things which are most useful for consumption, as food for the sustenance of man and the domestic animals that serve him.

I want to see that day come. I think it would be the grandest epoch in the history of our country. These few straggling observations I have thrown out just occurred to me on the spur of the moment. At some future time I mean, if I can, to become a member of your association, and I may say something that will be worthy of attention. I don't know but I might try and emulate my old friend Horace Greeley, and write a book on what I know about farming, but that time is probably some years distant. It is a subject that requires great study, and I believe that it is one that ought to engage the attention of those who control the education of the country. I believe that the science of agriculture ought to become the most prominent branch of learning in the public schools. Show me anything that is more important. Is there anything that a child should be instructed in of any more consequence than that of agriculture. What does the science of all our statemen amount to, and their knowledge of government and their principles of government. Without you support the agriculture of the country we will be reduced in a few years to a state of barbarism. We would go back to the olden days and live upon wild animals, and those animals we domesticate, or upon the roots of the earth. I feel the importance of this subject, and that was one reason I came up here to-day. I have been thinking upon the importance of it, and I came here to contribute as far as I could to the success of your association, if it was in nothing else than in giving you my hearty support by such words as I could utter in favor of the grand project in which you are engaged. [Applause.]

Mr. Hazen — The next address will be by the Hon. R. D. Torrey, of Oshkosh, secretary of the Northwestern Agricultural and Mechanical Association.

Mr. Torrey — Mr. President, Mr. Mayor, Mr. Huntington, Ladies and Gentlemen: It was a truth uttered by our friend, Mr. Huntington, that welcomes do not consist of words, or rather that the value of welcomes does not lie in words. It is but a means to express feeling. One may be welcomed to the home of the rich and affluent, but in such a manner that barely across the threshold he feels chilled; while one may be welcomed to the humble home of the peasant, though the food, furniture, conveniences and all shall be of a rude kind, yet he feels a warmth in the welcome that lasts not only during your visit, but through life. I may be pardoned if I briefly speak in a somewhat personal manner. My first visit to the city of Green Bay was in 1852. I was welcomed at that time to the Astor House. I think it must have been somewhere in this direction. I remember it very distinctly, because in that early day, and at that time and place, I think I spent one of the most comfortable, happy nights in my life, and I felt at home; but at the same time there was not the appearance of thrift that now exists in your city, for the sand seemed to be blowing over the door sills and across your sidewalks, and it seemed almost a deserted place. I was not homesick in the house, but when upon the street I certainly was. I forget the man's name who kept the hotel, but certainly he was a man who knew his place, and we were all made very comfortable. To-day I have been welcomed to the home of one of your citizens by himself and his most estimable wife, and I wish to say in all justice and sincerity, it has been a warm welcome, and if there has been created a better man and a better woman than J. M. Smith and his wife, I have failed to make their acquaintance, and to-night we come here and are welcomed by you as a convention. You are not welcoming men; you are not extending the hand of fellowship to men or women alone, but you are extending the hand of welcome and fellowship to principles that underlie the permanency of this government. You are welcoming energetic thought; you are welcoming all that goes to make up the value of society. I mean by that, that in the men who constitute the agricultural classes; in the women who are their helpmeets and assistants, and in the men and

women that constitute agricultural societies and industrial associations, you find men and women that are the backbone of the nation; and in welcoming them to your midst you are welcoming the great beating, energetic thought as represented by them, as evidenced by them in gathering year after year. This is the eighth time that a convention under the auspices of the Northern Agricultural Society has been welcomed: twice at Appleton, three times at Oshkosh, once here and at Fond du Lac. At each of them there has been thought given to the world that has had its influence for good, and that, as I heard it remarked by one speaker, had almost revolutionized one town in Brown county. It had set the citizens of that township to thinking, to active brain work, bettering their own condition, and in bettering their own condition bettering this part of the state. I think I am not egotistical when I claim that in this welcome you extend it not only to men, but to active energy, that helps to vitalize and push forward everything that goes to increase the wealth of the country. Before taking my seat, I would thank the citizens of Green Bay for all the courtesies they have extended to the society with which I am connected, and I hope to-morrow will bring us a large attendance and a very interesting meeting. [Applause.]

Mr. J. S. Stickney then read a paper entitled

"TIMBER CULTURE."

With lumber for all mechanical uses so abundant and so cheap, we are, perhaps, justified in using sixty to one hundred thousand feet for buildings and half or quite as much more for fences on a quarter section farm. Almost the only motive for economy in the use of fuel is to save the labor of preparing it. Seventy to eighty thousand feet of lumber lie under each mile of our railroads, to be renewed every ten or twelve years. Hundreds of mills are diligently gathering in the choicest oak, shaping it into staves and hurrying it away to distant markets. Much of this oak is the accumulation of three hundred to four hundred years. Yet no one counts the little rings that record its age, or stops for a moment to consider where the next four hundred years' supply is coming from. Even the young oaks and hickory are not spared, but cut down in their infancy, and by hundreds of car loads sent after the staves. Thousands of cords of poplar are ground into pulp, and shipped to

paper and book making New England. A friction match is a little thing, yet one match factory in our state uses annually in its business about four million feet of lumber.

In three months more I shall have completed the destruction of one hundred and ten acres of heavy timber; many of the oaks three hundred years old. And what are the results? Staves enough to furnish a medium-sized cooper shop perhaps four months. Ties for perhaps a mile of railroad. Coarse wood to burn two moderate kilns of brick, and wood of a better quality sufficient for the wants of perhaps one hundred families for a single year. Only this, and for this brief time! Yet for the next three hundred years railroads must be kept in repair; bricks must be made; dwellings must be warmed, and food cooked.

Thus the ball rolls on, and we freely use the good things of to-day, troubling ourselves with very little thought of the future. I am not greatly disturbed by all this, nor do I see in the near future any reason to apprehend suffering for the want of fuel, or any great inconvenience from scarcity of building material. While considering this wholesale consumption in our large centers and most accessible sources of supply, we must remember that in most of the states there are vast tracts of timber yet untouched, because more or less remote from present lines of transportation, yet all accessible when increasing demand shall require it. Also, that on our prairies spontaneous timber growth springs up as soon as the annual fires are suppressed, needing but slight protection and moderate time to produce a large timber crop.

Thomas Meehan, in a recent report as botanist to the Pennsylvania State Board of Agriculture, says: "After two months spent in examining the forests of Pennsylvania, Virginia, North Carolina and Tennessee, the result of my investigation is the knowledge that there is very much more timber in the country than people generally believe. Also that when there shall be a real scarcity of timber so as to affect the market price seriously, it will pay to plant timber; and forests so planted will come into use, when properly cared for, in much less time than people have been led to believe. In going through Shenandoah valley of Virginia, we were furnished proof entirely satisfactory that when the white man settled in that valley it was wholly clear of timber, and that most of the immense quantity growing there now has grown in the past one or two hun-

dred years. In like manner the probability is that in all the large valleys of Pennsylvania there was no wood at the early settlement of the state. We have cut away a great deal, but then we have gained some, and the fact is worth remembering."

Fifty years ago New England was exercised with the same fear of a timber scarcity that troubles us now. To-day hundreds of her hill farms are gradually passing back from grazing and tillage to wild and neglected woodlands, and scarcity of timber is hardly thought of. We very much enjoy our present abundance and reckless extravagance, yet we can, when necessity compels it, become models of economy and frugality. In proof of this, go to-day to western Minnesota and you will find the people warming their toes and cracking their jokes around stoves invented and manufactured by the "universal Yankee," expressly to burn little hard-pressed cubes of hay or straw. Move on to Manitoba, and in latitude fifty degrees north you will see the Russian emigrants, in colonies, going boldly out on to the vast plains, asking for very little fuel besides the hay and straw they can grow — and burning the same in rude structures, half stove, half oven, made of sun-dried brick. With these simple fixtures all their food is cooked and all needed warmth obtained. If further illustration is needed, it is furnished by the Icelander with his house of snow and lamp of seal oil.

From our standpoint, this other extreme is not particularly inviting; therefore, while there is no immediate cause for alarm, it is very proper that we should at once consider ways and means of keeping a reasonable supply of fuel and building material within our reach. To dwellers in and immediately around the large commercial centers these things will always be accessible, perhaps at rather large prices; yet land in such locations will also command a large price or a large rental, so that it would hardly pay to grow timber. Take, for instance, the land that I am now clearing, six miles from Milwaukee. It has been held by one owner for thirty-five years, idle except for the growth of its wood. There has been no time in the last twenty years when the wood on an average acre would not have brought $75, and the same acre put under good tillage would have given a net income of $5 per year, and the $75 for wood put at six per cent. interest would have given $4.50, thus making the annual net income $9.50 per acre. This multiplied by

one hundred and ten shows that, to the owner, it was not a paying investment.

The annual growth of at least twenty acres is needed to supply an average family with fuel. Twenty acres of such land gives us $190 annually with which to buy fuel. The conclusion is that on such land timber growing as an investment will not be profitable. Of course there are other considerations besides dollars and cents that would lead us to plant and cultivate more or less timber in all localities.

Let us next consider an average farming community, with its little villages and hamlets, all in what is usually termed a timber country. The original forest is perhaps three-fourths gone, and the question of future supply frequently suggests itself to the thoughtful landowner. Here, timber planting in belts or solid fields will doubtless pay; but it is rather a "long-winded" investment, with the pay all on the far end, while we are an impulsive people, very energetic and active, but anxious to see the dollars we work for very soon after our work is done. So the timber planting on an extensive scale is likely to move a little slow. In the meantime something may be done by simply protecting what is already growing. On almost every farm there are neglected corners — parts of a remote pasture — knolls too barren, or ravines too broken for cultivation, on which we may find thickets, groups, or scattered plants of all our leading timber trees. Mingled with them are plum and hazel brush, and brambles. Here is a good field for cheap and remunerative timber culture. Remove the worthless growth; cut out the weak and poor where too thick; plant a few trees where too thin. If small, exclude farm stock; but if above the reach of cattle use the land for pasture; and in ten, fifteen or twenty years you, or those coming after you, will have something valuable for immediate use, or that will go on for ten or twenty years more at a greatly increased rate of gain. It is astonishing how rapidly such timber growth accumulates. Six years ago I took a little bundle of fifteen Scotch pines, weighing altogether perhaps ten pounds, and planted them in pasture sod on a steep, gravelly knoll, almost worthless for any other purpose. The planting cost perhaps two hours' labor. They have been spaded around just once since, costing another two hours' labor. Since commencing this essay I have taken the trouble to measure them and find they average ten feet high and three inches in diameter.

I was recently crossing a very poor, sandy farm, so poor that in places the sand drifted. Across this farm ran a belt of oaks twenty to thirty feet in breadth, which had sprung up and been allowed to grow in the line of an old fence. Choppers were at work cutting these into firewood, and the yield did not vary much from a cord on every two rods in length of the belt. Counting the grains showed the time of production to be about twenty-five years. Certainly not a bad crop for such land.

Where fences have remained for a long time undisturbed we frequently see lines of young trees ten or twenty feet high. Very energetic and tidy farmers count these as blemishes — evidence of slip-shod farming. On their farms the fences are frequently moved and the young trees grubbed cut. Yet it is possible that such tree-growing land might, in a thirty years' run, compare favorably in net products with some of their acres of clean culture. And if such lines are on the west or north side of the farm, where shelter is needed, it is more than possible that we might profitably add to them by planting and culture until they grew into close, thrifty timber belts, from ten to twenty rods in breadth. We "cannot spare the land" is a common excuse for not planting. If every acre of the farm is highly cultivated and made to produce up to its full capacity, then this excuse may be valid; but if only the half of this be true, then we may thoughtfully consider the policy of fewer acres and better culture, thus releasing a part from annual cropping, and placing it under tree growth which may, with very little labor, at some future time yield a rich and abundant harvest.

To the dweller on the broad prairie there can be no two sides to this timber question. Abundant and cheap land, scarce and dear fuel and lumber, burning straw and hay, and even golden corn — all of which could be more profitably utilized — hauling his scant supply of lumber twenty or forty miles, parched and dried by summer winds, and pelted by winter storms that strike him with the accumulated force of five hundred miles unbroken sweep. If alive to his best interests, he will hasten to plant broad acres with trees, and to place thick timber belts between his buildings and the prevailing winds. This work is most surely and rapidly begun with the native cottonwood, whose young seedlings are found by millions in the valleys of all large streams. Seedlings of one season's growth are gathered at twenty-five to fifty cents per thousand, and, handled and planted with reasonable care, ninety-five

per cent will grow. With three seasons of good culture, they will make an inch in diameter and six to ten feet in height. After this they need little attention, except to thin them out as they increase in size; and for this the clippings more than pay. They should be planted on ground that has been cultivated one or more years. Four feet each way is a suitable distance to plant these and all other deciduous trees for timber growth. Wider planting may give stronger growth, but it will be branchy and straggling, a poor foundation for the tall and straight trees we aim to grow. The first cost of close planting is a little more, but it is paid for tenfold by what is from time to time thinned out. On a ten or twenty acre plantation, after five years, such thinning will nearly or quite furnish the year's fuel; and, after six or eight years, light poles for various useful purposes can be freely used. At five years the shelter from prevailing winds is quite apparent, and from ten years onward becomes almost invaluable.

Having a good beginning of cottonwood, black walnuts, white and green ash, butternut, black cherry, oaks in variety, box elder, soft maple and elms are all good trees to plant, and, with the exception of the oaks, are easily started and free growers. All should be started from seed, or one year plants, and should have thorough cultivation until such time as they so shade and occupy the ground as to keep down other vegetation. Poplars and willows may also find a place when something better is for the time beyond our reach. These grow readily from cuttings, as does also the cottonwood.

If to be had of small size, and at moderate prices, evergreens must also have a place, especially about our buildings. Of these, Norway spruce, White pine and Scotch pine, as strong growers, will be most successful. Siberian and American arborvitæ and red cedar are all valuable for small single specimens, and for nicely sheared hedges.

In essays and sermons it is customary to set a high standard, and write and speak of things as they should be, whether in general practice we might hope to reach the full standard or not. But such treatment of this subject would fill a volume, and would probably do less good than this brief mention of facts as they exist.

As a rule, men will do promptly and cheerfully only those things which seem most sure to pay. Applying this to our subject, we do

not hesitate to say that on all prairie farms it will richly pay to plant trees, and to plant so abundantly that there may be a full supply of fuel at an early day, and in the future a large share of what may be needed for buildings and fences. On any broken or waste land not well adapted to tillage, may it not be a good investment to plant with the slower growing but more valuable trees, that shall go on with very little cost or trouble to us, laying safely aside an accumulating value that may come in thirty or forty years hence as a very acceptable dividend or life insurance fund to ourselves or our children?

In comfort gained, and in the gratification of our love of the beautiful, it will surely pay to plant these living and improving wind barriers in all exposed positions, and to plant well arranged groups and single trees about our homes, to afford grateful shade and beautify the landscape.

Mr. Stickney — Mr. President, if I had taken a moment to think before choosing this for my subject, I should have chosen some other. When I came to work upon it I saw at once that to do it anything like justice would far exceed the limits allowable in a paper before such a convention; but the most that could be done was simply just to hint a few things, as I have, in the best way I could. To give anything like details would take, as I have remarked, a volume. This was brought very forcibly to my mind this afternoon by a gentleman present. He came to me and said he hoped to hear my paper this evening, as he was considering the subject of planting fifty or one hundred acres to timber for special purposes, but he supposed he should have it all in the printed report. It made me blush, for I knew, the moment he spoke, there could be no details, it would be too voluminous. I sat down and talked half an hour with him, and I hope put him on the right track and gave him the information desired as to details, about just what he wanted to do. One-half of all the large timber in our state to-day is like the crop of wheat, ready for the sickle. It has attained the full measure of its value; it is ready for the harvest. It is true it will keep longer than a crop of wheat, and just as soon as it can be profitably harvested, just so soon is it proper to do it, not forgetting to replace it with something that will take its place. When timber comes to a certain age it deteriorates. That I found especially so in the oaks. Trees four hundred years old should have been cut

fifty years ago, or one hundred years ago, if there was a market for them. It would have been better to have cut them then than at this time. On my place I have a small grove. I can remember when they were only as high as my head. They were left there by mere chance. It was a ridge not used for cultivation, and yet good land. They passed through ten years. I went in and removed all the trash, all imperfect trees, leaving still on it four trees to the square rod on an average. In the last eight years I think that grove has perhaps trebled in bulk, in actual volume of timber. Our young planting always seems very small. For the first year it is a little twig, perhaps as big as a straw. It gains a foot that year, two feet the next year, three feet the next. If you cut a tree you notice the grains in the center are very small. There is not very much force of root or nutrition to build on to its walls. There is not very much space to build it on to. Each year the circumference is larger, the root strength is greater, gaining sometimes more than an inch in circumference, continually enlarging. It is like a snowball rolled up. It is so with tree growth. If we have wood timber, it is very desirable that we arrange the plants on the start, so that they may remain for ten, twenty, thirty, forty or fifty years.

Mr. E. W. Daniels — I might throw out a little light on that subject. Some thirty years ago, when I first went into Waushara county, it was hardly surveyed. That year I started to go after a load of timber. There were two roads forking, diverging gently, and I took the left hand road, which was going to the west, and I discovered I was on the wrong one. I thought I wouldn't go back entirely to the forks, but would go across from one of the roads to the other. I went that day more than fifteen miles, and never found a soul or anybody living, nor any track of a white man, nor saw anything relating to a settlement. At sundown I came to a little creek, and I heard a cow bell about a mile off, and I hastened to it, and the poorest people I ever saw in my life I saw there. I went straight, and turned out for nothing. There were hardly any bushes there. The bushes there were so small, I drove over them with my wagon, and now they are almost twenty feet high and as large as a stove pipe. I thought of going west, and setting out some trees. There are other varieties; he did not mention the European Larch. Some years ago, I said wood wouldn't be a scarce article, but good pine lumber would, before many years.

Mr. Neville — You all recollect the disastrous fires of 1871, in which so many people were destroyed, the Peshtigo fire, as it was called, up in this region. Along the line of the Chicago & Northwestern road, to Marinette, the forests were burned down. To-day there is a growth in some places of over thirty feet of new timber, and an entirely different sort of timber. The timber that was burned up, I believe, was principally hard timber and pine timber, and the timber that is growing up is cottonwood, and those other soft woods that have quite a large leaf. There is the fact well shown, and you can see that to-day, by just going down that road.

Mr. Smith — Mr. President, it is known to residents here that I have a grove of pines, of original growth, about my residence. We moved there in 1856. It was then a very thick growth; what we called a second growth of small pines. The original pines had been cut off, or the original timber, whatever it may have been, and it was growing up to second growth of wild poplars and pines, the largest of them perhaps being, according to my best recollection, as large as a stove pipe. I cut out the trees, and left the best pine standing. These have grown in those twenty-four years, until some of them are certainly over twenty inches in diameter, between twenty inches and two feet at the butt, showing that pine, which is usually considered a slow grower, under favorable circumstances, grows rapidly.

Mr. Stickney — I think it is admitted by well informed people of Iowa and Illinois, that in those states there is now very much more timber than there was twenty years ago. It is true that it has not furnished either fuel or lumber for the use of its people. The fuel has been largely coal.

Mr. Smith — There is more in the southern part of the state than there was twenty years ago.

Mr. Stickney — I have not any doubt of it.

Mr. Smith — It seems to me there is.

Mr. Stickney — It is not large enough yet to be valuable for market and commercial purposes, and yet there are vast amounts of it accessible to us, that will last until the other takes its place; and very good use is made of timber, very much less in size than formerly. Go to New England to-day, and you will find floating down the Connecticut river, spruce not over one foot in diameter,

running from eight inches to one foot in diameter. It is taken to the mills and sawed into different kinds of lumber — fence, square and box lumber, young pine also. You have noticed the shoe boxes that come from Boston and Lynn, and those Massachusetts shoe towns. You will find them made of pine, of young growth. Pine not over thirty years old. It is taken to the mills and sawed into thin lumber without edging, and then taken to the box factories and sawed up piece by piece, and matched to make into those boxes. There are very many industries of that kind, that younger timber is put to. The time is coming when that principle will have to be put in use here. If those who are cutting away our forests would replace them with trees that are easily and readily grown, we shall not be troubled very much for building material. Fencing is very largely made of other materials than lumber. We shall have to use something besides wood for posts, either live posts, stone or iron. So with building material. It will be brick or stone, instead of lumber that we use so lavishly now. There is a good deal of timber to plant. I spoke of Cottonwood. It is nothing but common Poplar, and poor at that. Still it will do for a thousand uses. It will do for shelter behind which to grow more valuable trees. I only speak of it for that. There is nothing, perhaps, that grows and comes forward more surely than Black Walnut. I have been in the state thirty-two years. I have trees on my place that are of the third generation bearing nuts. They are of my own planting. Planting thickly so they will grow upward, instead of spreading, you very soon get something that looks like timber.

Mr. Smith — How large are those trees?

Mr. Stickney — Some of them I lost sight of; some of them were cut down. The third crop are as large as that stove pipe.

Mr. Smith — As a general thing they have not been a success.

Mr. Stickney — Planted with ordinary care, you can count on three feet a year.

Mr. Smith — What kind of soil?

Mr. Stickney — The richer the better.

Mr. Smith — I have known some planted on rich, strong soil and they have not done anything.

Mr. Stickney — These have been trees grown for the nursery and left.

Mr. E. W. Daniels — Can you transplant them?

Mr. Stickney — Yes, sir. If you move them at one year old.

Mr. Daniels — Can you after they get larger than that?

Mr. Stickney — I never moved any after that. If you get down to reach the side roots, then you can do anything.

Mr. Hazen — I would like to ask Mr. Stickney, what is the best way to get a crop of Black Walnuts?

Mr. Stickney — Always by seed. Gather the nuts in the autumn, before they have had time to dry, as soon as they have matured. Put them into a rot heap so as to remove the husks. Then wash them, if you please, and get as much as you can of that husky matter off. Then spread them on the ground with a slight covering of fine manure or black muck. We have plenty of it in the swamps. Let them freeze and thaw as many times as they will during the winter. Take them from that in the spring, and plant them where you want your trees, or in the nursery row. It is possible you will see nothing from them until the middle of June, or perhaps July, but they nearly all grow — a prairie tree planter can get a barrel of black walnuts sent to him direct from the trees before they have dried, and if he treats them in that way, he has got the foundation of a nice Black Walnut grove. Also with the butternut. The butternut is as fine a grower as the Black Walnut. It is not as valuable after it is grown. There is only one objection to the Black Walnut. It is a broad feeder, and when it gets to any size, it takes all there is in the ground, and nothing will grow under it.

Mr. E. W. Daniels — Will butternuts grow after drying?

Mr. Stickney — I never could make them vegetate after drying. I always take them direct from the tree. Some one may criticize by saying I leave the hickories and butternuts out of my list; so I did, and many others that might be of value. The bitternut or pignut is perhaps more valuable. It is about as near hemlock as a timber tree, or for hoop-poles as any tree there is. It is certainly better than the Shag Bark. The Shag Bark is a little more tender and is more discouraged by drought. It don't grow up to the thrifty size that I would like to have it. There are the oaks. I don't know of any that it would be well to plant for the wood; yet I would plant them after planting the other trees like Black Wal-

nut, Bitternut, Box Elder, etc. I would plant a few oaks to come on after the other trees. I would give them three times the length of time of the other trees.

Mr. Smith — You spoke of the Bitternut Hickory as valuable for wood.

Mr. Stickney — Not as large timber, yet I would not want a better income than a grove of Bitternut to cut for hoop poles. Every hoop pole is worth a cent or a cent and a half.

Mr. Smith — How is that, Mr. Britian?

Mr. Britian — That is my experience.

Mr. Smith — What I have been taught to call the Pignut is not the Bitternut. It is a similar nut in appearance, but the nut is sweet, not bitter. Our most valuable hoop pole timber, at the east, was a thin shelled nut, similar in appearance to the Bitternut, but it was a sweet nut.

Mr. Stickney — Then we don't have it here. At least I have never seen it. I have always confounded the two and called them the same.

Mr. Smith — It usually grows in rather wet land.

Mr. Stickney — Damp, wet land, yet good clay loam will do, and if cut at the proper season it will send two or three sprouts out after it. I wouldn't ask for a better income than twenty acres of those in cutting condition.

Mr. Smith — In the east I was partially engaged in that business.

Mr. Huntley — What is the proper season to cut for propagation.

Mr. Stickney — Late in the winter or early in the spring is the proper time to cut them. They suffer nothing by cutting them, and all the strength of the root goes into the new sprouts, and I have seen them three feet high in a season, and I have seen them bring $15 a thousand, and frequently $20. a thousand, and they are very valuable, planted for that purpose. I don't know but planting Black Ash would be equally profitable. Among the finer woods for prairie planting is our White Ash. It is a most excellent tree, and, after the first few years, reasonably rapid in growth. It comes forward quite fast, and is one of the most valuable of all our timber trees.

Mr. Daniels — How about the Larch?

Mr. Stickney — The Larch, as I understand, is fading out very rapidly in its importance as a timber tree for planting in this

country. A great deal of push, eloquence and gas, I might say, has been expended upon the Larch to introduce it in this country as one of the timber trees. It has been a comparative failure. I don't think anyone can point to ten acres of successful Larch planted in the West. If there is, I don't know it. You can see very beautiful individual specimens that have been planted about door yards, or about houses, or some favored place, and cultivated. A few years ago every Larch vendor would come around with sections of the wood cut from a tree as large as this hat, showing three-quarters of an inch growth in a single year and under favorable circumstances, and to-day my opinion is that I would just as soon plant our American Larch as the European, and if Larch has any value, I think our American Larch is not the tree to despise. For posts and railroad ties this is a very enduring tree.

Mr. Huntley — Can you give us any other name for the Larch?

Mr. Stickney — Tamarac Hackmatack.

Mr. Huntley — Tamarac?

Mr. Stickney — Yes.

Mr. Huntley — I would like to say it is a complete failure as posts, not lasting as long as basswood posts. In our town we had a fair ground fenced with these posts, and it blew over in sections some few years ago. I saw a notice of the Box Elder, Ash Leaf Maple as being a good tree to make sugar. You can make ten pounds of sugar to the tree. I think it would be a good investment, as they are very low priced — fifty cents a hundred. Three of us bought one hundred trees apiece. We got them at Phœnix, Illinois. They were about a foot long and a little bigger than a needle. One year we set them out. Most of them are from seven to eight inches through, and I have never known one of them to kill back to the first bud. That is saying a good deal. When I was a boy we had a rifle company, and the test was to roll a barrel down hill and shoot into the bunghole. If a man missed, he was thrown out of the company, and that is a big story, too. I have never seen any of those elder kill back a single half inch. Some of them are thirty feet high. I have known them to make three feet growth in one year, where sprouts came up. I have never tried them for sugar, but they are a very rapid grower and a very hardy tree.

Mr. Stickney — I think if there is any one born with that sweet tooth we hear about, it must be Mr. Huntley. He goes for sugar,

whether it be in Amber Cane or Box Elder. That sweet tooth has done him some good. It has caused the planting of one hundred trees on his farm, which I think will pay him, whether they pay him in sugar or otherwise. The great trouble with Larch is, that it is almost impossible to handle it at the time people usually plant trees. That is in the spring. It starts remarkably early, and after having once started, it is sure death almost to undertake to plant it. That has done more to kill its reputation, ruin it and spoil all its usefulness than any other point about it. It is a good growing tree, rapid. It makes wood, if nothing else, but that one thing has ruined it. Further south, in Kansas and in Northern Missouri, there is a very large timber plantation going on just at this present time, begun about two years ago, by Robert Douglas & Sons, of Waukegan, in the employ of the railroad company (I don't know the name now) and of the St. Louis & Iron Mountain road, in Missouri. The Kansas plantation consists of six hundred and forty acres, and next spring perhaps fully the whole tract will be planted.

It is to be planted and cultivated by Douglas & Sons exclusively, without any trouble or vexation to the railroad company, and to average six feet high all over the track before they draw any compensation. I don't know the particular terms of the contract, but it amounts virtually to planting and warranting. They are using a species of catalpa. It is useful for railroad ties and for soft-finished work. It is a very soft and a very nice finishing timber. That, I have no doubt, will be a perfect success in that latitude, but it is good for nothing for us here. I have seen specimens growing in our grounds; only been there a single year. I brought it there of large size. I know of two others raised there from seed, but it is of no use as far north as this as a tree for general planting. They also use for southern planting on the Iron Mountain Road, some other varieties of soft, rapid growing timber, that is useful to us here. The larch has been virtually given up by Douglas & Sons, as impracticable. To a large extent this catalpa has taken the place of it with them. They are doing an excellent work, and their success with that will be something very marked in the history of tree planting in our country. It is the most extensive of anything of that kind that has ever been attempted anywhere. For us north, I know of nothing except the trees I have named here to-night, and others perhaps that I have omitted, of our own

hardy varieties, that it is any use at all for us to tamper with as trees for forest planting, or general timber planting in any way.

On motion, convention adjourned until 9 o'clock A. M., Wednesday.

WEDNESDAY MORNING, January 19, 1881.

Convention called to order by President Hazen.

Mr. Hazen — The first business in order this morning on the programme is "Fruits and Fruit Growing in the North, with Description of Several Varieties of Northern Origin," by J. C. Plumb, of Milton. Mr. Plumb is one of the leading horticulturists in the state, and has long been with us in this work, and I have no doubt he will interest us with what there is here on this topic.

Mr. Plumb then read a paper entitled "Fruits and Fruit Growing in the North, with Description of Several Varieties of Northern Origin."

FRUITS AND FRUIT GROWING IN THE NORTH.

By J. C. PLUMB, Milton, Wis.

After having given an ordinary lifetime to the solution of the question of extending the growth of hardy fruits northward, I am still of the opinion, 1st. That nearly every county of our state may produce its supply of hardy northern fruits, in sufficient quantity for home consumption; and, 2d. That unless so produced, the average family will not have more than a meagre and temporary fruit diet. These propositions I have often repeated and followed with theoretical and practical teachings, as well as demonstrations, and have the pleasure of seeing the extension of fruit growing of the most permanent character into regions heretofore considered impractical for any but the currant and crab.

How this has been, and may be further extended, is the object of this paper. In giving advice to fruit growers, we inquire, 1st. The natural condition of soil and climate; and, 2d. What will grow and thrive with reasonable care; and, 3d. What change may be made in natural conditions and care, so that the list of varieties may be extended. The questions of variety and culture must be considered for each locality and be adapted to the local conditions. There are certain principles of growth which everywhere apply to

a given species. The apple thrives best in a cool, moist climate, where there is sufficient summer heat to mature its growth, and a firm, calcareous, retentive soil; while the peach thrives best in a dryer climate and more porous soil several degrees further south. We have the same natural selection in the varieties of the same family in both fruit and forest trees.

The Pyrus Malus, of which the Baldwin, Greening and Pippins are of an exalted pattern, do the best in New York, Michigan and Illinois, while the Pyrus Astrachana, of which our Russians, Duchesse, Alexander Astrachan are types, do much their best in Vermont, Canada and Wisconsin, and the Pyrus Bacato, or Siberian family, are vastly better grown in the latitude of Green Bay and Chippewa county than farther south.

The same may be noted of the oaks and pines which extend over a wide belt of our country from the Gulf of Mexico to Lake Superior, but requiring many and widely different varieties to cover the different conditions of soil and climate. This law of natural selection or adaptation is so uniform in its application, that we draw the line of separation of species and varieties for each locality with great certainty, and a more definite knowledge of, and obedience to this law, would save much money and time used in planting without any settled rule of practice. It would also give faith to plant more largely and further north than now considered safe.

In former papers I have shown the natural divisions of our state and their relation to fruit growing, and will now speak only of varieties adapted to Central and Northern Wisconsin.

Of all our fruits, the strawberry is the queen, and is especially a native of a cold climate, where the summer is short and warm. It adapts itself to a larger range of soils than any other, perfecting itself in our poorest sands or firmest clays, and the further north, the higher flavored it becomes. But it requires a soil rich in phosphates, and does its best in calcareous sand highly enriched with composted manures. For instance, our worthy president beats the world on strawberries when he has plenty of water. I have seen remarkably fine crops grown on new land, planted the first year after breaking the original sod. For the farmer, I should say, prepare your strawberry ground by turning under a heavy coat of manure in midsummer, and allow nothing to grow on the land the remainder of the season. Further prepare and plant the next

spring; plants one foot apart, in rows four feet apart. Thoroughly cultivate the first season, with horse and hoe, letting the plants run together on the row, but not wider than two feet. Let the winter mulch remain on this open space through fruiting, then burn or work into the soil, and cultivate as before, thinning out the old plants at least one-half. If the winter mulch was good, coarse manure, no additional manuring will be necessary, except good ashes, which, on old lands, are worth twenty-five to fifty cents per bushel for any fruit crop.

The Black Cap raspberry should be planted two feet apart, and rows eight feet apart, and either thoroughly cultivated or mulched heavily. Stop young shoots at two feet, cutting away old wood in early spring; cultivate as before. If these are done, the plantation is good for at least ten years. The rows require the same treatment, except the summer pruning, which may be omitted, and keep down the suckers outside of a two-feet wide line of plants.

The grape requires a firm, dry soil, rich in mineral elements, and absolutely clean surface culture, with plenty of room to extend in summer, and for the sun to shine on the soil around the plant.

The first condition of successful grape growing is healthy foliage. Any system of culture and pruning which fails to secure this is at fault. The grape vine requires air, even temperature and exemption from excessive cold in the growing season. In the vicinity of large bodies of water, or on comparative elevations, we find the most uniform health of vine and perfection of fruit. In such locations, the very artificial system of summer pruning practiced in Europe may be successful, but in most parts of the state, the vine must be allowed to extend its summer growth to an indefinite profusion beyond the fruit, to retain foliage enough to properly ripen its fruit. This will require more room, or higher trellis than is commonly used.

The currant is essentially a northern fruit, and of all the most easy of production. It is not particular as to soil, but requires good culture, or a heavy summer mulch, and will bear a large amount of manure upon the surface. It can be grown in variety upon a small plat of ground planted four feet by four feet. You can have sixteen of one variety, or one each of sixteen varieties upon a square rod, which would give a large supply for an ordinary family, provided the currant worm be kept off and late spring

frosts avoided. Helebore is a safe application for the first, and avoid frosty locations for the latter.

The blackberry of the most approved varieties will pay well for any summer mulch and winter protection it may need, and it must have both to insure the fruit against drouth of summer and cold of winter. The blackberry has a pliable, ropy root, and by plowing along side of the rows, and loosening the surface soil, the plant may be laid down and covered with earth at little cost of labor. If rigidly confined to the row, not allowing more than two feet width of plants, with rows eight feet apart, as for raspberries, it will bear bountiful crops. For varieties, we commend the Snyder and Stone's Early, as being both extremely hardy and prolific.

The gooseberry is another northern fruit, and should be grown much the same way as the currant, adding a support for each bush of a barrel hoop, supported by three stakes one foot high. These small fruits I have mentioned in the order of their importance, and as they are so easily grown in every part of our state, they should be among the surroundings of every family home, where a rod of ground can be made available in city or country.

Of the tree fruits, the cherry is everywhere a favorite, and in all of southern, central and eastern Wisconsin may be grown in abundance, but it must have a dry limestone soil to do its best. It is exceedingly fruitful in all the countries bordering on Lake Michigan; and all varieties are very fruitful there. The only varieties grown in the state with success are the Early and Late Richmond, the latter also called "Kentish Morello." These bear best upon their own roots, or grafted upon the Morello, but sucker badly. Upon the Mahaleb stock they are more vigorous, later in bearing, longer lived, and do not sucker.

The plum, both Native and European, do well, and but for curculio, would be very profitable to grow in the greater portion of our state, where it can have a firm clay soil; this it must have. The entire section north of Milwaukee and east of Lake Winnebago is naturally adapted to this fruit, and no finer specimens have we ever seen anywhere than grown there.

The pear ought to be, and may be a universal fruit in nearly every portion of the state, and but for the blight would have been years ago, for its planting has been nearly as general as the apple. It does not winter-kill much more than the apple, but it is a great

feeder, roots deep, and should there find its nourishment mainly. It is also fine-grained, and close wooded in cell structure, and cannot adapt itself to the rich soils of the west.

Its leaves are peculiarly sensitive to change of temperature, and are subject to several forms of blight, which are induced by these changes, and through these several conditions of the tree, climate and soil, the pear is the subject of disease and sudden decay, more than the life and fruit bearing.

Here the question is not one of latitude, so much as soil formations in connection with extremes of temperature.

The pear is especially sensitive to sudden changes. Hot days and cold nights of August often induce leaf blight upon young trees in the nursery, and excessive feed during growth, will also cause a derangement of the functions of digestion and assimilation, and summer blight of both foliage and wood follows.

In a recent trip south, I found the valley and rich prairie soils as subject to blight as with us, while the timbered hills are exempt, and the pear trees of ten to twenty years' standing a success every way.

We have the same examples in our state, and the most remarkable of all the pear orchards near this city (Green Bay), which would be considered a success anywhere, I am told, has borne more bushels to the acre than any apple orchard in the state of its age, for the past twelve years, and the fruit has been of such excellence, that it has out-sold Michigan pears in this state under a fair competition.

The conditions and success of this orchard may be repeated ten thousand times, upon the tops of the many drift hills of eastern and central Wisconsin, where there are comparative elevation, cool aspect, and a concrete soil of drift sand, gravel and clay, largely mineral and little vegetable. Such locations abound in this region, and only where used for pear and apple growing, will their highest value be known.

Taking a lesson from the Green Bay orchard, Mr. W. R. Bishop, of Sherwood, planted five hundred pear trees last spring, upon the second table on the north side of the limestone bluff near Clifton, Calumet county. Elevation above Lake Winnebago about — feet, and — feet above the waters of Lake Michigan. Soil six to ten inches, good clay loam upon one foot of red clay, upon drift lime-

stone gravel, with limestone beneath some — feet, to the shale. Conditions all favorable, provided it is soon permanently in grass. Isolated cases of successful and healthy pear trees are found in all the older settled portions of the state, and in every case they will be found to confirm my theory of a lean soil and moderate growth essential to continued health. Let those who desire to grow pears in the west heed the lesson.

If the strawberry is the queen, so the apple is the king of northern fruits. In its various species and varieties, we have a wonderful range of qualities, of size, form, color, texture, flavor and season of fruit, which meet every purpose, every taste, every eye, and every season. What other fruit like it. The demand for this fruit exceeds that of any other, known in our zone, and this demand is on the increase yearly. American apples have a world-wide reputation, and market either fresh or dried. Our home demand is rapidly increasing beyond the supply, even in the oldest apple growing sections of our country, and to-day better prices are paid for good apples than when our production was one-tenth its present amount in proportion to population.

It is a well-known fact that the use of fruit as part of our every day diet increases with advancing civilization and wealth. It is never less, but more, the family will call for. The brief season of over supply, common to most of home-grown fruits at ripening time, does not satiate, but establishes a demand which will be supplied if within the means of the provider of the family.

To fill this demand, no fruit is so complete in itself as the apple, and none so readily supplied.

Granting all this, the question remains, *What shall we plant?*

The question of varieties and culture, as before remarked, must be largely one of local conditions and requirements. Those who have elevated, airy, well-drained locations, with firm clay soils, may plant a large list of hardy varieties with safety, up to latitude 44°, or above the geographical center of the state north and south. This brings us to Oconto, on the bay, Wausau, Dorchester, on the Central, Chippewa Falls and Hudson, on the west. In all this region, the hardy lists recommended by our State Society are all safe to plant on the locations I described as best.

In the order of their hardiness, I would list them as follows: Duchess, Wealthy, Tetofsky, Alexander, Plumb's Cider, Haas, As-

trachan, Fameuse, Price's Sweet, Tallman Sweet, Walbridge, Fall Orange, Utters, St. Lawrence, Golden Russet, Pewaukee, Seek-no-further, Willow Twig.

For an exceedingly hardy list, take the first five named, and add Wolf River, McMahon, Hill's Red Winter, and Hill's Windsor Chief. This list will be doubtless modified by the addition or substitution of some new variety of Russians, and others of northern origin, so that there will be no lack of good apples of all seasons for the south half of our state, both for home use and the near market. For the more northern portions of our state, the first planting should be of only a few of the hardiest of the apples named, and more of the Hybrids of the Siberian family. Of the latter, I will name a selection for family use, commencing with the early varieties: 1. Brier Sweet; 2. Sweet Russett; 3. Milton; 4. Transcendent; 5. Whitney No. 20, for summer; 6. Hyslop; 7. Homestead, for fall; 8. Lake Winter; 9. Red Lake; 10. Winter Golden Sweet, for all winter. Nos. 1, 2, 5, 7, 8, 9, 10. Nos. 3, 4, 6, are suitable only for cooking, and all the rest are excellent eating out of hand as well as cooking, and give a succession from August 1st to the next spring. The three last named are, in our judgment very nearly perfection, in the tree and fruit, and our selections from over one hundred varieties, obtained from many sources.

Among so many new varieties, it is necessary to discard all that have not merit of a high order, both of tree and fruit. The time was, not long since either, when a crab was a crab, and crabby. No one expected more, but to use sugar enough in the cooking to conceal its defects and conserve the richness of its juices. But the cost of the process, and character of the product precluded it from the every day diet of the farmer's family.

Now we have the Siberian so enlarged and improved that we confidently offer to fill with them every real necessity for size and flavor and season; which are delicious eating out of hand, and require no sugar in cooking, while for canning and drying or preserving and pickling, they are far superior to the common apple.

I will briefly sum up the superior qualities of the Siberian family as follows:

1st. Tree exceedingly hardy and vigorous, with the habit of early bearing — qualities wanted first of all in a northern region.

In districts of excessive sandy soil, where ordinary apple trees fail, these Siberians will find a good living and be wonderfully productive.

2d. Concentrated richness of juices, with tender flesh, and a skin so delicate that it falls to pieces in cooking. The core and seeds are often so small that they may be removed with but little loss and labor, and not always objectionable if left in.

These several named qualities of tree and fruit are too well known to need substantiation here, but should commend them to every planter in the North.

We have another distinct family of northern apples in the *P. Astrachanes*, or Russians, the distinguishing features of which are as follows: Tree vigorous, rapid growth and bearing early, with vitality nearly equal to the Siberian family. Fruit of good size, coarse flesh and diluted juices, requiring to be ripened before winter to be of high quality. They usually have a thin skin of pale color, often brightly striped and a beautiful bloom. They cook quickly, but need the addition of sugar to give acceptable sauce. The well known Tetofsky, Astrachan, Duchess and Alexander are probably the best of the class we have. If in recent importations we have better, the public will soon be informed of the fact. I regard them of secondary value to the Siberians for the extreme north, but regard both of great value for hybridizing with our standard apples.

We have some valuable varieties now coming into notice of home origin, which are proving exceedingly well adapted to the rigors of the north as any foreign varieties.

Of these I will name the Wealthy of Minnesota, the Wolf River, and possibly others of Waupaca county, the McMahon of Richland county, the Hill's Red Winter and Windsor Chief of Dane county, and others I might mention favorably. I believe all these mentioned worthy of culture north of 45°, and would gladly furnish a description and history of each for the volume of this society.

One great advantage in favor of the north for fruit growing is the ease with which fall apples may be kept into and all winter. Such varieties as Fameuse, Plum's Cider, Utter, Fall Orange, Sweet Pear, etc., not reckoned strictly long keeping apples, may be made so by picking carefully, packing in barrels or crates, and putting at once into a fruit house, such as every family may have, and

every orchard should require, where at a uniform temperature of 45 to 50° they will keep indefinitely, and be put into market when they are wanted at a remunerative price to the grower.

Time and space will not admit of telling all about fruit growing in the limits of our paper. But if I have told you enough to interest and encourage the fruitless families of Central and Northern Wisconsin to plant and grow a home supply of apples and other fruits, I shall not regret this effort.

Mr. Plumb — I was shown a seedling this morning which was said to have originated here in this city, which, if a seedling, has some remarkable qualities. Here is an apple, brought to us as a seedling, which, under the same restriction, certainly has remarkable qualities.

Solo by Emily Le Clair.

J. M. Smith — I want to ask Mr. Plumb about the Miner Plums. He stated that they wanted a clay soil. I have never known and have never heard of there being a crop of Miner Plums in the state until this past season, and during the past season I have not known or heard of a Miner Plum tree in the state that was old enough to bear fruit that was not loaded with fruit, and I want to ask him if he cannot give us some reasonable explanation of these things.

J. C. Plumb — Mr. Chairman, the supposition is, I know all about plums. I know a great deal more about crab apples than I do about plums.

J. M. Smith — You better change your name then. It has been a very singular state of affairs in regard to that plum.

J. C. Plumb — I doubt whether the Miner Plum, which he mentions here, is really valuable for Northern Wisconsin. In the first place it usually ripens in Southern Wisconsin so late in October that the call for such kind of fruit has passed away, and in the second place it seldom ripens because it seldom bears. It seems that its limit of success is very narrow. Occasions of success, such as Mr. Smith mentions, are found all over the state; but, as a rule, it is not fruitful, except around Galena there is a little strip of country and on the Mississippi river at various places where it is almost uniformly a success, but in this region that I named as a plum-growing country, the lake region east of Lake Winnebago and north of Milwaukee is essentially a plum-growing country, and there, in the first place, there is no occasion for it. You can

do better, and in the second place, I don't believe it is worth anything when you grow it.

J. M. Smith — I have got five or six trees of Miner Plums in my garden that have been old enough to bear for several years. I don't know how many years. I was going to dig them up three years ago, but my boy said: "Father, hold on to them a little longer; let us see what they will do." So we let them stand. They have blossomed, I think, about every year, but we never have had, I think, a quart of fruit on them. Last spring they were loaded with blossoms, and, in fact, I had to prop up some of them to keep them from breaking down, and the plums all ripened. They really are very fine plums, but come on later than any others. They came on after the others were all gone. The same was true all over, as far as I know. In some cases I recollect persons asking me, what is that? The tree never bore any before. I looked at it, and it was a Miner Plum. Mr. Stickney was showing me on his ground large trees which he said had never borne before — a tree six inches in diameter. Why should they bear?

Mr. J. C. Plumb — If the question is simply the reason of this singular success, the probability is that the curculio had destroyed your young fruit hitherto. It had blossomed, had it not?

Mr. J. M. Smith — It had bloomed. But why should they destroy them and not the other ones? It is a later growing fruit, and we have had wild plums every year.

Mr. J. C. Plumb — If that be not the fact I cannot account for it. There probably is something in the nature of the tree. It is essentially a southern tree. It belongs to the Chickasaw family. It is not like our native wild plums in its leaf; it belongs to a southern family called the Chickasaw family, and seems out of its latitude in this northern region. I cannot account for the single success.

Irving Smith — I happen to know something about the Miner plum; we have had them. Our trees had considerable many blossoms on them, but ninety-nine out of every hundred fell off without any fruit; the others grew to about the size of peas and then they concluded they would stop.

J. S. Stickney — I think whoever has a Miner plum of any size sufficient to bear, and they bloom very young, and will observe carefully, he will see almost a white sheet of bloom over the trees. You will find, as young Mr. Smith says, a very large proportion

drops off without coming to anything but the semblance of fruit. Some few will get to be the size of peas. It seems to be feeble in its hold on the tree; its connection with the tree seems to be very feeble, and the least unfavorable weather blights it, and then when it comes to the size of a pea it drops off. It is not the curculio. I know the curculio; I have studied him carefully. We had as many curculio last year as at any time, but there were from some cause more vital forces last year that caused it to go forward to maturity. The curculio worked on that fruit; he punctured it some, but didn't destroy much of the fruit, and I didn't jar those trees at all. Other trees in the neighborhood I took careful notice of, and I know the curculio were there because I caught them by the hundreds. Still my trees have been big enough to bear for six years, and that fruit was the first quart of fruit I received from the trees. It is atmospheric influence — something in the atmosphere, and I have been told by parties living near Galena, where its best has been shown, that anything that strikes it like a cold, heavy wind will spoil the crop, where on other trees that have been protected from such winds, the crops will be abundant. It is peculiarly sensitive to the condition of the atmosphere at such a time.

J. M. Smith — Was it not a fact that the Miner plum trees all over the state were peculiarly fruitful last year?

J. S. Stickney — Yes, sir; but as a rule it is a failure every time with the exception of last year.

D. Huntley — I don't think they are of value enough to spend any breath over.

J. S. Stickney — I don't think they are of any value. For general purposes they are not worth a cent.

J. C. Plumb — I wish to say a word. I mentioned a list of the crab apple family; the Siberian family, or crab apple family, because we so started them. The name should be dropped. People say, Why do you call them crabs? Here are some samples.

Chester Hazen — The time is passing away quite rapidly; we shall have very little time to discuss this paper and get through with our course of business this forenoon; perhaps we better drop this and take it up afterwards.

D. Huntley — I would like to ask one more question of Mr. Plumb. He spoke of staking with three stakes and a hoop. I think a much better way than that is one stake and a wire. Bend

a wire in that form so you can take it off, and it will last forever, and do the same work as three stakes and a hoop, being about one-third the price. I understand Mr. Stone does not recommend covering. You recommend covering.

J. C. Plumb — I wish to say, while we may grow blackberries, and Mr. Stone grows them out on his land, which is high, bluffy land, we call it very poor soil, agriculturally speaking. Blackberries of several varieties will grow there and produce without winter killing; but, I will venture to say, there is no blackberry known which can be depended upon for fruit on Mr. Huntley's ground, or anything corresponding to it, without being covered for the winter. I wish to put in that every time.

Chester Hazen — The next business in order will be an address by Professor Henry, of the State University of Wisconsin.

J. M. Smith — Professor Henry has come from the State University hoping to talk to farmers; hoping to talk to a good many of them; my impression is, we shall have more of them this afternoon than this morning, and would it not be better, under the circumstances, to take up some other subject and pass his address over until afternoon. I don't want to dictate to the convention.

Chester Hazen — Of course, this is the option of the convention. If there is no objection, we will take up the next address in order, and pass this for the present.

J. M. Smith — I didn't make these remarks for the sake of getting the floor myself. I see my own name is the next one. People have heard me, so that they know what there is of me. I think we have not discussed the subject of manures at all, and it seems to me we ought to have a discussion on that subject sometime during the day.

Chester Hazen — There may be some papers not prepared.

J. M. Smith — By the way, let me say Mrs. Brown will not be here. I received a letter this morning from her husband saying she was confined to her bed by sickness, and it would be impossible for her to be here.

R. D. Torrey — It would seem to me that by placing the address of Professor Henry in the afternoon, we should do much more good than we can by having it this forenoon, and I understand from the professor his subject and that of our friend Smith are very closely alike. Now I would suggest taking up some other paper

that was put for the afternoon, and while I am on the programme for this afternoon, I would be perfectly willing to read my paper this forenoon, in fact I would rather do it and have it off my mind. It has worried me ever since I was appointed to write it.

D. Huntley — I move we take up the secretary's paper now.

R. D. Torrey — I would rather omit it entirely, but for the purpose of making this programme most beneficial, I do think the professor should have more here than there is this forenoon.

Motion carried.

R. D. Torrey read a paper entitled,

FAIRS, AND WHAT I KNOW OF THEM.

Perhaps there is an assumption in the title of this paper, inferentially at least, that I shall be able to tell very much of fairs that will be new; possibly some of you expect that this paper will contain ideas that have never been made public; some mysteries perhaps of the minor workings of fair management. Probably you will be greatly disappointed in how little I really do know of my chosen topic.

But it may be right and just to expect very much from one who writes on a subject with which he has had a close relationship for a term of years, be it of a social or commercial nature; but you all will readily admit that it is not great length of time of such association, but close and careful study and observation that enables one to gather thought and present it in such a form as to make it of value. This being true, I may not be able even to amuse you, much less interest you, though my term of service exceeds a decade. Of this, however, rest assured I shall not weary your patience, for I shall only write of things I *know*, and shall do no guessing.

But still farther by way of introduction, I may add in a general way that if the topic is one of an historical nature, it is conceded to be correct to expect more or less of history. One is expected to give the origin, growth and development of his subject almost in detail, certainly *all* of a general character.

But if the theme or thing of which we write is one of our pets or hobbies, it is thought pardonable if we claim for it great age, a special feature or consideration of value being antiquity, we seem to think that, like wine, the older the better. I may be permitted to relate an anecdote illustrative.

Two worthy and zealous members of alike worthy secret orders were each claiming excellence for their own, when one thought he had hit upon a clinching thought in his own favor, viz., antiquity, whereupon he remarked: "See here, did you not know that my society was the oldest secret organization in the world, Solomon himself being the founder, and that it has grown ever since in good works and usefulness?" "Why, yes, of course I knew that; but when you talk of age, we date far, far back of Solomon's time. Why, my friend, did you not know that our society starts with the creation of the world, and that Adam himself was originally an *odd* fellow, and can you beat that?" But he spoiled it, perhaps, when he added, "and he never had any trouble until he got Eve–n."

So I am inclined, because I am interested in the thing of which I write, to claim in its favor antiquity of organization, and say that the first fair of which we have account was when Cain and Abel bought and put on exhibition the first fruits of their experiments as agriculturists, in obedience to the command of the great builder of agricultural and mineral worlds. I am sorry to be obliged to record that this first fair was not a success, so far as harmony was concerned, but while there was quiet, unostentatious content and satisfaction with the award of merit, with one of the exhibitors, there was bitter, rancorous heartburning and madness on the part of the other, even to murder. And I must say, as a faithful historian, that there have been worthy descendants of the one — in fact great, large-hearted Abels at all fairs since, but Cains have been as plenty as Canada thistles in the garden or on the farm of the indolent.

Fairs are, or ought to be, the natural and legitimate result or outcome of organized agricultural societies. By this is meant that any healthy and energetic association organized for the purpose of promoting the agricultural interests of the country, will find a comparatively easy task to hold successful fairs or exhibitions, the success being greater or less as the interest has been felt in meetings of the character of the one we are now holding.

But of fairs in the general acceptance of the term.

We find it declared in articles of association of most societies of an agricultural nature, that the object of this society shall be to promote the interests of agricultural, mechanical and household arts. This is substantially the declaration of all. But one only

needs to visit the fairs of the country east or west to conclude that on losing sight of the fundamental or declared objects of our organizations. The term "fair," really means, or did mean originally, a place where in ancient days in Britain, and on the continent, parties having commodities for sale or exchange would get together for these purposes, and not for exhibition or competition for premiums, and even now on some portions of the continent, people wait for these annual fairs to make purchase of manufactured articles of every description, including corn, wine, tea, coffee, sugar, tobacco, oils, spirits, etc., as well as horses, cattle, swine, sheep, wood, etc.

In Europe they appear to have originated in churches or in their festivals, and gradually came to be adopted by the "outside world" as in contradistinction to the church, for the purpose as before stated. There was a seeming want in this early period of the world's history when provincial stores of goods were few and communication defective, but with the prevalence of good roads, populous towns and a perfect system of railways and other tokens of advancement, this class of fairs have become nearly or quite extinct, but before becoming so, they degenerated into mere holidays, and were of the type of Bartholomews, Greenwich Donneybrook, which succeeded for a time, but had to be maintained then as now by introducing all kinds of devices and boisterous amusements to attract the crowd. These included such sports as foot-ball, wrestling, yawning, sack-races, grinning through horse collars, mock giants, climbing greased poles, catching soaped pigs, smoking matches, eating hot pudding, whistling matches, wheelbarrow races, and I suppose I ought to add, in the experience of last year at Oshkosh and Depere, chariot races. There seems now as then a necessity almost for the introduction of sports of this character in order to obtain the necessary funds to pay premiums and running expenses. Now if we propose to hold "fairs," then the introduction of this class of "attractions" is proper, and we should introduce them and as many of them as possible, so as to get the greatest crowd possible, but if our object is, as we declare, "the advancement of agricultural, mechanical, horticultural and household arts," then the only proper name for these annual gatherings is Exhibition or Exposition. When according to standard authority, we meet for the legitimate purpose of

"*Showing*" the result of careful study and application, and to gain in a fair and right manner such premiums or awards as we are entitled to on the ground of excellence or superiority, and at such a meeting the sports above alluded to would be wholly out of place, and would not even be desirable.

Exhibitions of this kind originated in France in 1798, the first one being held at the suggestion of the Marquis d' Huezo. It was held in the Maison d' Orsay, but it appears to have been only a collection of French art manufacture borrowed for the occasion from their owners — and not an assembling together of competing artists with their respective works. But in the same year another and a larger one was held in the same place, embracing all kinds of manufactures, and both were pronounced successes. Then another was held in 1802, under the consulate of Napoleon, with equal success. Such exhibitions were held triennially, except when interrupted by political causes, until 1850, when His Royal Highness, the Prince Consort originated the idea of holding a universal exhibition open to the world, which was held with great success at London. This seems to have been the origin of "world's exhibitions," but of course during these years from 1798 to 1850, minor or local exhibitions or expositions were held all over France and the United Kingdom, among which might be mentioned those of the Royal Dublin Society, the Cornish Polytechnic Society, Manchester, Burmingham, Liverpool. These latter seem to have held the same relation to the World's Exposition at London and Paris as do our own local and state organizations to the World's Exposition at New York or the unequalled Centennial at Philadelphia. Other nations have also held exhibitions which have been more or less successful, until it has come to be acknowledged that the exhibition of the industrial and agricultural resources is of the utmost importance and one of the most prolific sources of success to any state or country. I have but imperfectly alluded to the origin, object and success of "fairs" as also to the history of exhibitions or expositions. Of the former it may be said that they served the purpose for which they were organized, and they are, when held, still accomplishing this object; but to claim for them, when the features named are made the main attraction, that they promote the industrial resources of any country is, to say the least, erroneous. Of the latter it can be truthfully said that while the full benefits are yet to be seen and

felt, yet enough that is of real worth has been experienced to show that expositions are of such a nature, when properly conducted, that they become one of the greatest aids in diffusing a love of industry, an incentive to inventive genius, and a legitimate and healthful emulation, the world over, that is known to civilization.

The incentive to inventive effort is not for to-day, but will be felt for ages. The perfection in art is also one of the lasting benefits. The excellence in stock-breeding and grain-growing will be more speedy and sure through this agency in horticulture, etc., in homes made more beautiful and happy, and they will have influence for good for all time, and meetings of this kind, and exhibitions of the products of the country which are, or ought to be the result of such meetings, will contribute largely to the harmonizing and christianizing of the world.

But can exhibitions, or if you still prefer the term "fairs," be maintained without these sports or amusements or attractions? is your question perhaps. My answer, in the light of the past is, comparing the success of fairs from their origin with the success of exhibitions or expositions since their origin, is this: that they cannot be maintained with them when they are made a principal feature, for the tendency is to degenerate more and more and lose sight of the great object of the organization. Permit me to ask, who is interested in the development of the country? Perhaps it is more proper to ask who is not, for all are. Then who is not interested in the success of all enterprises that aid in such development? No one can controvert, or successfully combat the idea of the vast benefit of exhibitions; hence all are, or ought to be, sure to give their moral and pecuniary support to such efforts. This leads me to speak in detail of the management of exhibitions, and first of their officers:

They should be men of more than ordinary business capacity, and withal they should fully believe in and aid in promoting the enterprise; for of all difficult things to manage successfully an exposition is without a rival. They should be chosen, likewise, from all of the producing classes, or as far as is possible; that is to say, each department of industry should have its representation. The president should be a man of the best of executive ability, quick to see and prompt to execute, and withal a man ready at all times with a pleasant word and a make-yourself-at-home air con-

stantly around him. The treasurer, of course, should be honest, but as he bears the burden and hears all, or nearly all, of the swearing about the high price of admission, should possess all patience and sell as many tickets as he can. And then there comes the secretary; what characteristic that is good is there he should not possess? Patience, so that he may listen to all of the trouble and grievances of the exhibitor as well as of the visitor without tiring, though he may know nothing about the trouble nor have anything to do with it; patience to listen for an hour to what might be told in five minutes; patience so that when his visitor finally departs he may be in a condition of mind to ask him to come again, etc. But, sincerely, he should have patience to remember that all are not "professional" fair-goers, and that all do not understand just what to do, and he should be prompt to assist in as quiet and gentlemanly a manner as possible.

He, too, of course should be honest. He should be humble, so that when for the acts of some other officer he is blamed, or because the awarding committee did not give Mr. Cain a premium, he is denounced as the one to blame, or because the executive board elect a superintendent over the department that Mr. Cain is an exhibitor in, it is laid to the aforesaid secretary as a trick — I say, though he had nothing to do with any of these acts, he should be sufficiently humble to take it all in good part, and never strike back. The secretary should be, on general principles, a "mighty good man."

Having spoken of the officers, I now come to the rules governing all exhibitions. These should be plain and practicable. They should be read carefully by all officers, exhibitors and visitors, and then be implicitly enforced and cheerfully obeyed.

Then next in order comes the important thing, the arrangement of premiums; and this by no means is an insignificant item in the success of your exhibition, and I know of but one rule to adopt governing it, and that is this: Let the executive board determine in their own minds what breed or breeds of stock, horses, cattle, sheep or swine, or kinds of grain or other produce, or any other industry, will be for the best interests of the country, to encourage the production or growth of, and then offer reasonable premiums thereon. It is just as reasonable and legitimate for an agricultural society to say on what and how much they will pay premiums, as

it is for the grocer to say how much he will give for butter and cheese, or any of the products of the farm. It is no valid reason (nor can it be done successfully) that premiums should be offered on anything simply because this or that man raises or produces that kind or class. If this were to obtain, then there is no end to premiums, for there are as many kinds or classes or preferences, almost, as there are producers. Of course, in different parts of the country, or even in different parts of the same state, premiums would not do in one that would in the other, but as a general rule, I know of no other so safe, and that would give more general satisfaction.

Then premiums should be offered according to the cost of production and transportation to the exhibition, as well as the comparative market price of the animal or article. To illustrate: a premium of $5 on a bushel of wheat, and one of $7 on a two-year old male hog would be out of all proportion. But, not to be tedious, there should be a nice and reasonable adjustment of premiums in all departments.

Having determined on the amount of premiums, then comes the price of admission; and this should be fixed at an amount that, under all ordinary circumstances, the receipts will cover expenses and pay promptly all premiums. It is not always wise to listen to the clamor against any stated price of admission, for it as a rule is made from a selfish standpoint, and without regard to whether there shall be money or not to pay premiums; only so I get in as cheap as I can, is the motto, and some will debate and contrive for a long time as to how I can get in free. Here, again, comes in a rule by which to determine what is a reasonable price. First, the amount of premiums; second, the expense; third, the chances on bad weather; fourth, the magnitude or extent of your exhibition; is it worth as much, will it produce as much good, and be of as much benefit to the country as the traveling concert troupes, theaters, menageries, etc.? If so, it is worth as much. I have in my mind a farmer, and one whom we all respect, who has been an exhibitor for several years at Oshkosh, and will average $60 in premiums annually; yet he did the most fault-finding as to our price of admission last year of any one whom I met; and what is more singular, you will always find him promptly in his place at all the circuses and menageries, and his fifty cents paid willingly.

Our treasurer told me of another case, last fall. A man, in the morning, bought his ticket at fifty cents, and while doing so, cursed and swore at a fearful rate, but went in and about, the day, and at night, when leaving the ground, apologized to the treasurer for his language; for, said he, I have got the worth of my money several times over.

The Northern Fair raised their price of admission last year twenty per cent, but at the same time raised their premium list over thirty-six per cent; but of course the general public would not or did not take this into account, so that in this matter it is always better to act from business principles, and in a business way, than to stop and listen to every complaint; for, as before stated, they do not always come from those who have the best interests of the society at heart.

To write an article on fairs or exhibitions, and leave out the horse, would be like the play of Hamlet with Hamlet left out. I am glad the horse has so able an advocate in our friend, Rev. Mr. Richardson. Probably no feature of our exhibition has received more attention than racing or speed of horses, as it has come to be denominated, and much is said for and against this feature. But I have discovered that it is not the exhibition of speed itself that is so objectionable, but the manner in which such trials of speed are conducted. It is without doubt as proper to develop speed in the horse as strength or symmetry, and there are few who do not like to witness a legitimate trial, between owners of horses, as to which is the best stepper. Why, most men out for a simple drive with their wife will, on overtaking or being overtaken by another, out for a similar purpose, at once pull up on the reins and see who has the best horse, and it is thought correct.

But how shall this feature be made less objectionable? and I answer, control the races or have none. It can be done as easily as you can control any other feature, if you so determine; and if you do not, then the responsibility rests alone with you. But again, it is urged that too much money is paid for races. We open our premium lists, and find from $200 to $400 offered on a single race, and we stand aghast. We do not stop to inquire into the particulars. If we did, we would find that there must be not less than four entries in each race, and that each entry must pay ten per cent., thus guaranteeing forty per cent. back; or, in a race of $400, there

must be paid $160 as entry fee, thus leaving $240 of actual liability; and, in my experience, races will average from sixty to eighty per cent. entry fee; and if there is one class that earn their money more than another, at our exhibitions, I have often thought, it is the owner of the fast horse; and I must insist that when races are under proper control, there is no more attractive feature on the grounds. But of course I am speaking of the large majority of the patrons of exhibitions, and do not forget the fact that there are many who do not care for the races; for these should be provided attractions and objects of interest, in rare curiosities, works of art, etc., so that no one interest should exclude others; but all tastes should be consulted, and all features that are not objectionable may be introduced, if they go to assist in elevating the standard of our fairs and promoting the interests of all productive industries. But in conclusion, let me say that I suppose it hardly possible that we shall ever hold fairs or exhibitions that shall be satisfactory to all people. There will be good, earnest, thoughtful men, who will work for the advancement of these societies, and the development of the industrial interests of this great country, and who will always be content with the awards received at our annual exhibitions; and I also suppose there will be Cains, who will quarrel with every exhibitor who is in competition with him, and with every committee of award who does not give him and his exhibit the blue ribbon; and if they fail to obtain the last, or prevent the appearance of the competitor, will themselves withdraw their patronage.

But a straightforward business way of management will finally succeed, and, in my judgment, is the only way to success.

Chester Hazen — We have a number of addresses remaining yet, and we have to vacate this hall early this afternoon for the banquet. Perhaps we better have another paper before dinner. If there is no discussion to follow this last paper, we will now proceed with the next. The next paper in order is "The Gentleman Farmer," by J. M. Smith, of Green Bay, President of the State Horticultural Society. The most of you are acquainted with Mr. J. M. Smith; some from a distance, perhaps, are not, and I now have the pleasure of introducing to this audience Mr. J. M. Smith, of Green Bay.

Mr. Smith then read a paper entitled

THE GENTLEMAN FARMER.

Mr. President, Ladies and Gentlemen: As early as 1830, my father, who was then the owner of a very poor and already worn-out farm, commenced a system of what is now termed improved farming. It was then called gentleman farming. The term intended to be one of reproach, and probably grew out of the fact that a number of wealthy gentlemen from New York city had purchased farms in the country adjoining the city, and had, as a general rule, spent money very lavishly and had received but very little in return for it. The farms were almost invariably poor, and the owners in the same condition. The few attempts at improvements, made by men of means, but of very little knowledge of agriculture, had resulted, if regarded pecuniarily, in almost complete failures. This being the case, the mass of the farmers seeing the failures and not knowing any better way than their own, dubbed any who attempted improvements, Gentlemen Farmers. At that day the means of obtaining agricultural knowledge was very limited. Two or three unsuccessful attempts had been made to publish agricultural papers previous to this date. About this time Judge Buel, of Albany, started the *Albany Cultivator*. My father subscribed for the little monthly at fifty cents per year. That paper still lives. I well remember how eagerly I used to read the paper from end to end, and wonder how or why such a paper as that could be the means of ruining my father, as I very frequently heard it predicted would be the case, and most certainly would be, if he should continue to dig ditches, purchase manures, etc. Young as I was, I well knew that the object of all this extra labor was to make the farm produce crops sufficient to support the family. I also knew that it had not supported us even with the most rigid economy that father and mother could both practice. As before stated, the means of obtaining agricultural knowledge was limited and difficult. The gibes and jeers were plenty, and some of them very bitter. I was repeatedly taunted with being the son of a book farmer, the two being nearly or quite synonymous terms.

My father, being a man of untiring energy and perseverance, was by no means disposed to sit still upon such a poverty stricken farm and submit to a life of poverty for himself, and both poverty

and ignorance for his children, without at least making an effort to improve their condition. He quietly bore the sneers and jokes of his neighbors, and kept on with his improvements, or book farming, as it was derisively termed. His farm began to improve, very slowly at first. Victory seemed a long time in coming, but come it did at last, and it came to stay. He has counted his ninetieth birthday, and is still healthy, and is living in ease and comfort upon a farm that once refused even a meagre support to him and those dependent upon him. He has seen many others about him following in his footsteps and reaching the same independence that crowned his efforts, and others, who refused to get out of the old and beaten track, live and die in poverty, and some of them in helpless dependence upon their friends. I have mentioned these facts in order that those who do not so well remember, or are unacquainted with the earlier efforts at gentleman farming, may the better appreciate the advantages of to-day. No reapers, no mowers, no threshers, no gang plows, no corn planters. The rude hoe made at the nearest blacksmith's, with a green stick from the woods for a handle. Forks made in the same manner. Truly, the farm was a place of hard and constant toil, not only upon the farm, but in the house as well. The wife and mother's work was never done until sickness or death stepped in and ended it either for a time or forever. There was but little communication except with the near neighbors. Books and papers were few, and many of them very poor. It is hardly to be wondered at, if the poor, uneducated man, upon his poor and worn out land, did sneer at those who, with more money, but with even less real knowledge of cultivation than he himself possessed, should attempt to teach him how to farm by spending such sums of money and getting so little in return. So much for the gentlemen farmers, as they were derisively termed forty to fifty years ago. It may be asked, Were there no true gentlemen among the farmers of that day? Certainly there were; but the supposed difference between the farmer and the lawyer, or the clergyman, or the physician, or the merchant, was far greater then than to-day. It is now an everywhere acknowledged fact, at least in theory, if not practically, that the cultivation of the soil is not only the most useful, but also the most honorable of all our industrial efforts.

This being the case, ought not the farmer to stand at the head of

the list of gentlemen in our country? Perhaps it may be well to define the word gentleman as we understand it. In England it was formerly a government title, bestowed upon the recipient for some either supposed or real service to it. Late years other titles have taken its place, and now a man who is living upon his money, with no business of any kind, is termed a gentleman, provided he is reasonably honest, and not so immoral in his life as to shock the sentiments of the community about him. This definition, however, is hardly acceptable in our own country. Here a man of good general intelligence, of broad liberal views, of a high sense of honor and honesty in his dealings, a good neighbor, both kind and generous to the poor and distressed, and added to this an unflinching determination to follow the right as he is able to see it, and follow it not as a matter of policy, but simply because it is the right, is everywhere entitled to the appellation of a gentleman. He is entitled to it, though his hands may be hardened by building stone walls around his farm, or his clothes torn to rags while clearing brush from his field, or his face ever so bronzed by the summer's sun.

One writer has quaintly defined a gentleman as follows: "One who is ever doing kind things, and doing them in a kindly way." A gentleman has sometimes been defined simply as one who is always well dressed and polite in his manners and language. I imagine that no one here would be willing to accept such a definition.

If the definition given is really the correct one, why should not our cultivators of the soil fill the bill? I am glad to believe that there are many among them who will fill it. I am thankful that I can number among my personal friends, in this and in other states, many whom I firmly believe will fill it.

But of the great mass of the farmers, can this be truly said? I fear not. Some years since, while traveling by rail in company with one of the oldest milling firms in this state, he was telling me of the difficulty he had in getting wheat at that time, to keep his mill running. He was within reach of one of the best wheat growing districts in this state, and I said to him why do you not go out into that wheat district in the fall, and contract with the farmers for wheat, sufficient to keep your mill running, and have them deliver as you need it. He replied, "I could do that but for one

thing. I can make contracts with them, and if wheat should remain at the contract price, it would be all right. If it should go down five cents per bushel, I should not only get all that I had contracted for, but also much that I did not contract for. If it should go up five cents per bushel, not one in ten of those with whom I contracted would bring me their wheat." I confessed myself very much surprised at such a statement, and told him I could not think it possible that so large a proportion of them were so regardless of their word. He declared his statement to be true, and that he had tried contracting with them repeatedly, and always with the same result. At another time I was traveling with a company of gentlemen, and we were speaking of the agricultural interests of the state, when one of them, a man of much experience, and a very large personal acquaintance with all classes, not only in this, but also in other states, turned to me and said: "You farmers as a class are the most unreliable men in the state." I replied that I was unwilling to admit that as a fact, when he said, "Very well, you may not admit it, still it is true, and you must, and I believe do know it to be true."

Now, while I cannot believe these statements to be entirely correct, it is to be feared that they are not without at least some foundation in fact. There is one trait that is very prevalent among even good and in most respects perfectly reliable farmers. Very many of them are in the habit of running up bills with their village or town merchants, upon the promise that, as soon as their harvest is over, they will sell at least sufficient of the crop to pay their indebtedness. The crops are harvested, and the merchant has promised to pay for his goods at this time, and upon the expectation that he is to receive his pay for the supplies he has furnished to his farmer friends. But prices are not what they were expected or hoped for, and the farmer quietly holds on to his crop, for a better price, and allows his merchant creditor to get along as best he can. Many a merchant has been ruined by just this course. It ought to be reformed at once. It is not to be attributed to dishonesty, or an intention to wrong their creditor, so much as to thoughtlessness as to the result of their conduct.

They are apt to reason about as follows: The fifty or seventy-five dollars that I owe him are no object to him, and the rise in the price of crops, in a few months, will make more than what I owe him;

and he must wait a short time, and then I will sell and pay him all that I owe him. They do not once think that the merchant's notes are fast coming due, and that he must pay them or have his credit injured, and perhaps be ruined. Neither does he think that very likely one hundred other farmers about him are doing the same thing that he is, and thus, without intending to do a wrong, they are seriously injuring their own reputation for honor and fair dealing; they are injuring, perhaps beyond repair, the credit of their merchant and their friend, and in fact damaging the reputation of their whole surrounding country.

It has often been said that farmers were, as a class, the safest men in the world to trust, although they were the slowest to pay. If they were always prompt at the appointed time of payment, there would be but little objection to the time they are often compelled to ask for.

It was my good fortune to receive a lesson in this respect at an early day, that may be worth repeating, in this connection. Soon after I reached the age of manhood, and commenced business for myself, I was in the habit of going to a bank in the town and borrow money as I needed it. The cashier, who was in fact the principal owner as well as the manager of it, was my warm friend, having known me from my childhood. One morning I was in want of some money, and prepared a note, and went to the bank to get it discounted. One of the richest men in the county had gone in, just before me, for money, but instead of getting it, the cashier was denouncing him in the most bitter and unmeasured terms, and finally ended by telling him that he should never have another dollar from that bank while he controlled it.

The man went out. I was utterly astonished, and started to follow him without ever speaking a word, supposing it would be utterly useless for me to apply for money when such a rich man as I knew him to be was refused. As I reached the door the cashier called me to come back, and asked me what I wanted. I replied in a very quiet manner, "I did want some money when I came into the bank, but do not want anything now," and again started toward the door. He burst out into a merry laugh, and says, "Come back here and give me your note; you can have all the money you want." After I had received the money I said to him, "Will you be kind enough to tell me what all this means? You

know, and so do I, that so far as property is concerned Mr. C. could buy a dozen such men as I am with his loose money and still have plenty left." He replied in about the following words: "John, I have been loaning you money ever since you commenced for yourself. You have never had a note come due without having the money here to meet it. You have never given me an hour's trouble in any way; and I am always glad to accommodate you and others like you, who are trying to do an honest business, in a straightforward, honorable manner. But Mr. C. comes here and gets money, and never pays a note when it is due; consequently it is protested. When he gets ready to pay, he comes and cheats me out of the protest fees and a portion of the interest, unless I have a regular quarrel with him to get the amount due me. I am tired of it, and will put up with it no longer. I know that he is rich, but he is an unprincipled scoundrel, and shall never have any more money from here while I control the bank." I left the place with such an impression of the value of prompt and upright dealing as I had never before known. We have all heard of our cousin Jonathan from the rural districts of New England, and of the backwoodsman upon our frontiers. They are characters too well known to be described here. I never see them represented or hear them described without thinking that there ought not to be any foundation in truth for such characters. It is simply a polite way of assuming that the farmers as a class are not as polite in their manners, not as polished in their language, and not as well or as handsomely dressed as their city friends. But why should he not be polite in his manners? There is among many of our best farmers an independence of manner that is rarely found among any other class. This may be attributed to their situation and circumstances.

They are more nearly independent of the world than any other class in society, and they know it. They are proud and careless in their manners toward both their families and their friends.

I would not have them servilely ape the manners of either their city friends or of any one else. But let each one be kindly polite in his own way.

It does not cost much to say thank you, for a small favor, be it ever so little. If one meets one of his lady friends upon the street, and she recognizes him, it does not cost one much to quietly raise his hat and return her salute in a kind and pleasant manner.

It has been said that Abraham Lincoln was ungainly in his form, and often uncouth in his manner; but Edward Everett, who was probably as accomplished a gentleman and as good a judge of true politeness as our continent has ever produced, declared that at the vast gathering that assembled at the laying of the corner stone of the Gettysburg monument, that in true politeness, viz.: his quiet manners, his kind wishes and desire to add to others' happiness, and to attend to others' wants as far as lay within his power, he was the peer of any man or woman in that vast throng of notable persons from nearly all portions of our land.

If he, the child of honesty, a youth of toil and hard labor, without schools or other opportunities of getting an education other than is enjoyed by the humblest and poorest of our citizens, could work his way step by step, gathering new knowledge and new experience at each advance, until at last he stands forth as one of the grandest specimens of a true and noble manhood that the civilized world ever saw, surely the farmers may imitate him, at least far enough to be kindly polite and attentive to those about them.

"Have a shine!" "Let me black your boots for you," said a little sharp-eyed ragamuffin in the city hall park of New York, one wet, dismal day as I was crossing the city. "What is the use of having my boots blacked. I could not cross the street without getting them covered again with mud," was my reply. "Yes," replied the young sharper, "but that is country mud on your boots; folks will think you are a regular backwoodsman; you don't want them to think that, do you?" I need not say that I submitted at once, and was then and there turned into a city gentleman as far as it was in his power to make the transformation.

I mention this incident to show how quick even the little boys in cities are to detect countrymen from even some little thing about them.

Now I have no objection to being a countryman or to being known as one; but I do object to being known, or have my farmer friends known as such, by their uncouth manners or their shabby suits of wearing apparel. Why, my friends, should we not dress well? I do not mean by being well dressed that you should follow every silly freak of fashion that makes its appearance. Such a course is by no means necessary. But why should you not have

your handsome, well-made, well-fitting suit? Why should not the wife be well and richly dressed? Has she not earned all the kindness and attention that you can bestow upon her? Has she not stood by you in sunshine and in storm, as no other friend in the wide world has done? Suppose she does want an expensive dress, and what if she does want a nice lady's gold watch, and chain to wear with it? If she has been a true and worthy wife she is entitled to all this, and let her have them, even if you do not buy that other forty acres of land this season. There is another fact that should be stated in this connection. If you are traveling, and wish to be well treated by strangers, if you wish to make hotel clerks polite where they would otherwise be rude and arbitrary, dress both your wife and yourself handsomely, and then travel together. You will invariably get the best there is to be had of everything. A number of years since I was present at a large gathering of gentlemen at one of the most aristocratic hotels of the northwest. It was crowded to its utmost. At meal time one of the waiters was stationed at a place in the hall and sent a number of the gentlemen into a different room, myself among the number. I could see no difference in the food or attendance. In fact, the only difference that I could see was that the gentlemen at the table where we were seated were more handsomely dressed than the others, although I saw none but what were dressed at least respectably well. Soon after my return home I related the incident to a lady friend who was a frequent visitor at our home, and was well versed in the etiquette of first-class hotels. Her first question was, "Were you wearing that handsome black suit of yours at the time?" I replied yes. She gave me rather a comical look and then said, "Well, you great gosling, have you not been about the world enough yet to know that fine feathers make fine birds?" I very well know that to all this it may be said that thousands of farmers are entirely unable to do as you propose.

Such is doubtless true; and to those who are so situated, and frankly admit it, no one has a higher respect for them than I have, and no one shall excel me in lending them a cheering word or a helping hand, as far as it lies within my power, in order that they may better their condition. But there are thousands who can well afford these things, and yet do not enjoy them, and there are other thousands who might afford them if they would only cultivate their

farms as they should do, instead of the slipshod and foolish manner they are now doing. It may be said that these are all utopian ideas, that never can or never will be realized, or at least not until some time in the distant future; but I do not believe it. Two things in this connection are very certain. One is, that in the ages of the past the cultivators of the soil have in reality been hewers of wood and drawers of water for the aristocratic classes in all civilized countries. The second is, that this condition of affairs is very fast coming to an end, and in no portion of the world as fast as in our own northwest. Here the farmers are very fast coming to the front as the great moral and political power of the country. They must prove themselves to be worthy of the position if they are to maintain it. I have no hesitation in saying that in order to do this the more effectually, they must be gentlemen in the true sense of the term. We need not have the manners of a Chesterfield, nor the learning of a Bacon, nor the eloquence of a Cicero, but a broad general intelligence we may and must have. We may not need to labor any harder with our hands than now, but the brain must be taught to think more intelligently, to reason more correctly, and upon a broader field than at present. Everywhere the word of the farmer should be equal to his bond.

The love of the beautiful in both nature and art needs to be more carefully cultivated. The gentle promptings of our hearts that lead us to care for the wants and the sufferings of others, should be cherished and cultivated, until by our kindly manners, as well as by our gifts, we not only drive sorrow from the hearts of the suffering, but implant a joy in its place that will remain until the memory of the kindness is forgotten. The cultivation and practice of these traits will, as I firmly believe, go far, very far toward making our cultivators of the soil what they in reality ought always to have been, the true gentlemen of our country.

Chester Hazen — This paper is now open for discussion or any remarks that anyone may wish to make. We have a few minutes to spare before the time to adjourn.

R. D. Torrey — It appears to me we can discuss this paper a great deal better if our friends will favor us with some music.

Miss J. M. Lewis — I think you will have to wait until the gentlemen arrive; they will be here at twelve o'clock.

J. M. Smith — Mr. Torrey can abuse me until that time.

R. D. Torrey — Oh, no; I shall do nothing of the kind. I will have to tell a little anecdote on you, so the friends can see how I have been placed while attending conventions. You know Mr. Smith raises strawberries, and at a convention last winter he wanted to tell how many strawberries he had succeeded in raising on a certain piece of ground. He was fairly aching to tell it, but he didn't dare to. Mr. Faville and myself were both present at the convention, and we kind of volunteered to back him in any story he might be able to tell on the strawberry question. Thus encouraged, he waded in, as the saying is, and told the amount he had produced on a given area of ground. It was so utterly astonishing that Mr. Faville and I had to back down, and we did so, and I always regretted it because I have always felt sorry for Mr. Smith.

J. M. Smith — That is so, and I think he told it better than the average of Oshkosh people. You cannot rely on the Oshkosh people.

R. D. Torrey — There is a little thought, and I don't know that it is of any value, that occurred to me during the reading of the paper. He spoke of politeness. Now, in my mind there is a wide difference between the term politeness and polish, if you may so call it. I have been greeted in what some might term a rude manner; what some city people would term a rude manner, but I have been greeted with the warm shake of the hand and the "How — DE," that had to me more warmth in it and more politeness than there was in the utmost polished "*How do you do?*" Now, I don't think a person is absolutely not polite if his language is not always perfectly grammatical. I have seen in the gesture of a rude farmer, a man who, from force of habit, becomes careless of his personal appearance, actually more politeness in the gesture of that man than I have discovered in some others who have pretended to politeness, and yet their politeness was a polished affectation instead of a true, genuine politeness. And I say there is many a rough diamond; there are many polite people who are dressed in the rudest manner possible; and the person is not polite, though he may or she may be polished, who treats that person rudely because he dresses in a rude manner. And I yet have failed to learn that mud is different in the city than in the country. In fact, if I am to have mud upon me at all, I would rather it would be thrown at me from the country than from the city.

J. C. Plumb — The farmer may ask what has this paper, which we have listened to to-day, to do with our success as farmers, wool-growers, wheat-growers, etc. There is one hit that was given here that I don't want to let pass unnoticed. It is, that we shall have common honesty. Now I may say that he has told a very plain, but a very true story, when he touches that point. It is not the merchant alone that has fault to find with this, it is every class of men who are doing or trying to do business, upon a good business basis. I think that is a fundamental idea, that should be inculcated, and should be insisted upon by all the higher grade of agriculturists, that the farmer shall have good common honesty in all his transactions, as well as good business principles in his work. But there is still one more thought, when he speaks about politeness. The farmer may ask if it is necessary to be polite. Now I believe that the only way for farmers — I speak of farmers as a class — to retain the best element of their families at home, is by cultivating these finer graces. Everywhere through the community in my travels I come into farmers' homes, and they tell about "my daughter;" such an one has graduated from the university, but where is she? Oh! she has married a lawyer and left our circle, and my son is studying law, and graduates soon, and has virtually left the farmers' circle. It is a matter of choice, perhaps a matter of necessity. It should not be. I believe there is room in the country and in the home for the finest and best education, and it can only be retained and kept in the home circle by the introduction of polish and kindness, that which underlies all courtesy and politeness. Sometimes in our language we call it the Christian Graces. Whatever you term it, if we as agriculturists or farmers would strive to retain this element we should cultivate it, not let it take its own course to grow, if you please, among the weeds, but cultivate the finer virtues of our nature, and then we will retain the finer element of our families at home. They will stay with us.

D. Huntley — I want to say a word right here. I indorse the paper and what the other two gentlemen said, but being a farmer myself, I have often blushed with shame when I have seen some of the abuses that are actually a part of that class that has been spoken of, and it perhaps can be as well illustrated by a little story one minute long, that happened to come under my observation. It was this. A farmer was appealed to by his wife, I think, for a little

money with which to buy a nice dress. He had got ready to purchase a piece of land, forty acres. Says she, "What do you want any more land for?" The reply was, "To raise more corn, to fat more hogs, with which to buy more land, to raise more corn, to fat more hogs, with which to buy more land, to raise more corn, to fat more hogs," etc. [Laughter.]

Professor Henry — I wish to speak with the farmers, farmers' wives, those that have children or brothers and sisters. I wish to speak to that class particularly this afternoon, regarding our State University and the facilities it offers. Our agricultural department has been sadly neglected, and in an informal talk, and in conversation which I hope we may take up for our mutual assistance, I hope to have something that will interest you. I think it is a matter that has remained long enough in neglect, and let us see if this part of our state cannot help us as well as some other parts of the state are promising to do.

On motion, convention adjourned until half-past one o'clock P. M.

WEDNESDAY AFTERNOON, January 19.

Convention called to order by President Hazen.

Chester Hazen — I introduce to you, this afternoon, Professor Henry, of the agricultural department, at Madison, who is now ready to talk to us on that subject.

Professor Henry — Mr. President, Ladies and Gentlemen: In coming before you this afternoon, there are many things of which I might speak. There are new industries which are rapidly advancing in interest in our state, such as the dairy interest, the amber cane interest, and other things of which I might speak, but it seems to me there are other things which lie deeper than those, that I better call your attention to now. In the paper which you heard before dinner, the subject was really brought out, and what I shall say this afternoon is but the ideas of the last speaker upon the floor. He spoke of the gentleman farmer and the book farmer, and I am here as an advocate for both. But we must lay a foundation for our gentleman farmer and our book farmer. The times are getting such, the circumstances are so changing, that the gentleman farmer of to-day, the book farmer of to-day, with the rapid advance-

ment of civilization and education, will be left behind in the race unless we make suitable provision for the education of our young men and women. Nor do I think I can urge this matter upon you too strongly. Times are changing rapidly in our state, and unless we are careful, they are changing for the worse with our farmers. Let me be plain with you.

When Wisconsin was settled, when her pioneers came into the new state to make their way against the wilderness, you will realize with me that they underwent difficulties of no ordinary character. As a class, they were poor men, starting with but little of this world's goods; they left the hillsides and mountains of the east and old farms, and full of energy and vigor, struck out for the west, with but little save their energy, their vigor, their hopes for the future. Now what has been the result of this trial, this struggle of our pioneers? I think you will grant with me, ladies and gentlemen, that it has been to make men of those who, under easier circumstances, would never have made men. The young men found in clearing the land, in paying for the farm, adversity so difficult, that it spurred them to do their very best, and in that struggle they educated themselves. So we may say our pioneer farmers were educated men, educated in the school of adversity, it is true, without much book learning, I admit, but I say as education goes, they were educated men. But what of the future? What of the future? What of the farmer boys that are growing up to-day? Are we to hope that they shall be much in advance of their fathers? Let us look at the matter fairly in the face, for it seems to me the solution lies with you, and is a matter that should be of great interest. Will the farmer of the future be the equal of his father if our present ideas continue? I maintain most strictly, no. The farmer of the future is to be a peasant. He is to be a man that don't understand the first business principle scarcely. With the vigor that he inherits from his father, I admit he has a good foundation, but the foundation is nothing unless we have the superstructure; and what are the conditions that obtain to-day? You are as well aware as I, that the brightest boys are leaving the farm. The boys who have energy in them will not stay on the farm. They come to hate the farm, and they are coming to our State University by scores, and learning to be anything but farmers.

To-day, in the State University, we have sixty young men study-

ing law; if I am correctly informed, over forty of those are boys from the farm. When I say studying law I don't mean in the regular university course, but I mean in the law course, studying nothing but law. Sixty young men, and over forty of those from the farm. Then in the university course proper, we have between three and four hundred more, and quite a part of these are from the farm, and, as I understand, there are very few of them ever expect to go back to the farm, probably not one in fifty. Then what is it but a skimming that is going on. Our universities are educating farmers' sons to become ministers, doctors, lawyers, merchants, scientists, mining engineers, and civil engineers, but no farmers.

For ten years the University of Wisconsin has had at Madison a farm for experimental purposes, and for the education of such as might wish to come there and study agriculture. Dane county gave $40,000 for this farm. In this ten years they have had a professor of agriculture and chemistry, combined both those two departments, and during those ten years they have had one student. One student in ten years represents the sum total of the young men who have come to the college to study agriculture and have completed the agricultural course. The regents say that matters must be changed. They allowed the professor who had represented agriculture and chemistry to take the department of chemistry, since that was large enough to occupy all his time, and saw fit to call me from an eastern school, where I had been studying agriculture, to come into your state and take up that department, and they look to me for plans to draw out the farmers and see if there are any hopes of awakening an interest in regard to agriculture in the University. This winter they call upon me for no duties in the University; they told me to travel to any place in the state that I wished; to stay as long as I pleased in any place; they provided me with the means of passing wherever I wish, and through their kindness I am here with you to-day. Now the University don't send out men to ask for lawyers; they don't send out a professor to argue with fathers to send their sons to become doctors, to become mining engineers and civil engineers or ministers, but they have gone out of the way in this instance, and sent me here to talk with you about the matter, and so I came. Not as a person above you, for I am expected to carry on our University farm, a farm with one hundred and fifty acres, which is more criti-

cised perhaps than your farms are. I have to run that farm, so I am a farmer with you, and I came from a farm to talk with you regarding the farmer of the future, who is the farmer boy of to-day. Now is it possible to educate the farmer's son and keep him upon the farm? Now at the school where I studied, at Cornell University, Ithaca, New York, we had thirty-five boys, quite a number of them sons of very wealthy parents, boys from New York city, New England, and from England. There were boys from the farm whose fathers owned nice farms, who came there to study agriculture; young men who, when they graduated, could take fair sums of money and have gone upon the farm. Others were boys who, after spending four years in college, would be compelled to start out in the world without a cent.

In the Michigan Agricultural College they have between one and two hundred young men studying agriculture, and have graduated several hundred since the Agricultural College opened, and over fifty per cent. of those who have graduated are connected with agriculture in one way and another. Over half that leave the school, so soon as they graduate, are directly connected with agriculture, and no doubt a much larger per cent. would be found, if we were to take those who in future years, after leaving college, will eventually go back to the farm. Now, it is natural for Wisconsin to measure itself with Michigan. There is just a lake lies between us, and some way or another we always feel here, and I think we should, that Michigan ought not to get ahead of Wisconsin. We ought to be able to do as much as Michigan, and yet Michigan has, I told you, a large agricultural college, in a flourishing condition, to which the legislature gives money every year — large sums of money — which is turning out a large number of educated farmers every year. Since I went to the university, one young man, as soon as he saw the modified agricultural college course, such as I wrote out as the proper course for four years' study, came to me, and said, "I wish to take that course in agriculture." I said, "Very well; you are the first young man." And so, let it be hailed with joy, to-day we have one agricultural student in the University of Wisconsin. Well, I cannot help but say, I make about as much fuss over that young man as a hen does with one chicken, but I wish the brood were larger. When we think that Wisconsin is an agricultural state; that geology shows it must

always depend upon agriculture for its wealth, because our timber is dying out, and agriculture must follow up; our mineral resources are limited to the extreme north, and the pioneers are dying out; the sturdy men are going; the brightest, sharpest boys are going into law and medicine, into the cities, even to become dry goods clerks; and a portion, the plodding boys whom their fathers can keep at home — boys who don't exactly like farming, but don't know what else to do; who, because they don't wish to hurt their parents' feelings, stay and take care of the homestead — are to be the farmers of the future. Now, shall it remain so? Shall Michigan be raising a class of educated men to go back on their farms, and Wisconsin do nothing? I hope and believe that when the subject is properly presented, that the farmers of Wisconsin will help us out at the State University.

Let me tell you what we have at the State University. By a gift of the government of the United States we have an income of $15,000 a year. It was $15,400 this year, which goes to the agricultural and mechanical arts. The regents will apply that wholly to the education of the agricultural students so soon as they present themselves. Mechanical students are coming, and quite a number of boys are in our machine shop and are becoming skillful machinists. By tax, the university raises some $30,000 more; in all we have an income of $80,000 a year to run the university; and although the farmers pay a large portion of that, they are paying out for the education of young men to become anything but farmers. Now while we have many, between thirty and forty, professors in the university, very much would enter into the teaching of any one student that was sent there, for our agricultural course is not to learn how to plow. It is to learn to do a great many things besides plowing. We want a boy to plow, but we want him to do far more than that. While the university has all this ready we stand without a boy, excepting the one who has been converted. Now we have the money, but you see we cannot furnish the boys, and let the farmers of this state help us. I don't doubt but that we could gather up in every community farmers who, if they wanted to, could give their boys four or five or six hundred dollars to go through college with, and then, if the boy proved what he should be, could give him a few hundred dollars to go on a piece of land. I think there are a good many farmers who could do that. Now

wouldn't it be better, let me ask you, to put that boy of yours through a thorough course of discipline for four years — good, hard, mental work, that shall train him in all his intellectual powers, until, intellectually, he is a man. You have already trained him so that he understands a great deal about farming, the manual part of it. He is worth $20 a month, perhaps, as a farm hand. The minute he gets through college he is worth a thousand dollars a year or a hundred dollars a month, at least, for something besides a farm hand. Now when he combines his intellectual training with the training which you have given him on the farm, and the training that we are also going to give him on the farm, for we are not going to let his hands be idle all the while, it seems to me that you have given your son more than you could do if you had given him forty acres of land.

I think you will admit, with me, we need men who have undergone severe mental discipline. You realize, with me, how, although the farmers are far in majority in this state to-day, for some reason they don't hold the balance of power. Instead of by a majority holdink all the power, they don't even hold the balance of power. Take the question in the legislature to-day, who shall be the next senator. If the farmers in Wisconsin were united, as they should be, they would say who would be the next senator, while to-day they are powerless. Now, we never can become united in our work until in wielding an influence in the state that we should, and that the farmers are entitled to wield, until we have it backed up by education. The farmer boy who goes so far as the rule of three in mathematics, who studies a little in geography, who knows a little in grammar, is not the man we want to be growing up to-day to inherit his father's property. It was all right for his father, with his limited education, if circumstances so compelled him, to come out here and make that farm, but I say his first duty to his son is to leave him a better heritage than that. Now, can we do it? Will our farmers help us at the State University? Our legislature, I think, will give us any sum we need, if there is not enough already. So soon as the students come in there, there will be additional help. So soon as my labors become great I know that they will give me additional help; so soon as the farmers will take an interest in the university and know more about experimental farming. If the farmer has a son in college studying he will bring home

enough so that in conversation at home he shall so help his father that the money will not be lost. You may say if the boy can go to a common school, that is enough to be a farmer; but why is it not enough, to be a lawyer, to go to a common school? We have young men who come there to college who study four years. They dig away at their Greek and Latin. They brighten their minds with mathematics. After they have been there four years they begin to study law. As soon as your sons can help, at sixteen or eighteen, you put them at this farming. These young men must study at a high school to get ready for college, and four years at college and two years at law. Is it any wonder the lawyers beat the farmers when it comes to the nomination at the conventions?

Let me describe to you the university course. It is not a narrow course. It is a course that embraces history, logic, mathematics, chemistry, and branches of that nature. It is a course so broad that the boy who passes through that course will be skilled; will be able to stand up and throw back into his teeth the arguments of the lawyer. He shall be able to represent the farmers in any convention; shall know how to handle as deftly these powers which wield a popular audience. We need boys of this character to scatter over Wisconsin, one here, another there, who shall, by their intellect, by their training, bring up the farmer community to the highest standard. I said I have come here for a talk. I have no set text. There are so many sides to this question that, should I attempt to exhaust it, I would weary your patience; and I have wanted to see if there were any farmers who might hope, as time went on, to send their boys down. At Waukesha I saw quite a number. One boy, who bought a $10,000 farm, came to me and said: "I am not ready to go on that farm, I believe I will go to studying agriculture." A boy does not need money to come to us. A boy can go home in the summer, when his time is most valuable to you. If there are farmers here who shall wish any further help in any way, in regard to information concerning our schools, I will gladly help them. I will help them with our catalogues. I will send catalogues to any one who shall ask for them, and give any information I can. Let me tell you what we are trying to do on the experimental farm. We have a farm that has been running at a considerable expense. I don't know that any valuable information has been obtained. Some think there has; some think there

has not. We are proposing to take up two new industries. We are proposing, with the aid of chemists, to investigate the amber cane industry, and see if our school in the University can help solve the question whether Wisconsin can manufacture its own sugar and syrup or not. We also hope to build a silo, for the ensilage of fodder, and have the chemists help us in that.

Mr. Richardson — What was that second?

Prof. Henry — The ensilage of fodder.

Mr. Richardson — Explain.

Prof. Henry — Ensilage began in Germany and has been somewhat carried out in this country. It is to build a deep cellar, it may be a room above ground, in which green fodder is placed. You may place in there green clover or green fodder corn. This cellar being a large room, twelve feet deep, ten to fifteen feet wide, and any length. This fodder is carried green and put into that cellar until there are tons of it. Then it is covered with boards, and then covered with stone or heavy weights and pressed down until the air is excluded. It undergoes some changes and it is fed to stock during the winter when the silo is open. Now we hope to build a silo and analyze the fodder when it goes in and see what it is worth, and analyze it when it comes out, and see whether it will pay; and so we are going on as rapidly as we can to investigate problems of general interest to farmers of Wisconsin. But first of all, we need farmers' boys there to educate; then we need the sympathy of farmers to help us in directing us towards certain experiments, in giving us their counsel, and in giving us their encouragement; for really that department has gone on for ten years without anybody paying any attention to it. The state of Wisconsin allowed Mr. Morrow to fail in business in his agricultural paper and to leave the state, and Illinois gladly took him up, and there is no man that Illinois is more proud of to-day than Professor Morrow. I was perfectly surprised to see the amount of interest which men, whom I met in Chicago at agricultural meetings, showed in Professor Morrow. He was the man you needed in our state, but through lack of interest he was driven out of the state. Now he is in Illinois at Champlain. Now giving up a position in the East, where I wouldn't be so much with farmers, my work being more purely scientific than it is here, I came into your state to make a reputation. Are you going to drive me out as

Professor Morrow was, or are farmers going to give me encouragement? I can go before our board of regents and can get almost anything I want. I can go before the legislature and get most anything I want. A portion of the governor's message which you read came because I suggested certain things Wisconsin needed, and he put them into his message after the message was prepared. The people of Wisconsin are ready to listen to the farmers if the farmers will unite and show them what they want. I leave the thing to you. Shall we have your boys to educate? Shall we all unite and prove united in the state, or shall we each stand apart, all hooting at book-farming, continuing on in largely our present shiftless manner.

Chester Hazen — We have two more papers coming before us this afternoon, and we wish to get through in pretty good season. We will now give a short time for remarks or questions or inquiries.

J. C. Plumb — I want to say a few words about this subject presented here. Think of it! Here is a man who comes before this convention and asks for what, in the behalf of our university? It is customary to ask for money; to ask for favors in behalf of the regents of the State University. Professor Henry comes here and asks for boys, men. Only a little while ago, I recollect very well when, this same university was begging for money, begging for favors, trying to lift its head up so that public sentiment wouldn't hit it every time a political orator wanted to make a strike somewhere. I am glad it has got above that point, and now, as a last resort, they ask for boys. Mr. Chairman, to me this is very significant. Think of it, think of it, our colleges through the state, Beloit and Ripon, as well as Madison, are asking for boys. Farmers, think of it. It means more than you or I think of to-day. He speaks about the freedom of the university, its being so well sustained with funds, and that a professor in the university can now get almost anything he asks for. I remember the time, only a few years ago since, when even the president of that university was crushed down by a single blow of the board of regents. He left the state. I refer to President Chadbourne, a man who stands to-day before the American public the peer of the highest in educational circles, in political circles, and commercial circles. Yet he was driven from the state by the single power of the one man

regent. I have watched these things. I am glad we have a professor here to-day who asks for boys. I am glad that he has set to the work of visiting farmers and visiting the community. He told me to-day that he spent two weeks with one of the first dairy farmers of the state, and that the first work he did in the state was to serve two weeks apprenticeship in the dairy business with the Hon. Hiram Smith of Sheboygan. That is another good sign. Now, farmers, respond to the call, and let not Prof. Henry leave the state, as did Prof. Morrow. There were a few of us who felt exceedingly bad when Prof. Morrow left the state under the old order of things. Under the new order of things, I hope that such labors as those will be sustained. The State University belongs to the state of Wisconsin. It is one of the richest legacies this state or the people ever had, if we would only prize it, and only use it.

J. M. Smith — I was exceedingly interested in Prof. Morrow, and no one regretted his loss so much as I did. After all, I think the farmers were not altogether to blame, and they ought not to bear entirely the blame of his leaving the state. His financial condition was not known by his most intimate friends, or we would have supported him, so he never would have been in such a condition. He did not let his wants be known. I know there were many in the state who would have put a shoulder to the wheel and put him out of his financial difficulty, if he had let it be known, but he didn't until it was too late. Hence I think the farmers were not altogether wrong. They were certainly remiss in not standing up for him better than they did. I want to ask Prof. Henry how much time during the year it would be necessary for a student to remain in the university to take the course.

Prof. Henry — I would say if he gets a diploma, his sheepskin, as we commonly call it, he should be there four years, and he should be there from about the second week of September, say the sixth of September until the twentieth of June; so between the twentieth of June and the sixth of September, any young man could be home assisting in farm duties, during the months when he is most needed. And then if he does not care for his sheepskin, he can be there any term that he pleases, so that he falls in with the class going along, and does not call for an extra class to suit him. He can come one, two or three terms, or remain the whole twelve terms, as is necessary to get a diploma.

J. M. Smith — What is about the average cost per year, providing you use economy?

Prof. Henry — I earned six hundred dollars while I was in college, but my case was perhaps a little peculiar. I was twenty-six years old when I thought of going to study agriculture, and that was in an eastern college. But here things are very much cheaper, board and clothing. One does not have to dress so well in western schools as he does in the eastern. I knew one young man who went through our university at an expense of one hundred and forty dollars a year for all of his necessary college expenses. The boys who spend as much money as any young man ought to, I don't care how much he is worth, spend about three hundred dollars. Boys who spend as much as necessary, don't spend but two hundred or two hundred and twenty-five dollars, but a boy that will come right down to the cost, can come down to one hundred and forty dollars. You don't pay any tuition. If you study law, you have to pay forty dollars tuition, but for the study of the sciences, he does not have to pay a cent.

J. M. Smith — Can he take up one or more agricultural branches and study them exclusively without studying the other branches?

Prof. Henry — I would say that the university is so anxious to get students, that they would make allowances for students in agriculture that they wouldn't in any other study. He would have to study equivalent to three recitations a day. Just as far as we could permit him, we would allow him to study what he wanted to. He couldn't study land surveying until he understood algebra. He couldn't analyze milk and water until he had learned the first principles of chemisty. If you send your boy, we will so drill him that he will be able to analyze such products as milk, which is comparatively easy, and well water, which is a little more difficult; in fact to understand agricultural chemistry. In fact he has to study chemistry two years before you are through the course.

Mr. J. M. Smith — The chemistry, I suppose, relates more to agricultural chemistry, its bearing more upon agriculture, or is it a general course in chemistry?

Prof. Henry — For one year it is a general course in chemistry; then, the second year, he begins to study agricultural chemistry. He studies the composition of feeds, soils, manures, and topics of that kind, and he works also as a chemist in analyzing. I can't

say, of course, just what he would be put upon to analyze. I know in my course I was put to analyzing well water, while my chum, who was studying agriculture at Cornell, was put to study out the question of how you could water a cow's milk, by feeding the cow a certain kind of feed. My chum was given four cows to experiment with. I remember of his feeding one cow apples altogether. Of course, I couldn't tell what it would be, but it would be agricultural chemistry.

Mr. D. Huntley — I want to express my thanks to Professor Henry. I was only this moment aware that he had the privilege of traveling, although I had already given him an invitation to visit Appleton, and speak to the convention there. And now there is one point I wish to speak about here. These ladies, and there are more present, I am thankful, this afternoon than there has been any other session, have quite an interest in the boys. It so happens, in the nature of things, that a mother who chooses can keep a hold on a boy even after he leaves home, that the father cannot. I know that I have one boy now that is away, and we have made him to feel, or his mother has, that we expect letters very frequently from him. He keeps us posted upon what he is doing, how the finances are going, and all of that. I see the mothers are here to-day, and they can wield an influence for the benefit of the boy, and for the education of the boy, that fathers cannot. If they use that influence as they can, as they have the power to do, it will loosen the strings of most any purse if the father has got money. You know it can be done, and the boy receive a benefit from it.

Mr. Richardson — I would like to say just a word in this direction. I remarked to Mr. Plumb that the ladies were very deeply interested in this inquiry for boys; and, my friends, I have been discussing this question of pre-natal influences. I don't know as it is possible to make a farmer's boy out of that child whose mother constantly bemoans and bewails that she is a farmer's wife. There is something serious in this idea, and I am glad Mr. Huntley suggested it. It is a very important inquiry. We are learning in the church of God, that among the important questions nowadays, people having become educated upon what the needs of humanity are, the question comes down to this. We used to ask this question, Will you give us your money? We wanted a man to take his life in his hand, and go into the jungles of Africa. The question has

come back to this one: Where are the boys? Where are the men that will fill the important places in this world that must be filled? Where are the boys that are going to exert, upon these hills and along these valleys, the moral influence that shall lift up all this farming country of ours into a higher plane of intelligence? It is a very important question, and I am glad it has been suggested. There is very much could be said upon this subject, and I know very many of these intelligent ladies present will make it a matter of thought and inquiry what their responsibility in the matter is, as has been suggested.

H. J. Huntington — I am very much pleased with the remarks of Prof. Henry upon this subject of education, and it seems to me all that he said may be summed up in the idea that the farmer should be educated. In the few remarks which I had the honor to make in this hall I touched briefly upon that subject myself. Now it is a duty which is imposed upon all of us, to educate our children. Professional men, merchants, and other men are educating their children, giving them as thorough an education as it is in their power to do. Farmers should do the same thing. Now, I tell you, there is competition in farming, and he who goes upon the farm, equipped with a thorough, sound education, has a vantage ground, against which the ignorant neighbor cannot contend. Of course, there are men in all branches of industry, in the legal profession and in the medical, upon the farm, who have native qualities, force of character, who will be prominent, but you add to these natural resources a thorough education and you make them so much better. Now, if a farmer's son goes through the curriculum, or course which the professor has marked out there in the university, he comes out with a liberal education. There is history, which embraces not only the gathering of facts, but the study of language itself. There is chemistry, it also necessarily embraces certain branches of mathematics. Now, a boy who goes through that college and takes that course, comes out liberally educated, and if he does not choose to go back upon the farm and help you, he is as well prepared for business of any kind for which he has a taste as any other boy who goes into it. So I say it is a duty. Not all farmers are able to send their boys off to school, but more of you are able than you think. It is very easy for you to say you cannot afford it, but I tell you it is a solemn duty, if it is within your power, to send your boy

to school and give him a thorough education; it is your duty to do it. Induce him to come back upon the farm if you can. There are going to be more educated farmers. The professions are overflowing. There are men who go through the legal profession and get the preliminary preparation and they are dropping out. We have lots of poor lawyers, lots of poor doctors, lots of poor merchants, lots of poor insurance men, and all that kind of men, and they are dropping out, and we are beginning to discover, a man with education and ability can, upon the farm, achieve distinction and wealth as often as he can in a profession. So, I say, if you want your son for a farmer, by all means educate him. I, in my profession, have more occasion to lament the ignorance of men we deal with than most any other person can, and I am distressed often to see how farmers are imposed upon by machinery men, and by all kinds of agents that are fleecing them. I have an uncle myself who is a farmer, a man of average intelligence, who disgusted me once by telling me how he came to be induced to sign a note for some machinery. Now, I tell you, if you want to protect your boys against all these things, just give them a liberal education. They are better men, stronger men, they are able to do more and do it a great deal better by giving them this advantage. I am glad that the professor here has touched upon this point. The world has got to this advanced stage that if we go into any branch or any profession unequipped by a liberal education, the chances are that we have to go lame and halty the length of our lives.

J. M. Smith — There is considerable rebellion in the camp among the ladies. They claim if the young men are going to be educated they won't come to them for wives. They say they have got to have the girls educated, too. How is that?

J. C. Neville — I have been deeply impressed with the proceedings this afternoon, and the remarks that have been made commencing with Professor Henry and ending with my brother of the bar, Mr. Huntington. This subject of the education of farmers has been one upon which I have expended some solid thought. I alluded to the fact last evening in the few words that I said quite unprepared, that there were too many lawyers; too many doctors; too many merchants, and too many merchants' clerks; and that our business as a general thing was running in those directions, forgetting that farming is really the most honorable business to which

any man can apply himself; that it is the foundation of the building, the keystone of the arch upon which all the superstructures of society and civilization must be raised. Blot it out and in a short time everything we have will go to ruin, and all our civilization will recede into darker ages than history informs us of. But there is another political and philosophical view that you can take of this matter of the education of the farmer. The professor alluded to it in his speech when he said the farmers ought to elect the senator that is probably going to be nominated in the caucus to-day, and very likely a very honorable gentleman will receive that nomination, the Hon. Philetus Sawyer, and I hope he will, although I am a democrat, and as some of my friends say, "dyed in the wool," yet I never saw a good republican I wouldn't vote for if he was a gentleman. That is the way I carry on my politics. I was very glad to hear the professor touch upon the point of education of the farmer. This subject of education of the farmer is almost inexhaustible. It underlies every interest of society. Why should that senator to-day be the subject of nomination by a caucus that probably does not contain ten farmers. Why, it is because such men as myself, a lawyer, probably I would not have the ability to do it, but lawyers are the men who control these things; men that lay themselves out as professional politicians, enter in that controlling largely. Men who lobby the members of the legislature, and are the agents of great railroads, are the men who are controlling the legislature of to-day, instead of the men who have the greatest interest in it, to wit.: The men who dig the soil and take the procts out of the ground; that feed these very agents and legislators. Ain't that so? Take the little county of Brown here to-day. You want to run a man for the legislature.

Who is at the bottom of all that thing, the caucusing and running of these men? Now I am not going to speak personally against any gentleman. I am simply going to allude to the thing that takes place in this county that I can find a pattern for in every county of this state; that I can find a pattern for in every county in the state from which I came, Pennsylvania, because I have practiced law nearly forty years and I know something about these things. Now take it in this county. Who was it elected himself to help represent this county in the senate? This county has a large democratic majority. Is he a farmer? No, he is a lawyer and a railroad man,

a gentleman, for all I know a very honorable man, there is no doubt about it, but he has control of the farmers' influence. Who is it that is elected one of the representatives that goes into the legislature from this county? He is not a farmer; he represents the city of Green Bay and a large portion of the farming interests of the county; a very worthy man, but he is elected precisely by the same influence. Now these railroad lobbyists go into the legislature and they want a bill passed in favor of railroads, or they want to prevent a bill from being passed that has a tendency to protect the farming interest of the country. Who ought to be in that legislature to guard the interest of these farmers but the men who understand their interests, and are identified in their interests with them. So, if you want to control, as you ought to control, the legislation of this country as against these immense and powerful railroad monopolies, you will need in the future to have in the legislature of every state in this Nation intelligent and able men who come up from the ranks of the farmers. The grangers a few years ago were cried down and ridiculed. Whom were they cried at and ridiculed by? Not by thoughtful men outside of the agencies of railroads. They were ridiculed and cried down by such men as I could name who were the lobby members of the railroads in the legislature of the state of Wisconsin when the grangers got a bill passed to reduce the railroad fare to three cents a mile. Now that same bill is being called up in the courts. It is constitutional, and has been so decided by the supreme court of this state, and it has been so decided by the supreme court of the United States, and now it is going into congress, where, if the farming interest is not properly represented in getting an inter-state railroad law passed so that the freights on carrying products from the farm to the market can be regulated through all the states and equalized, it will be a blow to the farming interest of this country they will not get over for years, probably not within this generation. So that then you see the protection of your interests call aloud upon every farmer of the country to educate his son, if he can, so that son will be equal in intelligence to any man that goes to the legislature of this state, or any member of congress, or senator, when the time comes in his life that he ought to represent his district or his state there.

I am only very sorry to say that I am not a farmer, but that was no fault of mine, for physical disability alone kept me from it. I

tell that the most important occupation for any man to-day is that of a farmer, and the most important thing that a farmer can do this day and this time, is to educate his sons; aye, and his daughters, too. [Applause.] So that the sons can represent the interests of the farmers in the politics and statesmanship of the country, and the daughters can be the mothers of another generation of farmers, superior to the sons of the present generation, and so they will go on increasing, in geometrical ratio, untill the farmers become the prominent men of the land, and they stand where the Almighty intended they should stand.

Chester Hazen — This is a subject that will admit of much larger discussion, but we shall have to leave it at present, and if we have time, after our other papers, we will take it up again.

W. J. Abrams, D. Huntley and J. S. Stickney were appointed a committee on resolutions.

Chester Hazen — The next paper will be "Floriculture; its Influence in the Home," by Mrs. Dr. Ayres, of Green Bay.

Mrs. Dr. Ayres then read a paper entitled

"FLORICULTURE; ITS INFLUENCE IN THE HOME."

What is the use of flowers? Probably there is no one who is accustomed to the cultivation of plants, watching them as they leave, and bud, and bloom, with as deep an interest as if we not only watched, but made them grow. Who has not been asked this question, and that, too, in a variety of tones, with great diversity of expression. The answer is not always given with decision. It seems to us so strange that every one does not know, that we hesitate, say they are equally useful with other beautiful things, and urged to particularize, at last, perhaps give no reason but that of, why we like them.

Now, I wish to assert most uncompromisingly, that flowers have a value; and that not only to look pretty. We thoroughly enjoy a beautiful sunset, but it fades away, and save for the momentary raising of our thoughts in adoration of Him to whom "the clouds are as dust under his feet," the sky might still wear its winter gray and our lives would suffer no loss.

Flowers are an essential part of nature's economy. From the tiny flowerets joining the red snow of the Alps, feeding the still tinier insect life which waited for their coming, to the brilliant,

gorgeous bloom of tropical plants, each has its own individual duty to perform. Clothed in robes of delicacy, fragrance and beauty, they do the work for which they were created, eagerly drinking up from the soil the moisture received there, through the roots; they throw it off again by the leaves, thus giving freshness and dewiness to the air, gathering up the carbonic acid necessary to their own life, and giving out the oxygen needed by ours, while the close proximity of trees to our dwellings is carefully to be avoided, by reason of their throwing more dampness into the atmosphere than is needed. The more flowers around our houses the better, both indoors and out, always provided that they are in a thoroughly healthy state; and for this reason any one passing at least an hour a day in the open air, in suitable weather, etc., among the house-plants in the cold season, may have a reasonable hope of enjoying better health than those who have no such resource. It has been suggested as one means of securing pure air in city homes, that a small conservatory should have pipes leading to each room, thus carrying oxygen where needed. I am afraid the inventor is in the plumbing interest, as a few plants, where light and heat could reach them, would answer the purpose. The very crying out of nature for her own life-laden treasures proves her dependence on them; the eager delight of the sick, aged and children, deprived, to some extent, of flowers, on receiving them as gifts, prove them to be not only pleasing to the eye, but an actual physical want. Surely they are needed for the perfect health of our bodies.

True refinement is generally accompanied by a love of the beautiful; in fact it is one of its proofs and vouchers. It is not necessary to be rich or idle to be refined; neither can it proceed from cultivation of mind or manner alone. It is certain that a degree of civilization has reached the paganism of Japan, and the love and cultivation of plant life is one of its surest evidences. Who that visited the Japanese gardens at the Centennial, but will remember the primness of the little trees, the extreme neatness of the edgings, and the retiring gentleness, if I may so speak, of the flowers, as if apologizing for being on foreign soil.

Our German population bring with them flower seeds and bulbs. They are a lifelong love to them. Twin-born with their devotion to music, they have helped to make the national character. Whether in their homes, their grounds or in "God's acre," they cultivate and hold dear the bright flowers of their fatherland.

Bonnie England, too, speaks through her own peculiar plants to the hearts of her absent children — violets, daisies, primroses, honeysuckles, roses — an innumerable throng, gather themselves to heart and memory. England's greatest poet puts into words the sad, mournful notes which a flower can sing: "There's a daisy; I would give you some violets, but they withered all when my father died."

France has her lilies and her magnificent provinces of roses, while Scotia and Erin point to heath and shamrock, and show each with pride.

Our home flowers are as fair as those of any clime. From the beautiful woods of the north to the orange groves and magnolias of the south, the trailing arbutus (sweet herald of spring) and the green lily of California, rare specimens, and common winsome buttercups, an endless variety, meeting the wants of the most enthusiastic lover of floriculture and the simple taste which revels in the "love of the woods." They come to us, the God-given messengers of cheerfulness, in our homes, setting us the bright example of doing the very best we can, under the most adverse circumstances. They teach of him who bade us "consider the lilies, how they grow," and are an ever-varying source of interest and enjoyment.

On some fair spring morning, just after a rain, carefully draw within your little girl's flower bed the letters of her name, plant them with candy tuft, mignonette, or any other sure-growing seed; wait until some day she sees it come up, green and fresh. You will give her a lesson on the improbability of chance which will never be forgotten.

It is often said that the time needed for the care of house plants might be used to better purpose; that the daily watchfulness required by them, if given to some other object, might be productive of nobler results. Perhaps it is so in some cases, but as every person requires some recreation, some interest, apart from and superior to the petty cares and trials of every day life, the cultivation of what adds cheerfulness and brightness to our homes fills this need to many; and floriculture should not tend to selfishness. There are always those to whom a boquet, a plant or cutting given, will bring pleasure. Our floral treasures will be doubly precious to us if shared with others. A wreath of lovely but home cultivated flowers, laid on the coffin of a poor, neglected child, called

forth from the mother a cry, "I will never forget those." Her mind, roused to action, saw as in a vision when she too loved flowers. She felt her present state of degradation, and resolved to be once more a respected woman. She influenced her husband to change their mode of life, and when I last heard of her she was respectable. I trust these societies will continue their educational and refining work, until every farmer will see the need of a flower garden; will have a few pennies for seeds to brighten his home, and cheer the tired eyes of those that dwell therein, when the floweret shall open the door for music, and all innocent pleasures which shall tend to refine his family and himself. I would fain believe that those who have been favored with the means to obtain all which shall gratify their taste in floriculture will gladly share and give of their abundance to those who have not, so that no home shall be without the ornaments of nature's own producing, which have been given to our keeping. Interest once raised on the subject, magazines on flower culture, newspaper columns devoted to the theme, the florist catalogues which come to us so freely, will become sources of information. Some seed of a flower hitherto unknown to us will bring a degree of excited watching for the bloom, positively amusing to a disinterested looker on. Let these things win for themselves a place in the home, and they will gradually weed out the trashy reading which is doing so much to educate for the reform school and the penitentiary, and make our girls silly, discontented and idle, instead of the noble, disinterested, useful women which our homes and our country need.

May each one of us, giving influence and interest according to our opportunities, be enabled to do something towards bringing into every home the sweet lessons and enjoyment of flower life.

> For He who made the violet, and every floweret fair,
> Thinks not unworthy His great power to give His holy care;
> Protect the life from year to year which blooms and blossoms there.

Mr. Richardson — I take occasion to say that I have enjoyed this paper. I am among the men who believe that as an instrumentality for the culture of home life, for the culture of children, it is hardly second to any other that I know of. I knew a family in my boyhood, where the introduction of a few flowers by one of the daughters, who had become an invalid, was thought to have been an

instrument that led to the refinement of the whole household. From a rude, uncultivated home, it became a refined, social household; and I have heard young ladies who were acquainted with the family say that they attributed that refinement to the influence of the flowers that were brought there by the daughter. I do believe that farmers would be very greatly benefited by using the suggestion of Mrs. Ayres, that we should give a place and time necessary for the culture of a few flowers in our homes and in our gardens.

J. M. Smith — I won't take the time of the convention long, for I see our time is fast passing away; but the influence of flowers can only be known, can only be felt, by those who have flowers. Only the farmer or person, whoever he may be, who has no flowers, knows nothing of their influence for good. It is remarkable how almost universal, I think, the love of flowers is. It is known to some of you here that my wife has been in the habit of cultivating a great many flowers for a good many years, and the little urchins who come along, some of whom have no homes at all, come and want to know if the lady will let them have some flowers, and she sometimes tells them, "Well, now, I will let you have some flowers, but you must wash your face when you come again; come with a clean face next time." Some of them come as regular as the day, because they look for flowers. It shows an inborn love of flowers, and I think no home is what it ought to be without them.

Chester Hazen — Our next paper will be by the Rev. H. S. Richardson, of Green Bay; subject, The Horse.

Mr. Richardson — I would say, Mr. President, ladies and gentlemen, that I have a book that will appear in print about one year from this month, entitled "My Horse and I." I have an article on riding reform, horseback riding, and the kind of horse necessary for horseback riding, and propose, as a new mode of riding, that we introduce what Lady Chester, of England, and her daughter has just introduced, that ladies hereafter ride in the form that gentlemen ride their horses. It is a radical proposition. I have an article here that illustrates the intelligence of the horse more than any other article, and I propose to show from these articles that I read in your presence, not a romance, but a fact, so that you may judge of the intelligence and power of the horse, and the duty we owe him.

Mr. Richardson then read a paper entitled

REFORM IN RIDING.

FLACO AND SOLITUDE.

I am sorry that I am unable to give the history — the pedigree of this horse, Solitude. I was never able to learn anything about him previous to the time when, covered with the blood of his fallen master, he came dashing at full speed out of the woods. That he belonged to the blood royal was plainly to be seen in every muscle, joint, and turn of his body, in the texture of his skin and hair, the shape of his ears, the contour of head and face, the power and grace of every motion, and the tender, intelligent, almost human expression of his large brown eye. No man who had ever seen a thoroughbred, would for a moment question his claim to gentle blood and breeding. Solitude had doubtless just been stolen from some gentleman in Mexico, or Texas, by the band of Indians who undertook my capture. On that occasion of which I have spoken, being doubtless the swiftest horse in the party, he was the first to make his appearance over the brow of the hill, and as I have related in a previous letter, his master being first in sight, had the misfortune to run against the ball from my rifle which happened to be going just then in that direction. His rider, though badly wounded, kept his seat, probably, for several moments, until his blood covered his horse from withers to flanks.

An Indian pony, accustomed to scenes of excitement, would have kept with his own band, but Solitude had witnessed no such scenes, and hence, frightened by the quick report of my rifle and pistols, the warmer blood and staggering fall of his master, he ran wildly through the woods, keeping his aimless course, till he saw my horse, and immediately followed us.

Our battalion was at this time expecting every day to begin the pursuit of a band of a thousand hassuns, who had been committing depredations along the Rio Grande. I was glad to become the owner of a second horse, that I might as much as possible relieve Flaco.

The next morning after reaching camp, I took possession of the chestnut, and proceeded to remove from him every stain, and all scent of blood, in order that I might reconcile Flaco to him. I

took him down to the river, and having thoroughly washed him, I rubbed him dry, put on a saddle and rode him up to Flaco without the least notice. For the first few moments Flaco stood with head lifted and ears back, evidently discussing the question of identity, whether he had ever seen the horse his master was riding, when and under what circumstances.

Fearing the results of his critical examination, I gave him but a single moment before dismounting. Being on the ground, I took each horse by the bit, one in each hand, and bringing their faces very close together, I said, cheerfully and frankly: "Flaco, I bring you an associate, a companion. You know I would not ask you to accept an unworthy comrade; allow me to make you acquainted with my new friend Solitude. Solitude, this is my dear friend Flaco, entitled to your deference and obedience — the first of your race in the world!" Flaco accepted him, evidently for my sake, but for several days he was sad and distant. Without the least doubt he was considering whether it were possible for his master to give to another the place he had so long occupied in his heart.

By every means in my power, by unusual kindness, by kind words and considerate action, I tried to show him that his fears had no foundation. I succeeded in assuring him that he was first in my respect, and in the course of a few days he received Solitude into his confidence,— took him under his protection, and for my sake gave him a place in his true generous heart.

From the first these horses were friends. In their physical conformation they were very similar. The same height, the same length of body and neck, and about the same weight. In their disposition, their temperaments, their spirit, they were as dissimilar as possible. We can account for their strong and lasting friendship for each other, only by the law of contrasts. The rule that in love, as in music, discords are essential to the grandest harmony; that opposite natures are usually the most lasting friends.

Flaco was an eagle, Solitude only a swallow. No! this does not express the contrast. Solitude was a Napoleon, swift, strong, victorious, provided the hand of Talleyrand or Fouche was ever on the bridle-rein. Flaco was a Cromwell, swift, strong, victorious in himself, able to bend and conquer and crush adverse circumstances by his own unaided genius and power.

Both were riding horses, of the very highest quality, but as un-

like as day and night, as summer and winter, or rather as peace and war.

Flaco was first and especially a cavalry horse. In his physical conformation, his endurance and power, his coolness and courage, his spirit, his tastes.

He loved the chase, the long, hard pursuit of the buffalo or deer across the wide, free prairie, or of the Grisly bear up the steep mountain, over boulders, around the head of gorges, along steep, rocky gulfs, and through brush and break and forest, long, weary, desperate runs, if only he could bear his master first in at the death. No hunter ever rode a surer-footed horse. But more than he loved the chase, Flaco loved the field of battle; the shout of combat, the clangor of bugles, the rattle of sabres leaping from their scabbards. No soldier knew the words of command better than he, nor heard them given with a steadier nerve. A knightly steed,— a horse for General Custer in a hand-to-hand fight; a horse for Sheridan with Winchester twenty miles away. Flaco, without the least doubt, knew just what a battle meant; knew who were friends and who were enemies; knew when his master's rifle had missed the mark and failed to bring down the foe; knew when the field was covered with dead savages, or when they had escaped. He knew, too, when the victory had been complete, and with wide-open nostril, flashing eye and lifted head, he evidently expressed his gladness.

I am aware that this is saying very much for the intelligence of the horse, but I think I am not saying too much. Nearly a score of times I rode this grand horse into battle,— if we may call a conflict of but a few moments' duration a battle,— and I am sure I am not mistaken in the statements I make. I will describe for the readers of the *Spirit of the Turf*, one or more of these engagements, and leave them to form their own opinion. But I was contrasting these two horses. Flaco was in the highest and truest sense a cavalry horse. Solitude was a riding horse. In his grace of movement, his spirit, his tastes, he was pitched on a lower key. They were both alike affectionate, obedient and naturally appreciative. Solitude, however, was apparently just as kind towards his master and just as obedient, whatever the treatment he received at his hand. Flaco never failed to obey, but he evidently resented any unkindness. Having used his master with great respect and

kindness under all circumstances, Flaco seemed to expect in return like treatment.

While in the service of the state as a ranger, I continued to own both horses, riding Solitude always on the march, and at all times, except when the work to be done required great endurance and courage on the part of the horse. When I expected to come upon a band of Indians, or expected to engage them in battle, I always rode Flaco.

In the battle with the Apaches and Comanches, known among the rangers as the battle of the Yano, Flaco and I were both wounded, and remained from 6: 30 P. M. until 7: 30 A. M. upon the battlefield, and exposed to the mercy of prowling wolves and skulking savages.

In my description which I propose to give of this battle, it will be seen that had I been riding Solitude, I should never in all probability have written these letters. Every first-class cavalry horse must be at the same time a good riding horse, but a first-class riding horse may be worthless as a cavalry horse.

I never ventured to ride Solitude, either in pursuit of Indians, or into an engagement with them. After being mustered out of service, I remained in Texas for a few months, and had the pleasure of riding and studying my horses in quieter scenes.

Near San Antonio, I had the honor, and great pleasure, of an acquaintance with a Spanish American family, with which I remained as teacher and friend.

One member of this family was a young lady, noted not only far and near for her marvelous beauty and grace of person, her purity and nobility of character, but for utter fearlessness, her skill with the rifle, and her horsemanship. She was know as the beautiful huntress. I owed my pleasant and never-to-be-forgotten acquaintance with this sweet-hearted girl, to the fact that I was the fortunate owner of two of the finest horses in that part of the state.

More than a score of years have passed since then, yet I hope she is living still, and I dream and hope that some time I shall see her face again. If her eye falls on these lines, she will say, " Yes! yes! 'tis true, I saw his beautiful horses *first*." After being upon her father's plantation for a few weeks, and when Flaco and Solitude, fully recruited and refreshed after their hard service, were

looking their very best, it was our custom in the early morning, or late in the afternoon, to mount our horses and ride.

Oh, beautiful rider! Oh, dreamy hours! what horses those were; how proud, how free, how swift,— sons both of them, of the light and the wind.

THE RIDE — SIDEWISE AND ———.

Flaco and Solitude were at the door, and the two negro boys who were holding them by the bit and awaiting our coming, discussed with great learning and volubility the two horses.

Bob said: "Look yar, Sam, dis yar hoss, Solemtune, what de young missus am gwine to ride dis ebenin', can beat any hoss on dis plantation mighty easy, mine dat now!"

Sam answered: "Bob, you's gettin' mighty pert for a poor, ornary nigger, anyhow. You's took a big indisposition onto dat chestnut hoss, Solemtune; jus' kase our young missus is on his back, makes him look grand a sight mor'n he is. When de missus is off dat hoss, he's mighty little possum comparin wid dis hoss."

I had of course given the fair girl her choice of horses, and she had chosen Solitude.

Just before the going down of the sun, his last beams kindling lurid fires on the top of the distant hills, and all the valley redolent of luxury and fertility resting in the welcome shadows, we began to prepare for our ride. There was quite a company of ladies and gentlemen at the plantation, and when Flaco and Solitude were led out there was an expression of admiration from all present. "What superb horses! What beautiful, what elegant creatures!"

Flaco — please call him to mind — never looked better in his life. Full sixteen hands high, and black as the wing of a raven. He heard, as surely as I did, these expressions of delight; indeed, without doubt, he *expected them*, and lifted his beautiful head in a way that showed his appreciation. Solitude, too, was looking well, and in the estimation of most of the ladies present, was thought to be the handsomest horse.

Well, the horses are ready; and, in fact, we are ready to mount and away.

But, there has been a word spoken by Bob that may send me off at a right angle to the line of this letter and so detain me for many moments.

"Why are there so many spinsters in Massachusetts?" asks one

of the speakers at a recent woman's convention. I can give at least an appropriate answer to this startling and important question:

"So few of our girls ever appear in the presence of the marriageable men at their best, but so frequently and continually at their very poorest." 'Tis not my opinion that marriage is the *first* great blessing or duty of *every true* beautiful woman, but 'tis my opinion that no woman will be obliged to live husbandless who can ride on horseback with the ease and grace and fearlessness of a ranger, and who *will* so ride in the presence of men who are worth having.

I am surprised that so few of our young ladies learn to ride. I meet them by thousands in carriages — a kind of sedan chair just calculated to hide their beauty, if they are indeed beautiful, or to utterly and absolutely destroy it. They are languid, pallid, and evidently becoming more so with every hour of their ride. The carriage of to-day is only a velvet-cushioned cradle for babies of a larger growth; and these sweet-faced children, for an hour or two morning and evening, may be seen on our wide avenues or along our lake shore drives, dressed in many colors, bolstered up in their seats, evidently fast falling into a pleasant sleep, soothed by the drooning rumble of the slow-turning wheels and the easy swing of their carriage-cradles.

They are out for an airing, and are met by their gentlemen friends, who lift their hats as they pass, and who, having seen their colorless faces and dim, expressionless eyes, exclaim below their breaths: "Why, bless me, Miss Fannie is becoming a ghost!" "Ah me!" "Big tax."

Young ladies, take a word of advice. For your own sake, for the sake of health, happiness, *beauty* and long life, master thoroughly the art of horsemanship. By the grace of your own money, or father's, or *his*, find a riding horse, and under good instruction or by persistent practice, learn to sit your horse without the least fear, and ride him anywhere, on avenue or beach, or along the streets of a thronging town, or through brush and brake, over fences or tree tops, and all this with the ease and grace and fearlessness of a man.

Such riding is very seldom done by women, and hence and for this reason, the art has not become popular. A *poor rider*, man or woman, is not only awkward and clumsy, but they fail to reach either the *happiness* or the *advantage that comes of skill.*

Young lady, *become master of the art.* Ride until you feel as

much at ease and as perfectly secure as though seated in an easy chair at home. Ride until *forgetful* of your *horse*. You can give all your thought to your companion, or all your attention to the river or the mountain and the scenes of beauty or grandeur by which or through which you pass.

When you become thorough master of the situation, when you can ride such a horse as Solitude as well and as fearlessly as that fair huntress — that Wild Flower of Texas — you will abandon all other methods or modes of exercise for health's sake, and pronounce all other *pleasures* tame.

Please notice *particularly* that I say all these things in favor of *good horsemanship*. For the woman who is perfect master of the horse, who can ride with her arms folded, who can ride and laugh and sing and talk as she rides, easily, gracefully, and even while her horse is at the very uttermost of his speed. Ah, when a few score of our American girls have become as good riders as was my fair friend of long ago; when they shall have been seen at Saratoga and Long Branch and Cape May, or west or south for one season, mounted upon horses worthy of their skill and beauty, then horseback riding will become the fashion of the times, and full developed forms, bright, winning faces, sparkling eyes, keen intellects and abounding health will be the rule among the young of both sexes; and hence, as a result — I pardon my great selfishness in this matter — a few times more in my life will be asked to take *first step* toward increasing legitimately — twenty dollars at the close of the ceremony — the population of the world. Perhaps some fair reader is saying: "To ride as you suggest, fearlessly, gracefully, and for miles over rough ground, or in crowded streets, the '*perfect master* of the situation,' is a thing impossible for a lady!"

"Young men ride *astride*, and hence *can* ride the most spirited horses; ride easily, swiftly, and yet safely." "But, sir, since the beginning of things, ladies on horseback have been seated as if with the deliberate intent, of somebody, to destroy them."

"*We* must ride 'side-wise,' sir, seated with our left foot in a stirrup — just a wee bit of it — the other by much ingenuity brought into place, and both folded and wrapped in yards of cloth from all possible use, and from the sight of all eyes. In this cramped condition we take the lines, with much the same feeling and the same purpose a rope dancer, for the first time, takes his balancing

pole when he finds himself on a single rope a hundred feet from the ground."

"Ride fearlessly in this position. Entertain a gentleman with free and easy conversation, or point out to him with the abandon and gladness of reality, the beauty of hill, or mountain, or setting sun; while at the same time you are exerting mind and muscle, and exhausting all your vitality in desperate efforts to maintain your balance, and preserve an easy, and if possible, graceful bearing." "Oh, sir!" says this fair reader, "if it were possible for us to ride as easily for ourselves, with as much real careless abandon and yet safety as our gentleman friends, then we should be as greatly *benefited as they*, and *bareback riding* would be our greatest pleasure and delight."

All this our young lady has said aloud with very great earnestness of voice and gesture, but aside to a lady friend, she adds in whisper and with crimson neck and cheek — "*In one single month* of practice in the fields and woods, I could ride as well and as fearlessly as a Texas ranger, *if* 'Miss Nancy' and her ignorant squeamish neighbors would allow me to — *ride astride.*" Now, after this, *I* am certainly at liberty to reveal the secret of that marvelous horsemanship that made Solitude's beautiful rider famous through all the south.

Certainly I am at liberty to tell how she finally came to be as fearless a rider as her ranger escort — the most tireless and dauntless rider in the hunt for panthers or buffalo — the swiftest in the race — the pride of all the young men, and finally the wife of the first gentleman of the south.

This was not our first ride, but we were going into the *town* before we returned, and hence, in deference to others' prejudices, I think she sacrificed her own happiness. A few moments before the horses were ready the negro boy appeared at the open door of the room in which we were standing, and with many bows and apish genuflections of body, said, "Evenin', young missus! Is ye goin' to ride dis yar strange hoss, Solumtune, dis mornin'?" Gertie answered, "Yes, Bob, *Solitude* is just as gentle as my own Daisy, and, thanks to my friend, much better broke. Bring him up, Bob!" And then from Bob's mouth came this unexpected torpedo — "Please missus, is ye goin' to ride *sideways* dis" — her hand was over his mouth — as much of his mouth as her hand would cover,

and having whispered a few words in his ear, she pushed him from the door, saying, "Do hurry!" I could not see her eyes for several moments; but even after we had mounted and left the house miles behind, her cheeks were unnaturally red, and crimson flushes came and went across her neck and temples, and Bob's question followed me—"Missus, is ye goin' to ride 'Solumtune' sideways *dis yar* time?"

SIDEWAYS AND ASTRIDE.

"Was Gertie a young lady of culture? Was she modest and refined? Was she an educated young lady?" Some one, perhaps all, of these questions will be suggested to the minds of the fair readers of *The Turf* before this letter shall have been perused to its end. I propose to answer it now. Indeed, I am anxious, I am in haste, to begin her defense before even the faintest adumbration of censure or suspicion falls upon her untarnished name.

She was not cultured in the modern sense of that term. Boston University, nor Vassar College, nor any other of this kind of institution for the education of girls, was at that time known or thought of in the world. She had never at the age of twenty attended school of any kind, nor, up to the time of my acquaintance with the family, had she received instruction from any professional teacher. Educated? Perhaps not! But in the best sense, Gertie was cultured, refined. True refinement is not the result of education, however broad or thorough. Refinement is not found in academies or universities, necessarily, or purchased with money. Some of the most highly educated men and women are the most destitute of the grace of true modesty or of true refinement.

Gertie was modest as any violet of the woods. Her refinement of manner, of look, of voice, of feeling, was the direct gift of God, natural to her as the brown of her wonderful eyes, the perfect grace of her every motion.

And she was wise, broadly intelligent. She wrote a good hand; she read a play or a poem with surprising art and most masterly appreciation of the author's meaning. She knew all the flowers and where they might be found, on hillside or on the prairie, their habits and their hiding places, their color, form and fragrance, without knowing their botanic names. She knew the birds, how and when they built their nests, the shape, color and number of their eggs. Their loves she knew, and how they mated. She had a name

not found in books for each, and could tell at the first note of any bird song, to just what member of the great bird chorus it belonged. The trees were her friends, and the mountains and plains were her continual inspiration and delight.

She said to me on one occasion: "When I am alone in the great dark forest, I always take off my hat and walk very softly with uncovered head." And yet this girl had never heard a great organ or seen a grand church. Her teachers were the hills, the great sun and the stars. From her very girlhood she had loved, with all the intensity of her being, nature in all her forms and moods and tenses. This was, indeed, the secret of her wisdom. Love is a revealer, somebody has said.

She loved the streams, and hence they lingered to reveal the secret of their rise and fall. She loved the wood-doves, "mourning doves," and from their habits and tones she called them "sighing birds," and said to me: "I have noticed that these birds sigh and moan, *while they are wooing;* when they are mated and are choosing and building their nests, and when they are rearing their young, *they chirp and coo and laugh from morning till night.*"

Perhaps she was wondering if this order of things is not generally reversed. No wonder that she was wise; — *nothing hides from love.* Everything was frank and communicative in her presence. The rocks and the flowers, and the birds were all glad to tell her their mysteries hidden from the eye of the mere indifferent student, though he sought them with all the appliances of the schools.

Nature, however, had not been Gertie's only teacher. Her mother was a most beautiful woman, of great natural refinement of feeling, of most elegant and engaging manners, broadly and critically educated. Her father, at that time deceased, was a Spanish gentleman from one of the old families of Spain. In his early manhood, having been appointed, by Mexico, I think, member to the Court of France, he met while in Albany, New York, her mother, then a sweet young girl, daughter of one of the first families of the Hudson valley, and just from school, who was spending that eventful summer in the Empire City.

They met and were married, and Gertie was the first pure gift from heaven, a seal to the holy pledge and sacrament of their love.

For the first ten years of Gertie's life, her chivalrous father de-

voted his very life to her instruction, and though death came early, on his strange mission, her father left forever implanted in the character of his child his own exalted sentiments of truth, his hatred of all wrong, and his own brave, loving, knightly spirit.

Since her husband's death, the mother, with a devotion equal to his, and with a love, if possible, intensified by the memory of his own, had undertaken to complete the work he had begun, to bring this first perfect flower of their love to perfect bloom and fruitage. 'Tis not too much to say that her labor was crowned with abundant success. At the time I met her, teacher and pupil were standing at about the same height of literary attainments, earnestly listening to the many voices of wisdom and calling from the shining mountain tops beyond them.

The library in this accomplished family was not a large one, but having been selected partly by the father from Spain and Italy, and by the mother in part from her own country, it was very valuable. It contained works in English, French, Spanish and Italian, in about equal proportions. You will imagine my surprise to find that this young girl, this fearless huntress of wolves and panthers, this skilled rider of wild, untamed steeds, was master of them all, and read either with all the ease and grace of pronunciation possible to a native of the tongue in which the work was written.

Gertie was a musician also; not an organist or pianist, but she played the harp and the guitar, and these seemed new instruments in her hands. Strange, sweet angels' voices beneath her touch. Her voice! She knew but very little of vocal culture, nothing of the intricacies of harmony. Her mother taught her to read music, and heaven gave her a voice of almost limitless possibilities. Her singing cannot be described, wild, sweet and sad and merry, a kind of strange mimicry of all the tones in nature, of sighing winds, of whispering leaves, of happy birds. Her voice had this strange characteristic. However frequently you may have heard Gertie sing, on every succeeding occasion her voice would strike you as being utterly new. Her voice was a continual surprise. I have heard many grand singers since then, but her voice, tender, thrilling, strange, grows every day more distinct in my memory, while one by one all other voices are fading away.

Beautiful girl! This was in some measure the kind and degree of her culture, and indicates, I think, her tastes, her purity, and the *refinement* of her *nature*.

I am sure the reader will, from this moment, defend her against any who shall hereafter question, even by a word, or hint *her purity of purpose*, in one *word* she may speak, or the womanly delicacy of any *act* she may perform, even though we hear her discussing with a gentleman, face to face, the *propriety* and advantage of riding Solitude astride, or, what is yet more startling, though we see her riding Solitude astride with a gentleman for her companion.

Yes, I am sure you will defend her against the charge of *want of refinement*, and hence I proceed with the description of the first ride and what came of it. The negro, Bob, would not have asked his young "Missus" whether she was "dis yar' time gwoin to ride Solumtune sideways," if the question had not been broached in his hearing previously. It had been. Gertie and I had reached the consideration of this subject many days previous to this. But in the presence of visitors, and some of them extensively fastidious, the question startled her and tinged her cheeks.

When we were fairly ought of sight of prying eyes, and after Flaco and Solitude had found their step, and side by side in perfect time and measure were sweeping along with flashing eyes and open nostrils, and tossing mane, swift and free, and as happy as their riders, Gertie turned her bright face toward me and said earnestly, "Why, I never realized what I had been doing until Bob asked that question in the hearing of Miss —— and Miss —— and Mr. ——. I felt for the moment as if in riding Solitude astride I had certainly been guilty of some terrible breach of delicacy," she continued with increasing animation. "Major, I have 'reckoned' you my friend; you were introduced to us by one of the very dearest of all mother's acquaintances, and in this matter I have been influenced greatly by your taste and judgment." I assured Gertie that she had not the slightest cause for embarrassment,— that I was, indeed, her friend. Bob's question, however, evidently lingered in her mind a subject more or less unpleasant to her for many hours. Not, indeed, until the sun was set, and we having visited the town, eight miles from the plantation, and were within a twenty-minutes' ride of home, did she fully decide ever again to ride astride. Sixteen miles' ride over the prairie, much of the way without a trail even, and at a rapid gate, had once for all decided the question.

She said to me, "Major, I am convinced that the manner in which I am now riding has not anything in all the world to recom-

mend it but this, '*So our mothers rode before us.*' We have made about sixteen miles in two hours and a half, and while I am completely tired out, you are as fresh as when we started. My position is the most unnatural that can be conceived. I am not only a burden and torture to the horse,— every moment throwing him from his balance, and so continually worrying him,— but I am torturing myself. All the time, except when on a walk, I am obliged to keep my unbalanced seat by a continual physical and mental effort. Dear me, Major, I do believe that this riding a horse sideways is unnatural, ungraceful, and unreasonable, both as to the rider and the horse. 'Tis a relic of barbarism; it comes down to us from the time when women were only slaves and beasts of burden, when men did not think it possible for a woman to be anything really *valuable* or do anything really *well*. We recognize the fact, that during the thousand years just past customs and opinions and fashions have changed, and mainly for the wiser and better. But for every victory gained there has ever been a struggle commensurate with its value to the world. For added light and truth, for greater honor or happiness, *somebody* has ever been found willing to pay the price — to become a target for the arrows of ignorance."

Gertie had uttered this speech — or a speech more or less distantly related to it — with kindling eye and increasing earnestness of voice and gesture, and finally, playfully tossing her abundant hair from her temples, and tipping her hat jauntily forward, she said with a merry, ringing laugh, "Major, wouldn't it be sublime to become a martyr in such a cause? Ha, ha, ha! Just think of me shot full of real arrows because I dared to ride Solitude in just the same manner my own brother rides Flaco. Oh, dear! ostracised by all polite and refined society for venturing to ride astride! Ah, me! Farewell, dear old side-saddle, I will not forget thee, nor shalt thou be neglected. I will protect thee from mice, and moths, and storms, and give thee for aye a place in my memory. Farewell!"

And so, half in jest, and yet with an evident undertone of earnestness, Gertie continued to defend her manner of riding, showing to my mind most unmistakably that she was not fully at rest upon the subject. I was anxious, for many reasons, that Gertie should be fully satisfied with herself in this matter. I appreciated the

magnitude of the battle in which she was engaged,— the prejudice of community, the sneers, the ridicule, the whole force of public opinion,— and, though the whole army in array against her I felt to be the merest *phantom* of ignorance and superstition, nevertheless, I knew also, that such an array of phantoms had many a time in the world's history put to flight kings and princes and powers.

That Gertie might be as fully committed as was honorably possible, and as thoroughly prepared for the criticisms of the ladies now at her home, and whom I knew would begin the conversation as soon as we reached the house, I said to her playfully, "Well, I am glad to hear your good-bye to your side-saddle; but, Gertie, you will find it easier to say farewell, in the presence only of your teacher, than in the presence of Miss —— and Mr. ——, now awaiting our coming. I am sure that you are quite equal to the occasion; but, after all, it will test your courage, when, in the hearing of all your company, you say to your boy, "Come, Bob, bring up Solitude, and remember I'm going to ride astride this morning."

We are now within a few rods of the house, and the whole company, a dozen ladies and gentlemen, were full in sight, walking arm in arm through the grounds and sitting in conversation on the wide verandah. There was no time for further conversation. She touched Solitude slightly with her riding whip, and as our horses passed through the open gate and were dashing up the carriage way, she turned her bright face toward me and said laughingly, "In the morning, you know, we all go out with the hounds, and — we'll see what we shall see!"

ASTRIDE! WHY NOT?

It was a delicious morning in the noon of glorious September. Please remember, my reader, the writer of these lines was a quarter of a century younger than to-day. I was awake with the dawn, though my sleep had been broken and brief. The night had been a busy one. Our visitors, ladies and gentlemen, did not retire until about 12, high noon. Gertie and her mother, with the sewing girls of the family, had been up late into the night, in whispered consultation over the strange, new-fashioned riding-dress to be worn by the young lady, the completion of which by 7 o'clock A. M. was most imperative and indispensable.

This was not all that must be done. Gertie's "good by" to her

side saddle made one more gentleman's saddle a second imperative. This saddle must match the dress. No common saddle, but small and new, and richly mounted, graceful and perfect with brilliant housing and silver-plated bridle, in some measure worthy of a most elegant horse, and as nearly as possible his beautiful rider. Midnight, and no such saddle to be obtained but in the town full ten miles away. I made the journey with Negro Sam for a page, and returned on horseback, and with the indispensable saddle was ready, and should say perhaps quite willing to retire at about 2 o'clock, after about twenty miles' ride on horseback in the night, through a wild country and over a rough road. But what of that? I knew that to-morrow was going to be a field day — a day when for the first time in her life a lady was going into battle, "with cannon to right of her, and cannon to left of her." I ought certainly to have been willing, if necessary to her victory, to have ridden a thousand miles in the very blackness of darkness.

Suppose it was late! I knew that the new dress was under way, for I saw the three sewing girls, slaves, bending over their work when I returned. They called me as I laid down the saddle in the hall to see their work. One of them said to me, "Say, Massa Harry, dis yar dress is goin' to look mighty purty on de young Missus in de mornin!" "Yes! Yes! Joannah," I answered, "It will look well if you get it ready for her." Chloe, the eldest of the three colored girls at work on the new habit, had been from the first bitterly opposed to the whole thing. She took this occasion to utter her protest. "Chile," she said, "now mine what I say. The Lord never tended that gemmen and ladies should ride the horses he give em in the same way — now honey, I spect nothin at all, but de young Missus will come home to-morrow evenin struck dead by lightnin, cause sartain the Lord is agin all de wicked, stubborn sinners, who go agin his commandments,— gin Natur!"

I left them in earnest and wise discussion on the momentous subject. Fully satisfied that every step necessary to Gertie's triumphant debut on the morrow had been taken, I slept for about two hours, the sleep of the faithful and the young. And yet I was up and dressed, and wide awake indeed. I had been waiting some time on the wide verandah of the house, facing the grey, silent East, listening to the first stir of the horses in their stalls, the first whine of the dogs in their kennels, the first dreamy note of the birds,

who, yawning and lifting their heads, and stretching their wings, were yet hidden in the low bushes or tall trees of the garden — when the first wave of light rolled up the eastern sky and scattered its snowy foam through the morning air.

This was the order of the night before: "Breakfast at 6 o'clock; start from the house at 7 o'clock, at the meet, hunters, ladies and gentlemen, the huntsmen, earth-toppers, kennel-servants, whippers-in, and hounds by 8½ o'clock, twelve miles away."

The responsibility for this very early start was placed upon Old Jackson, the professional huntsman of the plantation. His whips were Carl, Dick, etc., and though neither of them had ever seen a fox hunt, no lord or lady of the British Isle was ever honored by leaders so proud, so gallant, so sublimely wise in all that pertains to this knightly sport. Jackson felt his responsibility. I seriously doubt whether his sense of dignity and importance on the coming day had allowed him to close his eyes even for a moment in sleep.

Though I was up before the sun, Jackson was before me. He came from the direction of the Negro quarters, in full dress, a huntsman's suit, picked up here and there and put together to his own unique liking. Describe him? Impossible! Give the reins to your imagination, dear reader — there he comes! Twenty yards away, but distinctly visible — fully revealed in the rosy light of early dawn.

An African unmixed. He is just four feet high, very round shouldered, his arms are long, and his feet, too, are long,— in the exact middle of which his limbs are placed — limbs so laughingly crooked that a flour barrel could be passed between his knees. His head is small. His mouth has the appearance of being a very recent and serious wound, clumsily bandaged with rolls of red flannel, and his ears at each end of the terrible injury are evidently two stays or cleets put on, that he may not, by one of his peculiarly polite bows or loud laughs, lose his upper head. He is approaching, in full dress, *the huntsman* from top to toe. A silk hat high and narrow brimmed — well preserved on one side, and the other showing but one indentation, and slight matter when we see that Jackson has oiled it thoroughly and brushed it smooth. He wears it well forward over his eyes. A blue broadcloth coat — a dress coat, swallow-tailed, double-breasted and high collar. Jackson's round shoulders took up all the waist of the coat, and so allowed

the tails to reach only to his broad hips; he made no effort to button it, and the sleeves ended just below his elbows — a buff vest, revealing the whole bosom of a ruffled shirt and Bryronic collar. Knee breeches, improved by Dina from master's cast-off linen, and a pair of hunting boots borrowed for the occasion, ornamented with jingling Mexican spurs, and Jackson *tout ensemble* and *pleno jure* is before my readers. Behold him! You will never see his like again.

I had heard that Jackson with the help of his darling Dina had been for several days getting his suit together for the occasion, a suit in his opinion he said, "dat was worthy ov de yarstocratic kashun." I had not yet met him in full rig, and now he has approached I found it most exceedingly difficult to keep from laughing boisterously in his very dignified face.

However, after the usual salutations I impressed upon him the great honor and dignity of his office, and the importance on his part, of seeing to it that the dogs and horses, and guns, and Carl and Dick were in the best possible condition, and ready for use at just the right time and place, with so much earnestness that he swelled almost to bursting with the consciousness of his mighty responsibility. It is marvelous how a little brief authority will puff up a — a colored man.

"Yas, sar! dis year chile is going thro dis yar huntin skursion with spectability to de madam and de young missus. Now, mind dat now, sartin," and away he went with a stride, lofty and tragic as Forrest in his palmiest days, and with a bearing that would have put to shame the "King of the Congo Islands."

In a few moments Jackson was heard at the door of the different negro cabins shouting with sufficient volume of voice to awake the devil, and soon Sam and Bob and Cæsar and Nancy and Frizzle and Topsy and Cleopatra stood in the yard, gazing upon the sublime officer of the day, the great Jackson, while with the air of an emperor he was trying to impress them with the importance of the hour. A free translation of his oration would doubtless convey about these thoughts: "Brodders, de eyes of forty centuries am lookin' upon us, and dis yar plantashun specks every colored pusson to do his duty."

The dogs were looked after, the horses watered, fed and groomed, and promptly at seven o'clock the whole company, seven

gentlemen and five ladies, constituting the hunting party for the day, met on the wide porch, and having passed the usual morning salutations, the polite and cordial gratulations and greetings of Southern society, we gathered about the table and enjoyed — I speak for myself in this matter — an abundant and most elegant breakfast.

As soon as the company had left the table, Gertie, with crimson cheeks and flashing eye, called me aside to inquire if I was very sure that to day she should ride Solitude astride. I answered by asking if the girls had completed her new habit; she said, "It is finished and fits me perfectly. I have tried it on." "Then," said I, "there is nothing in the way. The saddle and bridle will please you in every particular, and Solitude is impatient to bear you into the chase, and to victory. Put on your new dress, Gertie, and when your horse is at the door, and when the rest of the company are in their saddles, you come from your room, stride across the porch, and without a word or look of apology or excuse, approach your horse and without touching your stirrup, mount to your seat. I will mount my horse at the same moment, and while our friends are gazing and wondering, I will give the word and we'll away to the meet, at so rapid a gait, that for the first few miles, at least, they will be obliged to give all their attention to themselves and their horses, if they keep within sight of us. Does this please you, Miss Gertie?"

"I am delighted," she answered, "with your stratagem. I have been dreading the start more than all the rest of the ride. Accept my thanks. If Reynard starts to-day, I will show you my appreciation of the instruction I have received, by being in at the death."

In a few moments the grand huntsman with ten couple of dogs, and a half dozen whippers-in and assistants,— please remember this is a fox hunt in Texas, and not in England — was on his way to the covert, while Bob, Sam and Cæsar were at the stables ready to bring the horses to the door.

When I approached the stables for the purpose of putting Gertie's new saddle on to Solitude with my own hands, Flaco, who knew as well as I did that something unusual was the order of the day, heard my step and greeted me before I reached the door, with two or three cheerful neighs; and while in the stall near his, I was

adjusting the new saddle to Solitude, fitting the bridle and tightening the girths with evident care, Flaco seemed to watch my every motion with intense interest. This was one of the peculiarities of this wonderful horse. He always knew his own saddle, and when at any time I put my hand upon it Flaco would immediately stop eating, move quickly to the side of his stall, and with lifted head and laughing eye, say to me, "well, master, I am ready." He was now watching my every motion, evidently anxious for his turn to come.

Solitude looked fine in his new rig. The saddle was a small sized gentleman's saddle of the Mexican form, and with the bridle, double reins, curb-bit, and silver-plated, cost one hundred and fifty dollars. The saddle was thinly padded in the seat, handsomely mounted, with pretty housing and carved wooden stirrups, made to order for the daintiest foot that ever wore a spur.

The negro boys took charge of the ten horses and led them to the house. I led Solitude, leaving Flaco, having previously put on his saddle and bridle and laid the reins on the horse, to follow. After reaching the porch it took some time for the ladies and gentlemen to get into their saddles, and while all were laughing and chatting and each intent on his own preparation for departure, neither Solitude with his glittering trappings, nor the absence of Gertie, was noticed by the company. This was the moment for the play to begin.

I gave Solitude over into Bob's care and walking up to my own horse, I put my hand upon the pommel of his saddle, and arrested the attention of the company by saying, "Ladies and gentlemen, I have sent Jackson and the dogs on in advance to the hunting grounds. The foxes are very plenty, but the wolves more so. If by good luck a wolf does not get up before the dogs, we shall have a good day. They have been gone some time and if we get there in time to see the hounds 'throw off,' we must ride swift. You must keep me in sight, and I will lead you over the very best ground to the covert. Are you all ready?" And a half dozen voices after a brief glance, responded "No! No! Miss Gertie is not here." And now all eyes were fixed upon Solitude. There he stood, with arched neck and gleaming eye, and coat glossy and bright as the sun. There could be no mistake; the horse was the young lady's riding-horse, but his saddle was just as certainly a gentleman's.

Bob broke the anxious silence by saying, "De young missus neber gwoin to keep de ladies waiting very long, sartin. Dar," continued Bob, pointing to the upper end of the veranda, "I tole you so; dar she am comin'."

Gertie came toward her horse, evidently conscious that every eye was upon her. Her lips were red, her cheeks were crimson, her eyes sparkling, but yet she kept entire control of herself, and as she came near she said, laughingly, "I hope, ladies and gentlemen, I have not kept you waiting."

Her beautiful hair pushed back from her temples, and held in place by her broad-rimmed, low-crowned Spanish hat, fell in abundant and shining masses on her neck and shoulders. Her dress was made of blue broadcloth, a close and perfectly fitting waist, cut low on the neck, with wide collar of the same.

Her pants, of the same material, were made wide and flowing, puffed in and fastened with a narrow band at the ankles. Her boots were made to order of black morocco, each heel ornamented with a solid silver spur.

She wore over her waist and fastened at the neck by a single clasp, a black silk velvet circle, and over her pants, fastening with a band about the waist, and buttoned up before, a skirt, trailing reasonably, also of velvet.

It certainly did not require as much time for her to reach her horse as it has me to tell it, for she walked fast. Up to this time the company was in the dark. True, Solitude was Gertie's riding horse, and he had on a gentleman's saddle. This hinted very distinctly at one thing. But here comes the young lady in a long velvet riding habit; this hints that she is going to ride sidewise. There she stands, and we shall see.

With a single motion of her gloved hand she unclasps the circle from her neck and in very brief time unbuttons the velvet habit and handing them to Bob, the mystery is explained. While the ladies sat in silent astonishment, and while the gentlemen were saying to me and to one another, "Elegant," "By George she's sensible," and while I was thinking that she was the truest, bravest, sweetest girl I ever saw, she sprang into her saddle, and adjusting her stirrups with a single motion, and picking up her reins, she said, smiling, and in her usual tone of voice, "I think now we are all ready!"

And I answered, as I sprang into my saddle, "All ready, Miss Gertie," and away we went. Flaco and Solitude side by side, and the whole party two by two in close order, with Bob and Sam, and Cæsar and Columbus bringing up the rear. Through the yard and out at the open gate across the wide open field, into the first oak opening and straight on and on, swift as an arrow and straight as a bird flies, until we reached the river seven good English miles from the old plantation.

I would not convey the idea that we had rode this seven miles with our horses at the top of their speed. I may, however, assure my reader that it had been a swift ride. Every horse, if I remember rightly, was a thoroughbred, and every rider a master and inured to the saddle by constant practice. The ladies prided themselves upon their horsemanship, and were known as among the very best horseback riders in that part of the state. I proposed, however, to convince them early in the day, if possible, by ocular demonstration, not only that a lady dare and could ride a horse astride, but that in this manner she could ride where they dare not and could not — with perfect security and with very little weariness.

When, at the end of this first brush of seven miles, we came to a halt for a moment, and the party, for the first time, were permitted to gather about Gertie and her horse, and get a fair look at my heroine. I was satisfied that my plan was sure to succeed. While Gertie seemed as fresh and cool as when they left the house, every other lady in the party was evidently flushed and heated, and considerably wearied, and besides, they were all sadly *en deshabille*. It was evident, however, that it would take a longer, swifter, and more desperate ride than this to bring them to a practical indorsement of the terrible innovation. The gentlemen were already convinced and were frank in their expressions of admiration and approval.

When we again started for the meet, yet four or five miles distant, Gertie, with the ladies riding on either side, was from this point to take the lead. This change had been made by request of the ladies, that they might more freely talk with Miss Gertie about the new dress and manner of riding. Gertie knew every foot of the ground, and by a glance gave me to understand that this change pleased her. It would give her an opportunity to discuss the innovation, or rather a chance to illustrate its vast superiority.

When ready to start, Gertie said, "Now, gentlemen, you are remanded to the rear. If you are strong enough in your arms to restrain your steeds, do please keep your places till we reach the covert," and turning to the ladies, her face radiant with mischief, she said, "Now, forward! Ladies, be sure and keep your balance, if you can!" And away they went!

For the first three hundred yards they rode well together, but as they turned away from the river bank toward the open prairie we saw that Gertie was giving Solitude his head, and was going to bid her escort good-by. A moment after she turned in her saddle, and said, "Ladies, I am obliged to let my horse go, but keep me in sight." In sight! Only for two minutes, at most. She stood straight up in her stirrups, her foot just parallel to her horse, her knees slightly but steadily pressing his shoulders, her chest slightly forward, her head erect, and her dark, glossy, abundant hair like some defiant signal, some challenging banner floating back on the air. No wonder the gentlemen were enthusiastic in their praises. Gertie was at any time and in any dress beautiful, but to-day, her new habit (the fair readers of the SPIRIT could, without any doubt, improve it greatly) revealed her elegant form marvelously; her dainty foot, her neck and graceful shoulders were seen at their best; her radiant face, her grand horse and her fearless horsemanship won the heart of every man in the party, and crowned her victor before Reynard had broken cover.

The ladies fell back one by one, having lost sight of their chosen leader, and I again became their guide. When, in about thirty minutes after, we reached the covert, we found Jackson just ready to throw off the hounds under Gertie's instruction, who had been teaching him how to utter the hunter's cry. The dogs soon struck a burning trail, and Jackson was making the field ring, shouting, what he meant to be perhaps, "Yoricks! Yoricks! Have at him! Push him up!" with an occasional, "Ho w-y eu-in, Tallyho! Tallyho!" which sounded more like "Gwo it! Gwo it! Good dogs! Have him yallyro! Yallyro!" I was not sure what the dogs had started, but they were "clear away," and the whole field was at its first burst.

FLACO AND SOLITUDE.

Gertie, as related in my last letter, reached the covert long before us. When we came in sight she immediately rode forward to

meet us. "I owe you an apology, ladies," she said, "for riding away from you. And yet you must hold Solitude responsible for a portion of the money. In my new dress and new mode of riding, he evidently took me for a jockey. The Major will tell you that in a race he has a very hard mouth." I assured the party that it was quite as much as I could do, when Solitude had once started to win, to hold him in the least restraint.

"But," I said, "how is it that Jackson has thrown off the hounds so early in the day. Did you get here in time to witness the start of the fox, Miss Gertie?" "When I came," she answered, "Jackson had lost all control of the dogs, and was quite too much excited to tell intelligently how it came about that he did not wait for the party to come up." At this moment Jackson came dashing down from the top of the little hill and halted, cap in hand, in the midst of the company. The dogs, in the mean time, were at the foot of the hill, and, whining and yelling, seemed to be unable to get off; but rather ran here and there, in and out among the low undergrowth in a most confused and unaccountable manner. "Jackson," said I, "what is the matter with the dogs? See, here come Sue and Gingle, and Lout and Music, with their hair on end and their tails between their legs." "Wal, now," said Jackson, "dese yar dogs am mighty scared all dis yar mornin', and, Massa, Ise sartin dar is some powerful dangerous critter hidin' in dem big rocks!"

Just then we heard on the hill the challenge of Old Cloudy, and very soon the loud, sharp howl of Thunder and Savage and Old Brave fell on our ears. These were five of the best and most courageous dogs in the pack, and we knew that the sport had begun.

After a few moments' consultation we adopted the following plan of procedure: Gertie and Mrs. Randall and Mr. Young were to follow the hounds with me. Two of the ladies with three gentlemen were to ride to Bucks Point and take their stand about six miles away, and the other lady and two gentlemen to take a stand on the bank of the river in another direction, and distant about eight miles.

By the time we were already to start the hounds had settled to their work, and evidently on a fresh track, they were leading away across the prairie toward the foot hills, ten miles distant. Flaco, by this time, was a battery charged until the sparks were almost visible from the ends of his ears.

His nostrils were wide open and tremulous, his eyes flashed like a sword, and his arched neck and quivering flanks and muscular, clean limbs were covered with an intricate net work of veins. I understood him, I knew his mode, and I knew it was going to take about as much skill to ride him over the hills and through the woods, as it would to ride a streak of lightning, running in and out among the clouds.

Solitude, too, was ready for the chase, and Miss Gertie standing in her stirrups, her beautiful face flushed with excitement, her deep eyes full of courage, said, plainer than words could have expressed it, "I, sir, shall be in at the death." And away we went after the dogs.

I knew by the face of the country and the direction the dogs were going, that there was to be a long ride, and hence I restrained the riders from the first. Mrs. Randall was a beautiful woman, and a good rider, with courage for any peril and great endurance, but I knew that as between her and Gertie she must suffer defeat. I said to Mr. Young, "Be sure and not leave Mrs. Randall. Just as soon as we get into the hills and up with the dogs the ground will be uneven and very dangerous for any one riding sidewise."

Just as we reached the hills we heard the report of the rifles of the party who had been stationed in the pass beyond, and very soon the dogs changed their course, and with their heads up, were making at a swift run, and with great cry towards Bucks Point on the river above. No more open prairie or smooth ground of any kind. We must take the ridge, and bad luck to faint heart or feeble knees.

I gave Flaco his head; he had been begging for this for the last hour, and very soon Mrs. Randall and Gertie and Mr. Young close by my side, were on the ridge and up to the hounds. An English hunting party would have cried lustily: "Eu in! Eu in! Have at him! Good dogs! Good dogs!" etc. I do not remember that we said much of anything, but we kept our seats and rode on over rocks and down into gulfs, and up steep hills and on and on, at a gait that would try the nerve of any hunter in any land.

We had followed the line of hills, perhaps, one hour, and had just begun to ride down toward the river a mile distant, when we heard the guns of the second party stationed at Bucks Point. Having, for a few moments, urged the dogs forward, we rode up on to

an elevation and came to a halt. We could see from this point the river below, and would be able to know whether the game went up or down the stream.

We had occupied our position but a moment when the hounds, now working rather slowly, suddenly dashed away as though in full sight. The next moment we saw the game and all cried at once, "A wolf! A wolf! A black wolf!"

He was on the bank of the river and was going down it,

> With a wolf's long gallop that can tire
> The hound's deep hate or hunter's ire.

The party at Bucks Point had fired at him, but had evidently missed him. The wolf had made for the river at this point, intending to cross on the large rocks without wetting his feet. He was now going to another ford five miles below. A wolf will not swim a stream unless driven into a corner.

The dogs soon reached the river and turned down it with the whole party at that point in mad pursuit. First, came the gentlemen, then the two ladies in side saddles, and then Carl and Dick, and in the rear on his white pony, came Jackson himself, his silk hat glistening in the sun, his blue coat tails streaming in the wind, as he utters at every jump the cry — heard above the baying of the hounds, "Yally ro! Yally ro! Have at him, Old Cloudy."

As soon as the wolf came into our view, who were on the hill, I said to my party, that by taking the hypothenuse of the triangle (we were at the top of the perpendicular, and the wolf was taking the base) we could doubtless reach the ford, and get a shot or head him off, and so turn him back to the dogs. But, I added, "You, ladies, must not try to follow me if you find the ground too rough or my speed too great."

When we started, we could not hear the dogs, for the scent was burning, and they were running almost utterly silent and as swift as possible. I must not forget to say, that at this time there were only five or six of the pack in the chase; the others had turned back the moment they knew the mettle of the game. For the first mile our party kept well together, but when we reached a certain hillside, with thick growths of young oaks, and small hickory, with clumps of bushes and large trees with low spreading branches, blood and skill began to tell — please do not charge me with egotism. Flaco was accustomed to this kind of work. No horse

in Texas could take a man through a dense forest with equal speed and certainty. He would dash into a dense wood and sail in and out and round among the trunks, and under the branches of the trees, and escape without the least scratch, just as you have seen a bird when pursued by a hawk. Flaco would fly through a great forest with the celerity of a cloud over a field.

Mrs. Randall and Mr. Young were riding well, but were slowly falling behind, and when within about two miles of the river, were out of sight. The field between us and the ford was now quite smooth, and being very anxious to get there before the wolf, I said to Gertie, who had kept her position so close that at any time we could converse in whisper, "Now, young lady, I am going to ride fast; I am afraid it will not be quite safe for you to keep with me. I will wait for you at the river."

Our horses were by this time sweeping on side by side, but as soon as I ceased speaking, she leaned toward me as if to answer, but instead she touched her horse with both spurs, and shot past me, saying over her shoulder, "I do hope you will not be obliged to wait very long." I am sure that I should not have recovered from my surprise in time to have overtaken her at all, but Flaco was never demoralized or confused, or thrown off his guard for a single moment in his life. She had one moment the start, but the next we were even, and remained so until a good half mile in advance of the wolf we reached the lower ford, and having wheeled our horses in behind an abrupt bank, we sat, rifle in hand, awaiting his coming. The party in pursuit of the wolf, in the mean time, had found some trouble to keep more than three or four hounds at work. There are but very few dogs of any kind that will rush fearlessly up to a black mountain wolf, and besides, the thick bushes at some points on the river and large rocks had detained them.

In a few moments, however, after reaching the ford, we began to hear the dogs, and the shouts of Jackson, and I said to Gertie, "Shall I give you the shot at the wolf, or shall I shoot him if I get a chance?" "I should be greatly obliged to you, Major," she replied, and yet she added, "I am not certain that I could make a dead shot to-day. You perhaps had better shoot him!" I could see that more than anything, besides, she would like the honor of killing that wolf, and I said, "Get ready, and be sure now and look

through both sights." At this moment, Flaco tossed his head into the air, pricked his ears forward, and just as I said, in a whisper, "Look out, Gertie," the wolf came out into full sight from behind a large rock, and seeing our horses, stood for a moment perfectly still.

He was the largest wolf I ever saw, almost black. His tongue was out, his long, sharp teeth glittered, and his eyes shone like two coals of fire, every way a most fearfully savage animal for men or dogs to attack. I looked at Gertie. Her rifle was at her shoulder, and I saw in that single glance that it was as perfectly steady as though in a vice. Her face was pale, her lips close together. I would not have given anybody one of the thousand violets at our feet, much as I desired her success, to have warranted the sweet girl a death shot. My own horse at this moment stood as immovable as though he had been carved in marble or brass, but Solitude, just as Gertie pressed the trigger, shook his head spitefully, and the wolf unharmed, but badly frightened, leaped forward on to a long narrow rock that lay in the stream, and passing across it made a jump for the second rock just in time to bring the end of his long nose in contact with a half ounce bullet from my own rifle.

This, however, did not greatly injure him, but it confused him for the moment, and hence, instead of carrying out his evident desire to cross the run at this point, he dashed into the water, and having reached the bank before either of us had reloaded our guns, he ran swiftly back in the direction he came, with Gertie and myself following as closely as the surface of the ground and the thick bushes along the bank would permit.

The wolf soon discovered that he was being pressed by the enemies, both in front and rear. The river was deep at this point, and so he undertook to leave the river and again reach the hills. Fortunately Mr. Randall and Mr. Young were coming down to the river at this point, leaving his wolfship his choice of just four things possible. To fight the gentlemen and ladies, Jackson, Carl, Dick, and the dogs above — Mrs. Randall and Mr. Young coming down from the hills — Gertie and I from below, or take to the river and swim for his life.

It was a desperate choice. He decided to swim, but not until the whole party had met on the bank, and Old Cloudy and Savage had plunged down into the thicket at the water's edge, and brought him fairly to bay.

Then, such a shout, such a perfect Babel! The greater number of the pack were completely demoralized, and with hair on end, were keeping as close as possible to the men and horses. The negroes were excited until their eyes seemed really to be hanging on their cheeks.

The great hunter himself, Jackson, was trying to bring order out of the chaos. Finally we formed a kind of skirmish line, and with the end of the line on the run we began to ride in towards the spot from which the sounds of conflict came. In very brief time the crisis came. The wolf sprung into the stream with five dogs close upon him, and made straight for the opposite shore.

We could not afford to lose our game now. It was two and a half miles to a ford that was safe for the ladies of the party, while the river at this point was not more than twenty rods wide. What must be done? It was decided that the gentlemen who did not care to wet their clothing, and the ladies, should go down to the ford and come up on the other side, and the others, if they chose, should swim the stream. I rode rapidly down the bank, and was about starting in, when to my surprise, Gertie dashed alongside of me, and said, "Solitude can swim this river, I suppose?" I did not answer for a moment, but finally said, "Yes, Miss Gertie, Solitude can swim this river, but really I am afraid to see you undertake to ride him!" I had scarcely ceased speaking, when she said, very decidedly, "I shall try to make my horse swim! Please lead the way, Major." One glance at her face convinced me that Gertie had said, "I will!" And hence I immediately asked her to allow me to carry her gun, and having said to her negro boy Bob, who was fortunately near her, that he must ride to the plantation and tell the Madame that her daughter was riding in wet garments, and to cross the river and return to us on the opposite side, I rode down the bank and without delay spurred Flaco into the river. Mr. Young and Mr. Wallace took to the water just above me, and Gertie at my side, but below.

The wolf by this time was on the other bank, and the dogs were just beginning to give tongue as we started to cross. Flaco and Solitude had crossed in this way nearly every river in Northwestern Texas, and so swam along, side by side, swift and strong, with their heads high and their withers above the water. The gentlemen above us were Southerners, fearless and gallant men as ever rode a horse or loved a woman, but yet they were not going to wait

for Miss Gertie or any lady or gentleman of the party. They, if possible, were going to kill the wolf, and wear home the trophy — his tail hanging at their saddle.

I, however, wanted Gertie to be the victor — this would be my crown! As our horses were swimming, I said to Gertie, that if she killed the wolf she would be obliged to ride swift, and be very cool, when we reached the bank, but that I would assist her in every way possible.

We all got out and away from the river and up on to the table-land beyond, at about the same moment. The dogs by this time were a mile in advance, and were running back and forward in a confused way, near the base of a low rocky ridge. I knew the wolf was by this time too tired to cross a ten-mile prairie to the valley, but would keep along this rocky ridge, and perhaps come to bay within an hour. In order to give the young lady what I thought to be the very best chance, I gave her directions to go down to our right three miles, to a point of the ridge, and take her position, and I would follow the dogs with Messrs. Wallace and Young. Gertie touched her hat, and thanking me with a smile for my interest in her, put Solitude to his best, and was soon at her post.

We soon came up to the dogs, which had lost the trail among the sand drifts and rocks, and low chaparral bushes. I was secretly glad of this, for I wanted the wolf to get a mile ahead, if possible, hoping that he would pass Gertie more slowly, and increase her chances. The hounds soon found the track, and cleared away splendidly, making music more impassioned than is heard in opera or halls. The gentlemen were enjoying the hour, and every moment expecting the hounds to come upon the wolf, jaw to jaw. I, however, was listening for the crack of Gertie's rifle, with so much intensity that I should scarcely have heard a peal of thunder. I did not let the gentlemen know that I had placed the young lady on the ridge, fearing lest one or the other would ride on in advance.

A full half hour had passed, perhaps forty-five minutes, since we left the river, and we were getting within a half mile of the point at which the wolf must leave the ridge if he intended to make for the big woods, when we heard the quick, sharp report of a rifle just in advance of the dogs, and the next moment we saw the wolf, having just left the ridge, come out into the open field, with

Gertie and one single hound, the fearless Old Cloudy, not three hundred yards behind in swift pursuit.

For a moment the gentlemen with me were dumb with surprise, and I was equally dumb with admiration and joy. It was but little more than half a mile from our position to the field across which they were going, but it was impossible for us to ride much faster than a walk down the hill, owing to the rocks and gorges, and low underbrush. And I was glad of this, too! I saw that my brave pupil was alone equal to the occasion, and would alone win the prize. Gertie had thrown down her rifle and taken her pistol from the holster. Her hat had fallen from her head and held by a cord, floated with her long hair on the wind. She stood almost straight up in her stirrups, and with the reins in her left hand and her pistol in the right, we could see that she was urging her horse to his very greatest speed, determined at all hazard to engage the enemy single handed and alone.

I am quite sure, dear reader, that you have by this time forgotten almost that this brave, beautiful girl is riding *astride!* I am certainly sure that had you seen her at this moment, you would have thanked me for enabling one woman to compete with men on equal terms and with equal chances for success.

We, of course, were anxious to be in the chase, and we made haste to get down from the ridge. In a few moments after reaching the field we met the young lady coming back.

"I came to urge you forward," she said, "to save dear Old Cloudy. I brought the savage creature down with my pistol, but he is not dead, and I'm afraid he will kill my brave dog before you can get there. I have fired my last shot. Come on, gentlemen!"

She had turned her horse while speaking, and much sooner than I can write it we were dashing toward the imperial hound. That mile was made, I think, over grass ground, and not perfectly smooth or level, in about 1:48. Messrs. Young and Wallace kept with us for a part of the distance only, for, having given Flaco and Solitude the Old Ranger shout, we left them as though they had been standing still in the plain.

When we reached the place, the battle was still raging. Just as Gertie and I rode up Old Cloudy, encouraged by our near approach, made one more desperate effort to fasten on the throat of his enemy. He missed his aim, but fixed his great jaws on the butt

of the wolf's ears and shut his eyes. The wolf was badly wounded. Gertie had put two bullets through his body and one through his loins, besides the slight wounds received during the day. We had made a very long and swift run, and were not, of course, able to make as desperate a fight as under other conditions. Cloudy seemed for a little time to hold him absolutely still, until, indeed, the two gentlemen came up, followed closely by Brave and Savage.

When the wolf saw the two dogs he shook off Cloudy by one single motion of his terrible head, though a large part of his ear remained in the hound's mouth. The next moment Savage and Brave had gone in and it was impossible for us to see which was wolf or which dog. We could see only a confused and commingling mass of grey and spotted black and brown, rolling over and over, and hear only a rapid snapping of jaws and an occasional low, savage growl.

Gertie was very greatly excited and troubled for fear her brave dog would be cut to pieces in the fight, and we were all trying to get a death shot at the wolf. Finally the terrible struggle began to subside and very soon ceased entirely, with the combatants lying in the following order: Old Cloudy and the wolf were lying broadside with their jaws interlocked and their eyes shut, while Savage stood with his long, white teeth buried in the wolf's flanks, and Brave had fastened on his shaggy throat to stay forever.

There was evidently no need of further interference on our part. The hounds would have closed the monster's career in a brief time, but I rode up to Gertie, and taking her horse by the bit, handed her my pistol. She immediately dismounted, and approaching the wolf, put the muzzle to his ear. Surely we were in at the death!

In a few moments the whole party were assembled on the bloody field; the party from the ford, Bob from the plantation with a change of apparel and an *extra side-saddle*, and last of all the sublime Jackson with about a dozen of the skulking curs.

We were a triumphant hunting party. The ladies had all ridden well and bravely. There were no broken limbs or serious wounds, nor had any one received a fall. The horses had shown themselves game without exception, but evidently, and without controversy, the crown had been won by Miss Gertie, and "to the victor belong the spoils."

When Jackson arrived, he proceeded with great pomp and

flourish to cut off from the dead wolf what he denominated the "trophy of the day," and very soon the *new* saddle was ornamented with the tail, and each one of the side-saddles with a foot, of the wolf. To Messrs. Wallace and Young he presented one of the creature's long glittering teeth, and to me, he proposed, after having prepared it in some way, to give the terrible face. We were profuse in our expressions of thanks, and greatly increased the old negro's pride and happiness, by assuring him, that to him, his skill as a leader, his courage and foresight, was owing the success and pleasure of the day's sport.

Miss Gertie in the meantime, assisted by the ladies, had changed stockings and boots, and having put on her velvet circle, she sprang into her saddle and was ready for the ride home. Some one of the company having expressed the fear that she would take cold from her damp garments, she assured them that her swift ride in the sun and heated air had completely dried every thread in her apparel, except those she had removed; and besides she said, "I wish to ride home much quicker and more easily than I possibly could in a *side-saddle.*"

While she was speaking, it was perfectly evident that the killing of a terrible mountain wolf with her own fair hand had not been the only or the greater victory of the day. She had won a victory in favor of her new manner of riding over the fastidiousness, the prejudice and false ideas of modesty, entertained in the morning of that day by every lady and by several of the gentlemen present.

Every lady in the party, though neither of them had ridden more than half as many miles, was, to say the least, exceedingly weary, while Gertie was evidently able to double the day's ride. She never looked better in her life than at that moment. A brave, true and loving girl. No wonder that one of the gentlemen of the company received at that moment a heart wound that brought him (finally) to her feet.

Just as we started for home, Mrs. Randall said to her husband, "George, among the first things you do after reaching home, I want you to get me a gentleman's saddle, and begin immediately to teach me to ride astride." And the ladies, one after the other, responded, "And I," "and I." And so, with cheers for the fair riders, and peals of merry laughter, with jingling spurs, and music of iron-shod feet, the baying of dogs and snatches of negro songs,

we dashed down the valley and across the ford and up the steep bank and along the winding river, and finally through the open gate, to the wide, hospitable porch of this generous Southern home, while yet the sun hung midway in the western sky.

I am aware that in my recent letters, Flaco has come to occupy only a secondary place, but I am sure that the readers of the *Turf* will not fail to notice that with the characteristic of a *true horseman*, I have given the first place to a lady. This is a sufficient apology. I have not forgotten my promise to give you a pen-picture of my grand horse in battle, when his "neck is clothed with thunder."

RIDING REFORM.

It was born, for a time it shone like the sun, it died, is the history of many great reforms. Humanity very frequently starts upward toward some grand truth; for a day or a month its flight is swift as an eagle toward its nest on the mountain top, then suddenly stops, and wheeling downward alights upon a lower plain, and for centuries is content, having utterly forgotten the star, whose brightness and beauty so recently inspired its efforts.

A cursory reading of the history of the past will demonstrate the truth of this statement. Few improvements are developed, made the most of, and perpetuated in the world; few of the innovations for the overthrow of hoary temples of evil, for the illumination of prejudice and superstition, made in one age, are pushed forward and kept in vigorous life in the next. If each recurring century had but availed itself of all the light and culture of past ages, gathered into its life the accumulated knowledge of many epochs and many eras, and handed it forward to the next as a legacy, surely this age would be rich indeed. But it has not done this; this age is not doing it. It does not study the past; it will not learn by experience. This age scorns and opposes many of the wisest and sublimest conclusions of the past, rather than accept or amend or improve upon them.

Humanity is improving the home it lives in by pulling it down; an odd method, surely. I am in favor of improvement, and can almost enter into the spirit of old Plowden's benediction, "Blessed be the amending hand"— not, however, an amendment that means destruction, or an improvement that means pulling down. Is my

reader asking what connection this can have with my last letter in the *Spirit of the Turf*, or with any of them? Connection, dear reader! I trust you do not expect a man of my profession to be connected in what he has to say. We very frequently write a discourse, and then find a text to suit it — if possible. "If we fail to find a fit," we find something that is distantly related, either by suggestion, or implication, or imagination. "Strange?" Yes, but there is something passing strange in this connection, viz.: These discourses, written and then fitted with a text that is related to the subject in hand in the most distant and imaginary degree possible, are the very discourses that are pronounced profoundly *metaphysical*, *scholarly*, *theological*, *deep!*

And yet there is, I think, a remarkably clear connection between this introduction and my last paper. More than a quarter of a century ago, I saw a lady, cultivated and refined in the best sense, riding on horseback in the same manner her gentleman escort was riding; that was a most marked innovation; a reform pronounced by all who saw or knew of it at that time to be a most marked improvement; a new manner of riding for ladies, that was modest and reasonable and safe. A fashion, it was said by the best portion of society, by physicians, by parents, by husbands and lovers, against which there could be brought no intelligent objection, and which ought *immediately* to become popular. And now the connection will be apparent. I have never, since leaving that plantation, seen even one woman riding in the manner she did. That reform — it had its rise, it shone, it set.

Nay! it has not set. Nor should I say that it had its rise at that time or place. I am not among those who can continually see dawn in the east. I do not believe that all sin will be crushed out to-morrow, and all justice and truth and love be enthroned in this year, 1881.

But justice and truth and love will be enthroned; enthroned not for a day only, but forever and ever. Great reforms have always been of slow growth. The gourd that perishes in a day grew up in a night. That cedar, the glory of the Yosemite, with ten thousand roots wrapped about the mighty rocks, and graceful top three hundred feet above the earth, laughs at the maddest storms, shakes its arms defiantly in the face of the wildest tempest. For two thousand years the fierce sun, the biting frosts, the wild mountain

winds, have tested it. For two thousand years the mad lightning has scarred and scorched its great trunk, and the eagles have built their nests and fought their sanguinary battles in its boughs. It stands! It will stand! Twenty centuries of growth and power does not perish in an hour — is not overthrown by a breath of summer air.

So great reforms, great nations, great characters, are of slow growth. The All-Father has always evidenced the grandeur of a work in the realm of matter, mind or spirit, somewhat by the time consumed in its accomplishment.

The characteristic of the human race is and has been haste, mad precipitation, fast living, fast riding, fast dying. In all of God's works and ways there is a sublime deliberation; deliberate in council, deliberate in judgment, grandly deliberate in action. Things of little worth rush into life; they appear, they flash, they disappear!

The world has caught the contagion of hurry. Deliberation would have saved many a man from sorrow, many a family from ruin. Wild haste to be rich tempted them to dishonest gains, and then gold burned holes in their pockets and escaped, or in their hearts and tormented them. Hasty words, hasty tempers, and the effect sorrow, cruelty, crime. Who will hear and heed the voice of wisdom? Be quiet, be still, be patient. Learn to labor and to wait! Well! well! How shall I get back to my subject? Reform, fairly inaugurated twenty-five years ago, and yet there is not the least evidence that it has made progress in the world. From that time to this, I have never seen a woman riding her horse astride. What then? Despair? No! Failure? No! Well, what? Wait! Great reforms are of slow growth. Cedars that stand the maddest might of the wildest storms have in their roots, and trunks, and branches, two thousand years of growth and power. Now, reader, don't you see I am at least within telegraphing distance of my text?

As far as I am personally concerned, I am not at all discouraged by the slow progress of this mode of riding. Mr. Cook, of Boston, would say of it: "For a lady to ride astride is perfectly consonant with the nature of things; in perfect accord with the physical conformation of woman and the horse; the only reasonable, or sensible, or natural, or safe manner of riding. Therefore, any other

mode is sin." But this is true, whether Mr. Cook would say it or not; and, being true, will in the end be crowned.

We have not yet found time to look up the history of horseback riding with any thoroughness, but have learned, by very cursory reading, that among the Arabs, the Spaniards, the French, and the English, from time to time, earlier and later in their history, ladies have ridden their horses astride, and have made feeble efforts to establish the custom.

We have, at this time, living in Chicago a lady of great refinement and broad culture; a woman known and very greatly respected in the church, who, during her travels in the old world, adopted this mode of riding from necessity, and, after a few hours' practice, became entirely charmed with it.

This lady, Mrs. Wheeler, a missionary to that country, was called upon to ride over steep and rocky mountains, through deep, muddy gulfs and valleys, and across swift running streams; but found, after much suffering and many hairbreadth escapes, that she could not ride sideways in these places.

One or two ladies of the party just before her had been thrown from their horses, headlong among the rocks; both of them severely wounded, and one, I think, unto death. After much persuasion, Mrs. Wheeler purchased a saddle; and, having made several very dangerous journeys with perfect safety, and with so much greater ease and pleasure than she had ever known on horseback, immediately wrote home, to the Janesville *Gazette*, a letter in which she spoke in the highest praise of her new manner of riding. From the character of Mrs. Wheeler, and the tone of that letter, I am very sure that the lady readers of the *Spirit of the Turf*, who may be contemplating the propriety and expediency of this mode of riding with a view of adopting it, will find in her a fearless and able advocate.

This mode of riding has many more defenders than some may suppose, and is rapidly gaining public notice and favor.

An Episcopal clergyman of this state, with whom I was recently in conversation upon this subject, very heartily and earnestly indorses it.

He informed me that within the last few weeks he saw a notice in an English paper, he could not recall the journal, that "one of the first ladies of England, wife of lord somebody, had been seen

frequently of late in her own park, and on the public grounds, and about the city of London, riding her horse astride." No wonder she is making a sensation. With a most beautiful and becoming dress, on a thoroughbred horse, perfectly obedient to the rein or slightest motion or lowest word of his rider, her form fully revealed, bright, brave, fearless and graceful, she is seen every day, flying over the beaten roads, along the sea shore, through the avenue, or in and out among the great trees of the park, with the speed of some bright sunlit cloud, and with the ease of a swift winged bird, and with as much ease and certainty of flight.

Who, among all the fair readers of the *Spirit of the Turf*, will venture to adopt this only reasonable mode of riding a horse? It will require but about two weeks' practice, provided you are the owner of that rare and valuable animal, a good riding horse, to master all the rudiments of the art, and to begin to be enamored of it. Two weeks more and you shall become a master, ready to ride anywhere in safety — over hills, or through forests, or along the public thoroughfare, at any desired speed possible to your horse, and with an ease and pleasure to yourself; with a grace of manner and exhilaration of spirit, utterly unknown and impossible to her who rides in the old, *awkward*, *unreasonable*, *unsafe* manner!

Where is the lady in our great northwest — anywhere in all our land — who for love of woman, for their health, their beauty, their pleasure, dare lead in this crusade against established custom and hoary ignorance? If any one of my readers has seen the item spoken of by the Episcopal clergyman of whom I have written above, and will tell me through these columns where it may be found, I shall be greatly obliged. Who, in this century, will follow the example of that lady of England, and make one persistent effort to establish among the brave, beautiful and cultured women of America, the custom not only of riding on horseback, but of riding astride?

In order to the successful inauguration and establishment of this custom, there are several things indispensable. First, the lady, or the few women of some locality, who, having become by private instruction and practice accomplished riders, are willing to appear on some public occasion, mounted upon good horses, becomingly dressed, and fully ready to prove that a lady can ride with ease

and safety a high-tempered, thoroughbred horse, and that, if permitted to ride astride, she is able to ride as fearlessly, as securely, and as well as "a man."

The next thing indispensable is a becoming riding habit. Will some lady devise and give, through the *Spirit of the Turf*, a detailed description of it? Lastly, perhaps, a lady's riding horse; or, what is the same thing, since we suppose that everybody is now riding astride, *a* riding horse — a good one; a horse of decided color, tall, graceful and strong; with long neck, and wide nostril, and deep chest, and high withers; a large, flashing brown eye, and slim, quick ear, and springing step; intelligent, high-tempered, but brave and affectionate, resenting every injury done him or his rider, and appreciating every kindness; in brief, a *riding horse* — a magnetic center — a bundle of animate steel springs — full and running over of the very spirit of health and joy — filling all the air and charging his rider with electric life. Such horses are not unpleasantly numerous in our country, east or west; but there are a few to be found, and can be bought for money. The time is at hand when the demand for this kind of horses will be larger, and the supply equal to it.

I could give the names of a few men — and they are in every case subscribers for, or contributors to, the *Spirit of the Turf* — who are wise enough to see in advance this demand, and they are already breeding this kind of riding horses. Ah, me! The difficulty in the way of the permanent and successful establishment among our ladies of riding astride does not lie in the fact that *horses* cannot be found. Find the woman — becomingly dressed, intelligent, fearless, master of the art, every way equal to the occasion — who is willing to appear in our parks, and fairs, and drives, and public thoroughfares, and we will find her a riding horse, a "Flaco" or a Solitude, every way worthy of the high mission to which he shall be called; a horse in the possession of which any queen would be delighted, and, what is more, of which any American lady might be proud. Who is she, and where? Or will some fair reader frankly express her views of this subject, in our next issue, through these columns?

Convention adjourned until six o'clock P. M.

WEDNESDAY EVENING.

The convention attended a banquet given by the ladies of Green Bay.

President Hazen said: As there are a number of the speakers who have to leave on the nine o'clock train, and we have some business to do, if you will be as quiet as you can we will proceed. We are now ready for the report of the committee on resolutions.

The following resolutions were passed:

WHEREAS, The people of this state pay annually the sum of six millions of dollars for sugars and syrups, and believing that this vast amount may be saved, at least in part, by growing Early Amber Sugar Cane and manufacturing it into syrup and sugar; and

WHEREAS, It is necessary that experiments in its manufacture be instituted by intelligent and scientific men, therefore

Resolved, That it is the sense of this convention that the state board of regents should order such experiments by the State University at Madison, in this matter, as shall fully test the practical and best method of reaching perfection in the growth of this cane and its manufacture into syrups and sugar.

Resolved, That the thanks of this convention are tendered to the people of Green Bay for their cordial welcome and entertainment of the visitors.

Resolved, That much has been added to the pleasure and success of our meeting by the excellent music, and that those who have so kindly furnished it have our full appreciation and hearty thanks.

Resolved, That the specimens of the Siberian Leake winter apple placed upon our table have all the qualities of nice eating apples, and seem worthy of general cultivation.

Mr. Hazen said: The next order of business is to proceed with our toasts and responses, which our friend Mr. Torrey will attend to.

The first toast of the evening was "The City of Green Bay," and was responded to by Hon. J. C. Neville as follows:

Mr. President, Ladies and Gentlemen — I hardly know how to respond to the toast that has first been given. The city of Green Bay is a very ancient city; I stand upon sacred ground; and when you speak of Green Bay, I cannot fail to remember that the gospel has been preached here for over two hundred and twelve years. It is the oldest post, probably, in the northwest, and when I tell you

that the gospel has been preached here, and that the doctrines of the mediation of mankind were first planted in this neighborhood so long ago, I suppose you naturally think that the people of Green Bay have from that time onward been a highly moral and religious people. So they have. I can say that much for them. I ask you to look around the room and see the work they are just now engaged in, particularly the ladies of this city. The principles that were implanted at the time of which I have spoken, have come down to the present generation, and these ladies are now engaged in feeding the flock. [Applause.] They have never allowed the stranger to go away from the gates without tendering and giving to him the hospitalities of their city. Green Bay is a place that has had great natural advantages. Its acquired, have not been quite as great. While they have been engaged in dispensing the hospitalities of their old home, they have almost forgotten one other maxim that they ought to have carried out, and which old Oliver Cromwell carried out when he was training his soldiers against the king of England. They have forgotten the old maxim that while nature has given them every advantage, that they ought to have helped themselves. In the language of old Oliver, they put their trust in the Lord, but they ought to keep their powder dry and be ready for every emergency that would take place. Nevertheless, although they have let some advantages slip away from them, they still have not been without progress. It is but a few short years ago when all the inhabitants of this county of Brown, when it occupied a great deal more territory than it does now, did not number twelve thousand; and I can recollect when the city of Green Bay did not contain over four hundred voters; and to-day we have over one thousand nine hundred that are of an age capable of attending the public schools of the city, and the population of the county is over thirty-six thousand; so we have made some progress in one direction. If we have not been very industrious in building railroads and factories, go into our schools, and into our streets, and look at the children that tie their sleds behind the teams that go along the street, and you will see that we have not been altogether without industry, and the products we have been raising I hope will turn out to be fine statesmen, and the mothers of the future patriots of the country. I recollect, too, when we had no railroad here, and when the farmers of our county used to be glad to sell what little

wheat they did raise, for store pay at the rate of about fifty cents a bushel. I see a farmer of the bay shore nod his head at me in confirmation of the truth of the statement I am now giving utterance to. I can't stop to tell you all the steps of our progress, but to-day I believe this county has the capacity to raise, and did raise this past year, half a million bushels of wheat. That is a considerable advance in about a period of twenty years. Notwithstanding we have not manufactories among us, our farms are becoming beautified, and all through this county fine barns are being erected year after year, and our farm houses are equal, probably, to any that are built anywhere, and we are improving all the time, and our farm population is growing rich, as they ought, and as they deserve to do. I cannot occupy much of your time, but I can say to those who are strangers here among us, who have come here to tell us what we ought to do in the way of farming, that they are heartily and thoroughly welcome to anything that we can do for them in this city of Green Bay, famous for its hospitality, famous for the culture of its society, famous for the beauty and kindness of its ladies, [applause] famous for the beauty of the city itself, and famous because it is one of the grandest ports of entry there is in the United States; and although she may have been kept back in the onward march of the country some, still she is destined one day in the future to be one of the greatest ports of entry for the commerce of the states of the great northwestern lakes. She must be. It is inevitable. If you take up the history of our shipping and transportation of the products of the mines and of the lumber region and of the farms, you will find that Green Bay, or Brown county and its neighborhood, is progressing almost as fast as any other part of our country. Tendering a hearty welcome to these ladies and gentlemen that have come among us, I wish them all prosperity and success, as does every person who has received them in Green Bay. [Applause.]

The next toast was, "The milky way, the surest and easiest path to financial success for the Wisconsin farmer."

This toast was responded to by Mr. Hazen, as follows:

Mr. President, Ladies and Gentlemen — This toast comes pretty near home. I, as a pioneer dairyman of the state, have always made it a practice to try and do something when called upon, and will endeavor to make a few remarks in response to this sentiment.

I supposed they alluded to the milky way as we see it in the heavens — the bright light or shining path of stars passing over from the north to the south. This is what I was taught to believe was the milky way when I was a small boy. The milky way, as applied to the dairymen of our country, is a belt running across the continent, or a good portion of it, from the east to the west. Its light first sprang up in New York. From that it spread west through the region best adapted to the dairy interest of our country, including New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin and some of the states west of the Mississippi. The brightest light in this milky way was New York, a few years ago. The dairy interest received a new impetus about the time the factory system of manufacturing cheese came into use, some twenty years ago, or a little over. Up to this time the commerce of our country was little affected by our dairy products. From that time on to the present the dairy interests have spread from York state west, and left its mark and trace through the country, and has been a source of prosperity to all the farmers, I believe, who have been engaged in it. It brought up in Wisconsin about fifteen years ago, in the development of the cheese factories in our state. The first, I think, sixteen years ago. From that time to the present it has continued to spread. Its influence has been felt by Wisconsin, and at the present time one of the brightest stars in the milky way might be considered Wisconsin. We now stand the peer of any state in the Union in the quality of our goods and in the prosperity of our dairy farmers. This milky way in the toast is said to be the easiest way to pecuniary wealth and prosperity for the Wisconsin farmer. Perhaps I differ with the gentleman a little in that part of it. It is my opinion, however, that it is the surest way in agricultural pursuits that we have, judging from the past prosperity of those who have been engaged in it, but as to being the easiest way, I doubt. It is rather a hard road to travel sometimes. Wisconsin farmers that are not engaged in the dairy business who want to enlist in that enterprise, want to do it with the understanding that it is not the easiest way. It wants hard work, strict attention to your business; thoroughness in all its details. It also requires men of some ability and well educated up in their profession to make it a success. With those qualifications I see but little reason why all that embark in the dairy enterprise cannot

succeed and be a prosperous people. The milky way, as we view it here to-night, I would compare with this present occasion, a pleasant meeting of the representatives of the agricultural and industrial pursuits of our state, and one that I hope will continue so long as we have any occasion to make butter and cheese in Wisconsin. Hoping that Wisconsin dairy products may not be adulterated or abused by manufacturing skim-milk cheese or oleomargarine or lard butter, I shall now bid you good evening. [Applause.]

The toast "Raising cane, the sweetest business going," was responded to as follows by Mr. Huntley:

Mr. President, Ladies and Gentlemen — Perhaps I cannot reply to that toast in any better way than to relate a little story. It is said of an eminent divine, when a boy, that after reading various Sabbath school books in which were recorded the histories of a great many good boys who all came to an untimely death and were taken home to heaven, he concluded that it was best for him to go into the Cain raising business to protect his life, since in every pound of sugar we eat, or of syrup that we are eating, in limited proportions, sure though slow poison, in the shape of glucose, manufactured from the oil of vitriol, sulphate of iron and lime. I would advise the farming community to go into the same business of raising cane for the sake of protecting and lengthening their lives, and when they have become cane growers and sugar raisers, I think that the sentiment will be applicable to the people of Green Bay that Saxe once gave in honor to the people of his own city, when invited to address a convention like this. This is the sentiment:

To the people of Green Bay: "They are noted for four things. Their men and women, their sugar and fast horses.

> "The first are strong,
> The last are fleet,
> The second and third exceedingly sweet,
> And all uncommonly hard to beat."

The toast "The future of agriculture and the farmer," was responded to by Mr. W. J. Abrams, as follows:

Mr. President, Ladies and Gentlemen — When we consider the rapid progress which agriculture is making in our day, and that the inventions and improvements in all kinds of agricultural machinery have been greater in the last forty years than in the preceding four hundred years, it will be very difficult to predict the future of

agriculture. It would seem as though our present mode of cultivating the soil with our agricultural implements, in their present form, had reached nearly a state of perfection, but I have no doubt but there will be as great improvement in the next twenty years to come as there has been in the ten years past. It may be asked, to what shall we attribute this remarkable progress in agriculture? I do not think any one will dispute but that it has been brought about by the scientific experiments of live, active, intelligent men, who believe that a habit of acute observation is as necessary in agriculture, for success, as in any other branch of industry. What would fruit culture have been in our own state if it had not been for some patient, practical man; for instance, like our friend Mr. Plumb, who prosecuted and cultivated it in the state. I have no doubt but that the fruit grower frequently places along side of the splendid fruit the wild crab, from which it sprung, to make him remember what culture has done; to stimulate him to further progress. So it is with the raiser of improved stock, when he wishes to see from whence comes the round beauty of the Devon, or magnificent proportions of the Short-horn. Although he may not have on his own farm the wild, lean, lank animals, from which they sprung, yet, on the farm of a not distant neighbor, he can perhaps often find an approximation to the originals.

Agriculture owes all of its advancement to scientific experiments of philosophic minds. Hundreds of you who are farmers would have to cut grass with a scythe and reap grain by hand, if some thoughtful mechanic had not worked out in his brain the wonderful mowing machine and reaper. Instead of agriculture requiring little study and education, it opens up a field for the study and application of all the sciences, and the day is not far distant when chemistry, geology, botany and vegetable physiology will be considered as the necessary requisites for the future farmer. Chemistry will teach him the constituents of the soil, their relative value and the best methods of converting them into milk, meat and wool. This branch of science will never be perfectly understood and have its full effect upon agriculture until it is applied by the farmer himself.

Geology will be a familiar science to the future farmer. It will suggest to his mind the whole history and formations of the soil, from the iceberg and drifting current, solar heat, rendering frost

to the beautiful development of vegetable and animal life. Botany and vegetable physiology he will treat with delight, and when he walks over his farm or engages in the more healthful exercise of taking care of his crops, it will lead him to trace the connection between the plant and the soil; the mode of its growth, root, stem, flower and fruit, and when he has acquired something of all these sufficient to apply them in every day practice on his farm, he will reach the position in that noble occupation which he was evidently designed to fill, and it will constitute him one of the mightiest bulwarks which civil liberty can possess. (Applause.)

The next toast was, "Sunshine, the more you have of it the better, in heart and home especially."

Mr. J. M. Smith responded as follows:

Ladies and Gentlemen — I am not going to torment you with a speech to-night. Horace Greeley said, I think, in advising some one who was going to London, that he should take a long look at the sunshine before he left this country, as he would see but very little sunshine after he landed in Liverpool or London. My friend Mr. Torrey says we can't have too much sunshine. I beg to differ from him. I have seen too much sunshine in succession a good many times. It burned up our crops, rooted them out of the ground. We are often glad to see the sunshine, but we sometimes want to see it intermingled with clouds and showers. The toast speaks of sunshine in the heart and home. That is a different thing. I agree with him there, that we cannot have too much of it nor have it too constantly, nor too bright, nor can we have our homes too sunny. What shall we do to have sunshine in our homes? Among the things that are necessary is a perfect trust, confidence and faith in each other throughout the family; trust in each other's honesty, each other's truth, each other's virtue. Without faith we cannot have sunshine in our homes. With those qualities, based on a trust that is unvarying, unfaltering through sunshine and through storm, we may have sunshine in homes and hearts. We may have it perpetually, and it will fade away only with the death of all the parties with whom it is connected.

Mr. Torrey said: The next toast is, "Horticulture; its influence on society," by the chief of horticulturists, J. C. Plumb.

Mr. Plumb responded as follows:

Mr. President — We are told that horticulture is the fine art of

agriculture. If farmers will confess this then I am right. Society we all know is made up of the individual, otherwise it is a very indefinite term. Now I can see very clearly in my experience the really high influence which horticulture has upon society. I see it here to-night when I see this gathering of our city friends with their country cousins coming together on an occasion like this. What other occasion would bring together society as we see it here to-night? We were told to-day by Mrs. Ayres that it was not necessary to be rich to be refined; it was not necessary to be rich to have flowers. I will extend that proposition. Refinement and flowers, a type of horticulture, not only do not require riches, but they help to riches. Horticulture has a refining influence upon all who come within its embrace. Refinement implies thoughtfulness and care; thoughtfulness and care imply economy and good business principles, and altogether the refinement which horticulture gives. I mean successful horticulture, of course, has an elevating influence upon society. We see it everywhere. If we travel through the country or through the city we see flowers around the door, we see our hardy fruits in the garden and we go into the house and we see the flowers cared for in the summer and winter, and we know there is refinement from their culture. I was spending a little time at the Centennial in Philadelphia, and one Sunday I went down to visit Johnny Wannamaker's Sunday school. Everybody has heard of it. It was established a few years before in a manufacturing district of Philadelphia that was noted for its profanity and for its roughness and everything uncouth. It was the Five Points of the city of Philadelphia. Within a few years after the establishing of the Sabbath school, fine dwelling houses were built up in the vicinity, and churches and schools, and when I was there I noticed particularly that every house and every story of those tenement houses had its little flower stand setting outside of the window. Every little bit of yard, two feet by six or ten, was filled with flowers in the month of September. No other part of the city was so beautiful with flowers as those tenement houses surrounding that school. The lesson was plain to me. There was horticulture, and not only refinement but moral excellence. I put them all together. The effect of horticulture on society is beautifying, refining, purifying and saving. [Applause.]

A piano solo by Miss J. M. Lewis.

Mr. Torrey said: The response to the next toast is from a gentleman who has been warmly welcomed to the state of Wisconsin as one of its principal educators. A gentleman who, if science mistakes not, is to shape the destiny of many a young man for good in our grand commonwealth. I bespeak for him therefore your careful attention while he shall respond to this toast: "Educate and cultivate the boys and girls first, then there will be no thorns or thistles in the heart or home, the field or garden."

Prof. Henry of the State University said:

Mr. President, Ladies and Gentlemen — It is with feelings of gratitude that I rise to speak to the citizens of Green Bay this evening. Though I have been in several places in our state, and have been at meetings quite similar to this, yet in some way I feel in my heart that I have become better acquainted with the citizens of Green Bay in the little time that I have been with them than I had become with any other set of people with whom I have met, and so there is no feeling of tremor upon my heart as I speak to you this evening. I feel that my words, although they be weak, will be listened to with patience, and that the veil of sympathy will be thrown over any of my feeble attempts. In the sentiment of the toast-master I find humanity coming back, or rather coming to a principle which has taken the world all these ages to reach — the study of nature. Studying nature, where do we begin the study? By having the children take it up; education of the children, the idea started by Frœbel in the Kindergartens of Germany has spread all over the world, and is virtually announced in the sentiment of my toast this evening. The idea is this: that we must begin with the children, teaching the children nature, and by teaching the children nature, we build the superstructure of a perfect education. How much does this mean? It means that the man who understands Latin and Greek is not necessarily educated, for language with all its intricacies is but a part of nature. The idea is, that we are beginning now with the children to teach the child the natural sciences, and by developing in that child that which is implanted in his nature, a love for nature, we shall so develop a perfect being that in the after life we need have no fears for the fruitage. The studies you see are plainly marked out. They are botany, chemistry, the physical sciences, zoology. These have been spoken of already most favorably, by a gentleman who preceded me. Need we have

fears if our children are educated in this way? I say most emphatically, no. I believe the child that is brought up in this way, by beginning a study of nature, will be so brought to comprehend the great laws of nature, to so comprehend the truth, that we need have but little fear of the moral side of such a life; and above all, to whom is this education more easy than to the farmer's child, surrounded by nature? With objects upon every side of the deepest interest, how can such a child, with a proper mother and father, fail to fall in love with nature? and how, once in love with nature, can her realms be left for the study of that which has formerly been called a perfect education? I think not; I think we need have no fears, and it seems to me one thing should impress itself upon us in our happy gathering. Here, with tables of plenty before us, what a picture in contrast is that across the water in Ireland! Think of the desolation spread over Erin's green isle, this evening! Think of the host destitute of food! Think of the children, growing up in ignorance and poverty, and contrast that picture with this! What shall be our reward, I would ask, if, with such advantages before us, with peace and plenty crowning our efforts, we Americans shall fail to reach a point far beyond the agricultural classes of other nations? The people of Ireland are peasants. You can tell them from other people by their dress; you can tell them by their language; you can tell them by their habits. So you can the people of Germany, but we find it different here. Everything is to forward our efforts; everything is for the advantage of the farmer. Now, what shall be Wisconsin's position in regard to this? Let me tell you of a young man, an acquaintance of mine, studying in the class next below in college. He was a young man from the state of South Carolina, whose father lost his slaves by the war, and became poor. That young man had worked his way into college. He came to college with a few dollars in his pocket; the son of wealthy parents, he found himself a poor boy. In college he supported himself for over two years, by sweeping rooms and attending coal stoves at a shilling an hour. He has worked his way by that means, and no other, until next June he takes his diploma as a graduate in the course of agriculture. When I asked him what he was hoping to do, he said, "I am going back to South Carolina, to help the people there to learn to farm." He said, "They need me there; they need others like me, but nobody

else would come, and I alone of all the young men have come up north to work." Now it seems to me, while South Carolina needs teachers in agriculture more than Wisconsin; it seems to me, while South Carolina has one young man working in that way, that Wisconsin ought to have a hundred. There is no mistake about it. If South Carolina has one young man working for agriculture, Wisconsin should have a hundred at work in the same way; yet, as I told you, we have but one. One word more to farmers who have boys in college, who have boys in school; no matter how much you urge them, you cannot make farmers out of all of them. When I see colts coming to the city, young horses, to be driven in carriages, I recollect that they, in a few years, will be old, worn-out horses; when I see all the produce moving toward the city, I know that it means that there it is to be destroyed; so, when I see young men go to the city, I know the city is going to wear out their brains and use them. So it will always be; the country supplies the city, not only with its bread but with its brains. We must submit to it. Such is the law of nature. We can partially stop the tide. We ought not to let all the smart boys go to the city. Our homes should be made as beautiful, as attractive, as the homes of the city. When such is the case, we will reach what we are aiming at, and let us hope that the day is not far distant. [Applause.]

The next toast was, "Timber the freest from knots, the straightest grained, the most upright, the best for all purposes, whether for the field, the forum, the plow, or the pulpit, comes from the agricultural classes."

Mr. Stickney responded as follows:

Mr. President, Ladies and Gentlemen — Timber for patriots and statesmen, timber for the professions, timber for leaders in the sciences and the mechanical arts, timber for the representative women that exert so wide an influence on society and education, most excellent timber, possessing the strength of reliance, the elasticity and universality, the firmness of unswerving integrity, all so freely taught and so readily acquired in the pursuits of agriculture. Truly, Mr. President, the grandest, proudest, most precious products of our farmers are our boys and girls. Receiving these at the hands of agriculture what fitting return can we make except that we render our pursuits so lucrative, our surroundings so pleasant, that we may retain at least a part of the brightest and best, still in our service. [Loud applause.]

Mr. Torrey — One year ago this society, for the first time in the history of societies, had responses from ladies to toasts at our banquet. We come to-night with one of your own ladies whom the people of Wisconsin, where she is known, value and appreciate as one of the best women of the Badger State. The toast is, "Woman as the Farmer's Helpmeet."

Mrs. Dr. Ayres, in response, said:

Mr. President — After being in this convention two days, I almost made up my mind that the coming helpmeet of the farmer was the cow, and that after that the farmer's wife was for the purpose of taking the pigeon grass out from the sugar cane, and then if there is anything left of the farmer's wife, I believe they were to influence to a very considerable extent the whole state of Wisconsin. I believe it is in woman's power to take her full part. I stand here to-night in the name of the ladies of Green Bay. I wish every one of them had the spunk to stand here and talk. I am very grateful to the gentlemen of this society for giving the ladies an opportunity to speak, and for thinking that we come up to the measure of our calling in that respect. I believe that the farmer's wife may be a helpmeet, not only to the farmer, but to all who come within her influence. The boys and girls are going to be influenced by the mother, more especially. Every farmer's wife in the first ten years of her child's life makes that child's future, and that future is for weal or for woe, as that woman wills it. I believe in that. I believe she has the power to will that her child shall be educated; that he shall not be merely a clod-hopper of the soil as the foreigners who come to us; knowing nothing but to turn up the ground, not to gather the fruit. It seems to me that every woman may do her share. I would ask every farmer's wife here present to prove herself the farmer's helpmeet. Many of them I know do it. I promised I wouldn't tell the name of one. [Applause and laughter.]

Mr. Torrey — The next toast is, in legal phraseology, to accommodate the one who responds, "Farmer Boys *versus* City Boys."

Mr. Huntington responded as follows:

Mr. President, Ladies and Gentlemen — In the case which is stated I am for the plaintiff every time. I suppose this has no reference to the city suit I have for the city against the country to make the country boys let up a little on our taxes, and not shove so much

upon the city. I take it it has reference simply to the question, which are the better boys and which will develop into the better men. I say I am for the plaintiff every time on that question. I have fourteen reasons why I favor the country boy. The first is, I was one myself. That is enough. You won't require me to state the other thirteen. You will be as lenient as the judge was to the attorney who excused the absence of his client. He said: "Your honor, I have thirty-seven reasons why my client is not here to-day. First, he is dead." "That will do," said the court; "you need not enumerate the other thirty-six." Being a farmer boy myself, I know all about it. I know all their good qualities, and therefore I am prepared to admit them. Prof. Henry stated to-day the difficulty that they met with in keeping the boys from all going into the professions, and into business life, and abandoning the farm; and the great problem is, how to keep them on the farm and retain them there. It is just as easy as can be — as easy as falling off a log. All you want to do is to treat the boy rightly, manage him rightly. They kept me on a farm until I was sixteen or seventeen years old, and would have kept me longer, I guess, if they thought I would have been a profitable hand. As it was, I got off the farm just as quick as they would let me. There are certain advantages which a country boy has over a city boy, and I might have been there, I think, to-day, but they put me on a sandy farm. Now that was a great mistake. I tell you if you want to grow a farmer out of a boy, don't plant him on a sandy farm. He will never develop. He will get off just as quick as he can. I know boys that have been through it who, I believe, would sooner go to state prison than to go back to the sandy farm and attempt to make a living on it. The advantages which the country boy has over the city boy are numerous. There is a great deal that he will learn there.

In the first place there is a great deal of solitude. He gets a good deal of it, and a chance to think and to reflect — a little too much of it. Sometimes he would rather be where there is a crowd. I never would put a boy over in a back field away off out of sight of the house, to work alone. I have a dreary recollection of being over in such a place myself once on a cloudy day when I couldn't see the sun, out of sight and hearing of everybody, and how I sat down on the plowbeam for a long period and wondered whether it

was not pretty nearly noon. I presume I drew near to the plow-beam on account of the absence of the sunbeam, at least I presume I did not beam very much on that particular occasion. Now there are other things. I have not stated them all yet. The farm is a healthy place; the air, the exercise, and all those things are healthy. It gives a man such an appetite to look out of the window and see the hired men work. There the farmer's boy never gets the dyspepsia, especially if you keep him on Johnny cake, and he won't be apt to get much richer than that if he is on a sandy farm; but I am not going back on Johnny cake, because I am very fond of it, and I believe that it is a fact capable of demonstration that no man ever became President of the United States who didn't eat Johnny cake. Now there is another thing. It is a good place to discipline a boy. He learns patience. I tell you if a boy can plow in a last year's corn field where the stalks are standing, with a yoke of oxen where they are reaching off this way and that way for a bite, hauling the plow in every direction like a rail fence, if he can do that and not swear, I tell you he will become as meek as the man who being driven under the bed in a fight with his wife, declared that he would peek out of that knot hole as long as the spirit of a man was left in him. If there is anything I recollect in this world it is that, and to go through it as I did and never commit suicide or even strike his grandmother, will give him patience enough to make Job ashamed of himself. Now after all, laying joking aside, I am in favor of the farmer's boy. I am in favor of all boys being raised on a farm. I don't accord with the sentiment of that woman who had so much trouble with her boy that after a great deal of trouble and trial she declared from her experience that her judgment was that boys ought to be brought up in a hogs-head and fed through the bunghole. [Laughter.] I don't quite believe in that. Give them a little more liberty. Now I say on the question, I am in favor of the country boy and of all boys being raised in the country. There is where our best boys come from. It is a good thing for some of them to migrate early and go to the city. Many of them do, and the strong men of to-day, as it has been remarked, come from the farm. Our greatest men, those men who take possession of the city, who take possession of the commerce, who really stand at the head of their profession, were men who were in early life developed in their morals, in their instincts,

n their physical proportions, on the farm. There is no place better than that, and if we could get all our boys there to raise them and to keep them away from the deteriorating influences of city life, we should have better men. What becomes of our city boys? Where do they go to? You may go into the great cities to-day, and you will find that the best and most successful men are almost invariably the men who came from the country and have taken possession of the city, and I am not sure but that a sandy farm is a good thing to develop a man for the city. If he has gone through that, he will be satisfied to do most anything, and he will be apt to succeed under any circumstances in which you can place him. [Applause.]

Solo by Mrs. M. D. Kimball.

The next toast was, "Fertilizers the national bank that will always pay a dividend."

Mr. Loper responded as follows:

Mr. President, Ladies and Gentlemen — When we enrich our lands, it is natural for us to expect an abundant harvest. So also in life; if we enrich our minds and hearts with education and religion, it will be natural for us to expect a growth of moral character which will all through life produce abundant harvests of things good and true. Several present have spoken with great earnestness of the importance of education in relation to agriculture. Let us all strive to make our lives pay a dividend in things worthy of our best endeavor.

"Curds and cream, mines of wealth." This toast was responded to by Mr. A. H. Wheaton, as follows:

Ladies and Gentlemen — I know something about curds and cream, but I cannot conceive why Mr. Torrey should add to that "mines of wealth." I have not yet in my experience known much about them as mines of wealth. Curds of themselves do not represent either mines or wealth. But after being properly pressed and cured, and becomes cheese, then it *may* be said to represent wealth at least. The Cheddar and Young America cheese corresponds with and answers to the hard money of to-day. The Cheddar being hard and solid, represents the silver dollar; while the Young America, being small and also hard, properly represents the quarter and dime. The Switzer cheese represents the rag or paper, on account of the numerous holes and loose make of the article, while Limberger holds the fort and all the strong points of

the entire cheese or curd family. Why, it is stronger than congress itself, which by its acts makes money a legal tender, because it has been recorded that congress is governed by the people, and who is there here who does not know that Limberger admits of no peer in a contest of strength. You can crush it beneath your feet, but the sweet perfume of its expiring breath rises up as one man from the earth, and its foes are vanquished. It is the combined strength of nations. It is made in a foreign land, and receives all the strength of its native country before it arrives at the seaports of this continent, after which it enjoys the many sudden and extreme changes peculiar to this climate, which strengthens it to such an extent that when attacked by a native it sweeps the board; and when an American citizen meets it in the road, owing perhaps to the extreme politeness mentioned by our Mr. J. M. Smith, and characteristic of our race, he politely gives it the road, and for some reason or other, perhaps owing to his embarrassment upon meeting so distinguished a stranger, he says not a word, and seems to hold his breath, as it were. So much for curds. Now for the cream. As it has become the custom in our conventions to reserve the cream until the last thing, so I will follow suit. We got a little cream of the Durham order, such as we like in tea and coffee, when Mr. Smith read his essay on the "Gentleman Farmer." We got more cream of the Ayrshire order later in the day, such as is commonly used on plums; but we got the genuine Jersey cream, which makes the golden butter. In the article on the horse, finally, the article for which all cream is desired was reserved for the last drama on the programme, and here we have had it. [Applause.]

The next toast was, "The poor ye have always with you, and if ye will, ye may do them good."

Rev. H. Stone Richardson responded as follows:

Ladies and Gentlemen — There is in this toast a sentiment that touched a chord in our hearts. The poor we have always with us, is the toast. This sentiment was presented to me just after the afternoon session. I met a gentleman, a clergyman, at my house and was unable to give the question one moment's thought, but sitting here this evening, my mind has taken this direction: First, that the sentiment of the toast does not include the poorest among us. If I were to speak to this sentiment I should assure you that they are not, by any means, the poorest, necessarily, who live in poor houses.

They are not the poorest who dress in poor clothes. They are not the poorest who are weak in all their physical organization and constitution. They are the poorest who can and who do fail for want of intelligence and sympathy to appreciate what we are enjoying this evening and what we have been enjoying, as a convention, for a day or two. They are the poorest who fail to appreciate the wonderful, beautiful and suggestive things that are presented for our thought and consideration here to-night. They are poor who lack appreciation of the wonderful and beautiful things that God has spread out before us on the right hand and on the left The poor we have always with us. I am glad of one thing, that we have very few of them at present with us. This is a banquet that has been appreciated by not only those who are present this evening, but by the whole convention. It is true that the poor we always have with us, and if it should be my misfortune to be counted among the poor — among those who must say as the Master did, "The foxes have holes, and the birds of the air have nests, but the Son of Man has not where to lay his head;" I say if I should be so unfortunate as to become one of that class, I do not know of any place where I would rather my lot should fall than in this city of Green Bay, for since my coming among you as a preacher, I have detected a wonderful charity that is beautiful, and bright, and attractive, and outflowing as a river. I have noticed, in this city, that the poor are not left without thought; they are not left without care. There are ladies and gentlemen in the city of Green Bay who not only pray for God's poor, but who, according to their best effort, reach out a helping hand toward them, and if there is anything that makes Green Bay shine to-night, as one of the stars of the first magnitude, it is the sympathy, and charity, and love of many of the ladies and gentlemen of this city who care for the poor. I say it is an honor to you that you have so much sympathy, and extend, from time to time, so much practical charity toward those who are in need; and I feel very much now, as I stand before you, like asking the blessing of Almighty God upon every one of you whose heart goes out in tenderness toward God's poor. I suppose you might imagine it to be true, that coming across a little waif in the city somewhere, that before charity was administered to them, some one might inquire of them, "What church do you belong to?" I do not know but we

might imagine a mind so narrow and so bigoted, that the first question they would ask the poor would be, "To what church do you belong?" and they might go further and say, if you do not belong to any church to which we belong; if your names are not found on the roll of the churches, we have no charity for you. I suppose we might imagine such a case, but I have detected in the ladies of Green Bay, and their love for the poor, a broader, sweeter charity than this. I know you do not ask to what church they belong, or whether they belong to any church, but your heart goes out towards God's poor, and you lift them up and bless them. The blessing of God is upon you in this particular. A few years ago, in the great city of New York, when the churches were illumined by thousands of gas jets, and when the coal was piled mountain high on wharfs, and when the granaries were full of wheat, a young girl sold all she had for a handful of wheat, for enough bread to supply the wants of a dying mother. And I know, in the great city of New York, two little children died on Christmas; even their tears of sorrow freezing to icy pearls upon their pale cheeks, and they died under the eaves of the churches, while luminous with many lights and abundance all about them. In the morning they found these little waifs lying under the eaves of one of the great churches frozen dead in their rags and suffering.

My friends, I don't believe this is true in Wisconsin. I believe that the charity of the people is being lifted up so that the highest ladies go out through this community after God's poor. A few years since, I took the few dollars that you gave me, and found a poor mother, to whom I gave one dollar, and it was the means, she said to me, of saving, from what she believed would be death, to the youngest child. I have known ladies in this city to be constantly at work for months finding who are the poor, and I say it is an honor to the city of Green Bay. One of these days we shall hear, in a great opening in the heavens above us, these words, "I was in prison and ye visited me not; sick, and ye ministered not unto me; hungry, and ye fed me not;" and some persons will say, "When saw we ye hungry and fed ye not;" and the answer will be, "Inasmuch as ye did it not unto one of these ye did it not unto me." I hope it will be said of Green Bay and the Northwest; I hope the great angel who flies through the heavens with charity beaming in his face, and on his wings shall say, "I was in prison

and ye visited me; I was sick and ye ministered unto me; hungry, and ye fed me." May this charitable spirit pervade you; may the blessing of God be upon every one who has contributed according to his means to this entertainment, so that, perhaps, some little waif shall have a crumb of bread and something to protect him from the inclement weather. The eye of God sees you, and his blessing will rest upon you.

Convention adjourned without day.

THE WORK OF THE DAIRY.

THE MANUFACTURE OF CHEESE, AND CURING IT.

(A paper by Mr. J. A. Smith, of Sheboygan, read before the recent meeting of the Northwestern Dairymen's Association at Janesville.)

It was my fortune, last year, to write something for the use of our Wisconsin Dairymen's Association, on the proper construction of a cheese curing room, which paper found its way into the published proceedings. In it I said: "On the question of curing cheese, I will say that it is the point most neglected and abused; the chiefest of the stupidities we practice on offending cheese, that are comparatively perfect when they come from the hoops. There is far less difference in the quality of cheese at that time than there is after that." Believing this statement still, and knowing that the ill has not been cured, but greatly aggravated during the few cold months just passed, I can readily subscribe to the truth of the topic named for discussion — that the curing of cheese is just as important as the making of it. In truth, we might amend the statement, and make it still more correct, by saying a cheese is not really made till it is cured. As well say a brick is made when the plaster clay is dropped from the mold. The incomplete cheese is put in form, the same as the inchoate brick, but whether it will ever be a cheese, depends altogether upon the manner in which it is treated during the subsequent stages of manufacture, as much as it does whether the molded clay will ever be a brick by being duly burned into one. The process of curing, which should immediately commence, is dependent for success as much upon frequent changes of position as it is upon the new cheese being subjected to the right temperature. The most powerful of our cheese presses do not abstract the moisture in a well made cheese, so but that, if left to stand upon the shelf for two or three days, without being

turned, the whey remaining in the cheese will settle in the lower end, and leave the upper end drained dry, and liable to crack. It is true that some of the unexpressed moisture should come out, but it should come gradually, through slow drying, or the cheese, however correctly commenced, is destined to be classed among the culls, called, through courtesy, "off." The superabundant moisture should be kept traveling between the two ends of the green cheese, by frequent turning, and thus evenly diffused through it all, and the proper amount retained to do its part in effecting the chemical changes involved in perfect curing. Whether this necessary part of cheese making has been faithfully and honestly done, the cheese will tell you if you ask it. The experienced cheese maker can never be deceived as to whether his aids do their duty in this respect. There is always a credible witness at hand, the cheese itself.

I have sometimes endeavored to impress this truth and the importance of honest turning of the cheese upon new beginners by saying to them: "No matter what you may say about having turned the cheese, if the cheese do not corroborate your statement, you have either falsified or you are mistaken. The cheese will tell the truth, and testify against you, if you neglect them." If not frequently turned, when green, the excess of whey in one end would so far sour the curd, even in a cheese made right up to that point, that any amount of subsequent care bestowed would not regain what was lost. More than likely it would cause the cheese to leak; and though there are those who assume to be high in authority on cheese making, even to the extent of putting out circulars and documents to instruct the young and the old in the art, who say that it is objectionable to have a cheese leak a little for two or three days, yet, my experience, and it agrees with my taste and judgment, is, that a cheese that leaks a drop after being placed upon the shelf, either from having developed too much acid in the making, or from neglect in turning, should never have the stamp, "gilt-edged," put upon it. Cheese makers will find that most buyers will agree with that view of what is one of the characteristics of a good cheese.

The next step in the proper making of cheese is to provide a uniform temperature in the curing room, of the right degree of heat, so that the chemical changes that turn crude, partially sour

curd, into ripe, mellow, firm, sweet cheese, may take place just as they should, as regards time, ventilation and purity of air. It is at this very point where so many of us fail, for the want of good, scientifically constructed curing rooms. It is so generally true that it was probably not extravagant for the honored and experienced ex-president of our Wisconsin Dairymen's Association, Mr. Faville, to say as he did at our late state meeting, held in Waukesha, that he did not know of a single one among the hundreds of curing rooms in the state that was just right, and he rightly held that it was the one great defect in our cheese, particularly those of late make in the fall, that they were not cured. There are a very few that approximate excellence, but the mass are not only constructed wrong but deficient in the means to warm them as well as they might be. It is simply impossible for a cheese maker, however much he may know they are deficient, to get good results from them. Then there is an army of men making cheese curd who do not seem to know that our topic is as true as the Scriptures of geology, that "cheese curing is as important as cheese making."

It is common to start factories on too small an investment of capital in the building and proper tools. Many a factory, so-called, is put to the work of attempting to complete the manufacture of cheese that is only fit for a vat-room, in a branch system, that should have a large and perfect curing room to which the green cheese could be taken to be cured. Confiding farmers take their milk to such incomplete factories, and expect, because a man may be able to make good cheese curd, and fairly merchantable cheese when the temperature of the atmosphere is not against him, that in some inscrutable way he can make it so in hot and cold weather with no means to counteract their influence. It simply cannot be done; for the law that governs the conditions of success is inexorable, and spares neither profits or former reputation in producing a good article. As well expect the mercury will dance up and down in the tube of the thermometer, when you do not change the temperature of the contents of the vat in which it is placed. As well expect that the universal law will change so that water will boil at 32°, and freeze at 212°.

Within the region this association represents, it is true that with our lake and prairie breezes, and generally cool atmosphere in summer, we suffer less from high heat in unprotected curing rooms

than we do from cold later in the season. The shades of night and the clouds of day come to the relief of such exposed factories in summer, but little or nothing comes to their relief when penetrating frost assails them by day, and more intense cold by night. Then is when the great damage is done. Prof. Willard in his book quotes Dr. Wight, a noted cheese-maker of Oneida county, New York, who says that "when green cheese are exposed to too low a temperature it invariably injures the texture, flavor and general quality of the product during all the future stages of curing." It is like the "damned spot" and will not "out." I believe there is no stand-still condition in a green cheese — it is either taking on a good or bad character whenever it is in a temperature either too high or too low for the perfect development of the qualities that make the perfect cheese. So true is this that Dr. Voelken, an English expert and authority, says that "the right temperature, and steady curing, is even more important than whole milk in the manufacture of cheese — that correct surroundings will more than make good a loss of quality in the richness of the milk — that mellowness and rich appearance, though due to some extent to the amount of butter such a cheese contains, depends in a higher degree upon a gradual transformation which caseine or curd undergoes in ripening." That perfect ripening process can only go on when the temperature is such that the rennet spores which coagulated the milk can have a continuous growth and multiplication till the cheese is made, or, as we call it, cured. At about 70° is the temperature at which the most experienced and learned adjudge the curing room should be kept for this purpose.

Now, if these are the conditions upon which cheese curd is to be transformed into real cheese, and if time is an element in its accomplishment, as it is (for when it is not going forward in a right direction it is going wrong, so that deteriorating chemical changes supervene), then it follows that a small curing room, with thin walls, one set up on stilts, under the thin floor of which the November and December winds whistle, and in which there is a small stove, so driven with flashy wood that it toasts the cheese upon one side, while they nearly freeze upon the other, is no place to attempt the curing of cheese. As well might the housewife expect leaven to raise a snow bank. But we have such charnel houses for the pupils in cheese making in greater

numbers than we have a better grade. Our next best class of factories may be as good as our general farm houses, doubled walled, double floored, and still they are only a mitigation of the more flagrant style. Most all of them try to cure cheese by the use of wood-burning stoves, that are set up and have the stove-pipe arranged in defiance of the principles of plilosophical heating of rooms, the main heat being generated as high up from the floor as the lower shelf of cheese, and the heat from the pipe toasting those on the top shelves — plenty of heat added where there is already too much, and scarcely none at the base of the room. Those on the second row fare a little better, but those on the outside rows of a large room with only one stove in it, fare the hardest. To attempt to cure cheese in a room thus heated is to declare war against the natural law that makes air rise, if it has a chance, the instant it is rarified by heat. The natural and efficacious remedy is to generate the heat below the cheese, and have it evenly diffused by such heat-force as is necessary, before it is supposed to rise and surround the cheese. To do this with success, there must be a partially confined volume of heated air below that can be let up according to the needs of the cheese, and the counteracting influence of the cold in the room. This can be best done by the use of steam pipes, between double floors, the same as in houses for the drying of lumber, and similar to the manner in which the Assembly Hall at Madison is now warmed. But it can be done to great satisfaction, and cheaper, by the use of warm air pipes and registers to regulate the supply from beneath the floor. It will cost money to do either, but it will save cheese, and in the end save its cost. To use a short and expressive term, it will pay, and that is what the live Yankee wants to know.

Probably there has not been an autumn and winter, since modern co-operative cheese-making was instituted, in which victims have been made to see more significance in the question under discussion, than during the season just closed. The favorable price and the fact that there was not an overproduction, led to the operating of the cheese factories later than usual. But the cold that commenced early, and has not modified yet, coupled with the poor condition of curing rooms in general, has resulted in throwing upon the market a mass of partially cured cheese, that only a high price, and a scarcity further on in the season, will absorb, without great

loss to whomsoever it finally rests upon; and in most cases, it either has rolled, or will roll back upon the primal owners of the milk unless they have secured a victim to stand somewhere between them and the final distributors of the cheese to the consumers. Hence there was never a more opportune time to impress all interested in cheese production with the importance of this topic, to the end that those who now own, or are about to build factories, may see they should remodel the old, and construct the new ones, in accordance with known, scientific principles.

I have said all there is time to say about the physical influences that should be brought to bear to rightly cure cheese, and come now to the next great requisite, and that is to have the men who produce the milk, and the men who make the cheese, in harmonious, truly co-operative relations to each other. This is just as much a part of the process as sound milk, good tools and heat rightly applied. As the farmer and cheese-maker have mutual interests, so they have mutual obligations. It takes men with moral obligations conscientiously discharged to cure cheese, just as certainly as it takes heat and cold judiciously applied. The farmer has his duties, the cheese-maker his.

In dairying in this climate, one of the chiefest of the expenses of the farmer is to hedge against the influences of the cold weather. This he has to do partly by feeding more heat-producing food in winter, and partly by comfortably housing his herd. But forty farmers may individually do all this in the best manner their circumstances will admit of, and all their efforts are greatly neutralized, if not brought to naught, when their aggregated milk, after being turned into cheese curd, is left exposed to the same influences they have worked hard to avert, through warm stables and food full of caloric. In many places the farmers are partly to blame for this, in that they look upon the cheese-maker, not as a co-operative factor in their own success, but more as they would upon an auctioneer in a foreign city, of whom they would get all they could through low bids for goods sacrificed — an individual out of whom they are privileged to get all they possibly can, and so bestow their patronage as to make the feeblest tie between patron and maker. This makes it extremely risky for the manufacturers to spend much to provide good facilities for doing their work well, from first to last, in cold as well as in warm weather. This makes his enterprise look

like a temporary one, and often is an experiment. He didn't dare make the investment to do better, because he did not see the backing; so he launches his experiment in the cheapest and rudest manner, and runs the factory while the weather befriends him, then closes it. By so doing he is out of business half of the year, and the farmers feed their cows twelve months to profitably work them about six. They are not helping themselves by helping each other. Another result sometimes, and far too often, when a maker fits up in a good, creditable style, if not in the very best manner, it happens that the whims and jealousies, not to say the downright meanness of many farmers will make his enterprise unavailing, and lead to an utter sacrifice of all the extra care he has taken, and the extra expense incurred to serve them as well as himself. They encourage senseless rivalry in the vain hope of making something by plucking two cheese-makers; and do it, apparently, with as much justification on their part, as they would encourage the bids of two grain-buyers on a load of wheat, who have not a dollar at stake, in tools or buildings — nothing at stake beyond the rise or fall in price of that particular load of grain. Thus, what should be, and what must be if the relation is to continue, a harmonious and reliable business, is made as unreliable and as apprehensive of loss as stock-gambling; and it has the added poignancy that it is all exposed to the light of day. This kind of talk, I am aware, will not cure cheese, but it gives the true reason why so much of it is not cured, and it points the farmer to the source of the retributive justice that in the form of leanness of soul and lessened receipts, often overtakes him for making, practically, the same answer Cain is reported to have made when inquired of concerning his slain brother: "Am I my brother's keeper?" This is neither fancy nor an attempt at fine writing. I have in mind the location of factories, the owners of which have been robbed as effectually as a foot-pad could do it, and sometimes for as little cause of offense, and attended with a moral turpitude on the part of the executioners, that raised them scarcely above the level of the low-browed scoundrel who pulls his Derringer and bids you hold up your hands while he "goes through" your wallet.

On the other hand I have seen, as often, the wrong man assume the position of manufacturer of dairy products, and cumber the right, central location for a factory, and be an incubus on the de-

velopment of the interest in his neighborhood, and from whom there was no relief for the farmers but to crush him out. Like every other business, it needs the right men to co-operate, and each to concede and discharge the rights and duties that pertain to all. There should be honor, and confidence, and liberality, and justice between the parties, for the system of cheese making that expends its last-wrung drop of solicitude for the cheese alone, and leaves the parties "huffy," "curdy" and "sour," may do for semi-savages, and for those who see nothing ahead but the shimmering disk of the "almighty dollar," but it will not be much of an element in the elevation of the business to its rightful position — an exponent of the civilization, industry, integrity and intelligence involved in the highest type of agricultural progress. Hence I hold that there is a good deal in and about a cheese factory, besides what comes out of the hoop, and finally goes into a box. After all the cross-purposes and selfishness there may occasionally crop out in the active work of co-operative dairying, there is an elevating, and refining, and civilizing tendency in it.

The mass of men are pretty nearly right at the heart, and in that fact lies the hope of society and good government the world over; and in it particularly lies the hope of our republic, for the mass are to make or mar it. In the management of cheese factories, I have seen that good spirit often exhibited, and its exercise called out because of the co-operative business in which neighbors were engaged. Have seen men take more pains to prevent others from losing, than they did to save for themselves. Have seen many a neighborly act performed that never would have taken place if it had not been for the general rendezvous, each morning, at the factory. Have seen scowling enemies, whose lips often moved in condemnation of each other, shamed into decency and reconciliation, because they unavoidably met; often, even, at so unfragrant a place as the whey vat. I have known many an unthinking farmer pricked into life and ambition, by looking at the record of his neighbor's milk, and seeing that he was being beaten by those who had less to do with than he had himself. The silent, but still magically eloquent scale beam had thrilled him with a new truth, and he went home to increase the rations of his cows, augment his care of them, and it may be revealed to him he needed better milkers and fewer beef animals in his stall.

So, unpoetic as may be a portion of the occupation, it is not altogether a prosy business to intelligently and successfully operate a cheese factory However much its operator may know, he will find that during the year he has reviewed and rehearsed the most useful and best of it, by imparting it to others. He will find he needs to be as quick and correct mathematically, as the commercial man or the banker; as impartial as the just judge, more truly republican and democratic than both the parties that both honor and defile their respective names; and he will be a painfully conceited and self-sufficient mortal if he does not often find himself praying for more light, with an unction that might be the envy of Moody himself. As there is a thrill of pleasure in the true teacher who sees that a truth or principle he would inculcate is comprehended by the brightening intellect of the pupil, as the orator feels the inspiring influence of his own thought as he looks into the speaking eyes of those whom he addresses, so is it a pleasure to exercise any of the good faculties of the head or heart. It is given to but few mortals to gather real sweets, in this life, if they do not find them in their daily occupation. So it may happen that he who turns the product of the "lowing kine" into the rosiest of butter, or into fragrant or nutritious cheese, treads a pathway that is not altogether devoid of flowers; for he develops an important interest of the land — one that can gather in from the four quarters of our boundless west, and some from the far east. Such an aggregation of heart and brain, and lofty purpose as gives this convention being and stirring life, he sees as well the developing intellect, the growing amenities, and the material increase in possessions of his patrons. If he who makes two blades of grass grow where only one grew before, is a benefactor of the race, as true political economy teaches, then how much more is he a factor in the elevation of his race, who inspires a thought where none was before; and thus, may be, humbly drops a seed that will appear by and by in immortal bloom. When the life and liberty of a nation is at stake it may be that the gleam of light that flashes from the sword, is, for the moment, the most entrancing ray that beams on mankind. But it is darkness and delusion all, by the side of the steady, glowing flame that warms into constant life the humbler activities that are the basis of all production, the foundation of all our homes, the garner of all stores for the future, the illimitable bank from which is checked

the wherewithal to plow, with the keels of commerce, every ocean; to span the continents with highways of steel, link the oceans with a silver thread of their own liquid, and carry upon the lightning's wing the latest developed thought, so that a large portion of the civilized and intelligent of mankind may take it in from their newspapers as a condiment to the morning meal.

BUTTER MAKING.

(The following paper on this subject was read before the Agricultural Convention, at Reedsburg, March 9, by Miss FANNIE G. MORLEY.)

Fashion and style of dress change, and with them our ideas of what is beautiful and becoming change also, insomuch that we naturally conform in dress, to some extent at least, with the prevailing fashion. If this, though of no pecuniary benefit, rather the opposite, adds to our pleasure and gratification, how much more should it add to our satisfaction to be up with the times in our various vocations, which is, as many can testify, of great moment from a pecuniary standpoint.

A great change in the process of butter making is rapidly taking place; new ideas and theories are wiping out old time notions; the aged little milkpan and clumsy dash churn are going to wreck, and the milk itself is being submerged. Now, although the Cooley gives us good satisfaction, I am not here for the sole purpose of advocating that; no, indeed; but I do advocate a more thorough investigation of improved apparatus for butter making and a more enlightened knowledge of different methods, than many seem to think necessary. We have toiled on in the old rut long enough. It is fully time we were alive to the issues of to-day if we would not be left in the back ground. A few days since I received a postal from the secretary of the Wisconsin Dairymen's Association, then attending a dairy meeting in Monticello, Iowa, in which he says: "The Iowa folks talk big about their butter and they have a right to, for they make a great deal of it." That rather sounds as though *Iowa* was taking the lead in this profitable industry, and if in reality she is, I think it is due in a large measure to the extensive introduction and use of improved apparatus together with new fashioned methods of butter making. Our pride and ambition to be first as a dairy state have not deserted us yet,

and we do not contemplate standing aside and allowing them the foremost place. Facts show that no other branch of farming is really so profitable as intelligent, systematic dairying. Consider the adaptation of our locality to this business, the present high reputation of western butter, and we may safely conclude to engage in this work extensively, confident of profit to ourselves and credit to our state. May the present outlook charm us to action.

If your neighbor is making more and better butter with less labor and expense than you are, you ought to know it and the *why*. Having obtained the desired information, put it to the most practical use your judgment suggests. I well know that, with my imperfect knowledge and experience in butter making, I cannot hope to say anything really new and interesting on this subject. I think, however, a brief sketch of what *we* are now doing in this line will prove acceptable. Instead of those large pans, holding some seven hundred pounds of milk, we are using Cooley cans for raising the cream. We strain the warm, new milk immediately into them and submerge in cold water about 43 degrees Far., letting them remain eleven hours, at which time the cream is all separated from the milk.

The philosophical explanations of the scientific principles involved in this submerging process for raising cream is very simple. *Water* being a better conductor of heat than *air*, the warm milk submerged in very cold water cools more rapidly than if placed in air equally cold. Rapid cooling makes the milk heavier, and in descending it forces up the lighter cream, and I suppose that by the time the milk is thoroughly cooled, the cream is all at the top. The weather can exert no influence upon milk set in this way. The result is always uniform, if the same conditions be observed, and all practical butter makers appreciate the value of a uniform quality of cream and butter.

We follow as closely as practicable the rules laid down for using the Cooley, and the result is we make fully three-quarters of a pound of butter more than obtained from the pans, to each one hundred pounds of milk. It was quite startling to realize the fact that we were feeding out in the sour milk between thirty and forty pounds of gilt edge butter per week, yet that is virtually what we were doing.

Cooley cream is thin, sweet, and very cold when taken from the

milk, and we found some difficulty in bringing and maintaining it at such a temperature as to sour it in the desired time, forty-eight to sixty hours, new cream being added each milking time, till within eight or ten hours of churning. I quote a few words relating to this subject of curing cream, from Prof. X. A. Willard's address before the Wisconsin Dairymen's Association, at Waukesha, this winter. Speaking of the fine aroma in butter so much sought after and admired by lovers of butter, he says: "If the temperature of the milk when set for cream be about 60° Fah., it decomposes, forming lactic acid and several other new principles, among them aromatic principles, and it needs but to churn the cream to obtain aromatic butter. If, on the other hand, the temperature of cream at such time be near the freezing point, the decomposition necessary for production of aromatic principles is held in check, and consequently the aroma of butter obtained from fresh cream is so feeble that it is not perceptible to persons accustomed to butter prepared as above indicated, in the same way as French butters are now made. But if it be desired to obtain a more aromatic butter, all that is required is to place the cream in circumstances favorable to lactic fermentation, and a few hours will produce the desired effect." "It is obvious that incipient decomposition, which is but another term for ripening, develops the flavors we so much admire; and it is equally obvious that these pleasant flavors become unpleasant after a time, as decomposition proceeds. Thus it follows that a given degree of acidity is useful in both cheese and butter making, developing as it does the flavor and aroma."

For curing cream we are now using a heater, which proves to be the right thing in the right place. It consists of a galvanized iron tank, large enough to contain two thirty-gallon cream cans, supported by a wooden frame work above and connected with a small boiler, constructed on the same principle and very similar to that commonly used under a cheese vat. That is, the fireplace in the boiler, surrounded except at the ends, by a water chamber, which is connected by means of two pipes with the tank above. Of course, you see that when the water around the fire begins to heat it will ascend in the higher pipe as the cold water descends in the other pipe to fill its place, so that the water in the tank can be warmed sufficiently in a short time, and with the use of but little fuel. The tank also has an aperture, near the top, so that if de-

sirable, we could have cold water running through it. Hence, the cream can be kept at the desired temperature, both summer and winter, by the aid of this arrangement. It is important that the cream should be stirred frequently and allowed to stand eight or ten hours before being churned; as if new cream be added during that time, it will not have become properly cured, and hence may be lost in the buttermilk.

Sixty-two degrees Fahrenheit seems to be the right temperature for churning Cooley cream in winter, since if colder, I find it requires longer time in churning, and if at higher temperature a less amount of butter is obtained.

We are using a square box churn, manufactured by Cornish & Curtis, of Ft. Atkinson, Wis., which we like very much, as it does its work in the best possible manner, is well made and easily managed. It has a capacity of one hundred and twenty-five pounds of butter, is run by horse power, and usually requires about forty minutes to bring the butter. As soon as the butter will permit, and while it is yet in fine grains, the butter-milk is drawn from the churn and cold brine poured over the butter to wash it. There seems to be great difference of opinion entertained by butter makers concerning this washing operation, many claiming that it should be washed and *vice versa*. Prof. Arnold explains the reason of this in the following words: "The flavor of the butter which has been washed is different from that which has not been washed. The difference between washed and unwashed butter is analogous to the difference between clarified and unclarified sugar. The former consists of pure saccharine matter, the latter of sugar and some albuminoids and flavoring matters which were contained in the juice of the cane mingled with it, which gives a flavor in addition to that of the sugar. Brown sugar, though less sweet, has more flavor than clarified sugar. When unwashed there is always a little buttermilk and sugar adhering to the butter that gives it a peculiar flavor in addition to that of pure butter, which many people like when it is new. Washing removes all this foreign matter and leaves only the taste of the butter pure and simple. Those who prefer the taste of the butter to that of the foreign ingredients mixed with it, like the washed butter best.

The flavor of butter consists of fatty matters, which do not combine with water at all, and therefore cannot be washed away by it.

The effect of washing upon the keeping qualities of butter depends upon the purity of the water used. If the water contains no foreign matter that will effect the butter, it keeps the better for having the buttermilk washed out instead of worked out. Evidently the grain of the butter will be more perfectly preserved if the buttermilk be removed by careful washing. The grain is such an important factor in the make up of fine butter that it is necessary we should be very particular not to injure it in any way, if we would excel in the art of butter-making. But to return to *our* butter. After being washed it is salted at the rate of one ounce of salt to one pound of butter, while yet in the churn, and the salt evenly distributed throughout the butter by revolving the churn forty-eight times around. It is then taken out of the churn, allowed to stand a few hours, carefully worked over and packed.

During the past five years we have made a practice of shipping our butter regularly to J. H. Phillips, Chicago. Nearly all of our butter made during this time has passed through his hands, selling for a price sufficiently remunerative to justify our continuing in the butter business.

In closing I wish to refer briefly to the erroneous idea, so prevalent among people generally, that only those of long experience and mature age can excel in butter making. Just abandon this fancy and give us younger people a chance, and we will show you we are willing to learn, and having learned, are competent to manufacture the real gilt edge. Hon. Hiram Smith, at Janesville a few weeks ago, expressed as his opinion that for any intelligent person to learn all he *needs* to know of butter making, requires from ten to twelve days' experience. The length of time, however, depended somewhat on how many erroneous lessons he has to unlearn. Though my own experience does not fully coincide with Mr. Smith's ideas, still, I think if this work of butter making be transferred from the patient, tired hands of mother to our own, we shall soon be in possession of an attainment, an accomplishment in the highest sense of the word.

"Beautiful hands are those that do
Work that is earnest and brave and true,
Moment by moment the long day through.
Beautiful feet are those that go
On kindly ministries, to and fro,
Down loveliest ways, if God wills it so."

FANNIE G. MORLEY.

BREEDING AND CARE OF CATTLE.

(By JOHN M. TRUE, Baraboo.)

"Will it pay," seems to constitute the mainspring of all intelligent action. In fact, it may safely be assumed that no enterprise is undertaken with that amount of enthusiasm necessary to produce a successful result, without the motive power is induced by a belief that the labor expended will be well repaid. No other class among us seems to disregard the wise maxim of "first counting the cost" to the same extent as our farmer.

We wish to briefly consider whether the breeding and care of cattle among the farmers of Sauk county is managed in a manner that pays.

Within the past twenty years a marked advancement has been made in farm implements, noticeable among which are the substitution of the mowing machine and horse rake for the hand scythe and rake, the self-binding reaper for the hand sickle, the sulky cultivator for the hoe, and the improved threshing machine for the flail. It has been my lot within the time mentioned, as a farmer, to use each of these implements that have been supplanted by the onward march of progress. Does any Wisconsin farmer think it would pay to return to their use?

There was no humbug among them, for one using them was painfully conscious that they performed their work if sufficient muscle was applied.

Within the past twenty years, most of our farms have passed through the exhaustive process of grain raising year after year, little attention being paid to the application of fertilizers, until we were suddenly brought to see that this course led to bankruptcy of both farm and pocket, when we turned our attention to rotation of crops, stock raising, careful selection of seeds, and better methods of cultivation; and to-day have no inclination to return to the old style of farming. From necessity, if not choice, we are becoming stock raisers. Few farmers seek to ignore this fact. We are not most fortunately situated for the work. With our higher priced, closely occupied lands and long winters, we are hardly in position to successfully compete with more favorable situations in the southwest.

How shall we make the most of our situation, and have assurances of a fairly remunerative enterprise?

I answer, only by a careful selection of well-bred stock, and a generous, intelligent handling of the same. How much better are the cattle upon our farms now than twenty years ago? Are they improved in general excellence as much as our farm implements in that period? Do we now feed our cattle as much better as we do our fields? And do we study the wants and capabilities of improvement of our cattle as closely as of our farm crops?

You are intelligent and successful in the raising of grains and grasses; make your farm system symmetrical by taking a correspondingly high position as a stock-raiser. The improvement in the cattle upon our farms should be equal to that in the implements with which we supply them with food.

Do you consider Short-horns, Holsteins, Herefords and Jerseys humbugs?

A great many farmers contended long and loudly the whole system of labor-saving machinery was the work of the devil, but their distrust did not save them from the subsequent realization that they had been "left" by their humbugged neighbors.

So that the farmer who to-day raises the same "ring-streaked and speckled" kind of cattle that Jacob of old did, while in charge of Laban's herd, and is content therewith, will wake up in the near future to find his neighbor's farm largely excelling his in the quantity and quality of its dairy products, while the steers thus raised bring three times the money his of a corresponding age command.

I believe in good breeding. It is not my province to say how you shall breed, though I will venture that if the general farmer, breeding for beef and the dairy, patronizes the Jersey, he makes a fatal mistake. The Jersey is doubtless the typical cow for the villager, and an admixture of Jerseys in a butter dairy may be in place, but its flat sides and light quarters make it undesirable stock for the butcher. And he who breeds "scrubs" to Jerseys for beef is only going from bad to worse.

The Holstein doubtless leads the popular breeds in the production of quantity of milk, and are good beef producers, though coarser in bone and not as readily fattened as the Hereford or Short-horn.

The Short-horn has this advantage among us. It is in more general use, and the farmer can more easily reach a point of com-

parative perfection with this than any other breed, from the readiness with which animals can be procured for the necessary crosses.

For him who would combine excellence in the dairy with thrift in growth and first class beef-producing qualities, the points desired are sufficiently strong in the Short-horn to fill the bill.

Having decided upon your line of breeding, we would recommend that none but thoroughbred must be used, for he who drops below this standard has entered upon uncertain ground, and while with high grades he may attain a measure of success, the temptation to lower his grade may overcome his well formed resolutions.

But I apprehend that the average farmer needs yet to learn to feed and care for cattle, before he can be safely advised to procure highly bred stock.

If his stable is the warm side of a strawstack, his hay-mow the aforesaid stack, his summer pasture the highway, the "scrub" is his particular breed, and the meaner the scrub the more striking the fitness of the relation of animal to owner.

But if the farmer has good native or graded stock which by generous treatment has been brought to make fair returns, for feed given, he may rest assured that the more highly he grades his stock the larger returns he may expect, for good breeding and good feeding go hand in hand, as surely as good seed and good culture in the production of field crops.

What constitutes good feeding?

The systematic furnishing of sufficient proper food to the animal to produce an uninterrupted growth from birth until maturity.

I have no sympathy with the toughening process, so popular with some of our farmers, in which exposure and starvation are the principal agents, for where there is no loss of material, there can be no lack of food when needed. A steer, with proper feed, should be ready for the butcher at from two to three years old, and should then weigh from 1,500 to 2,000 pounds, in which condition he will bring the highest market price.

A calf at birth represents, to the appreciative breeder, a promise to pay a certain amount of money at a saleable age, and if the owner fulfills his part of the contract, by a supply of sufficient food, care and shelter, payment is seldom forfeited.

Milk, fresh from the mother, constitutes the natural food for the young calf, and promotes the best condition, though as great a

growth is claimed, and without doubt correctly, by teaching the young animal to drink the milk, and after a time substituting skim milk for fresh.

I do not think it advisable to feed skimmed milk during the first month of calfhood, but during the second month, warm skimmed milk may be mixed with fresh, and finally wholly substituted.

Before weaning, the calf should be at least four months old and well accustomed to feeding upon grass or hay, oats, wheat bran and small quantities of oil-cake. If these are readily eaten, there need be no interruption of growth in weaning.

Ample summer feed and pure water are essentials in stock raising that cannot be overruled. The feed in the pasture should not only be abundant during the early summer, but should be allowed to accumulate, at this time, for the needs of stock during the later dry periods that come so surely and are so disastrous to short pastures.

I have secured great advantage from fodder corn as a help to shortened pastures, and would not fail to put in a patch of this during the last of May and through the month of June, that it may come to the fit stage for feeding in August and September, then to be fed in the stables or clean pastures. My cattle do not need to be starved to eat this food readily, and with excellent results. If possible, use sweet corn for seed, as its stalks are much sweeter than those of common field corn.

Anything that adds to the comfort of stock promotes growth and consequent profit; hence shade should be provided in the pasture; if not furnished by trees, a shed with open sides furnishes good protection, and will pay for the expense of building in a single season.

As the pasture becomes short in the fall, do not require the animal to waste its accumulated flesh before supplying its wants by feeding from the accrued stock of forage and grain — for stock should come to the stable at winter in the best condition.

If from any cause beyond your control, you find an animal in thin flesh at the approach of winter, at once feed liberally with soft corn, pumpkins, turnips and other available food peculiar to the season, until the proper condition is reached, and before cold weather interferes with the best results to be gained from such food.

Cattle in good condition are much more easily and cheaply wintered than those who, in their poverty, are only fed enough to

supply the demands for animal heat and mere existence. System is important in the winter management of cattle, as to time of feeding as well as uniformity in amount of food given, and he who disregards these requirements will not get satisfactory results from food given. Cattle soon learn when food is due, and become restive if not served in time. I feed grain in the morning, followed by hay in the stable. In pleasant weather, turn cattle in the yard for water at ten o'clock and allow them to feed from straw stack or corn fodder in yard until four o'clock, when they are again stabled and fed grain, again followed by hay. The straw stack furnishes bedding for stock, adding much to comfort and cleanliness, and then passing to the manure pile. My grain food is corn and oatmeal; these grains mixed in equal quantities when to be fed to young cattle and cows, corn increased where fattening is desired. Oil-cake in small quantities, fed with the meal, is being used this winter. If water fresh from the well can be given cattle before being frozen, it will be more easily taken, and add more to the thrift of cattle than we at first thought would admit, but the present winter seems to be peculiarly calculated to furnish ice water. I have assumed thus far, in speaking of the winter care of cattle, that good warm shelter be provided, for I do not expect that any farmer who ignores this evident need has been prevailed upon to patronize a farm journal. Good shelter does not necessarily imply $1,000 barns, for he who wills, can hardly fail with that will and common ingenuity to devise, even from posts, rails and straw, a comfortable and sufficient protection from storms and cold, while absence of such or better shelter gives stronger proof than an implication of cruelty, shiftlessness and very bad ideas of finance.

I take great pleasure in contemplating the future of Wisconsin, in the department of farm industry, that I have hastily and disconnectedly presented in this paper. With a raised soil, easy access to water, a climate, though measurably rigorous, yet healthful, with close connection by rail with the best of markets, and ever increasing demand for good cattle at good prices, is it too much to ask that a state that has already won high laurels in the dairy department shall more generally show such honors, and that our cattle dealers, instead of buying from us inferior cattle for shipment, at from two to three and a half cents per pound, may pay us double that for our surplus stock, and yet with us be mutually benefited by the change?

FARMERS' CONVENTION.

The second winter meeting of the Baraboo Valley Agricultural Society convened at the Opera Hall, in the village of Reedsburg, March 8, 1881.

MORNING SESSION.

Meeting called to order by A. P. Ellinwood, president.

First paper, read by James A. Stone, entitled "Independence."

Professor Henry, from the State University, thinks it a very significant fact that the meeting is opened by a young man. Spoke in a common sense way, and told what might be expected from men, when boys could express themselves as the writer did in the essay. Old men are to give counsel and advice, young men to take up that advice and carry it forward.

Second paper, read by Mrs. S. C. Fish, entitled "Rural Homes."

Mr. Burt asks information concerning fodder corn. He plants Evergreen and Minnesota mixed, in hills three feet one way by ten inches the other. Here followed a lively discussion concerning the proper way of raising and culture, all agreeing, however, to its value. Messrs. J. Cottington, Burt, Seymour and others taking part in the discussion. Prof. Henry wants an expression, if it will pay farmers to raise sweet corn for feed and fodder. Result of vote, yes.

Mr. H. Dwinnell read from the *American Dairyman*, an article entitled Anti-monopoly (at a mass meeting in New York) and some resolutions thereunto annexed.

Up to this time the attendance was small, but the snow embargo being overcome, scores of persons came pouring into the hall from Winfield and adjoining towns. Mr. E L. Montross said he did not feel satisfied with the disposal of Mrs. Fish's paper entitled "Rural Homes." More people should hear it read. A resolution was passed that said paper should be read to-morrow. The paper of Mr. Stone received the same honor.

Professor Henry would like to hear the question of salt on grain taken in consideration, giving a synopsis of experiments in England. S. C. Fish had sown one barrel of No. 1 salt on two acres of wheat with good results, and where not salted almost a failure. Many present made inquiries as to the kind and amount that should

be used. Prof. Henry recommends experimenting for themselves.

Let each try on his own land; but would recommend three bushels per acre.

Meeting adjourned until 1:30 P. M.

AFTERNOON SESSION.

Question from query box to Prof. Henry: How long per day do students labor at, or are required to labor at the Agricultural College? Prof. Henry: No time specified.

Paper by E. L. Montross, subject, "The Dark and Light Side of Farming."

Question from query box: Special or mixed farming. N. W. Morley thinks special farming preferable. (Could not catch his ideas in relation thereto.— Secretary.)

A. Cottington believes in mixed farming; wants to raise a little of everything; thinks special farming might do if he knew what the specialty was. Mr. Morley thinks such things are matters of taste. Mr. Montross thinks capitalists can make specialties profitable, but for farmers, it is poor business.

Paper by Mr. Burt, entitled, "Educating Farmers' Boys." This paper caused many remarks. Messrs. Stone, Fish, Gimmell, Morley, Professor Henry, Lawton and others participating.

Lecture by Prof. Henry, entitled, "The Growth of Plants." The lecture was prefaced by remarks concerning the proper way of educating boys, he contending that dollars and cents should not too largely be taken into the account. That the disciplining of the mind should be paramount to all other considerations. From the professor's standpoint, his ideas were good. Not understanding chemistry and botany, I am unable to give a good synopsis of the professor's lecture. He told us the amount of nourishment they received from the air and earth, drawing diagrams of a beet, potato and sugar cane. The constituents of vegetables are carbon, hydrogen and oxygen, and sometimes nitrogen. The essential organs of plants are roots, stems, leaves, flowers and seeds. He explained how they grew by drawing sustenance from the soil by means of tiny fibers; how they drew nourishment from the atmosphere.

Adjourned until to-morrow, ten o'clock A. M.

WEDNESDAY, MARCH 9 — SECOND DAY.

On entering the hall this morning, we were greeted by the smiling face of Senator Torrey, from Oshkosh, who was expected the

day before, but, owing to the snow blockade, failed to make connections. Mr. True, of Baraboo, and Mr. Pabodie, of Fairfield, were also present. By uniting the talents of these gentlemen with our own working force, the success of our meeting was evident.

Question in query box: In relation to alfalfa, and who knows anything or can give any instructions thereon?

Mr. Gimmell — I got seed from Washington and California. In my opinion, it amounts to nothing.

Mr. Pabodie — What kind of soil was the seed sown on?

Mr. Gimmell — Two or three different kinds of soil.

Question: What part of the people here practice what they preach?

Mr. True — I am not willing the idea should go abroad or be popular that farmers as a class do not practice what they preach.

J. M. True — Paper entitled, "Breeding and Care of Cattle."

N. W. Morley thinks if the farmers would take Mr. True's paper, likewise stock reports, they would be benefited. Thinks it costs as much to raise one pound of two-cent beef as one pound of six-cent beef.

Mr. Torrey — Is it advisable to keep steers over two years old; and steers kept and fed until two and a half or three years old should weigh 1,500 to 2,000 pounds.

Mr. True does not believe in "force feeding," but a liberal one.

Remarks by Prof. Henry. Every person in the state of Wisconsin should know much about the State University. We have many students there from our state; there should be many more.

The State University was founded upon a grant of seventy-two sections of land made by congress to the territory of Wisconsin See chapter 110, U. S. Laws, 1838, and for the general history of the institution consult the Legislative Manual of 1878, page 296. The income yearly is nearly $90,000. In 1866 Dane county purchased for an experimental farm, two hundred acres for $40,000. Up to last fall, one student was studying agriculture. Thinks he ought to be thoroughly taught. The professor's whole time is devoted to the experimental farm; is attending agricultural conventions at present, however; hopes he will have a class in agriculture the coming year. Have four hundred scholars, sixty students study law; farmers' boys should be educated in chemistry, botany, philosophy, mathematics, surveying, history, etc. Gave the history of

a boy that commenced with nothing, now has a beautiful home in Washington.

Prof. Comstock on entomology.

Mr. Seymour — I assisted while in Madison to appropriate $40,000 to build an agricultural department. Hope it will be a success; want to build up home institutions.

Paper by Miss Fanny Morley, subject, "Butter Making." Mr. Morley has on exhibition his Cooley cans, and distributes explanatory papers thereon.

Adjourned to 1:30 P. M.

AFTERNOON SESSION.

Song, subject, "Farm Yard."

Solo by Senator Torrey, Mrs. Sanders organist.

Paper, subject, "Sugar, and Sugar Making in Sauk County," by G. A. Pabodie, of Fairfield.

A voice — What is the cost of a mill?

Mr. Pabodie thinks the cost would be $150 or $200. Mr. Shourds thinks a good mill costs $300. Many persons are unsuccessful in this enterprise; it needs close attention in order to insure success. Describes his mill very minutely. Under his system, can use the full force of fire under the syrup continually. Recommends to boil as fast as possible. Mr. Shourds had a number of samples, each sample representing the kind in the barrel, some samples crystallized; Early Amber Cane is the best; made eight hundred and fifty gallons; had less than six acres of ground; found ready sale, etc.

Prof. Henry — The samples are different in color, should be uniform. We have not yet arrived at that perfection which he hoped for.

Mr. Shourds — The same man at the same manufactory cannot get the same shades; thinks it is owing to the soil. Dark soil, dark shade, etc.

Mr. Morley — Is there no way to remedy the evil?

Professor Henry — We are trying to do it; thinks some chemical process might take out all impurities; have found none as yet.

Mr. Pabodie — Is same difficulty found in Louisiana in regard to color of the soil?

Prof. Henry — Yes.

Mr. True — Butts of cane should not be left on the ground, as they draw in the moisture.

Mr. Montross — Would like to ask Prof. Henry what per cent. of the food of plants comes from the ground, and from the air?

Prof. Henry — Three to eleven per cent. from the ground and from ninety-seven to eighty-nine per cent. from the air.

Paper by S. C. Fish, entitled "Disposition of Farm Produce and Buying Supplies." This paper called out much thought, Messrs. Seymour, Torrey and others actively participating.

Adjourned until 7:30 P. M.

EVENING SESSION.

Song by Senator Torrey.

Select reading by Prof. Marsh, entitled, "Ruben Stein, a Rustic."

Paper by Senator Torrey; subject, "Fairs." He thought winter meetings were a necessity, for a successful fair depends much on agricultural conventions. Recreation to farmers is as necessary as to any other occupation. Many farmers leave the old farm for city life and are often ruined. To every young man he would say, never take such a step without mature deliberation. Good soil may give indication of good crops, but bugs and blight get the lion's share; all obstacles cannot be overcome, but a cheerful study of these things will enable us to overcome some of them. Organizations should exist among farmers as well as among bankers, brewers, lawyers or any other profession. Every town should have one meeting once a month and exchange ideas. If a man has thoughts, or knows of experiments that benefit himself, they belong to the world and should be given to others. If farmers thought more and acted more there would be fewer rascals. There should be a secretary of agriculture in Washington.

After some select reading by C. E. Fish, the following resolution was offered and adopted:

Resolved, That the thanks of this convention are voted to Prof. Henry and R. D. Torrey for the able and courteous manner in which they have assisted us at this meeting.

Adjourned. SECRETARY.

TIMELY SUGGESTIONS.

MATERIALS FOR WALLS OF SILOS.

The chief objection urged against silos is the great expense attending their construction. Farmers are advised to build the walls of split stone laid up in mortar largely composed of water-lime or hydraulic cement. Of course this makes a very substantial wall, one which will be likely to endure for a century. In many parts of the country, however, it is impracticable to construct a wall of this kind, for the simple reason that stone is not to be had within a reasonable distance of the farm. In new sections of the country the available quarries are not generally worked till the population becomes somewhat dense. Even then it is costly to erect an extensive wall of stone. The roads are generally poor and the cost of hauling is therefore large. A mason is required to lay up the wall, and masons now charge more for their services than any other class of mechanics. After a wall has been erected of rough stone it will generally be found too rough to answer the purpose for which it was designed. The planks employed to cover the materials that are to be converted into ensilage will not slip past the projections of the stones after they are weighted. It will be necessary to cover the surface with a coating of plaster in order to render it sufficiently smooth. To do this will add largely to the cost of the silo. Some have recommended brick as a material for walls, but most of the objections brought against stone apply to brick. Bricks are expensive, heavy to haul, and require the services of a mason to lay them up. A brick wall presents a surface sufficiently smooth for all practical purposes. But it is open to one great objection. Bricks, unless of the quality used in the construction of sewers, are likely to crumble when kept moist for long periods, and this would be their condition when built into the walls of a silo.

CONCRETE FOR WALLS OF SILOS.

In many respects common concrete would appear to be the best material for the construction of silo walls. The chief materials, sand and gravel, can generally be obtained in the immediate vicinity of the place where they are wanted, while quick-lime and hydraulic cement can ordinarily be procured at the nearest rail-

way station. Almost any farmer, by following the directions lately given in this paper in an article on the construction of concrete buildings, can mix the materials and construct the wall. The planks that are to be employed for covering the silo can be used for holding the materials in place till they become hard. They should be firmly placed at a distance of a foot or a foot and a half from the side of the bank they are to protect. The materials for constructing the lower portion of the wall can be mixed in the silo, and those for the upper portion on the surface of the ground above. If desirable, the wall can be carried up several feet above the ground by placing planks on both sides to hold the materials in position. Walls constructed in this way will be smooth, water-tight, and sufficiently strong to withstand the pressure brought against them. In fact, the earth beyond the walls will act as a part of it in sustaining the pressure. An entrance-way can be easily constructed through a concrete wall by putting in a frame before the walls are laid up. It can be closed by putting planks on the inside. The floor of the silo should be made of the same material as the walls, but it only needs to be a few inches thick.

WOODEN SILOS ABOVE GROUND.

Mr. John Winslow Jones, of Portland, Me., well known on account of his connection with the industry of canning green corn, contributes the following to *The Country Gentleman* on the above subject: "For the past three years I have read everything that I could find on the subject of ensilage. I have read much that was very good, and much that displays a great deal of ignorance. I think that ensilage is destined to make a greater revolution in the agricultural interests of the New England and other northern states than any discovery or industry that has ever been introduced. Some writers have written so extravagantly on what can be done with it that it has disgusted sensible men, and then papers have published articles written by persons without any experience or knowledge on that subject. I shall confine myself to what comes within my own knowledge and experience. In order to benefit the whole farming community, we must keep strictly to practical results.

Early in 1878 I commenced to study up this matter, and heard of it in France. I then went to New York and got Auguste Goffart's book on the subject, and Mr. Brown's translation of the same. This

translation, I think, is the best book there is on the subject. There have since been several editions of the late experiments of M. Goffart, which are very good. The great drawback in all the works I have seen on the subject, and which places it beyond the reach of the average farmer, is the expense of the silos. This being a French process, no one in practice or writing has seemed to think of adapting it to the wants of this country, particularly to New England, where we have our barns warm, convenient and comfortable, and we must have our fodder, for comfort and convenience, in these barns. In France, where this business originated, the climate is mild and they have no cheap lumber, so they are obliged to build of stone. I have demonstrated that this is useless. We have silos in this state costing $1,500. This is more than many of our farms are worth.

I was the first in this state to go into this business, and it has proved a perfect success. I did very little until 1879, but was satisfied from the first that common wood silos above ground was what we wanted and would answer the purpose, and I went forward accordingly. For my first experiment I took three box stalls in my stable, about twelve feet long, seven feet wide and seven feet high. I had some early corn fodder, which I cut and mixed with green clover; then I had some oats on new ground that were full of thistles; these I cut green and put into another stall, then filled up the last one with fresh grass, oats that were full of weeds and thistles, and any coarse, green stuff I could find. One of these I opened in about a month, and the cattle would eat it in preference to green grass. I had some nice working oxen, and I told my teamster that he had better try some; but he laughed at me. I neglected to open the second stall for some time after the first one was gone, and my teamster came to me and asked when I was going to open another stall. I asked him why. He said he wanted some for his oxen. I told him that he laughed at me when I spoke of feeding the team on it. He told me he found he was mistaken; he tried, and never had a team do so well in his life.

In my stable the bays run below the floor into a cellar. They are ten feet wide and twenty feet back. I boarded up one of these, and filled in between boarding with sawdust, the same as for an ice-house. I put into this, and a small brick silo I had underground, about one hundred tons of fodder cut green, together with some

corn and husks chopped up green, from my sweet corn packing establishment. I opened the one made of wood and fed from it till it was gone. It kept perfectly except a little all around next the boarding, which rotted or became moldy. By mixing with the other the cattle ate it all up clean, and would eat it in preference to the best of hay. With my brick silo under ground, I did not succeed so well, on account of not getting it tight, so that water from the outside, tainted from the manure in my cellar, got in, so that about two feet of the bottom was spoiled, and the cattle would not eat it. Still it was well preserved. My cattle had never looked so well on any food, and even cows fed on this will keep up their flow of milk and be in good condition without grain. I had two or three imported Short-horn cows that did not give milk during the winter, and they got too fat on this without grain, one of them weighing one thousand six hundred pounds.

Many feed it to their hogs, and say they do well on it. I think it is as good or better for them as the same fodder when cut green, but I believe in feeding pigs better. In 1880 I added another silo, by taking in another bay, just simply boarding it up tight with a single boarding, and packed over three hundred tons of fodder, consisting of the sweet corn-stalks from about twenty-five acres of corn, some three or four acres of corn sown in drills for fodder, and corn-cobs and husks from my sweet corn factory. This kept better than any I ever packed. I had some trouble with my brick silo that I had the year before, although I lined it up with another course of bricks, and cemented it over. It is less difficult to make a cistern that will hold water than one that will keep water from getting in from the outside. There is no better way to make a silo than to board it up tight. Board up the ordinary bays in a barn, which every farmer has, so that it will be smooth and tight on the inside, and if the bays run below the floor, all the better. There must be no projection inside the bays, as they stop the fodder from settling lower, and allow the air to come in, which causes the ensilage to rot on the edges.

I have just finished feeding out my ensilage, and it was in perfect order. I have fed nearly one hundred head of cattle this season, and while feeding on this they would not eat hay, but would eat the ensilage up perfectly clean. There was no waste near the board to speak of, more than there was in the brick silo; every-

thing was eaten up clean. This matter of keeping ensilage is no longer an experiment. I have demonstrated it to a certainty, and there is no longer any need of building extensive silos. This business is within the reach of the smallest farmers. When I left off feeding ensilage my cows dropped off at least one-third on their milk, even when fed on the best of early cut hay.

I will now briefly state my experience in cutting, packing and raising the fodder. The fodder must be cut in pieces five-eighths of an inch long. One machine to do this can be bought of Joseph Breck & Sons, Boston, at a cost of $85, and one at the New York Plow Company, No. 55 Beekman street, for about $100. These can be run with a single horse power. This work should be done by parties the same as they go round to thresh grain. In that way one machine can do the work for several farmers at small expense. Ordinary bays in a barn are about the right size. It is important that the silo should be high, as thereby we get a more perfect pressure. They should be from fifteen to twenty feet high; the fodder can be hoisted up as easily as hay can be pitched that distance.

I have found that it is better to fill the silos slowly, and thereby get sufficient time to settle. If you have two or three silos to fill, they had better be kept along together, filling each a foot or more once in two or three days. Great care should be taken in filling to keep the fodder in the silo even, and tread it solid. It is very important that it should be thoroughly trodden and packed. A man or two should keep constantly treading while the fodder is being put in. I was six weeks filling mine before any weight was put on. M. Goffart in his late work recommends a long time for filling. Another advantage of slow filling is the pressure outward on the building is less where a high bay is filled up slowly. If the silo be filled at once to the height of fifteen or twenty feet, the building must be strong and well secured, or the sides will press out.

I have tried mixing straw with this. M. Goffart says mix in one-tenth of the weight; but I do not like to put in any dry material. I think it better to have everything green. After the whole is filled, boards should be laid over and weighted with about three tons of stone to every ten feet square. This should stand at least six weeks before it is opened; the stones can then be taken off, and

the mow cut down about three feet at a time in layers. It is better to take out in one day enough for the next. Keeping one day ahead, it will then lie up light and warm up nicely, and if you feed meal, mix it with this feed three times a day, and be sure that the cattle shall have no more than will be eaten clean at every meal.

Extravagant stories have been told about raising corn fodder — one hundred tons to the acre. This is all folly; twenty-five tons of corn fodder, sown in drills and cultivated without hoeing, on an acre, of southern white corn, is a good crop. Winter rye may be sown and be cut in June, and then a good crop of corn fodder raised on the same ground, thus getting off of one acre about thirty-five tons of green fodder. Fodder should be prepared in this way for summer feeding, instead of soiling. It can be done at much less expense and waste. I think that with the ensilage we can raise cattle as advantageously as they can be raised in the west, and it is a great shame in our state for all our cities and large villages to depend so entirely on the west for beef that nearly all our butchers are ruined. When we can raise forty tons of green food on an acre, we cannot afford to let a cow wander over four or five acres of pasture for a living in summer, and a large part of that time get only a starvation living if the season happens to be dry.

ADVANTAGES OF MULCHING.

In applying a coating of vegetable matter to the surface of the ground, in order to promote the growth of trees, vines, bushes and vegetables, we only follow the teachings of nature. In forests and natural groves the trees, vines and bushes annually shed their leaves and sometimes portions of their bark and twigs, which accumulate beneath them, and remain permanently if not carried off by the winds. They serve to render the temperature of the soil more uniform by protecting it from the cold of winter and the rays of the sun in summer. They also prevent it from being washed away by the rains. In process of time they decay and become incorporated with the soil in the form of manure. The coating of leaves and other vegetable matter also modifies the condition of the soil in respect to moisture. It renders it less wet during, and soon after protracted and heavy rains, and less dry during seasons of severe drouths. It retards the evaporation of moisture from the soil by preventing the wind and the rays of the sun from coming in

contact with it. In short, it keeps it moderately moist as well as moderately cool.

Trees, vines, bushes and vegetables that are subjected to the process of cultivation are not naturally mulched. They generally stand at some considerable distance from each other and are in places somewhat exposed to the action of the wind, which carries away the leaves, buds and twigs which fall from them. They are generally artificially pruned and the branches carried away so they will not interfere with gathering the fruit or with cultivating the ground. On account of the lack of protection naturally afforded trees, vines and bushes growing in a grove or forest, they are exposed to all the extremes of moisture and dryness, heat and cold. As a consequence they are less hardy, shorter lived, and more susceptible to injuries of various kinds.

Considering how cheap the materials suitable for forming a mulch are, how easily they are obtained and applied, how much labor they save in the matter of keeping the soil they cover from weeds, and how excellent are their results, it appears singular that so little attention is paid to mulching by the average cultivator of trees, vines, bushes, shrubbery and many kinds of vegetables. In many cases a person spends twice as much time in keeping the soil free from weeds and grass that would be required to cover it with a suitable mulch. The hoeing or other work on the soil must be repeated every few weeks, but the mulch, even it be a slight one, will remain during an entire season and generally several successive years.

A good mulch will entirely prevent the growth of grass, and will generally prevent the appearance of weeds, unless their seeds are contained in the material spread on the surface of the ground. Even if they do spring up, they can be readily removed, as their roots will penetrate the soil to only a slight distance. When pulled up, they may be thrown down to add to the mass of the mulching material. It is difficult to so work the soil under many kinds of bushes that grass and weeds will not take possession of the soil, but it is easy to apply a mulch that will prevent their appearance. During seasons of severe and protracted drouth it is generally necessary to water trees, bushes, vines and shrubs that have recently been transplanted, but if the ground about them was covered with a suitable mulch, no artificial watering will be required.

If economy in the matter of labor was the only reason for applying a mulch it would be advisable to use it. But a mulch is very desirable for many other reasons, some of which have already been stated, as it obviates the necessity of working the soil so as to prevent the growth of grass and weeds, it prevents injuries to the roots that penetrate it. A plow, cultivator, or harrow, spade or fork cuts, splits or barks the roots, rendering them useless for supplying food and causing them to throw out numerous sprouts. Then sprouts, if they remain, do great injury to the tree, vine or bush to whose roots they are attached, while their removal results in further wounding the roots. The appearance of sprouts may generally be prevented by the application of a mulch.

A great variety of materials may be employed for a mulch, as coarse manure, damaged hay and straw, potato tops, corn stalks, pea and bean vines, tan bark and saw dust. All of them are cheap, easily applied, and are generally of very little use for other purposes. In some cases spent ashes, coal screenings, and swamp muck may be advantageously employed for a mulch. The material should not be so light that it will be likely to be blown away by the wind. It should not be so coarse that weeds will grow between portions of it. It should not form so close a mat that rain will not penetrate it. It should not contain foul seed that will spring up and produce trouble. It should not be so filthy that it would injure the fruit that falls on or comes in connection with it.

In mulching strawberry vines there is nothing equal to fine, soft grass, cut before seed has formed, and applied when it is entirely green. It is not necessary to mulch strawberry plants till about the time they commence to blossom, and at this period it is easy to obtain a supply of green grass. The soil between the plants should be worked till about this time. The grass should be spread close to the crown of the roots and made to cover all the ground between the roots. It will not only aid the growth of the plants but will be of very great advantage in protecting the fruit. It will prevent its coming in contact with the ground, and will also prevent mud from being spattered on it by the rain. In the course of a few days after it is applied it will form a clean, soft mat.

Long corn-stalks make an excellent mulch for grape vines, as they may be applied to the ground sufficiently thick to prevent grass and weeds from growing up between them. They are rich in

potash and other substances of value for the growth of vines and the production of fruit. The twigs that are cut from the vines at pruning time may be added to the corn-stalks with advantage. Damaged hay, straw and other similar materials form a good mulch for berry bushes. It is very difficult to keep grass and weeds from growing among raspberry, blackberry and gooseberry bushes if the soil is not covered by a suitable mulch. A thick mulch, however, prevents their appearance and causes the bushes to make a vigorous growth. It will also keep the fruit from being spattered by mud, and render the gathering of it easy.

Forest trees, shrubs and vines require a mulch more than those that have long been cultivated. The material used, however, should not be rich in ammonia, and on this account barn yard manure, however coarse, should not be employed. This coarse manure is highly valuable for fruit trees which require more fertilizing material than those that produce only leaves and small seeds. A mulch to be of the highest benefit should be spread over the ground as far as the roots are likely to extend. It should be renewed as often as it decays and goes to form a portion of the soil in which the roots feed. The frequency of the renewal will of course depend on the kind and quantity of the material emplcyed. It is not best to combine ashes or lime with vegetable matter that is to form a mulch, as either of them would hasten decay. The best time to apply a mulch is just before the approach of hot or dry weather. The soil below a good mulch is not likely to become too solid for roots to penetrate it easily unless it is frequently tramped from gathering fruit. When this is the case it can be readily loosened with a fork without disturbing the mulch to any considerable extent.

GRAFTING THE GRAPE.

This topic, states a correspondent of the *Rural New Yorker*, has been written and rewritten about by ancient and modern authors until there seems but little, if anything, left untold; yet, perhaps, the results of my observation and experience on the subject may prove interesting to some of your many readers, and I offer them in the hope that they may to some extent benefit, at least, the beginner.

There are various circumstances which make it desirable to graft the vine; for instance, we may have some strong vines of a worthless variety, and by grafting them with an improved sort we cause

them to produce fruit of greater value in much less time and in larger quantity than we could have obtained by replacing the old by young vines of the desired variety. Again, some of our finest varieties have either defective foliage or feeble roots, or they may be of delicate constitution, and by grafting them on some of the hardy and strong-growing sorts, we improve their condition sufficiently to enable us to grow them profitably for market. By adopting this method many of our vineyardists grow to perfection and at a handsome profit such varieties as Allen's Hybrid, Rogers' Hybrids, Rebecca, Montgomery, etc.

There are several methods of grafting in practice, viz.: splice-grafting, inarching, cleft-grafting, etc., the last being more generally in use, not, however, on account of its superior merit, I presume, but because it is the one form most commonly followed in grafting fruit trees. The vine is generally considered to be far more difficult to graft than most other fruits, and justly so, from the fact that the bark is very thin, and the grain of the wood usually more or less crooked and gnarled, making it difficult to form a perfect-fitting joint. Vines of medium size make the most desirable stocks, but those of large size may be successfully grafted if they are vigorous and healthy.

To perform the operation, I remove the earth surrounding the crown of the vine down to the roots, and select that portion of the stock below ground which appears straightest in the grain of the wood; I saw off the top within three of four inches of the roots, and, having split the stock through the center, select for the cion a piece of the desired variety of medium size, short-jointed, with well-ripened wood, consisting of two buds; if the wood should be long-jointed, then one bud only should be used. Beginning just below the bud, pare the cion to the shape of a rather long, slim wedge, to fit the cleft in the stock, and insert it by opening the cleft with a wedge or chisel and press it down firmly, being careful to observe that the bark of the stock and that of the cion match and cross each other slightly, in order that the cion may catch the rising sap, and thus sustain it till the union is complete. If the stock is small and does not hold the cion firmly in place, it should be secured by wrapping firmly with cord or wire. If the latter is used, care must be taken that it is removed about August 1, or after it has made five or six feet of growth, otherwise it would eventually cut off the cion.

After the operation is completed a mound of earth about three feet in diameter sufficiently high to cover all except the top, should be thrown around the cion, which should be protected on the sunny side by a half-inverted flower pot or board until it has formed a union and made some two or three inches of growth, when it should be gradually inured to the sun, and after a few days the protection may be entirely removed. Numerous suckers, or sprouts, will make their appearance from time to time from the crown of the stock, which must be removed or they will rob the cion of the required amount of sap and it will either perish or produce a feeble and sickly growth. To remove these superfluous shoots, a careful hand should be employed, as in the early stages of growth there is great danger of breaking off the young growth of the cion. In doing the work, carefully put aside the earth with the hand and take them off one by one. When all are rubbed off, replace the earth around the cion, covering it well up to the top of the wood. This should be repeated as often as shoots appear.

There are several periods during the year when the vine may be grafted, and each has its advocates. Some prefer the early spring, others are most successful in May, when the vines have grown some three or four inches, and up to the early part of June. In this case, however, the cions must be kept in an ice house or cold cellar to preserve them in a dormant state. The season generally adopted in this vicinity is early spring — as early as the ground is fit "to work." Some of our vineyardists are very successful with this early grafting, one of my neighbors getting as high as ninety-five per cent. of the cions to grow, and many of them make from ten to twenty feet of growth, and produce a medium crop of fruit the second year after being grafted.

BEANS AS FOOD FOR SHEEP.

People who are keeping sheep in the west, especially those who are located on or near the great plains, would do well to experiment in raising field beans for food during the fall and winter. Beans do better on poor and dry soils than almost any other crop that is raised for stock. By planting the seed as soon as danger from frosts is over the crop can be matured before the summer drouths occur. The value of beans for sheep has been acknowledged by all who have fed them out. They contain a very large

amount of nitrogen which adds to the formation of flesh. They constitute the most concentrated food that is fed to stock with the exception of oil-cake or cotton seed. The amount of nutriment contained in beans is remarkable. The owners of mines in South America compel their workmen to eat a ration of beans every two or three days whether they relish them or not. Sheep of all ages are very fond of beans and will eat them in preference to any kind of food offered them. They may be raised to good advantage on inverted sod by sowing the seed broadcast and covering it with a harrow. They may be raised in the same manner on old ground that is free from grass and weeds. It is better, however, to plant them in drills and to work the ground between them with a cultivator. Beans should not be cultivated when the vines are wet with rain or dew, as disturbing the leaves at these times causes them to rust. When mature, the vines should be pulled from the ground, partially dried in the sun, and then placed under cover or in small stacks. A stack for beans can be made by driving three stakes into the ground about three feet apart so as to form the corners of a triangle. The stakes should incline outward so they will be about four feet apart at the top. A support for the vine can be made by tying withes or cords about the stakes a foot or more above the surface of the ground. The vines should be crowded between the stakes with their roots toward the inside. The stacks, when completed, should be egg-shaped. The top may be covered with long grass or straw so it will completely shed rain. The beans can be thrashed at any time they are wanted with a hand-flail. It is not necessary to thrash them for sheep, as they will eat the entire pods and the leaves that remain on the vines.

OBJECTIONS TO ROOTS.

With all their advocates may say in their favor, but little progress is made in this country in raising roots for stock. All the English authorities on stock feeding commend them, but it must be remembered that the climate and labor market in Great Britain are very different from ours. There, corn cannot be raised, while the climate is excellent, not only for the production, but for the preservation of roots of all kinds. In most parts of the island, roots can remain in the ground until they are wanted for feeding to animals. By the employment of hurdle fences, sheep will eat

Swede and flat turnips, as well as mangolds, as they stand in the soil where they grew. Only a very slight protection is required to keep them through the most severe winter. Drouths are not common, and for this reason roots of all kinds make a huge growth. Land is costly, but labor is comparatively cheap, and accordingly there is a disposition to make the soil produce the largest amount of food crops possible. Much of the hay produced is required to support the horses kept in cities or used by the gentry living in the country. Roots constitute a large proportion of the food eaten by cattle and sheep. They are, however, fed in connection with highly concentrated food, as oil cake and cotton seed meal. No farmer expects to fatten stock on roots alone. The price of roots, as compared with hay, is very low in England. At last accounts, hay was selling at $30 per ton in the Liverpool market, while turnips bring but $5, and mangolds are still lower. It may be some cheaper to raise six tons of turnips than one ton of hay in England, but, with the exception of a few localities, this is not the case here. With hay at $6 per ton, it would be necessary to produce, dig and store turnips for one-sixth of that sum. In portions of this country where the soil and climate are favorable to the production of root crops, farmers object to them for the reasons that they require a large amount of hand work in sowing, thinning out, cultivating and harvesting; that their preservation is costly and difficult; that they must be sliced or pulped in order to be of the greatest advantage to stock, and that they are dirty to handle. Although roots may never take the place of hay and corn to any considerable extent in this country, on account of the reasons given above, there is economy in producing them in limited quantities, in order to afford a change of diet.

CROPS FOR SANDY SOILS.

Rye is the best grain crop for sandy land. The plant can be raised to good advantage, not only for the grain it affords, but for the straw, which can be disposed of at good prices to paper-mills when they are not at too great a distance. It is also an excellent crop to raise for summer or winter pasturage. It may be sown between rows of standing corn and fed off after the crop is harvested. In May, what remains can be turned under by the plow for the purpose of fertilizing the soil. It can also be sown on land from which

a crop of early potatoes has been taken off and devoted to the same purposes as that raised in a corn-field. The fertility of sandy soils is soon exhausted unless special pains are taken to apply fertilizers of some kind. The cheapest method of enriching sandy soils is that of plowing under the green crops that are raised on them after an early crop is harvested. Lime acts favorably on sandy soil, especially after green crops have been turned under. Gypsum, or land-plaster, is another good mineral manure for sandy soils. It increases the growth of clover and potatoes; is cheap and easily applied. The earlier varieties of potatoes usually do better on sandy, lowly land than the latter sorts. Buckwheat can generally be raised to good advantage, both on account of the grain and the stalks, which serve as manure. Clover succeeds much better on sandy soils than the true grasses. It furnishes food for stock, while the roots help enrich the soil. Melons, squashes and pumpkins all do well on soils abounding in sand, and the like is true of all kinds of pears. A soil which is quite sandy will produce a good crop of northern sugar-cane, and some of the best samples of syrup and molasses produced last season were made from cane grown on land that was considered as too poor to raise a paying crop of corn. A sandy farm is unsuited for dairy purposes. Permanent pastures cannot be maintained on it, and these are essential to the production of the grasses that afford the best milk. A sandy farm will not carry a large amount of stock unless the system of preserving fodder in silos is practiced. As a consequence, the fertility of the soil must be kept up by green manuring.

SUCCESSION OF GARDEN VEGETABLES.

When we read of produce worth from $500 to $1,000 per acre being taken from a garden we must understand that the ground was not only highly manured and well worked, but that it was made to produce several successive crops of vegetables during the same season. In the vicinity of Boston it is not unusual to raise four crops on the same soil, short as is the growing season. Winter spinach is harvested early in April, the seeds having been sown after the ground had been cleared of vegetables the previous fall. Onion sets, garden cress, lettuce or radishes are then planted and are ready for market by the first of June. Melon or squash vines started in hot-beds, are then set out in hills about eight feet apart,

and kept from running long distances by pinching off the ends The ground between the hills is planted with celery. If the first crop harvested is winter spinach, it is comparatively easy to mature a crop of early and of late cabbages or cauliflower on the same soil, if the cabbage and cauliflower plants are started in a hot-bed. A sufficient number of radishes, cabbage and cauliflower plants can generally be raised in rows of beets, carrots and parsnips, and taken out before the plants last named are of sufficient size to require the entire space. They serve a useful purpose in marking the rows so that the soil between them may be kept clear of weeds. Late beets, carrots and parsnips require nearly the entire season to attain full growth, but in the case of most garden vegetables two crops can generally be raised on the same soil to excellent advantage. Among the vegetables suited for the first crop are spinach, top onions, lettuce, radishes and early peas, beans, potatoes and cabbage. The best crops to succeed these are celery, flat turnips, tomatoes, melons, squashes, cauliflower, and late corn, potatoes, peas and cabbage. Melons, squashes, tomatoes and Lima beans may be started between rows of early potatoes, as the latter will be dug before the former will attain such a growth as to require any considerable amount of space. Where ground is kept occupied by vegetables designed for the table or market there is no space for weeds or grass.

RAISING COWS FOR THE DAIRY.

In the best dairy regions of the country but very few calves are raised. Farmers who make a business of producing milk for supplying the city market, or for the manufacture of butter and cheese, generally state that it is more economical to keep up the size of their herds by purchasing cows than by raising them. They want to sell all the milk they can, and if they are obliged to feed calves, a large proportion of that produced is consumed at home. Land in regions long devoted to dairying is too costly to devote to raising stock, and the majority of dairy farmers desire to sell their cows when they commence to fail in their yield of milk, and to purchase those that are young and promising. The demand for good milch cows is increasing very rapidly, and the prices paid for them is higher from year to year. As a rule, a cow three or four years old, in ordinary flesh, but heavy with calf, or with a calf by her side, will sell for more than a steer of the same age that will weigh

several hundred pounds more and is in a condition of fatness to furnish mess beef. The expense of raising the latter is much less than that of the former. In a part of the country where many animals are raised for beef, female calves sell for less than males, and are in smaller demand. It will require less food to support them till a given age, owing to their smaller size. The steers must be well fed on corn or small grain for several months in order to fit them for the market. The cows, however, if designed for the dairy, will require no more expensive food than grass and hay. Again, the market for dairy cows is nearer the homes of western farmers than that for beef cattle. By selecting bulls of a family of Shorthorns or Ayrshires, noted for their milking qualities, there is no more expense involved in breeding cattle for the dairy than for the slaughter pen. The males can be raised for beef and the females for producing milk. If it is the case, as it is not likely to be, that cattle bring more for slaughtering than for dairy purposes, the cows can be fattened.

EASY WAY TO IMPROVE SOILS.

A sandy soil is greatly improved by mixing clay with it. The clay renders it more retentive of moisture and gases, both of which promote the growth of plants. Clayey soils are greatly benefited by the addition of sand. The presence of some sand in soil chiefly composed of clay makes it easier to work, whether the plow, harrow, cultivator or hoe is employed. The roller will not crush a lump of hard, dry clay, but it will completely break down one composed of a mixture of clay and sand. In fact, large lumps are not likely to be found in soils where there is a considerable amount of sand; neither will a hard crust be formed or deep cracks open. Nearly pure sand or clay is unsuited to the growth of valuable plants, but by combining the two the foundation of a most excellent soil may be formed. It is not uncommon for one part of a farm to abound in clay and another in sand. When this is the case an effort should be made to combine the two. Sand often lies on hills and ridges situated above the deposits of clay, and when this occurs the former can be easily carried onto the latter by the use of the scraper. To carry the clay to the sand it will be necessary to employ a wagon. Two pieces of land, one composed of sand and the other of clay, may be so situated that a cart or wagon can be advantageously employed in carrying both. When this is done, a load of sand

can be taken to the clay land and a load of clay brought back. The condition of clay may be greatly improved by combining with it any substance that will serve to render and keep it light. Corn-stalks, sawdust, spent tan bark, and vegetable rubbish of any kind may be plowed in to excellent advantage. Peat and swamp muck are valuable to apply to either clay or sand, and can generally be cheaply obtained.

INJURY TO BARK OF TREES.

The bark on large numbers of fruit trees has been injured during the past winter by a variety of causes. Sleet and snow have caused branches to be broken off, in many cases tearing the bark from the tree for a considerable distance below them. The wind has caused the branches of trees to rub against each other, thereby injuring the bark of both at the place of contact. The great quantity of snow on the ground and the scarcity of food have caused rabbits and field mice to gnaw the bark of young fruit trees. Sometimes the bark has been removed only in spots, but not unfrequently a young tree has been entirely girdled. Attention should be immediately given to the condition of trees whose bark has been injured in any of the ways noticed. In case a branch has been broken, but remains suspended from the tree, it should be detached and the wound covered with grafting wax, paint, or varnish. If branches have worn against each other, one of them should be removed, and the wound on the other covered with some substance that will completely exclude the air. It is more difficult to manage the wounds inflicted by the teeth of small animals on the trunks of small trees quite near the surface of the ground, as injuries to the trunk of a tree affect every portion of it. Generally the best treatment consists in placing a turf of grass against the wound, and in packing earth closely around it. There is an advantage in first covering the wood with paint or varnish, and then applying the earth. In case the trunk has been entirely girdled, it will be necessary to insert twigs cut from the trees and sharpened at each end and between the portions of bark that remain above and below the denuded surface. These will afford means for the sap to pass upward. The entire space should then be covered with fresh earth, which should be well pressed down.

TRAINING LOW FOR FRUIT.

Many persons seem to delight in seeing how tall they can make all their trees, vines, shrubs and smaller plants grow. In setting out an orchard, they select very tall trees, and prune them so that they will resemble Lombardy poplars as nearly as possible. They train all their currant and gooseberry bushes in tree form. They insist on making their grape vines climb trees, or run over the tops of arbors or trellises high enough to allow a person to walk under them with a stove-pipe hat on. They can find no poles sufficiently long to support the vines of Lima beans. They carry squash vines over brush heaps, or over the roofs of low buildings. They select the long, spindling tomato plants raised in hot houses, and support them by stakes as they extend in length. They pinch off all the branches of trees, bushes, vines and small plants that appear near the surface of the ground, but allow those that project upward to extend as far as possible. They seem to prefer to climb a step ladder when they wish to pick apples, pears, cherries or grapes. They appear to believe that the atmosphere is warmer the farther you get from the surface of the earth. Their theory and practice are both wrong. There is every advantage in growing fruit near the ground. It grows to a larger size, and ripens better than when at a distance of several feet from the earth. Plants both large and small, as well as the fruit they produce, suffer less from the cold and winds when they extend but a short distance from the ground. The fruit on them is easier gathered, is injured less if it falls off. With rare exceptions, fruit matures earlier when grown near the ground. Trees with low heads, and vines, bushes and annual plants trained near the surface of the soil generally grow better than those that are encouraged to grow tall. They shade the ground to a considerable extent, and in that way prevent it from becoming very dry, as it does when the sun shines directly upon it.

PROFITABLE GARDENS.

Western farmers, as a rule, have poorer vegetables on their tables and a smaller variety of them than any class of people in the country. Farmers in the eastern states find a good vegetable garden not only a great aid toward getting a living, but an absolute necessity. With rare exceptions, the owner of a forty-acre farm in New England will have a much better garden than the pro-

prietor of a section of land in one of the prairie states. The farmer will have a succession of fine vegetables fresh from the ground from the time when the frost leaves the ground in the spring till it closes it in the fall. In addition, he will have vegetables to pickle and preserve, to dispose of in the market at the nearest village, and to store in his cellar for the supply of the family during the winter. The garden will supply the table with half the articles consumed by the family during a large portion of the year. It will save some grocers' bills and help pay others. In many cases it will be the means of supplying the household with pin-money.

Nearly every trader, mechanic, laborer, or professional man in a country village, east, has a good vegetable garden. It is planted and tended during odd hours, when there is little to be done in the regular line of business. It is planted with a great variety of vegetables and small fruits. None of this small area of land is allowed to be unproductive during any considerable portion of the growing season; the ground that was occupied with very early vegetables in the spring is replanted to other things as the former are gathered. The garden supplies the family with common and rare vegetables and small fruits, and furnishes a considerable portion of the food eaten by a cow, which furnishes a supply of milk.

Persons living in large cities are ordinarily well supplied with choice vegetables during the entire season. In the early spring they are brought from the distant south, or produced in hot-houses. The summer, fall and winter supply are obtained from the commercial gardens, many of which are conducted with great skill, being supplied with hot-beds and forcing-houses. Many farmers who visit cities eat these fine vegetables, which are furnished at hotels and restaurants in and out of season, and express their regret that they cannot obtain them at home. They are astonished at the variety they find on bills of fare, and marvel at the skill that is required to produce them. It does not seem to occur to them that they are as easily produced as any of the crops they raise in the field.

In order to render a garden profitable, in town or country, it is necessary to give attention to the selection of a suitable spot of land, to render it very rich with well-rotted manure or commercial fertilizers, to prepare the soil thoroughly before planting, to put in

the seeds at the times when they are most likely to germinate, to thin out the young plants before they have attained a very large growth, to keep the ground clear of grass and weeds, to replant the soil as often as one crop is removed, and to do all the work required in the proper season. Garden vegetables will not bear neglect any better than field crops. Each requires a peculiar time for planting, and will not grow to advantage if planted out of season. No farmer would think of planting corn at the time he sows spring wheat, or of sowing Hungarian grass and buckwheat on the same day that he plants early potatoes or sows grass seed. Still many persons pursue this course with the seeds of garden vegetables, and then wonder that they do not produce good crops. They entirely fail to pay any attention to the habits of plants, and then complain of bad luck.

There is a disposition to neglect keeping ground clear of weeds and grass that is not kept fully or partially covered with useful vegetation. On this account it is best to keep all the soil devoted to garden products planted with some vegetables that will be of use to the family. It takes but a few weeks to mature peas, bush-beans, spinach, top-onions, lettuce, and garden cress, and, after they are taken off, the ground may be planted with potatoes, cabbage, cauliflower or turnips. Carrots, parsnips, late beets and Lima beans require the whole growing season to mature in, but two crops of many kinds of vegetables may be grown on the same soil on account of the short time required for them to attain a full growth.

Many persons waste much time in the garden by planting a large portion of their vegetables in small beds. The laying out and making of these beds requires a large amount of labor, and unless great care is taken the sides of them will break or wash down and the vegetables near them be of very poor quality. Generally it takes more time to keep the walks between beds in proper order than to cultivate an equal amount of land that is planted to desirable crops. All the work of cultivating plants in beds must be performed with the hand-hoe, rake or trowel. A few small vegetables, of which only a very limited amount is required, may be advantageously planted in beds. The list may generally be limited to cress, lettuce, parsley, sage and other kinds of sweet berhs.

Most vegetables should be planted in drills, which should extend

from one side of the garden to the other. They should be from two to three feet apart, according to the size of the plants that are to occupy them, and the width of the cultivator that is to be used between them. The rows should be entirely straight, so that the cultivator may run close to the plants the entire distance without danger of disturbing them. As some seeds are very slow in germinating, it is advisable to drop in the row with them a few seeds that come up quickly and will mark the direction of the drill. The seeds of radish and cabbage are best for this purpose, as the radishes may be pulled and eaten before the other plants have attained any considerable size, while the cabbage plants can be removed to the places where they are to mature, as occasion demands. By being able to distinguish the direction of the rows within a few days of the time they were planted, the ground between them may be kept clear of weeds with very little trouble. If it is necessary to wait, however, for the seeds that germinate slowly to come up, all the soil will be occupied with weeds.

A farmer is not likely to lose on any of the products of even a large garden. Most of the vegetables that are not needed for immediate wants of the family, can be disposed of to good advantage in the nearest village, or stored for use during the winter. Surplus tomatoes may be canned, cucumbers converted into pickles and cabbages made into sour-krout. Most garden vegetables make excellent stock food, and are especially adapted to milch cows. The tops of beets and turnips, the lower leaves of cabbages and cauliflower, specked, or badly shaped squashes and melons, pea vines and the stalks of sweet corn, are all of great benefit to cows that are giving milk. They afford a variety to the kinds of food in general use, gratify the appetite, and increase the flow of milk. Beets and turnips of any variety, carrots and parsnips, are relished by most kinds of stock, and if raised according to the manner suggested, are as cheap as any kind of food that is produced by the aid of cultivation. Celery, cress, peppers, the bulbs and tops of onions, as well as other kinds of highly flavored vegetables, are highly valuable for fowls.

PROCEEDINGS OF THE SOUTHERN WISCONSIN CANE GROWERS' AND MANUFACTURERS' ASSOCIATION.

Held at the Bidwell House in the village of Palmyra, Jefferson Co., Wis., on the 17th and 18th of February, 1881.

MORNING SESSION.

Pursuant to call of President O. P. Dow, the association convened at the Bidwell Hall, and was called to order at ten o'clock A. M. L. B. Green was present as secretary. The proceedings of the last annual meeting of the association were read by the secretary and approved.

A committee of three was appointed by the president to draft a constitution for the association, and to report at two o'clock P. M. C. S. Cartwright was appointed by the chair as assistant secretary of the meeting. On motion the association adjourned to meet at two o'clock P. M.

AFTERNOON SESSION.

Meeting called to order by the president at two P. M., and a very interesting paper from O. P. Dow was read, containing much thought on the general wants connected with the cane growing interests, as follows:

Gentlemen of the Southern Cane Growers' and Manufacturers' Association — It is with much pleasure that I meet so many to-day who are interested in one of the growing industries of the state, and one which we believe will in no distant day become of the largely paying industries of the northwest, inasmuch as a great home demand will be supplied by home production and by home labor. It is true that some of us have been looking forward to such a result for the last twenty years or more, having had a continuous and abiding faith, although the progress toward the result has been comparatively slow, and the advance has been accompanied with the usual difficulties common with all new enterprises.

This cane growing business and the manufacture of syrups and sugar have had their ups and downs within the short time since the introduction of cane culture into our state. There have been times when the most sanguine in the belief as to its success and future usefulness to the country and people as a home industry, and as a

home necessity, almost dispaired of realizing their anticipations, on account of the seeming popular prejudice against the product from the cane called sorghum; the result of the first trials to produce home sweets. But thanks to the few who have persistently stood by through thick and thin, manifesting their faith by their works, plodding along year after year in the path of advance, declaring that good and profitable sweets must and would be produced from the cane product of Wisconsin — continuing to adhere to their former faith in success, and being satisfied with the small advances yearly made in the quality of the product manufactured — only reaching out at the same time toward perfection. There was for the first few years after the first plantings of cane in Wisconsin (1857 and 1858) a stirring interest in the new enterprise, amounting to almost enthusiasm. Crushers, and fixtures for manufacture were scattered in different parts of the state, and many engaged in the work in real earnest, and produced some good and some hardly palatable syrups, a quality as a rule that would scarcely be accepted, or compete in the market with even the lower grades of syrups. In fact, the taste of much of the article produced during the early processes of manufacture engendered in the consumer a kind of disgust, causing him in some instances to declare that he could mix equal parts of tar and vinegar and produce his own sorghum, and he would do it rather than subject himself to the task of producing cane for such a result. The fact was that the most of the first products from the sorgho had a peculiar flavor to which the consumer had not been accustomed, and the consumer very naturally concluded that it was not of much account after all, and he would not use it. This sentiment after a time prevailed and the whole business would have been in oblivion to-day, had it not been that the few adherents persistently moved on, led by the apparent light ahead, advancing and improving while there was a lull of a few years after the first five, of rude trial. We happened to be among some of the first who had trials in this comparatively new enterprise, but we have not time to give our interesting trials and experience of some twenty or more years ago.

From the results produced in the cane growing and manufacturing interests in our state within the past few years, the improvements in machinery and in the methods of manufacture, a result of determined action on the part of the true believers, a great change has

been wrought, and public sentiment has been wonderfully changed regarding this valuable product, cane syrup; and this change may be credited as much, at least, to the fact of an improved quality of syrup as to the fact that the taste had been educated to love sorghum syrup. In short, the facts are now that we are in the year when public sentiment favors, necessity demands, and a lively interest is awakened throughout the state in this growing industry. The fact that has been brought to light, that we are paying out enormous sums of money yearly to foreign countries for selects that might be a home production; that the sweets thrown upon the market are largely adulterated, to our detriment and damage, and that consistency and economy speak to the people in unmistakable language, has prompted an extensive interest on the part of the people of this state, and in this year 1881, we verily believe that more cane sweets will be produced in Wisconsin than has been in any two previous years; and may the interest increase until Wisconsin should be under no obligation to import any of her sweets. This convention of cane growers and manufacturers was organized to advance this interest, and by exchange of ideas and opinions to diffuse more light among the members, and it is to be hoped that our expectations and anticipations will be fully realized, and that each member shall be fully satisfied that his time here has been profitably spent.

The committee appointed to draft a constitution reported, and the constitution presented by the committee was adopted.

A paper from C. F. Miller, of Minnesota, was read, which was replete with excellent advice and opportune instruction, and was well received by the association. We give the letter in full.

The following letter received from C. F. Miller, Esq., of Dundas, Minnesota, and read at the annual meeting of the Southern Wisconsin Cane Growers' and Manufacturers' Association, held at this place, will be read with much interest by cane growers and manufacturers:

Mr. Chairman and Members of the Southern Wisconsin Cane Growers' and Manufacturers' Association — In response to a call to furnish you with a few items bearing upon the important subject of cane culture, and syrup and sugar manufacture, I gladly hasten to jot down a few "notes," which, if of any value to you, I will feel paid for any effort which I may make in this direction.

First, let me say, that if I should say something that is not new to some of you, please excuse it, as it may be new to some, to whom it will be of service.

Twenty-three years ago I planted my *first* field in "sorghum," in the state of Iowa. I won't tell you of the result, for you will derive no benefit if I do, although the nature of my experiments would not warrant a further trial. Yet, notwithstanding, I did the next year make another attempt, then still another, and have never yet ceased my efforts in this direction. The two decades which have gone by have witnessed grand results. There are some fine points which should be strictly adhered to in the management of cane culture and of its manufacture.

I will briefly endeavor to point out some of them to you, but will say it is impossible to learn any one this trade with the pen. If any one who is desirous of getting the best knowledge of this business, should work one fall or season with those who have been the most successful in the business, and then if they do not understand its *modus operandi*, our advise to such would be to not undertake it ever afterwards.

The subjects of soils seem to come first under our consideration. I was traveling this winter on a railroad train through a portion of your state, not far from Madison, when I accidentally fell into conversation with a man who lived in that vicinity. He said there was a large amount of land thereabouts that was considered as poor, too sandy or clayey, to produce much of the ordinary crops. Now, gentlemen, these very cheap and poor soils are just what you want for cane growing. The *quality* of your goods will be superior every time, when your cane is raised on such soils, as compared with syrups made from cane raised on the rich black soils, such as we have out here in Minnesota and Iowa, or our rolling praries.

Much has been said about seed. Perhaps many of you are aware that the Early Amber is the only variety which you can "tie to" in our northern latitudes; in fact you should give up any favorable opinions which you may entertain concerning other varieties. The Early Amber is the *ne plus ultra*, the great *desideratum* to all who plant cane north of latitude 42°.

PURE SEED.

This is a very important point, which your attention should be called to. Many of you are conversant with the fact how the old

Chinese variety became so degenerated by being planted in every section and at random by every cultivator, many times in positions that it became so mixed up with various other plants of the same family, that it did become nearly worthless. When I first found the Early Amber cane growing in an obscure corner in this state, I obtained a package of the seed, in 1875, and upon raising one crop and making it up, I found it to possess a value that I had never before witnessed in any other cane. My wish was at once, that every planter in our whole country should come in possession of this bonanza. I knew, if it was raised in these high latitudes for many consecutive years, that degeneracy would be certain, consequently I at once sent a package of the seed, carefully selected, to a southern state (the home of the cane), where it was carefully cultivated, and the seed so raised was sent to me for my planting. The next year I sent more seed down to "Dixie," which was again planted there and returned north. I practiced this interchanging, or alternating, of the seed until I found by comparing my cane at maturity, with fields which had been replanted with the seed of their own production, six, seven, eight or nine years, that while those only attained a height of six and eight feet, and yielded from seventy-five to one hundred and twenty-five gallons per acre, my cane had reached up to the top of a twelve foot pole, and was in some instances yielding as high as three hundred gallons per acre.

The Early Amber cane I felt to be of such worth, that I formed the acquaintance of Mr. Kenney, and put forth our united efforts to introduce this new and worthy sugar plant through the whole country, if not through the whole world. We were sure that our seed was pure and excellent, and would be the very best to send out. How well we have succeeded, the echo of this "new boom" tells you. Letters from all parts of our country are coming to us, telling us of the hopes which the Early Amber has inspired. Somebody has faith in it, I can tell you! Our best cane machinery manufacturers are taxed to the utmost to supply the demand on them for machines. While in Cincinnati lately, I witnessed a new and very large building put up in addition to the already mammoth works, where before, as they told me, they were enabled to turn out fifty mills and evaporators daily.

We sold last year over four thousand pounds of the seed to Japan, also a large lot to Paris, France. This year the call is unabated.

We must keep our seed pure, or a national calamity will ensue. It will mix itself with broom corn, and with many other plants when planted within one-half a mile or more of them, or just as far as the pollen of the one will blow and be carried on the "wings of the wind," and lodge on the stamens of the other. We hope that the Early Amber cane will never lose its identity. This task of preserving its purity and of keeping it up to its high standard of excellence has seemed to devolve upon us; how well we shall do it we leave for time to determine. Much is said in relation to the respective merits of southern and northern grown seed.

Seed which is obtained from a reliable source, and is planted in the north two or three years, suffers no material change, but I would earnestly advise all to plant a portion of their fields with northern grown seed, and thus secure a planting which will mature a week or two earlier, that they may commence with their machinery sooner. Then the larger one-half, so to speak, plant with good southern grown seed, which will come into maturity afterwards and will yield a little more heavily.

Early planting cannot be too strongly insisted upon, for manifest reasons. Early planted cane will come up sooner (that is before late planted), and will keep ahead all summer and be ripe before the frost, while late planted does not get sufficient root before the scorching, burning droughts of early summer will tell unfavorably in its growth, and in the fall, in nine cases out of ten, you will find it unripe when old "Boreas" comes, and you will take up the lamentation, "One day after the Fair," and this means nothing less than disaster! a failure of your cane crop in the year of eighteen hundred and frozen to death!

So don't delay planting a *single day* after you can work your ground. Call in all the help you can, and rush it in, but be *particular* and have it *well* done. Some people find a great deal of poetry in drill planting, which I could never see! My best results ever has been in the check rows, three and one-half or three feet nine inches each way, covered only just deep enough to secure sufficient moisture without drying out, to germinate the seed. Then step on each hill after it is planted, so as to compress the earth around the seed, and it insures more perfect germination; but bear in mind, if your soil is clayey or of a clayey nature, and is a little wet, too much pressure will "mortar" it together, and it will

bake hard, and your cane will never "come." On sandy or mucky soils, no harm can arise. For small fields, a corn planter can be so rigged over with a "slide" and a very small seed cup in it, which will work very satisfactorily, but for large plantations a horse planter should be employed.

It is inadmissible to allow the small cane to become choked with the weeds, for when once overwhelmed with them, your labor is increased twenty fold to relieve your cane, and then it will never entirely recuperate. I would suggest summer fallowing as one of the best means of destroying the weeds. This is the best way in which to prepare land for planting cane, as it very thoroughly destroys the weeds, insomuch that the labor of cultivating the coming crop is very much lessened.

Cane should receive thorough cultivation all through its earliest stages of growth, and when it is two and a half feet high, every weed should be vanquished, so that now all cultivation may cease, and the field be left to itself.

Now the mill and buildings should be put in the best of condition. All fixtures and appurtenances must receive close inspection, every lack must be fully supplied, as when the day comes when the strike is made which commences your manufacturing operations, there will not be a moment's time to arrange machinery or fixtures. We all know that we have enough to attend to then, to secure and work our crop.

Some may want to know what this machinery is to be, and all about it. Space entirely forbids any detailed account of it, but I will say this: that if any one who is intending to go into the business and wishes to write me concerning any points, and will tell me how he wants to work, by steam or horse power, how many acres he wishes to work, I will cheerfully reply to the best of my knowledge.

Fuel is an item of much importance, and it has been proven without a doubt (especially in the use of steam power and for steam evaporating) that the begasse can be most economically and successfully used. Our common horse power mills ordinarily do not crush out the dampness from the begasse as thoroughly as do the crushers that are propelled by the strong power of steam, consequently it does not burn so readily. I have never used the begasse as fuel, but intend using it exclusively next fall.

Of all the evaporators which are in use for open fire boiling, you may rest assured that the one known as the "Cook" is the very best, and all of our most successful operators will say the same of them. One great objection to them has been the great labor of skimming. This, however, is now overcome almost entirely; in fact, so much so, that when they are properly constructed, and set on the arch, and systematically operated, it is nearly automatic in that particular.

The manufacturing department is by far the most difficult of any, and every one should seek all the knowledge possible on every point. The defication of the syrups is a very fine point which should be always attended to by a careful hand, and when properly done, the value of your goods is increased twenty-five per cent. The best chemical agent yet known is good lime, which, if properly prepared, and correctly applied to the hot juice, and all of the manipulations are carried on correctly, the results are the most cheering. No operator who works ten acres of cane annually, can afford to run the juice through the old crude way. The refined or deficated syrups will sell, if good, by the car load lots to wholesale jobbers, and will command a good market anywhere, and, if fine, will be used on the tables of our first-class people in all of our cities, while the crude syrups will have to find their own markets, and half the time must go begging. And again, the defication removes much of the impurities which prevent granulation. I have seen syrups which had been properly treated before reducing, that upon cooling down twenty-four hours, crystallize so largely, that a boy might stand on the surface and not sink in, which I never saw in the old crude process.

My way of preparing the lime for use has been to take quick lime and put it into a large tub, or kettle, and pour on a quantity of water, and as it begins to slack and heat up add more water, sufficient so as that the heat will not get too high; then, when the whole is crumbled, pour in water enough to cover it perhaps one or more inches. Then let it stand until it becomes settled and clear, then pour off carefully the clear water, then add as much water again, stirring the whole together, and let it again settle, after which again pour off as before. Continue this washing process of the lime until the third or fourth time. This thoroughly washes out the alkaline potash from the lime, and it is now ready

for use. This is now what is known among sugar men as the "cream of lime," which, in fact, is of about the consistency of cream. In treating the juice with it, I run out from my mill say one hundred gallons of the juice into a tank; when this is out I turn the flow from the mill into another tank of the same size which is by the side of the first; then let out the juice from this tank into the "heater," where it is just brought to a boil, then the fire is quenched out, and the thick blanket of scum is raked off, and the hot juice is then immediately drawn off into a "settling tank," where it is treated with about three quarts of the cream of lime, or only just enough to turn a slip of blue litmus paper to a faint purple. Stir the lime in thoroughly, and test, until you have the true litmus test. Then follow up with another strike, and run off from the heater into another settling tank, and then commence to run from the first strike into the evaporator as soon as you choose after it has become thoroughly settled, which should be nearly one hour from the time when it is first finished with the lime.

The juice should be boiled down to a dense syrup, if intended for sugar; and if for syrup only, just thick enough for a good syrup. Those who are not accustomed to this business of sugar boiling, will need, perhaps, the thermometer to guide them, as to the proper consistency, but I can do even better without it. The practiced eye is wonderfully accurate in sugar boiling. About 228° or 230° is the proper density for syrups, and 234° or 236° for sugar. Of course, it should be cooled down before barreling.

For steam operations we need different fixtures and apparatus. I have thrown out these few hints, believing that they will be of more general use to the mass of the cultivators. And here let me say to one and all who contemplate fixing up for manufacturing with fire pans and horse power machinery, that I hope you will not be persuaded to operate with any other kind of a mill than the vertical mill with the sweep below, because it is entirely the best arrangement you can possibly have. Your mill is above your horses, on an elevated platform, or in the second story of your building, where the same roof protects both your horses and mill, together with all the cane which you can pile around your mill. You will thus be enabled to not only pile large amounts of cane near your mill, where you can supply it as you want it, without being obliged to carry all across the horse track, and under that

precarious sweep. With this arrangement you can use the begasse carrier, and your mill from one tank into another, until it flows into the evaporator at one end and out at the other, thence through the coolers, and is finally safely passed in at the bung of the barrel, without any lifting or spilling of the juice or syrup. The horses are secure under cover, where the flies (which at that time of the year are so bad) cannot trouble them, or rains wet, or hot suns beat upon them.

You are also enabled to set up your works on level ground, upon which it is much pleasanter and easier to work. Convenience is comfort in this business, and will, if you have it, save you many a frown, if not hard words and thoughts.

There are many other little things of which I have not time now to speak. Good skilled labor cannot be had at any price, for all such is busily engaged at home.

I would speak of cooperage or storage. I was absent in the south when our own State Cane Growers' Convention convened. I saw by the reports that it was recommended that the storage should be made in large tanks, so that when a sample was taken from any one of them it might represent the whole lot. This may be very well if the different grades of the syrup which is put into them do not vary too much. Sometimes, for various causes, one has grades of syrup so widely varying in color and taste that it would be better to not mix them, as it might produce a cloudy or streaked appearance of the whole. Have several large receptacles in which to put the several grades. I like the tanking system before barreling. If you expect much granulation, in which case the precipitation of sugar then can easily be got at, and be swung out in the centrifugal, and the uncrystallized syrup can be barreled and ready for the market. It is not desirable to have your mush sugar in barrels; then neither sugar or syrup is in a merchantable shape. It is very convenient many times to have smaller packages in which to sell the syrups to individual customers. Many families want it in lots ready put up in five, ten, fifteen and twenty gallon kegs, and I hope to see the time very soon when there will be a large cooper shop that will turn out all the packages which will be wanted.

While we have it in our hearts to sweeten this whole country with a pure and delicious article of goods, let our capitalists join in the good cause and erect shops all over the northwest, and furnish us

with a good and cheap storage in which to keep and to market our goods.

I come now to speak of a subject, while it is not immediately connected with cane growing, or of syrup and sugar manufacturing, yet it will ultimately, I fear, seriously interfere with our markets and profits. I refer to the base adulterations of syrups and sugars, which is being carried on to an alarming extent in all of our large cities, and those who are engaged in such wholesale rascality should be branded with infamy and be shunned by all.

While on my way from the south, I was given the name of —— ——, of Chicago, who my informant told me was buying up these pure sorghum syrups, and glucosing them by the wholesale; some one whom they had in their employ telling him. I fear for the results. If we have to compete with our own goods, when heavily adulterated, can we stand it? They will buy the sorgo syrups and add the cheaper glucose, and then sell it for a higher price than the pure syrups would have brought before. I quote the following from the *Iowa Homestead:*

"The glucose works are not only to manufacture glucose, but are making preparations to add it to sorghum sugar. This industry is growing rapidly in various parts of the west, and the glucose company intend to utilize the advantages of their situation in Des Moines, to increase their business, by including this with their other branch. They have already purchased special machinery for this purpose, and have ordered more to be sent in the spring. They are intending to furnish farmers with the cane seed, in order to stimulate its cultivation."

Our advice to all consumers of syrups and sugars is, to know of whom they buy. There will be good and pure goods produced in rich abundance, and consumers must buy direct from our honest producers. I hope astringent laws will be enacted, and rigidly enforced, against all such adulterations, that will make it "hot" for those who are dealing in impure goods.

That it is a good paying business for us all, who manufacture fine goods that can be relied upon for their genuineness, there is no doubt. I have labored for years and years, not realizing the great things for which I had fondly hoped, but have stuck to it with a spirit worthy of the cause. Now the horizon is as bright as the noon-day, and all of my former visions of sweetness are, I trust, about to be realized.

I often remember with a smile, when, sometimes, I used to wish that "Holans Saccharatum," and all of its kindred, were landed far over into the unknown depths of the Atlantic. What changes doth time and human skill work. In the place of the tarry, bitter-sweet substance of twenty years ago, called "sorghum," we now have a beautiful amber syrup, which is but a step below the maple syrup, and with carloads of sugar (yet to come).

With all good wishes for your success in every undertaking in the business, I am, most respectfully,

C. F. MILLER.

The questions for discussion, as per programme, were then taken up in their order:

1st. What soils are best adapted to the most successful growth of the cane crop? Numerous samples of syrups produced from different soils were exhibited, showing quite evidently that color and flavor depended much upon the soil upon which the cane was grown, indicating that the lighter colored, such as high and dry and sandy and clayey soils, were best adapted to the most successful growth of the cane crop — which appeared to be the general opinion of the association.

2d. Best method of preparing the soil in order to receive the best results. On this subject nothing was offered.

3d. To what extent should fertilizers be used, and what kind? was the next subject presented. Prof. Henry, of Madison, favored the convention with remarks on soils and fertilizers to some extent, giving much practical information, and soliciting aid from farmers in assisting him in experiments to ascertain what soils and fertilizers were actually best adapted to the growth of cane. Clover sod was thought to be an excellent fertilizer and sufficiently strong for general use. Mr. Eustis, of Oakland, an extensive cane grower, was quite positive that manures were not detrimental to the growth of cane, and further believed that the color or quality was not affected by their use, and that he would manure heavily with any kind of manure that he might have. It was thought by many that extremely heavy manuring affected the quality of the juice.

4th. The best kind of seed and the method of procuring it. From the general expression of the members of the association, it was indicated that the Early Amber and Early Orange were the best varieties for this climate.

5th. On the time of planting nothing was said.

6th. The best method of cultivation. Under this head Mr. Eustis read a paper which as a whole gave a thorough idea on this subject. He cultivated forty acres last season with success. Planted in check-rows three feet each way, and did much with horse cultivator — keeping the cane clean from weeds. Some favored the plan of planting in drills, the distance between rows four feet, while others had their favorite methods, all indicating that thorough cultivativation in destroying weeds was sufficient to ensure a good crop of cane. There were a diversity of methods of cultivation advocated. It was generally conceded to be necessary that the crop should be thoroughly cultivated from the time the cane came up, until some three feet high — the land being kept clear of weeds.

The following committees were appointed by the chair:

On buildings and machinery — S. Hanson, C. Eustis, R. Williams.

On samples on exhibition — A. J. Russell, C. Cartwright, W. W. Babcock.

On resolutions — W. P. Clement, L. B. Green, C. Cartwright.

On subjects for the next annual meeting — C. Eustis, Wm. Hodges, P. Potter.

On packages — W. P. Clement, A. J. Russell, W. Peardon.

Mr. Clements, of Green county, thought the best results were obtained when the seed was in the doughy state, and that fully ripe cane was most favorable for a large yield of syrup. Mr. Russell, of Rock county, made remarks that would appear to favor the same idea.

At 5 o'clock P. M., on motion, the convention adjourned to 7 o'clock P. M.

EVENING SESSION.

Convention in session at seven o'clock P. M.

A paper was read from Ambrose Spencer, setting forth his first experience in syrup making, which was a perfect success and with which result he seemed well pleased. We give his letter as follows:

SOMERS, KENOSHA CO., WIS., February 16, 1881.

O. P. Dow, President of Cane Growers and Manufacturers' Association, Palmyra, Wisconsin:

DEAR SIR — I very much regret that I cannot be with you on the 17th and 18th inst. Having been confined to the house the past

three weeks, it would not be expedient or safe for me to make the trip, although I had not fully given up going until this morning. It was my wish to attend the meeting of your association, not that I should be able to throw any light upon the subject, or give any information to so many old workers. My motives perhaps were too selfish, for I wanted to learn and obtain information from the old and experienced manufacturers, men who are skilled in their work and have become masters of the trade. I am with you in spirit, and glad to be enrolled with such enterprising men, who are giving this new enterprise their time, their attention and experience. The last season was the beginning of cane raising in this section of the state; I had given the subject some study, and wished to get it started, and I saw no way of doing so only by personal application, therefore I procured a sample (and a poor one at that) of Amber cane syrup, and Kenny, of Minnesota, sent me a sample of sugar, which I exhibited through the community, and by persistent effort secured sufficient encouragement to put up a mill; procured an outfit from the "Madison Manufacturing Co.," and must say it worked to a charm, even in my inexperienced hands. I put myself in correspondence with N. D. Loomis, of West Salem, La Crosse Valley, who gave me much and valuable information in fitting up my works and starting. I had never seen a mill in operation or any process of manufacturing, but I succeeded beyond my most sanguine expectations; gave universal satisfaction to all for whom I worked. Made about sixteen hundred gallons of good syrup for forty patrons and I flattered myself I did it up well. My patrons were *green*, as well as myself, therefore they were more readily satisfied. I worked one lot of thirty-four rods, making fifty-two gallons. Some other small lots nearly as good. One lot of just four tons, making fifty gallons. Much of the yield was not over half that per acre. The early season was very unfavorable; the extreme wet of June and half of July prevented its proper cultivation; much of it was drowned out, and some not hoed at all, but still the result has proved very encouraging and satisfactory, and a much larger acreage will be planted another year. In cultivating I put a gill of fresh slacked lime on the hill, after first hoeing; on four rows I found that in heading out and ripening, it was full eight or ten days ahead of the field; would like to hear from old cultivators on that subject.

Another mill was started in an adjoining town with much the success I had, by Mr. Thayer & Son. I hope they will be with you to report. If your proceedings are published in any form, as I hope they will be, I wish you to send me a copy and price and I will send stamps.

I hope you will have a goodly setting together and much light and encouragement given to one and another in this new and growing enterprise, one which in the near future will become one of the leading industries of our country.

Yours very truly,

AMBROSE SPENCER.

A discussion on article 7 was resumed, "At what stage of development should cane be harvested?" Prof. Henry made a few remarks, showing the progress of the plant in its growth, which from a scientific standpoint would seem to indicate that cane should be harvested when well advanced toward maturity.

Mr. Hodges was not so particular in stripping cane as he formerly was. He cut the cane and at the same time cut the tops off and laid it in small piles cross-wise the rows. Mr. Russell stripped with a forked stick, and was decidedly in favor of stripping cane. Mr. Patchin stripped with a lath or something similar in size — was not in favor of a forked stick or manure fork. Mr. McIntyre inquired if the cane-growers had any trouble with the suckers, which question was answered that it was not best to crush them for syrup.

8th. Does it pay to strip cane? Mr. E. Francisco would not be particular in stripping; would probably take off three-fourths of the leaves. Wm. Peardon thought it would pay to strip cane, as it made a much better quality of syrup. Mr. Russell stated that he paid $1.25 per acre for stripping cane, and thought that the leaves crushed with the cane was against a thorough defication of the juice. Some suggested that a flock of sheep might be good strippers; others had tried the experiment, and found it quite effective, until the sheep found that the seed was better than the leaves.

14th. The subject, "What is the prospect for a wholesale market for syrups?" was presented. Mr. Potter wished to know the relative value of sorghum syrup as compared with Orleans syrup, stating that bakers complained that sorghum syrup had less sweetening qualities. Mr. Russell denied the charge, and said that sorghum

syrup was fully up to the New Orleans in sweetening properties. At 9 o'clock P. M. the convention adjourned, to meet at 9 o'clock A. M. on the 18th.

MORNING SESSION OF SECOND DAY.

Convention called to order by president. Committee on packages reported in favor of using five gallon kegs for the local trade and fifty gallon barrels for the wholesale trade. Mr. Eustis ordered packages of D. W. Britton, Green Bay, for his use. Price for five gallon kegs, twenty-five cents, and $115 for fifty gallon packages, on board of cars. The use of oak barrels was not favored by the committee — pine or basswood preferred. In substance, the association recommended that the syrup should be run into large tanks and from thence drawn into the packages. On the subject of what kind of wood should be used for packages, Mr. Russell stated that in the south cyprus was used, and in the north, basswood, and he thought basswood all right.

6th. When should cane be worked into syrup after harvesting, and the best method of keeping it from fermentation. Mr. Clement stated that if the working was to be delayed he favored shocking it as one would corn, and cover it; then it might be kept from four to six weeks. Thought that if kept it would not make as much syrup as it would if made immediately.

At this stage of the meeting the chairman of the committee on samples announced that he found that the committee were all exhibitors, and for the purpose of obtaining a fair report, suggested that a new one be appointed. As such committee the president named Prof. Henry, V. Lowe and C. H. Powers.

The subject relative to harvesting was then resumed. Mr. Clement was in favor of putting cane under sheds, if possible. Mr. Eustis being called upon, gave his opinion as being in favor of working the cane immediately after cutting it, and was also in favor of binding in bundles and laying it in piles crossways, cord-wood style, and stated that it might be kept from four to six weeks unshipped. Mr. Clement cautioned cane raisers against handling cane when it is wet, and said, let it alone till it becomes dry.

10th. Best method of manufacture. Mr. Hanson then read his paper on manufacture, which will be given in the next number.

Mr. Russell urged the feasibility of extending the field of the

cane growing industry, and of establishing a central refinery. That there should be no refinery erected until it should be certain that enough crude syrup was made to warrant such an enterprise. Mr. Russell finds that it would require one hundred and twenty-five syrup mills of from one to two hundred acres capacity to make a financial success of a state refinery; says that now there are scarcely ten mills of the kind scattered through the state. Thought that if the required number of mills could be established in the state, Milwaukee would probably be chosen as the location for the refining establishment, and that the results would not only be a better grade of sugar and syrup, but a fixed grade. As it is, each manufacturer running an independent business has his own independent grades. Was in favor of a rapid boiling of juice until completed. Mr. Clement would have a large tank with three apartments, with discharges by means of pipes — used a cistern for storage of juice. Mr. Cartwright was in favor of stirring the syrup while cooling, as it tended to make it light colored; had used clay — for fifteen gallons of syrup, used one pailful of mush clay, left to settle and then boiled down.

The committee on samples being now ready with their report, presented the following report on sugars:

Sugar freest from foreign taste: First, John M. Nash, Hudson, Wis.; second, J. Patchin; third, S. Hanson.

On syrups, best color: First, C. Stone; second, J. Patchin.

Best flavor: C. F. Miller, Minnesota; second, G. W. Dibble; third, Silas B. Chatfield; fourth, S. Hanson.

11th. Is it profitable to grow cane? Mr. Clement thinks that raising Amber Cane is a paying business; that one hundred and twenty-five gallons per acre was an average yield. Syrup sells from fifty-five to sixty cents per gallon. Thought one acre of cane for profit equal to ten acres of corn; better than growing wheat. Mr. Hanson was very sure that he could not raise any other crop that would compare in profit with that of the cane crop. Thinks that prairie soil will yield two hundred gallons per acre. Prof. Henry spoke of a better education of farmers' sons, and did not like to see so many farmers' sons leaving the farm and studying for other professions, and spoke also of the probability and improbabilities of having an appropriation from the state through the legislature, for the experimenting in the culture of cane and its manu-

facture into syrup and sugar, which he thought, if obtained, would result in much good to the farmer. The following preamble and resolutions presented by Hon. S. D. Hastings, were unanimously adopted by the convention:

WHEREAS, A bill is now pending before the state legislature, appropriating five thousand dollars for the purpose of experimenting in the culture of cane and the manufacture of sugar and syrup, therefore,

Resolved, That we earnestly call upon the legislature to enact the bill referred to into a law, believing that the results of such scientific investigation will be of great value to the whole state.

Resolved, That the secretary of this association be instructed to forward a copy of the above to some members of the senate, and another copy to some members of the assembly.

Convention adjourned to one o'clock P. M.

AFTERNOON SESSION — 1 O'CLOCK P. M.

Convention in session. First business in order was the treasurer's report:

Which showed that the cash received in the year of 1880 was.....	$9 50
Cash paid for cane seed	1 00
Balance on hand.....	$8 50
Cash received for membership fees for 1881	7 00
Total amount on hand.....	$15 50

On motion, it was voted to allow O. P. Dow, for advertising, etc., $5.

A paper was then read from Mr. George Grant, of Janesville, bearing upon all points touching the cane industry. The following is the letter referred to:

Mr. President and Members of our Convention — In my necessary absence, I have taken the liberty to offer a few thoughts on the different questions before our convention for discussion.

First, soils. Having a chance to judge in last season's work from syrups made here from cane raised on timber upland, or rolling prairie, and some on low, flat, black muck, also cane raised along Turtle Creek, on lands having quite a mixture of sand, I find the preference in color and flavor to the Turtle Creek soil; that is sandy soil. I would advise all to select light soil, and make it rich enough by use of manure or clover.

Next, the preparation of soil. I would prepare the soil for cane the same as for a crop of garden vegetables or tobacco; cannot get the soil too fine.

Next, fertilizers. Use ten or fifteen loads of good, rotted manure per acre, while I think double that amount, if not coarse or rank, would be better. I would have manure spread, and then keep harrowing till made fine, then plow just deep enough to cover manure. I do not believe in putting manure down ten inches below the surface.

Seed next. My preference is Early Amber, southern grown, or at least grown in Missouri.

Time for planting. As early in May as the ground gets warmed fit for corn planting. I don't think there is anything gained by too early planting. Spend more time on the preparation of soil, and just when the ground is right to plant, plant all as soon as can be done, and crop will come more evenly and also ripen evenly. I would advise, where parties plant their own seed, to discard all the seed on side branches of head, and plant none but the top seed, or what has ripened first.

Cultivating. I use drag tooth cultivator twice in a row, and run it as close to the plant as possible; then I start the sulky cultivator, and, as soon as I can, follow right along with the hoes; one good hoeing is all that we give it, and at the same time thin down four to six in a hill. I have never tried drills, but I think for one to three acres would drill four feet apart, and have it a continuous row, not more than two stalks side by side; one every four inches would be better. I keep cultivator going until too large to work, and then watch suckers; a man will clean off a big lot of them in a day.

Harvesting. I shall begin hereafter when seed is in a stiff dough state. I am satisfied that the best results are obtained from the first worked.

Will it pay to strip cane? Yes, certainly, in yield and quality; we have tried both ways quite extensively, and I think we lose about one-fifth of the yield, besides the inferior grade of syrup. When cane is raised in hills, as corn, a man will strip an acre a day nicely and do his work well, and I consider the difference would pay the common wages of five men to strip an acre.

When to work. I believe cane should be cured a few days after cutting; and if it could be set on end, under cover, with plenty of

air space, can be kept from six to eight weeks without showing any signs of souring, and will make, I think, a better syrup, but does not yield as many gallons nor does it take as much work to reduce to syrup.

Manufacture. I have tried open pan and steam coil, and I must say that I like the open pan better as yet than steam. If you want to have good success, use a vacuum pan to finish with.

Profit, etc. I am satisfied that no crop will pay as well on the same scale, excepting tobacco; ordinary yield of past season with us did not exceed eighty gallons per acre.

I think that from what we have done in Wisconsin and Minnesota, and is being done in all the western states in the amber syrup and sugar business, that syrup and sugar growing states will have to look for another market besides Wisconsin and the west.

Building and fixtures. I would, if possible, have good roomy building to work in, and made close and warm, with good ventilation. Would have a syrup room where no steam condensing would affect your syrup, and where it could be properly cooled before barreling. This head embraces mills, etc. Now, it is my firm belief that we have not yet got a good mill — one that takes out anything like all the juice. We want more metal — a mill that cannot be broken by the power applied to it (the proper power). I have used the Rockford, Victor, the Grates', have seen the Madison, one made at Buffalo by Squires & Bro. They make very strong mills, but all are objectionable as to weight and first cost. They cost us twice what they ought, and parties advertising mills, with the weights of the same, give us no definite weight of rollers, but of the whole machine, frame and gears. My horizontal Victor is a good mill, but not one-half as heavy as it ought to be for the first cost. The top or master roller in any crusher ought to weigh from five hundred to one thousand pounds — *then* to raise such weight of itself, without strain on gear or bearings, would exert a powerful squeeze on the cane. As to evaporators, I have upheld the Cook; but since seeing the Rockford pan managed for me by Mr. E. E. Dow, at Turtleville, and the grade of syrup made the last days of October, I must give in for the Rockford pan syrup, that sold by the barrel at sixty cents per gallon. If the Rockford could be made large enough to finish fifteen to twenty gallons in each pan at a batch, I would want nothing better; and I would advise parties who are

going into the business to look well at the Rockford machines, and save freight and fuel.

Prospects for a wholesale market. This, gentlemen, brings us to a point in our meeting where we are all most especially interested, and I wish I could be with you to hear your deliberations on this important point. Now you are aware that a wholesale market calls for a quantity of same grade goods, either No. 1 or No. 2, etc. Now the way we are working with small mills and very imperfect machinery, who among us in all we have made could send samples of amber syrup stating we had one or more car loads of same? There is the point of our failure, to get a *same grade*, and, to my mind, there is only one way out of this difficulty, and that is, a refinery such as at Faribault, Minnesota. I have come to think that Palmyra is a good place for such a factory; near a wholesale market; near fuel; plenty of water privilege; and can be reached by rail from any point easily in southern Wisconsin; having the best of soil for growing the cane, and a class of people alive and interested in the matter. Now, gentlemen, would it not be a wise act to do, at this convention, to assess the necessary funds to pay Dr. Wilhelm's expenses to and from Palmyra to get his views. At a special call of our convention, and to find out what we could do toward establishing a refinery at Palmyra.

The people of Des Moines, Iowa, did thus and soon got enough interested to raise funds for a refinery there. In a private letter from Mr. S. F. Jolly, of the refinery at Faribault, he says, "our syrup and sugar is going fast. Syrup at fifty-five cents, sugar at nine cents in from one to ten barrel lots." Now you will see that by refining and having a grade, that fifteen cents per gallon is added to the price, as not one of us, to my knowledge, could get over forty cents by the barrel, and not that in five and ten barrel lots. All the wholesale men in Chicago offered Major McDowell was twenty-seven cents, but by adding, as per his own statement, one-third glucose, he was offered fifty-five cents for same grade syrup. Now, gentlemen, with results in Minnesota, in Illinois, Iowa, and Kansas and Missouri, we must make a determined effort to raise this business of syrup and sugar to be a standard business; one that will pay the manufacturer and producer; one that the public will prefer goods to glucose with fancy names; the people are getting to use our crude goods and much prefer it to the adulterated mixtures put upon the market.

Why, right here in Janesville, one year ago, the prejudice against anything connected with the word sorghum was so great that our grocerymen would not buy it — only take it to sell. Now this year there has over one hundred barrels of fifty gallons each been sold to grocerymen in our city, and still the demand is good. Now I am perfectly satisfied if our goods could compare with the product of the Faribault refinery that five hundred barrels would sell in a season in Janesville. As to us waiting for an appropriation by the legislature will not help us, and I consider the amount asked is of no practical use. To establish a refinery on a small scale at our agricultural college would cost from $12,000 to $16,000, an appropriation which certainly ought to be made; not an experimental concern; that is not needed. It has become a fact by the experiments of you, and I, and every man in the state and elsewhere, that it can be made in paying quantities. What we want is this branch of our home industry added to our agricultural department, to educate those who are fit for the business of manufacturing and refining syrup and sugar. We ought to have got up a mammoth petition to the legislature for this appropriation; but you will observe that a small refinery there would only be for school purposes. It would be of no benefit to the producers of Jefferson, Walworth or Rock counties. But I am taking too much of your valuable time; but I am deeply interested and cannot do the subject justice — a subject in which every inhabitant of your state is interested personally. Let us be united in our views, acts and judgments, and not be led off by fanciful associations or visionary undertakings, but stick to our name and place, yet would recognize especially all who wish to organize a state society, all being interested in the same great industry. Of the thirty-five thousand gallons made in Rock county, E. E. Dow made for us at Turtleville about three thousand gallons of No. 1 syrup. At Janesville we made two thousand five hundred good to fair, and had the misfortune to have ten acres of cane frozen, which would have added eight hundred gallons or more. I intend to work it up for vinegar when the weather opens. Gentlemen, let us, every one, endeavor to bring into membership every man who will put his shoulder to the wheel and help us develop more fully the syrup and sugar business of our own state, gaining the confidence of the consumers by honest goods and fair dealing, and let our exchange of views be given to edify and in-

struct each other in our undertakings, and hoping that the time will come soon when no adulterated syrup or sugar will be found in the state.

On buildings, mills, evaporators and necessary fixtures to constitute the most practical manufactory. Mr. Hanson thinks that all the sweet is not gotten out of the cane; thinks that manufacturers do not make their crushers strong enough; should be strong enough to crush cane with leaves on. Mr. Russell thinks a mill that will crush stripped cane will crush that with the leaves on. He favors the rigid mill; thinks them strong enough for any emergency, and advises all to buy of them who will warrant their mills against breaking. Mr. Hanson thinks we cannot grind fast enough in our common mills. Mr. Colwell has used the Janesville mill and the Madison mill, and much prefers the Madison mill.

Mr. Clement thinks the Madison adjustable mill the best; he had operated with three different mills and was prepared to express a choice.

Mr. Johnson, of Madison, said as he represented a manufacturing establishment he felt a little delicate in saying anything on the subject; still he thought he should say a few words and explain a few points in the machine that he represented, and believed that an adjustable mill was most to be desired; that it had proven to be all that was claimed for it, and that that there were many witnesses to its good qualities.

Hon. S. D. Hastings stated that he feels an interest in the matter of sorghum raising, and thinks that the adjustable mill is the best.

Mr. Hodges had used only one kind of crusher — prefers the railway pans.

Mr. Hanson had used the Rockford rigid and Madison adjustable mills, and preferred the Madison mill.

Mr. Chatfield used an adjustable mill and was well pleased with it.

Committee on programme reported as follows:

1st. What canes are best adapted to this latitude to produce sugar and syrup?

2d. What soils are best adapted to the growth of the different kinds of cane?

3d. Best method of preparing the soil?

4th. What kinds of fertilizers should we use?

5th. Time for planting?

6th. How should we cultivate to obtain best results?

7th. At what stage of development should cane be harvested, and manner of doing the same to secure the best and greatest amount of sugar and syrup?

8th. Best manner of securing the cane after harvesting until it can be worked up?

9th. Best method of manufacture?

10th. Which is the most profitable, to raise cane for sugar or syrup in this state?

11th. Is the seed worth saving, and the manner of saving it?

12th. Best method of constructing buildings and evaporators for practical use?

13th. Does the growing of cane exhaust the soil any more than any other crop?

What is the prospect of a wholesale market for cane syrup and sugar?

Mr. Clement read a paper on the subject which covered much of the ground, and to which you are referred as follows:

What are the prospects for wholesale market for the sale of syrup and sugar produced in this state?

This is a question of vital importance to cane producers of this state. We cannot expect to find a market for an article that has not been introduced, and has established a standard of quality; when this is accomplished, I believe that the demand for our products will be beyond our capacity to supply, for this reason, that for the past four years the Amber cane has been raised in this state, the amount has been increased each year, and the demand has increased faster than the supply has, and we have made nothing but the crude article. We should supply the home demand at first. I made about five thousand gallons the past season, raising about one-third of the amount and receiving enough more by working on shares to make fifteen hundred gallons for me to dispose of, which did not last until the 1st of February. I believe there could have been double the amount sold with a little effort.

Every store in the town in which I live sells my syrup. When once having acquired the taste for it they will not accept anything else. A short time since I wrote to a friend in a western city, in-

quiring the price and demand for Amber cane syrup. In answer, he stated after canvassing the city he found only one man that had ever seen any. He was selling a black sorghum for one dollar per gallon, and there was not much demand, but my friend thought that a fair article would sell quick at a good price, if the people knew what it was. He stated that a maple syrup would sell for one dollar and a half to one dollar and sixty cents per gallon that had but little resemblance to maple about it. It has been demonstrated the past year, that sugar and syrup can be made from it in the north by refining it, that is equal to any made in the south; this being the case, we stand a fair chance with the rest of the world. It only remains for us to unite and erect refineries where they will be central and convenient for the producers. The juice might be reduced to a semi-syrup and then sent to the refineries.

In the latter part of October, I made a canvass of a number of the largest wholesale houses in Chicago, in company with Mr. H. W. Small, and in answer to the question, What is the prospect for the Amber cane industry, with the possible production of millions of gallons? presenting them with samples of my own production, some others in the state who had attained prominence as successful manufacturers of the crude syrup.

The answer was: first, that we must remove that twang; second, that they wanted to know what they could depend upon. The product must be graded, and the quantity such that would supply the demand in a satisfactory manner.

The price they offered for fifty barrel lots from samples was from thirty-five to fifty cents per gallon. The lighter weight syrup suited them the best.

There were thousands of gallons sold in Chicago the past season, and it gave universal satisfaction with the bakers and packers.

The state annually expends millions for its sweets. Now if we can only produce what we use, we will have accomplished a great object.

It is an enterprise that employs a large amount of capital, and gives employment to a great many laborers at a rather slack season. I think there is no danger of producing more than can be disposed of at a profit for years to come.

I have received letters from parties interested in the industry, from Minnesota, Iowa, Kansas and Missouri, and they all quote

the wholesale price of syrup forty and fifty cents per gallon, and the demand not supplied. To me the future looks bright for this industry. W. P. C.

The convention at this time proceeded to the election of officers for the ensuing year, and were elected by acclamation, in accordance with a decision of the association.

The result was as follows:

President — O. P. Dow, Palmyra.

Secretary — L. B. Green, Hebron.

Corresponding Secretary — C. S. Cartwright, Rome.

Treasurer — S. Hanson, Whitewater.

Vice Presidents — William Hodges, La Fayette; W. P. Clement, Monticello; Charles Eustis, Oakland; Ambrose Warner, Lima.

During the meeting, twenty-six joined the association.

The following resolutions were adopted:

Resolved, That we, the members of this association, do unanimously declare the *Palmyra Enterprise* the official organ of the Southern Wisconsin Cane Growers' and Manufacturing Association.

Resolved, That we, of this association, would hereby express our thanks to Mrs. Bidwell, the proprietress of the Bidwell House, for the free use of her hall to the members of this association during the session of this convention.

Number of gallons made by the following persons, in the fall of 1880, as given in at the convention:

Wm. Hodges	2,900
Dow & Williams	1,600
L. B. Green	1,000
Wm. Peardon	2,000
Charles Eustis	10,000
S. B. Chatfield	3,300
William Colwell	4 500
W. P. Clement	3,000
E. G. Beebe	1,800
W. W. Babcock	1,600
J. M. Edwards	3,600
J. M. Cook	2,500
S. Hanson	5,000
George Grant	5,500
A. J. Russell	8,000
E. Francisco	1,647
S. B. Chatfield	3,300
	61,247

It was determined by a vote of the association that the next annual meeting would be held at Whitewater.

The convention adjourned.

HUDSON, Wis., February 10, 1881.

Mr. O. P. Dow, President Southern Wisconsin Cane Growers' and Manufacturers' Association:

DEAR SIR — I regret very much my inability, owing to a press of business, to accept of your invitation to meet with your convention on the 17th and 18th insts.

I know you will have a very interesting meeting, and I shall await with great interest the printed report of the proceedings.

The result of my past season's work was very satisfactory indeed, the quantity of sugar not being quite as large as I had wished, but, I think, of a better quality. I will send you a small sample by mail.

I would urge upon all cane growers and manufacturers the importance of two things:

1st. The most careful and thorough cultivation of the crop.

2d. The most perfect and effectual methods of defication and clarification of the juice.

By the first we can produce an excellent and paying crop, and by the second we are enabled to obtain from this crop sugar and syrup of a quality not surpassed by any country.

Wishing you an interesting and instructive meeting, I am most truly yours, etc., JOHN M. NASH.

The following letter, read by S. Hanson, Esq., on manufacture of cane syrups and sugar, will be read with interest:

Mr. President — The manufacture of sugar and syrup of an excellent quality from the sorghum cane is no longer doubtful, and a general interest is being awakened in the subject throughout many of the northern states. The adulterations of much of the sweets that are consumed among us, and the enormous sums yearly paid to inspectors, have aroused many to the importance of producing our own sweets. It is a stubborn fact that the people of the United States (taking the year 1870 as a guide) consume yearly two billion pounds of sugar, and of this amount one billion seven hundred and forty-three million five hundred and sixty thousand pounds, besides thirty-eight million gallons of molasses, were imported, valued at $75,000,000, and duty added, $114,516,745. This is very much like importing our wheat, corn and vegetables, when we can grow them ourselves; but there are those who will accept of nothing short of an imported article. If they can get an imported French

kid boot, if it wears not half as long as the American kid, never mind, it was imported. Many of our grocerymen will turn up the nose at the name of sorghum syrup, but will sell an article at eighty cents per gallon not worth near as much as the sorghum syrup sold at fifty cents per gallon, and I know whereof I affirm, for I have a sample of it with me.

Said a countryman to one of our principal grocerymen a few days since, "Have you any sorghum syrup for sale?" and with his righteous abhorrence of the article he said, "No! I don't keep such stuff."

I am glad the people are waking up to the manufacture and use of unadulterated sweets for consumption in the family. Minnesota, I fear, is going ahead of Wisconsin in the enterprise, and Illinois and Kansas are wonderfully aroused to the subject. In 1879 there was planted to sorghum in Kansas twenty-three thousand six hundred and sixty-five acres, valued at $1,224,557; in 1880 there was planted thirty-two thousand nine hundred and forty-five acres, valued at $1,893,279. They have found that corn can be grown where the seasons are too dry for wheat and are turning their attention to this branch of industry.

The Hon. John Bennywith, residing near Larnid, finding his prospect for a crop of wheat in 1880 was failing, plowed up six hundred acres of land late in the season and planted it to sorghum, and immediately commenced the erection of works for converting its products into sugar and syrup. He visited a number of similar works in the northern part of Illinois, and owing to his inexperience and unavoidable delays, he did not get his works in operation until nearly the close of the season, but enough sweet was made to call it a success.

His works cost him $15,000, and it is reported that he turned out fifty thousand pounds of sugar and several hundred barrels of syrup, both sugar and syrup finding a ready sale.

He is jubilant over his success and thinks it is bound to be a great industry. Dr. Wilhelm, of Faribault, Minnesota, has also been very successful. His works cost $10,000, and he turns out a sugar that will grade and sell by the side of New Orleans yellow No. 2, and in any market, and wherever it has been tested by experts, all have become convinced there is as much crystallized sugar in the same quantity of northern cane juice as there is in the southern cane.

What we want now are experts skilled in the science of extracting the glucose from the juice and extracting the crystallized sugar from the syrup when sufficiently concentrated, and buildings and machinery for doing it. We likewise need strong machinery for expressing the juice from the cane. Professor Scoville of the Illinois Industrial University has made a number of tests of the analysis of the Early Amber and other varieties, and he says the best results yet attained not more than forty per cent. of the sweet the analysis of the stalk shows there is in the cane has been saved; yet to say with forty per cent. saved, there is a good business in it, and with eighty per cent. saved there is millions in it for the people. Some manufacturers say it will not do to crush the cane too close, it will get the pomice in the juice.

Experts say the best part for crystallizing is that which is hardest to be expressed.

France when she first began to manufacture sugar from the beet, for a length of time, only forty per cent. of which the analysis showed then was in it was obtained, but with greater experience and improved machinery they now succeed in saving eighty per cent., and pays annually immense sums into the treasury in excise duties.

Much loss undoubtedly is by feeble machinery, and some passing off with the steam in manufacturing, and some in deficating the juice, but fifty or sixty per cent. is an unreasonable loss, and if truly so, a remedy must be applied.

The manufacture of sorghum among us has attained to a degree that can be but little bettered until works are erected, and men that are skilled as chemists and experts in the science of refining engaged in running them; then I doubt not there would be ten acres of cane planted where there is one at the present time. Cane could then be grown and sold at three dollars per ton, or a semi-syrup made and sold to the refiners.

In conventions in Minnesota they have decided there is a difference between a crop of cane and corn, of a number or dollars to the acre, in favor of cane.

If this is the case, farmers most certainly will turn their attention to a crop the most remunerative, whenever and wherever they can find a market for it.

Individuals in Whitewater have said to me, "Why do you not

get up a stock company for a refinery? I will put in a thousand dollars, A. one thousand, B. one thousand, and we would soon raise ten or fifteen thousand dollars, and you take charge of it and run it."

I probably would succeed as well as a boy five years old in running an engine and a train of cars from Milwaukee to St. Paul.

Find me the man that is scientifically trained in the business and can successfully run a a refinery, then it will do to talk about it.

Men of capital are starting out and are bound to win; some have already found out the secret; but we must not expect them to inform others in a branch that has cost them thousands of dollars.

I had anticipated that our legislature would make an appropriation to aid in training experts in the business for the benefit of the state, but fear we shall fail, as there are men in that body that will fight it to the bitter end; "put down appropriations," is their motto, and about as consistent as our democratic congress — spend $10,000 worth of time to head off an appropriation of $5,000 for a benevolent purpose; but if left to our present resources we will do the best we can until Providence smiles more propitiously upon us.

PROCEEDINGS AND RECORD OF THE FIRST ANNUAL SHEARING OF SHEEP,

Under the Auspices of the Central Wisconsin Sheep Breeders' and Wool Growers' Association.

The first annual shearing festival of this society was held on the grounds of the Ripon Agricultural Association, April 30 and May 1, 1880.

This association was organized March 23, 1880, at Ripon by the election of the following officers:

President — H. W. Woolcott, Ripon.

Vice President — C. D. McConnell, Berlin.

Secretary — R. D. Torrey, Oshkosh.

Treasurer — Uriah Wood, Brandon.

The exhibition of blooded sheep was highly creditable. The weather had been up to the time cold and unpropitious, deterring many prominent breeders from entering in competition. But as it was, with many unfavorable circumstances, there were fifty-six entries, and nearly five hundred people present.

The following is a record of entries:

NAME AND RESIDENCE.	Bucks.	Ewes.	Total.
John Morrison, Waukan	1	.....	1
Edwin Reynolds, Metomen	2	1	3
R. L. Rich, Ripon	6	3	9
Henry W. Kellogg, Ripon	1	.....	1
T. F. & C. D. McConnell, Berlin	7	....	7
T. W. Thrall, Brooklyn	1	.....	1
Wm. Palmeter, Ripon	1	.....	1
Uriah Wood, Brandon	1	2	3
E. S. Corliss, Nepeuskun	1	3	4
Horace Vankirk, Nepeuskun	2	.....	2
H. C. Bartel, Berlin	3	1	4
A. G. Kellogg, Ripon	1	.....	1
S. F. McCauley Berlin	2	.....	2
D. La Barron, Ripon	1	.....	1
Fred Weideman, Ripon	1	.....	1
H. B. Reed, Green Lake	2	3	5
Chas. Fuller, Berlin	1	.....	1
E. C. Stewart, Rosendale	2	.....	2
Samuel Atkins, Nepeuskun	1	.....	1

The following is record of Spanish Merinoes in class 1. Conditions being as follows: All sheep to be entered and sheared of record; length and quality of staple, with good constitution, being the leading considerations:

OWNER.	Sex.	Age.	Weight in fleece.	Weight of fleece.	Weight of carcass.	Length of staple.	Quality.	Constitut'n
		lbs.	*years.*	*lbs.*	*lbs.*	*lbs.*	*inch*	
R. L. Rich	Buck	1	98½	15	82½	....	....	....
R. L. Rich	Buck	1	103½	14½	88	....	....	....
R. L. Rich	Buck	1	90	15	74	....	....	....
R. L. Rich	Buck	Lamb	67	12¾	53½	....	....	....
R. L. Rich	Buck	Lamb	80	15	64	....	....	....
R. L. Rich	Ewe	1	73½	14½	58	4	100	....
R. L. Rich	Ewe	1	73½	14½	58	....	....	....
H. W. Kellogg	Buck	1	103¾	12	90¼	....	....	....
T. F. & C. D. McConnell	Buck	2	108¾	16½	92	3	....	....
T. F. & C. D. McConnell	Buck	2	115¼	16½	97½	4⅞	100	100
T. F. & C. D. McConnell	Buck	1	86	14¾	71	3½	100	100
T. F. & C. D. McConnell	Buck	3	158½	22¾	135¼	5	95	100
T. F. & C. D. McConnell	Buck	3	126	26½	99	4⅞	....	....
T. F. & C. D. McConnell	Buck	3	126	18½	106½	4¼	....	....
T. F. & C. D. McConnell	Buck	4	135¾	24¾	110	5⅜	100	100
Wm. Palmeter	Buck	3	155¾	22½	131½	....	....	....
Uriah Wood	Buck	2	106¼	14	91¾	4¾	100	100
Uriah Wood	Ewe	1	.....	9¼	.....	4	100	100
Uriah Wood	Ewe	1	72	10½	61	....	....	....
E. S. Corliss	Buck	3	154¼	22¾	130	5	90	100
E. S. Corliss	Ewe	2	94½	12½	81½	....	....	....
E. S. Corliss	Ewe	2	79	13¾	65	4½	90	100
E. S. Corliss	Ewe	1	78	10¼	67½	4½	100	90
H. C. Bartel	Buck	1	88	16½	72	....	....	....
H. C. Bartel	Buck	1	113½	13½	98¾	3½	90	100
H. C. Bartel	Ewe	1	72½	9	63	....	....	....
H. C. Bartel	Buck	1	110¾	12½	97	....	....	....
H. C. Bartel	Buck	5	137½	21¾	115	....	....	....
A. G. Kellogg	Buck	2	121½	16¾	104¼	....	....	....
H. Vankirk	Buck	3	133½	28¾	133½	....	....	....
H. Vankirk	Buck	3	157¾	20¾	135½	....	....	....
S. F. McCauley	Buck	3	174½	23	151	....	....	....
S. F. McCauley	Buck	1	95¼	10¾	.....	....	....	....
S. F. McCauley	Buck	1	95½	12½	.....	....	....	....
D. La Barron	Buck	2	136	16¼	.....	....	....	....
F. Weideman	Buck	2	143¼	23	119	....	....	....
H. B Reed	Buck	2	127	22	104½	....	....	....
H. B. Reed [1]	Buck	2	129½	16¾	112¼	4¾	98	....
H. B. Reed	Ewe	1	90	10	.....	....	....	....
H. B. Reed	Ewe	1	97½	9½	.....	....	....	....
H. B. Reed	Ewe	1	79½	10	.....	....	....	....
H. B. Reed [2]	Ewe	1	75	10	.....	4¾	90	100
Chas. Fuller	Buck	3	143	17½	125	3⅞	100	100
E. C. Stewart	Buck	2	152½	20½	132	....	....	....
E. C. Stewart	Buck	4	156¾	25¾	.....	....	....	....

[1] Tagged 1¼. [2] Tagged 1½.

The shearing was even better than the most sanguine had expected, and closed with the utmost good feeling, and a determination on the part of all to make the next annual shearing next spring a grander success. This much was accomplished this year: It was shown that this part of the state has some of the finest wooled sheep in the west, and men that know well how to handle and breed them. It is hoped that this association may prove a valuable medium to both breeder and wool producer.

SHEEP SHEARING.

Full report of the proceedings of the Central Wisconsin Sheep Breeders' and Wool Growers' Association, held May 2 and 3, 1881.

The second annual shearing, under the auspices of the Central Wisconsin Sheep Breeders' and Wool Growers' Association, took place on the fair grounds in this city, on Monday and Tuesday of this week. For the time the society has been organized it has had a rapid growth, and the interest exhibited this year in this important branch of our industries is a great credit to the officers who have had the matter in charge.

The backwardness of the season prevented many from being present, as the farm work required their attention, though a large number were present, among them some of the best sheep breeders of the state: C. D. McConnell, Uriah Wood, F. Stead, O. B. Knapp, H. B. Reed, N. W. and A. G. Kellogg, William Palmeter, S. B. Cornish, F. M. Wheeler, H. H. Soule, R. S. Rich, E. S. Corliss, Samuel Atkins, J. H. Maxwell, and others.

The first day was mostly occupied in making entries, and the second day devoted to shearing. The entries were nearly double that of last year, and a large increase in membership and attendance was noted with satisfaction. In the afternoon of the second day occurred the annual election of officers, which resulted in the re-election of the old board, as follows:

President, H. W. Wolcott, Ripon; Vice-President, C. D. McConnell, Berlin; Secretary, R. D. Torrey, Oshkosh; Treasurer, Uriah Wood, Brandon; Executive committee, E. S. Corliss, E. Reynolds and E. C. Stuart.

We give a tabulated record of the entries, sex, age, weight of carcass and other points taken into consideration. Quite a number of the sheep were not shorn because of the scarcity of shearers:

NAME OF OWNER.	Sex.	Age.	Weight in fleece.	Weight of fleece.	Weight of carcass.	Length of staple.	Quality.	Constitution.
		years.	*lbs.*	*lbs. oz.*	*lbs.*	*inch*		
J. Tuttle	Buck..	3	163¾	20 10	140¼	4½	98	100
R. S. Rich	Buck..	3	125	21 10	102¾	3½	95	100
R. S. Rich	Buck	1	92	15 11	74½	4¾	100	95
R. S. Rich	Buck..	1	94	10 14	62½	4	100	98
R. S. Rich	Ewe ..	1						
R. S Rich	Ewe ..	1						
R. S. Rich	Ewe ..	1						
R. S. Rich	Ewe ..	1						
R. S. Rich	Ewe ..	3						
R S. Rich	Ewe ..	3						
R. S. Rich	Ewe ..	3						
R. S. Rich	Ewe ..	3 & ov						
R. S. Rich	Ewe ..	3 & ov						
R. S. Rich	Ewe ..	3 & ov						
E. S. Corliss	Buck..	2	119½	22 10	94	4½	100	100
E. S. Corliss	Ewe ..	1					100	100
E. S. Corliss	Ewe ..	1						
E. S. Corliss	Buck..	1					98	98
E. S. Corliss	Buck..	1					95	98
E. S. Corliss	Buck..	1		12 4¼			100	100
E. S. Corliss	Buck..	1					95	100
E. S. Corliss	Buck..	1	79	12 14	67½	4⅜	100	100
E. S. Corliss	Buck..	1	86	12 13¾	70½	4⅛	100	100
T. F. & C. D. McConnell	Buck..	2	143½	25 4	118½	4¼	98	100
T F. & C. D. McConnell	Buck..	2	84	13 10	70	4⅜	100	100
T. F. & C. D. McConnell	Buck..	7	127	18 8½	109	3⅞	100	100
T. F. & C. D. McConnell	Buck..	1	87	11 1	75	4	95	95
T. F. & C. D McConnell	Buck..	1	81	10 12½	66¼	3⅝	90	95
T. F. & C. D. McConnell	Buck..	1	97	13 10½	83	4⅜	90	95
T. F. & C. D. McConnell	Buck..	1	92	13 ½	77	3½	100	100
T. F. & C. D. McConnell	Buck..	4	118½	21 9	95	3⅝	95	90
T. F. & C. D. McConnell	B ck..	3	100	23 7	75	3⅝	95	90
T. F. & C. D. McConnell	Buck..	3	92	19 12½	78	3½	95	90
T. F. & C. D. McConnell	Buck..	3	131	23 15½	106¾	3⅞	100	98
T. F. & C. D. McConnell	Buck..	5	155	20 4	131¾	4½	100	100
T. F. & C. D. McConnell	Buck..	3	135	21½	115	4	95	90
T. F. & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
T. F & C. D. McConnell	Ewe ..	1						
T. F & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
T. F. & C. D. McConnell	Ewe ..	1						
A. G. Kellogg	Ewe ..	3	121	18 6	102½	5	90	95
E. Stead	Ewe ..	5	137½	20	115½	3½	95	95
E Stead	Ewe ..	1	45	7 12	37	4¼	85	75
E. Stead	Ewe .	1	55	7 12	46	4½	95	80
S. B Cornish	Ewe ..	3	120	20 2	99½	3½		
S. B. Cornish	Ewe ..	2	101	18 12½	82	3½	90	90
H. H. Soule	Ewe ..	1	49½	10 9	38	4¼	98	100
H. H. Soule	Ewe ..	1	76½	10 1	66	4¾	100	
H. H. Soule	Ewe ..	1						
J. R. Martin	Ewe ..	1	41	8 6½	32¾	3½	98	95

NAME OF OWNER.	Sex.	Age.	Weight in fleece.	Weight of fleece.	Weight of carcass.	Length of staple.	Quality.	Constitution.
		years	*lbs.*	*lbs. oz*	*lbs.*	*inch*		
Wood & Wheeler.....	Ewe ..	3	162	18 10½	142½	4¼	100	100
Wood & Wheeler.....	Ewe ..	1	.....	.....	... ..	....	100	100
Wood & W eeler.....	Ewe ..	1	... ..	.....	.....	....	95	100
Wood & Wheeler.....	Ewe ..	1	.....	.....	.....	....	100	100
W. Palmeter.....	Buck..	6	176	24 14½	145¼	4⅛	100	98
W. Palmeter.....	Ewe ..	3	.....	.....	.....	....	...	....
W Palmeter	Ewe ..	3	.....	.....	... ..	....	...	....
W Palmeter.....	Ewe ..	3	.....	.....	.....	....	...	....
O. B Knapp	Ewe ..	4	.....	.....	.....	....	100	100
O. B. Knapp.....	Ewe ..	4	.....	.....	.....	....	100	100
O. B. Knapp....	Ewe ..	2	.....	.....	.....	....	100	100
O. B. Knapp.....	Ewe ..	2	.....	.....	.....	....	100	100
H. B. Reed.	Ewe ..	2	86	10 9	75¼	4½	100	100
H. B. Reed.....	Ewe ..	2	87½	11 8	75¾	4⅛	98	100
H. B. Reed.....	Ewe ..	2	85¼	10 8	74	3½	95	90
H. B. Reed.....	Buck..	3	123	15 5	106¾	4⅜	100	98
H B. R ed.....	Buck..	4	143	17 15	124½	4	95	100
H. W K llogg.....	Buck..	3	114	14 6½	94¾	4	95	90
H. W. Kellogg.....	Buck..	3	126½	16 ¾	109	4	95	100

As will be seen by the above, the heaviest fleece was sheared from a two year old buck owned by T. F. and C. D. McConnell, the fleece weighing twenty-five and one-fourth pounds. The second best was from a six year old buck, owned by William Palmeter, twenty-four pounds and fourteen and one-half ounces. The third best was also owned by McConnell Brothers, and sheared twenty-four pounds, lacking half an ounce.

The heaviest fleeces, according to weight of carcass, were as follows: McConnell Brothers, fleece twenty-three pounds and seven ounces, carcass seventy-five pounds. H. H. Soule, fleece ten pounds and nine ounces, carcass thirty-eight pounds. J. R. Martin, fleece eight pounds and six and one-half ounces, carcass thirty-two and three-fourths pounds.

In length of staple, a buck owned by A. G. Kellogg took the cake with five inches; R. S. Rich followed with four and three-fourths, and H. H. Soule next, with a ewe that showed four and three-fourths.

In weight of carcass, Palmeter took the lead, his buck weighing one hundred and forty-five and one-fourth pounds; Wood and Wheeler were next, with one hundred and forty-two and one-half

pounds; and J. Tuttle third, one hundred and forty and one-fourth pounds.

In this matter should be considered the number entered, as it is easier to keep one buck in good order than to keep a score or more. The largest number of entries were made by T. F. and C. D. McConnell, they having twenty-one. Next came R. S. Rich with thirteen, and E. S. Corliss with nine. Among others deserving of especial mention were those of H. B. Reed, O. B. Knapp and E. Stead. Taken altogether, this was probably the finest lot of sheep ever got together in the state. The utmost good feeling prevailed throughout, and a determination expressed on the part of all to make the next shearing far ahead of this one.

SYSTEMATIC FEEDING IN THE DAIRY.

(By W. A. HENRY, Professor of Agriculture, University of Wisconsin, Madison, Wis.)

EXPLANATION OF THE TABLES, ETC.

All food of animals may be considered as consisting of albuminoids, carbhydrates and fat.

Albuminoids are represented by the curd of milk and white of egg. This is the most expensive part of food, and is rated at four and one-third cents per pound by Dr. Wolff.

Fat exists only in small quantities in food. It has the same function as the carbhydrates. In the tables given the fat has been multiplied by two and a half and added to the carbhydrates. The error made in this way is of no practical importance, and the tables are much simplified thereby.

Carbhydrates are represented by sugar, starch and woody fibre.

As compared with the albuminoids, carbhydrates are worth much less, or nine-tenths of one cent per pound.

The *nutritive ratio* is the ratio of the albuminoids to the carbhydrates.

Table showing the amount of water and digestible nutrients in one hundred pounds of feed; also the value of the different articles of food when average hay is worth $1.00 *per hundred pounds.*

	Water.	Albuminoids.	Carbhydrates and fat.	Nutritive ratio.	Value.
Average meadow hay	14.3	5.4	43.5	1:8.0	$1 00
Average clover hay	16.0	7.0	41.1	1:5.9	1 08
Oat straw	14.0	1.4	41.6	1:30	69
Corn fodder	27.3	3.2	45.9	1:11.8	91
Potatoes	75.0	2.1	22.3	1:10.6	46
Mangolds	88.0	1.1	10.2	1:9.3	22
Coarse wheat bran	12.9	12.6	49.1	1:3.9	1 63
Linseed cake	11.5	23.8	51.2	1:2.2	2 50
Corn	14.4	9.0	71.5	1:8.0	1 75
Malt sprouts	10.1	19.4	49.2	1:2.5	2 06
Milk	87.5	3.2	14.0	1:4.4	53

Food required per day and per one thousand pounds, live weight.

ANIMAL.	Total organic substance.	Albuminoids.	Carbhydrates and fat.	Total nutritive substance.	Nutritive ratio.
Oxen at rest	17.5	0.7	8.3	9.0	1:12
Sheep, fine wool	22.5	1.5	12.0	13.5	1:8
Horse, heavily worked	25.5	2.8	13.8	15.6	1:5.5
Milch cow	24.0	2 5	13.5	16.0	1:5.4

Ration for cow weighing one thousand pounds to get largest flow of milk with no waste of food.

I.

	Dry matter.	Albuminoids.	Carbhydrates and fat.
20 lbs. clover hay	16.8	1.4	8.2
8 lbs. bran	7.0	1.0	3.9
Total	23.8	2.4	12.1
Standard	24.0	2.5	13.5

II.

	Dry matter.	Albuminoids.	Carbhydrates.
4 lbs. linseed meal	3.5	.95	2.0
15 lbs. corn fodder	11.0	.48	6.8
15 lbs. clover hay	12.6	1.00	6.1
Total	27.1	2.43	14.9
Standard	24.0	2.50	13.5

METEOROLOGICAL RECORD

For the Year 1880.

Kindly furnished by K. M Hutchinson, of Oshkosh, Wis., being a continuation of the record as contributed by him for 1878 and 1879. See Volumes Nos. VI and VII.

JANUARY.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	17°	35°	31°	Clear.
2	24	37	29	Clear.
3	37	48	46	Rain.
4	34	40	36	Fair.
5	33	43	40	Light rain.
6	41	44	40	Clear.
7	38	42	38	Cloudy.
8	35	42	42	Cloudy.
9	44	44	32	Rain.
10	16	34	30	Cloudy.
11	49	36	30	Cloudy.
12	5	15	16	Fair.
13	8	20	26	Cloudy.
14	30	42	28	Fair.
15	6	30	31	Cloudy.
16	33	40	38	Fair.
17	32	36	36	Cloudy.
18	29	43	44	Clear.
19	34	36	32	Cloudy.
20	23	30	28	Light snow.
21	30	36	34	Snow.
22	27	34	30	Snow.
23	24	34	27	Cloudy.
24	14	39	32	Fair.
25	5	32	33	Fair.
26	40	48	44	Cloudy.
27	30	32	30	Cloudy.
28	8	10	10	Fair.
29	5	26	25	Cloudy.
30	38	86	23	Cloudy.
31	— 1	25	26	Cloudy.

January thaw from the 3d to the 9th; fifteen inches of snow fell on the 21st and 22d; one inch snow on the 30th.

FEBRUARY.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	6°	3°	0°	Fair.
2	13	26	25	Cloudy.
3	14	21	18	Cloudy.
4	0	14	12	Fair.
5	2	20	12	Fair.
6	2	14	12	Snow.
7	-7	14	14	Clear.
8	25	40	30	Clear.
9	-1	14	22	Clear.
10	19	32	31	Clear.
11	32	40	39	Rain.
12	33	32	30	Clear.
13	12	21	24	Clear.
14	12	32	32	Clear.
15	20	40	36	Fair.
16	26	42	41	Fair.
17	41	49	40	Fair.
18	17	18	12	Fair.
19	-6	6	14	Clear.
20	10	30	30	Cloudy.
21	16	26	30	Cloudy.
22	23	40	40	Cloudy.
23	22	36	38	Clear.
24	39	46	48	Rain.
25	39	42	38	Cloudy.
26	32	42	40	Fair.
27	32	36	32	Cloudy.
28	27	28	26	Snow.
29	4	20	20	Cloudy.

Two inches of snow on the 6th; three inches of snow on the 28th.

MARCH.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	8°	31°	34°	Cloudy.
2	14	34	40	Fair.
3	42	46	47	Rain.
4	37	36	32	Rain.
5	31	34	33	Fair.
6	21	42	42	Clear.
7	34	33	26	Clear.
8	5	29	29	Cloudy.
9	27	36	28	Fair.
10	5	26	26	Fair.
11	20	27	29	Fair.
12	4	18	18	Fair.
13	16	29	24	Lt. snow.
14	6	22	20	Clear.
15	0	26	26	Clear.
16	10	22	24	Clear.
17	11	32	39	Clear.
18	30	44	38	Cloudy.
19	32	44	46	Fair.
20	30	32	36	Clear.
21	34	50	52	Clear.
22	36	48	52	Clear.
23	36	42	38	Fair.
24	18	26	32	Fair.
25	30	42	36	Cloudy.
26	36	48	45	Cloudy.
27	40	40	38	Rain.
28	37	42	46	Clear.
29	30	39	42	Clear.
30	28	46	50	Clear.
31	39	53	49	Cloudy.

Taree inches of snow on the 25th.

APRIL.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	34°	52°	55°	Fair.
2	40	48	44	Rain.
3	41	45	48	Rain.
4	46	60	54	Fair.
5	36	47	48	Fair.
6	34	44	34	Cloudy.
7	30	40	40	Fair.
8	30	44	48	Fair.
9	42	64	68	Fair.
10	34	36	36	Cloudy.
11	27	37	42	Fair.
12	30	52	58	Fair.
13	46	74	69	Clear.
14	38	74	80	Cloudy.
15	38	54	50	Cloudy.
16	24	44	34	Snow.
17	33	49	49	Clear.
18	45	52	62	Rain.
19	60	48	52	Cloudy.
20	35	60	60	Fair.
21	51	72	71	Fair.
22	40	54	45	Cloudy.
23	40	41	41	Cloudy.
24	38	49	46	Rain.
25	42	53	54	Rain.
26	41	50	50	Cloudy.
27	41	64	65	Clear.
28	50	72	60	Lt. Rain.
29	59	56	56	Cloudy.
30	40	48	52	Fair.

Seventh day, full of snow squalls; tenth, squally; ten inches of snow on the 16th, windy. This storm is not except onal. For seven years past during April, without one exception, we have had similar storms from the northwest. As a whole, the month was cold and backward.

MAY.

DAY.	7 P. M.	12 M.	6 P. M.	WEATHER.
1	56°	70°	77°	Clear.
2	65	78	80	Clear.
3	68	83	82	Clear.
4	65	82	80	Clear.
5	68	80	76	Cloudy.
6	56	70	70	Fair.
7	70	83	87	Fair.
8	65	72	62	Showery.
9	64	70	68	Windy.
10	66	72	70	Windy.
11	60	72	74	Clear.
12	64	80	72	Cloudy.
13	64	76	68	Cloudy.
14	57	70	68	Fair.
15	54	75	72	Fair.
16	64	80	78	Fair.
17	74	88	90	Fair.
18	74	94	92	Fair.
19	64	64	64	Lt. Rain.
20	45	65	60	Fair.
21	61	74	73	Fair.
22	68	76	68	Cloudy.
23	62	70	80	Rain.
24	80	92	91	Clear.
25	79	90	82	Showery.
26	64	72	72	Clear.
27	61	76	76	Fair.
28	70	78	66	Fair.
29	68	72	63	Rain.
30	56	70	70	Fair.
31	69	68	68	Fair.

No frost this month.

JUNE.

Day.	7 A. M.	12 M.	6 P. M.	Weather.
1	50°	70°	69°	Clear.
2	64	75	70	Cloudy.
3	66	76	74	Rain.
4	72	80	76	Rain.
5	70	74	74	Rain.
6	65	72	60	Rain.
7	62	72	68	Fair.
8	62	70	70	Clear.
9	65	76	76	Cloudy.
10	78	80	79	Rain.
11	75	90	88	Clear.
12	82	89	88	Fair.
13	76	81	80	Clear.
14	57	54	54	Rain.
15	60	72	72	Clear.
16	64	78	78	Clear.
17	73	84	82	Clear.
18	78	88	80	Fair.
19	76	84	81	Fair.
20	78	85	82	Clear.
21	73	88	86	Clear.
22	80	90	87	Clear.
23	80	90	88	Clear.
24	80	90	87	Cloudy.
25	76	85	84	Clear.
26	76	88	86	Clear.
27	75	79	82	Showers.
28	68	76	72	Showers.
29	68	80	76	Showers.
30	67	81	81	Fair.

JULY.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	72°	76°	75°	Rain.
2	70	74	74	Clear.
3	68	84	80	Clear.
4	75	80	72	Rain.
5	71	85	79	Clear.
6	70	80	81	Clear.
7	79	85	85	Rain.
8	75	80	83	Rain.
9	80	90	90	Rain.
10	76	99	80	Rain.
11	78	86	87	Rain.
12	83	98	95	Fair.
13	88	96	74	Rain.
14	78	84	82	Fair.
15	78	82	80	Fair.
16	71	80	76	Rain.
17	72	81	76	Clear.
18	65	72	70	Clear.
19	69	64	68	Cloudy.
20	61	74	64	Showers.
21	68	78	70	Showers.
22	64	74	78	Rain.
23	72	84	72	Rain.
24	79	86	84	Fair.
25	76	86	76	Rain.
26	74	80	76	Rain.
27	64	72	72	Clear.
28	59	69	67	Clear.
29	67	79	79	Clear.
30	71	88	82	Rain.
31	78	79	78	Rain.

AUGUST.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	81°	90°	72°	Rain.
2	61	70	68	Clear.
3	61	76	71	Rain.
4	67	80	78	Rain.
5	68	80	78	Clear.
6	66	84	82	Fair.
7	74	88	86	Fair.
8	76	85	84	Fair.
9	76	82	79	Showers.
10	78	76	75	Fair.
11	66	76	76	Fair.
12	68	82	80	Fair.
13	71	88	90	Fair.
14	70	78	76	Showers.
15	64	73	70	Showers.
16	65	75	70	Cloudy.
17	70	85	87	Showers.
18	78	80	89	Rain.
19	70	78	78	Rain.
20	68	82	76	Fair.
21	62	78	74	Fair.
22	72	80	78	Fair.
23	72	90	84	Cloudy.
24	78	88	69	Cloudy.
25	64	66	63	Cloudy.
26	64	72	75	Rain.
27	74	86	73	Rain.
28	70	73	71	Rain.
29	68	74	72	Fair.
30	69	72	73	Cloudy.
31	73	86	76	Rain.

SEPTEMBER.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	74°	84°	80°	Cloudy.
2	74	86	82	Cloudy.
3	60	79	76	Fair.
4	72	84	81	Fair.
5	74	87	76	Clear.
6	64	72	70	Fair.
7	56	64	59	Fair.
8	45	62	59	Fair.
9	48	66	64	Fair.
10	57	78	78	Clear.
11	60	76	74	Fair.
12	60	70	67	Fair.
13	48	64	60	Fair.
14	40	66	66	Fair.
15	57	72	71	Cloudy.
16	57	86	76	Rain.
17	65	85	82	Fair.
18	70	72	72	Rain.
19	75	81	76	Cloudy.
20	59	65	64	Cloudy, high wind.
21	59	65	60	Fair.
22	46	64	60	Clear.
23	58	72	69	Fair.
24	69	80	76	Fair.
25	70	77	74	Cloudy.
26	56	59	55	Rain.
27	40	56	56	Frost.
28	53	64	54	Frost.
29	45	50	50	Frost.
30	38	62	56	Cloudy.

OCTOBER.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	50°	62°	59°	Clear.
2	50	74	69	Fair.
3	46	55	49	Fair.
4	39	58	59	Fair.
5	46	66	66	Fair.
6	38	56	55	Fair.
7	42	60	59	Fair.
8	54	70	72	Fair.
9	52	76	72	Fair.
10	67	79	75	Cloudy.
11	66	66	58	Cloudy.
12	38	54	52	Clear.
13	36	60	58	Clear.
14	56	63	64	Fair.
15	50	69	63	Fair.
16	46	42	40	Snow.
17	34	38	36	Lt. snow.
18	31	39	32	Cloudy.
19	29	41	39	Cloudy.
20	38	58	50	Fair.
21	36	46	46	Fair.
22	36	37	34	Lt. snow.
23	31	40	38	Fair.
24	39	58	54	Fair.
25	41	58	56	Cloudy.
26	36	45	44	Cloudy.
27	36	41	39	Cloudy.
28	36	52	48	Cloudy.
29	32	56	50	Fair.
30	42	50	42	Fair.
31	30	50	44	Fair.

NOVEMBER.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	30°	42°	49°	Clear.
2	40	50	48	Fair.
3	44	57	56	Fair.
4	51	56	52	Cloudy.
5	38	44	38	Fair.
6	28	34	33	Fair.
7	20	35	36	Fair.
8	36	50	42	Fair.
9	34	52	46	Fair.
10	44	46	49	Rain.
11	36	37	32	Light snow.
12	26	32	29	Clear.
13	26	33	26	Light snow.
14	16	26	22	Cloudy.
15	21	30	29	Light snow.
16	14	14	8	Clear.
17	−2	10	5	Clear.
18	6	17	13	Clear.
19	14	25	19	Cloudy.
20	−8	16	10	Fair.
21	−8	2	−2	Clear.
22	−10	10	8	Clear.
23	0	14	18	Cloudy.
24	8	10	8	Cloudy.
25	−3	11	7	Clear.
26	0	22	20	Clear.
27	0	28	24	Clear.
28	22	33	26	Fair.
29	0	9	9	Clear.
30	8	24	22	Cloudy.

DECEMBER.

DAY.	7 A. M.	12 M.	6 P. M.	WEATHER.
1	10°	27°	26°	Cloudy.
2	15	22	20	Clear.
3	13	29	28	Cloudy.
4	28	38	36	Cloudy.
5	24	18	10	Cloudy, high wind.
6	2	2	4	Clear.
7	−10	2	4	Cloudy.
8	−10	0	0	Clear.
9	−11	0	4	Clear.
10	−2	20	18	Clear.
11	17	31	30	Fair.
12	30	36	33	Cloudy.
13	28	28	32	Cloudy.
14	35	40	34	Cloudy.
15	28	32	26	Cloudy.
16	22	28	24	Cloudy.
17	23	24	22	Cloudy.
18	20	24	20	Cloudy.
19	20	26	24	Cloudy.
20	25	29	26	Cloudy.
21	24	25	23	Cloudy.
22	18	20	20	Cloudy.
23	18	20	18	Cloudy.
24	19	26	24	Cloudy.
25	25	30	27	Cloudy.
26	21	28	25	Clear.
27	−6	−4	−12	Clear.
28	−26	−16	−19	Cloudy.
29	−26	−6	−4	Clear.
30	−13	−4	−6	Fair.
31	−15	4	0	Fair.

All the snow that has fallen the past two months was mere flurries, not enough for sleighing. This December is noted for its number of cloudy days; from the 12th to the 27th the sun did not appear at all; during that time the wind was very light and the barometer very high.

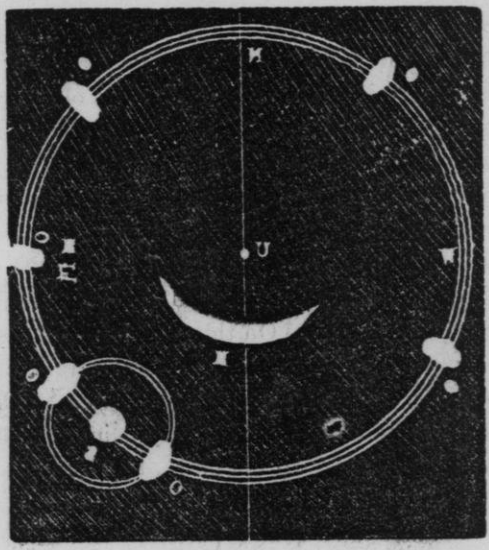
WONDERS ON HIGH.

REMARKABLE PHENOMENA IN THE HEAVENS.

Probably the most wonderful and curious astronomical phenomena ever witnessed in this region were seen December 31, 1880, commencing about nine o'clock. The appearance of a circle around the sun, then in the southeastern heavens, less than thirty degrees above the horizon, with a well defined sun dog on each side, attracted attention everywhere, and became the center of attraction and the theme of discussion. Soon, however, a broad white belt became visible, extending both ways from the center of the sun, and circling about the heavens parallel with the horizon, and of the same altitude as the sun. On this belt became visible to the naked eye four distinct sun dogs, and six were readily visible through instruments. Two of these sun dogs were at the intersection of the ring around the sun with the main belt described as circling above the horizon. In the north, between the main belt and the horizon, appeared three other belts of a few degrees in length, equal distance apart, and parallel with the main belt. Overhead appeared a rainbow, or, more properly speaking, a spectrum of a half circle with the convex side towards the sun, the center of which spectrum, if continued the full circle, was exactly at the zenith.

Thus the picture of heavenly wonder was presented to the admiring gaze of everybody all the forenoon, the altitude of the main belt rising with the altitude of the sun. The strange appearances were the general subject of conversation, and created much wonderment. At the Insane Hospital Dr. Kempster and his assistants took thorough and exact astronomical data of every feature of the presentation, securing with proper instruments the exact measurements of every detail, the colors and their arrangement and positions, the condition of the thermometer, barometer and wind during this time, and made a complete and scientific colored chart of the heavens at this time. A photograph of the heavens was also taken. From these measurements and photograph some very curious things appear. Of the six sun dogs one was on the main belt directly opposite the sun (designated by a line drawn through the plane of the zenith), while two were west of this line and three

east of it. The diagram shown in this connection will give as good an idea of the plan of the phenomena as can be shown by a crude cut. In studying the diagram the reader will turn his back to the north, hold the diagram above his head and look up at it. Then



EXPLANATION.

U -- Zenith. S — Sun. H — Spectrum. O — Sun dogs.
N — North. W — West. E — East.

by imagining himself a mere speck standing directly under the zenith point he will get a fair idea of the appearance of the heavens. The relative distance between the sun dogs and their relative positions along the main belt is correct enough for all practical purposes on this occasion, and corresponds, as near as can be designated, with Dr. Kempster's chart.

According to measurement the distance from the zenith to the spectrum, and from the spectrum to the circle around the sun, and from the circle to the sun, are all equal. The circle around the sun was a trifle larger than the circle of the spectrum. At one time the circle of the spectrum was complete and well defined, so the center could be ascertained and found to be the zenith. One peculiarity was that the half circle of the spectrum was not directly between the zenith and the sun. A line drawn from the center of the sun cut across the spectrum so as to leave two-thirds of it on the west

side and one-third on the east side. A line directly north and south through the zenith cut across the spectrum, so as to leave one-third on the west side and two-thirds on the east side.

Another remarkable feature was that the convex side of the spectrum was towards the sun, and not the concave side, as is usual with rainbows. Dr. Kempster is at loss to explain this, except on the theory that instead of through rain drops the refraction was through floating particles of ice in the atmosphere, which were so influenced by the currents of the air as to produce a reversal of the effect of the refraction. In fact when looking at the spectrum the eye could perceive minute particles of quivering ice and crystals glistening in the colors of the beams in which they floated. Another peculiarity was as to color of the sun dogs nearest the sun. The red color was next to the sun and the blue was away from it. while, usually, the blue or violet is nearest the sun and the red away from it.

Careful record was also kept of the weather during the prevalence of this phenomena. In the upper regions a rapid wind was prevailing from southwest to northeast, the barometer fell rapidly, while the thermometer rose rapidly. The phenomena continued far into the afternoon. About noon, a second outer circle appeared about the sun, the edge of which just touched the convex edge of the spectrum. The philosophical and astronomical explanation of all this is a matter for those astronomically versed to figure out. The appearance of the ring around the sun, with the sun dogs on each side, is a frequent occurrence, but the broad horizontal belt circling above the horizon, the sun dogs at irregular distances upon it, and the peculiar spectrum overhead, are things rarely seen, and may possibly never be witnessed in this section again.

There was a partial eclipse of the sun, at sunrise in the morning, visible, however, only as far west as Illinois; but this is not thought to have had any influence at all in creating the peculiar phenomena later in the day.

THE PROBLEM OF AMERICAN LAND-HOLDING.

(A lecture delivered at the organization of the American Agricultural Association, December, 1879, by Hon. GEORGE B. LORING, of Massachusetts.)

Gentlemen: The organization of a National Agricultural Society at this time is a matter of deep interest to all who are directly or indirectly engaged in pursuing and developing the great occupation on which a large portion of our people depend for subsistence, and on whose judicious management rests much of the prosperity of our varied national industry. It is entitled, moreover, to thoughtful and favorable consideration on account of the opportunity it offers for mutual understanding and good will between the various states and sections of our country. And I have consented to encourage by formal address this effort, from a desire to point out to the land owners and land cultivators of the United States the true character of their calling and the spirit which should animate it everywhere, as distinguished from the farming of every other people on the earth.

In doing this I shall not discuss those practical questions over which so much investigation has been conducted by agricultural inquirers and explorers for so many years; questions which have been settled and unsettled repeatedly by debaters and writers, and have been decided at last by the practical workers. It cannot be expected that I should enter upon a disquisition on the best modes of farming, the best crops to raise and how to raise them, the best cattle to keep and how to keep them. I think it is well to recognize the fact that the farmers of this country know something about their business already, and that the manner in which prosperous agriculture has been thus far conducted by themselves and their fathers indicates a degree of knowledge which is entitled to respect and consideration. I do not recognize the necessity of teaching a farmer who has been successful with his dairy and has known a good cow from a bad one, the best cattle for his farm. I have no desire to prove to the prosperous growers of vegetables in this section, that they ought to turn their attention to raising corn, even in a latitude of short and doubtful seasons, and that they can raise it for thirty cents a bushel regardless of the value of the land on which it is raised, the cost of manure used in raising, and the

expense of the labor employed in managing the land and the crop. I should be very reluctant to impress upon the practical farmers of this assembly who have learned by their own experience and that of their fathers, that herds grass, red top and clover are the three staple grasses for conversion into hay, the best for seeding, the best for protecting each other, the best for curing into the most nutritious and marketable hay. I should be very reluctant, I say, to impress upon them that they had better abandon these well known and well proved varieties, and resort to unknown and untried varieties, not one of which has yet been adopted as a foundation for the hay crop.

I should hesitate about endeavoring to prove to you that a clover crop is a better fertilizer than barn yard manure, on which you have been in the habit of relying. I have no desire to tell the farmers of this country, who have been all their lives engaged in cutting and curing hay, how to harvest this important crop, when I meet in every populous region loads of their hay bound to a neighboring market, whose fragrance charms the traveler on our highways and whose quality stands approved both by judicious purchasers and hungry animals. Why should I try to teach you the best time to sow grass seed, and to plant potatoes, and to sow your grain, and harvest your mangold and swedes, and the best way to apply your manure, when your own experience has taught you all this long ago? Questions like these I am willing to refer to an intelligent body of farmers who have generally exercised good judgment in the management of their business, and to realize that they already know that plan of farming best suited to the land they cultivate. I am aware that the farmer cannot afford to devote season after season to trying experiments suggested by some restless theorist, or by some ambitious teacher who thinks that all change is progress, and that no law can be learned by practice, and who feels that he must say something in order to earn his salary. I am also aware that a well devised, definite, prosperous plan is of the highest importance to him who proposes to live by tilling the soil, and I have noticed that he who simplifies this plan most readily and pursues it most steadily, undiverted by promises and unconfused by theories, never captivated and misled by the idea that there is a short and easy road to successful farming, more than there is to great learning, is the one who arrives at that prosperity which we all desire.

I am quite unwilling to discuss practical questions merely for the sake of discussion, knowing well that while I stand still to debate, the weeds will grow apace.

And so, referring the anxious student of agriculture to the successful corn growers, and grass growers, and grain growers, and root growers, and fruit growers, and dairy managers, and cattle feeders, for information upon the various topics in which each one has manifested skill, and warning him that they who talk the most oftentimes produce the least, I leave you to the knowledge which the best of you have acquired by practice, and call your attention to a matter of fundamental importance to you all, a question upon the solution of which in a satisfactory manner depends the very existence of agriculture as an industry to be cherished and developed by a free, enlightened, educated, and ambitious people.

We are told that the great mass of mankind live by tilling the soil, in every civilized country on earth; but while this fact is constantly impressed upon our minds, we are not so definitely informed with regard to the manner in which they live, their social condition, their civil relations, their domestic economy. The condition of those employed in manufactures and the mechanic arts varies, we are aware, as the place in which they are organized in various countries varies; prosperity, thrift, intelligence, being secured to some, poverty and ignorance being visited on others. And judging by the various conditions of associated man, in the many countries in which society is organized, we can infer that the agricultural population of our country differs from the agricultural population of another as their domestic conditions, their modes of education, their social and civil obligations and duties differ. The tenant farmers of Great Britain, the peasantry of Russia, the farmers of Germany, the small land holders of France, the agricultural citizens of the United States, all represent one industry; and yet how widely they differ in everything which goes to make up man's condition as an intelligent being and as a member of some form of state and society! So true and striking is this that I am sometimes inclined to think that the moral, intellectual and social condition of the agricultural population of a country is more indicative of its real civilization and of its advancement in all the arts and cultivation of life, than are its churches and school houses, its systems of education and religion!

The great question now occupying the minds of those interested in the welfare of civilized man as a member of society, is, how can the comfort, prosperity and intelligence of the agricultural population be best subserved and promoted? England discusses the welfare of the tenant farmer. Russia considers the condition of the emancipated serf. France is interested in the prosperity of an unambitious, industrious, frugal body of small land holders and cultivators. The American goes further and inquires: "How can an American farmer, occupying a farm of usual dimensions here, discharge his duty to the state as a voter and tax-payer, and gratify his desires with regard to the education of his family, the comfort and culture of his home and the informing of his own mind and the gratification of his tastes, from the income which he can derive from the cultivation of the land?" And this is the American problem of to-day.

That the prosperity of agriculture has kept pace with the increasing prosperity of every other industry in our land is manifest. The activity of the great grain growing sections of our country has been great for more reasons than one; and the demand for the products of the pasture and the stall has been most encouraging to those who supply the provision market at home and abroad. It may be that the encouragement of local and special crops has not been as great, and that the farmer is called upon to consider how he can secure a suitable reward for the labor which he applies to the careful and systematic tillage of the soil to supply local markets with what they require, and for the care which he bestows on the orchard and the dairy. And yet I think personal effort is well rewarded, and that the small farmer in favored localities will find even from slow and reduced markets a compensation nearly as great as he obtained when his personal expenses were greater and the wages of labor much larger than they now are. I am aware that great discouragement has fallen upon this class of farmers in whose hands rests that system of agriculture which must prevail as our country increases in population. And yet the condition of the farmer here is looked upon as so satisfactory in every point of view, that the lesson taught by us is engaging the minds of some of the most thoughtful statesmen and publicists of the old world.

It has been discovered that the American system of land holding, for instance, is the foundation of great popular content, and

accompanied as it is by great social and civil opportunities, surrounded as it is by the free institutions of our land, attended as it is by the school house and meeting house, and by the constant call to public service which leaves but few exempt among us, it constitutes the foundation on which rests great mental activity, great dignity of character, great enterprise and ambition.

To the practical work of the agricultural community here, widespread disaster, moreover, is almost unknown. The local damage of a drought or a flood is not, indeed, unusual, but the extent of our territory is such, the diversities of our soil and climate are so great, that the disasters seem to be circumscribed and accidental, while the prosperity is widespread and constant. With landed possessions which are obliged to bear the burthens of heavy taxation, with the wages of labor vastly greater than in any of the countries of Europe, with the personal requirements of the farmer and his family increased by social obligations, and the natural demands of a free and responsible people, we have been able to compete in the grain markets of the world with those who in some instances are furnished with land free of rent and taxation, and whose necessities are so small and whose duties are so low, that the former seem intolerable and the latter seem insignificant and trivial. The skill of the American farmer, supplied as he is with the most ingenious and graceful and effective machinery, has become an object of admiration and imitation.

The well organized home of the American farmer is looked upon as a model. The place filled in the community by the American farmer is considered so important and honorable, that other nations inquire how it has been attained. The crops of the American farmer are looked upon as so sure that all anxiety with regard to the supply of food for people less favored has passed away.

Besides feeding nearly fifty millions of people the agriculture of our country has supplied our commerce with a very large proportion of our exports to foreign countries. Of the aggregate amount of our exports for eleven months, ending May 31, 1879, valued at $635,042,078 — the agricultural industry furnished about $535,813,179. The value of the cattle exported during that period was $2,897,846; of corn, $43,610,441; of wheat, $90,700,598; of flour, $23,000,854; of cotton, $173,629,022; of beef, $7,120,000; of cheese, $11,737,728; of lard, $28,068,400; of pork, $4,620,000; of grass-seed, $2,000,000; of tobacco, $23,440,000.

The effect of this contribution to our export trade is incalculable; and it has done so much towards restoring us to that financial stability and prosperity and honor of which, as a people, we ought to be proud, and for which every prosperous man ought to be grateful — that I turn with unusual pride and satisfaction to the record which American agriculture has made for itself during the last year.

This unusual and extraordinary prosperity is due undoubtedly to many causes, both natural and artificial; the natural causes being our diversity of soil and climate, the variety of our crops, and the economy with which new and fertile lands can be cultivated; the artificial causes being the advantages of local and general markets, and the relations established between the farmer and the soil he cultivates by the independent ownership of land, under the laws of our country. To this last cause I attribute much of that elasticity and energy which the American farmers manifest in occupying new lands, and in the cultivation of crops adapted to the markets they can reach. It were not easy to tell the strength and stimulus which comes through the ownership of the soil, to him who occupies it, has fixed his home upon it, and looks to it for his means of subsistence. It is to the division and sub-division of the land, almost as much as to their devotion to the institutions of learning and religion, and their determination to secure all social and civil rights, that our fathers owe their success in establishing free government on this continent. They had the Anglo-Saxon love of land, but, above all this, they had the Anglo Saxon's love of individual independence; and landed monopolies, entail and primogeniture were especially odious to them. They established in the earliest colonial days, a system of land holding, so simple, so exact, so easily managed, that it has become the example which all republican governments follow. They established a public registry of deeds, and provided for an easy and recorded transfer of landed estates from hand to hand — as easy as the transfer of personal property.

The state which they founded became not only the home of civil and religious freedom, but of small landed proprietors also. When they struck for freedom, they struck for the sacred rights of their own homes, which had become scattered throughout the length and breadth of the land, and were the nurseries of a hardy, independent, sturdy race of Puritans in religion and Roundheads in poli-

tics. They were, indeed, the lords of the soil, and were as unconquerable in their defense of their little farms as the great landed proprietors of their old homes were in protecting their immense estates from invasion or popular revolution. The feudal tenure of England really never gained a foothold here. But the commercial tenure which took its place gave every prosperous member of the community an opportunity to establish his own little kingdom, and to dispose of or change it at his pleasure.

The temptation to secure land under these circumstances became irresistible. The mechanic labored to secure his homestead, the merchant was never satisfied until he had purchased a farm with the surplus profits of his commercial adventures. The professional men of the day — the lawyer, the clergyman, the physician — all owned and cultivated their lands, which they were proud to occupy. And with this American system, as it has been called, went a multitude of civil rights and privileges and opportunities which were never lost sight of by those who made up and supported and organized the community. The occupants and owners of these farms were the pillars of the church; they filled the town offices; they took their places in the legislature and made laws for the commonwealth; they took part in the town meeting with its stormy debate and its free ballot; they aspired to high office and exercised the right of beating and being beaten at the polls. The schoolhouse, the library, the lecture room, they erected for their mental culture, the church for their moral and religious elevation.

They founded a system of state and society here which required of them and requires of us also a liberal expenditure, both for public and private necessities and luxuries. In a community founded as they founded theirs, taxes must necessarily be somewhat heavy; personal expenses must be somewhat large; the adornments of home must be provided for; the public entertainments will be enjoyed; the children must be well clad, provided with books, and supplied with a good education. And this is the American system of land-holding, with all its duties, privileges and opportunities — a system which the statesmen of the old world study with profound interest and great care. It may be attended by a great deal of careless and unprofitable and unskillful farming, as every other system is — but it produces great results and is the foundation of great public and private prosperity.

Our attention is often called to an analogous system of land-holding established in France by the Code Napoleon more than three-quarters of a century ago. But, engrafted as this system has been on a people unused to it and ignorant of its effect upon the political economy of the state, it has not secured those popular advantages which, in our country, led the eminent French philosopher, De Tocqueville, to attribute it to the stability and vital force of our institutions — a lesson learned here, and not in France. In accurate and economical farming, we may perhaps learn a lesson from France. In her area of two hundred and seven thousand four hundred and eighty square miles, not larger than the largest state in the Union, her production of local and staple crops is enormous. Her wheat crop equals our own. Her cattle and horses almost reach our number, and her sheep outnumber ours. With a thrifty population, among whom wealth is quite generally diffused, her resources in war and in peace are unbounded; and her national vitality is the admiration of the civilized world.

That much of this agricultural prosperity is due to the fact that the people devote their energies to the cultivation of small farms, there can be no doubt. But it should be remembered that the state of society which goes with this system in France differs so entirely from our own that she furnishes no such example of popular intelligence and personal independence as is found in the United States. There the home known to the American farmer is not found. The American farm-house is almost unknown. The peasantry gather for the night into crowded towns away from their lands, and go forth by day to till their few outlying acres. The demands of the state upon them are not large. They are seldom overtaxed, except in time of war. They are tempted by none of the honors or emoluments of public service. They aspire to no civil distinction, and, even while organized as a republic, they are warmed into no personal ambition, and as a social organization furnish no example which their own philosopher and publicist can commend as a guide to the civilized world.

It is true they are citizens of a republic, and are owners of the soil on which they live; but it is a republic without the traditions of freedom, a soil divided among them by violence before they had reached the point of citizenship. And I think the most that can be said of their civil organization is that their approach to repub-

lican government has been largely through their system of land-holding, more largely than through any lessons taught them by their social and political reformers.

But it is in England that this question of land-holding is most earnestly and carefully discussed at the present day; and it is there that its solution involves the most momentous consequences. The feudal tenure still so largely prevails in the United Kingdom that the integrity of the government seems to depend largely upon its preservation. The inheritance of large landed estates, the protection of those estates by entail and primogeniture, their preservation by every support which the law can throw about them, are all objects which the Englishman has deeply at heart — feeling, as he does, that upon the power of a nobility based upon such possessions depend the safety and power of the throne. Great as her commerce and manufactures are, and powerful, she knows that the tie which binds those engaged in these great industries to the government which protects them is but feeble when compared with the devotion of a great class who cling to their land and their homesteads, and enjoy the sense of superiority which fills the breast of him, who, under the constitution and the laws, is counted one of the lords of the soil. It is upon land-holding of this description that the liberals of England now make war, upon a system which, to their minds, stands opposed to every popular right and privilege for which they contend.

More than ten years ago John Bright predicted to an audience in Manchester that the time was rapidly coming when the "American system of land-holding" would be adopted by a reformed British government. Mr. Gladstone presented this system to the minds of the Irish people, as the next step in his endeavor to regenerate that island, after the disestablishment of the English Church there. The clamor of the most violent and radical of the liberal leaders has been for reform in the direction of a proper distribution of the land among the people. In parliament, at the hustings, at agricultural meetings, the debate is going on — and the question may be said to be the one which divides the popular mind more distinctly than all others, and more constantly occupies the thoughts of the leaders of public thought and the guides of public affairs.

In reply to the opinions expressed by Mr. Gladstone and his associates, Lord Derby long ago attempted to show by figures that

the distribution of land among the people of the United Kingdom was as liberal as that to be found anywhere on the face of the earth. More recently, however, Lord Hartington has taken up the question, and has most earnestly pointed out the dangers which lie in the way of continuing a system which, according to him, "exists in no other country in the world." As the leader of the opposition in the house of commons, and as one who, "not only from his character and high position," but "from the social post which he occupies as the eldest son of one of the great proprietors of the soil," "must necessarily exercise a great influence over public opinion," his views are looked upon as of the highest importance. It is charged upon him that in a very remarkable speech recently delivered he has "prepared the country for the belief that the system of English agriculture is not formed on what he calls a natural principle, but, supporting three classes of the community, is one which has failed in consequence, and will never be restored"— these three classes being: 1. The proprietors of the soil; 2. The farmers, an important portion of the great middle class; and, 3. The agricultural peasant.

In reply to this extraordinary statement Lord Beaconsfield declared that there is no tenure of land which can be devised except on the condition of furnishing three incomes.

Compared with "peasant proprietorship," which means small land-holding in the mind of the premier, the tenant farming of England seemed to him to be eminently successful. The peasant proprietor buys his farm with his hoarded and invested wages, or with borrowed money, upon which the interest must be paid; and that is the first income. The erection of necessary buildings, the supplying of tools and implements and the stocking of the farm must all be paid for from the earnings, and that is the second income. He must be clothed and fed from the receipts of the farm, which, together with the support of the family employed with him, constitute the wages of the farm, and that is the third income. Under present proprietorship these three incomes go to one class; under tenant farming they go to the three classes already designated. "The number and variety of the classes in England," he adds, "dependent upon the land is the source of our strength."

"They have given us those proprietors of the soil who have been the creators of our liberty, in a great degree, and the best securities for local government. They have given us the farmers — the most

important portion of the great middle class — and they have given us, lastly, the agricultural peasant, whose lot is deplored by those who are not acquainted with it, but who have, to my mind, during the last forty years made more continuous progress than any class in her Majesty's dominions." The assumption of Lord Beaconsfield that it is better policy for a farm to support three classes in a community rather than one, simply indicates his recognition of class as a political necessity — and his entire ignorance of the independence of him who, owning and cultivating his own land in this country, not as a peasant, but as a citizen, combines the three classes in one, and represents what an American can point to with so much pride as the citizen-proprietorship of his own country.

For well organized society, as we understand it, there is no necessity for three classes — for the citizen who owns his land here constituting in himself this trinity of society which the premier admires so much, being literally the "three in one," supplies all those forms to the state; the love of liberty, the love of the land, the love of progress, which are supplied Great Britain by the proprietors, the farmers and the peasants acting in separate capacities. Instead, however, of realizing the possibility of such proprietorship of this, and finding in it a remedy for the evils he had depicted, Lord Harrington takes an early occasion to state that he has no desire to alter the land laws "for the purpose of encouraging the growth of a peasant-proprietorship." "There were many persons," he said, "on all sides of politics, who thought that a considerable number of small proprietors would be a great advantage, but, with the imperfect consideration which he had been able to give to the subject, he had never laid down the doctrine that the existing tenure of land in this country (England) should be altered, or that anything should be done to encourage any other tenure." And so the discussion ended, and large proprietorship and tenant farming still remain.

The result, however, of the inquiry and the almost universally recognized fact that the agricultural interests of England are suffering, and that both proprietor and tenant fail to receive their reward — one for his capital and the other for his labor — have brought about the appointment of a commission who are now in this country inquiring into the sources of agricultural wealth here, the methods by which agricultural products can be raised and exported profitably to the English market — and I trust into the ten-

ure of land which constitutes our citizen-proprietorship. I doubt not they will discover in the cheap and luxuriant grazing lands of Texas the source of our profitable production of beef, and in the fertile valleys of Illinois and Iowa and Indiana the profitable grain fields from which our own people and theirs are fed. But I would have them also study our tenure of land, and learn the "great advantage" of "a considerable number of small proprietors" over that system of land holding which in their own country is generally declared to be a failure. This system I have already described — and I repeat that it should be called, among the various systems now recognized and discussed, the *citizen-proprietorship* of the soil.

The question of the capacity of this system to support a great rural population on American soil is the *American Problem* to which I have already referred. That it encourages and fosters a spirit of freedom, and is managed by an intelligent and ambitious body of citizens, and is promotive of social and domestic peace and happiness, two centuries and a half of colonial and national life have satisfactorily demonstrated. That it supported an industrious and hardy and educated people in the early days of our republic, before other industries had been established here, is well known.

The question now is — will it continue to prosper under the increased demands of our own day, and enable the land owner and cultivator to meet the demands made on him by the public and private wants incident to American civilization. Tenant farming in England has failed; the peasant-proprietorship of France offers no temptation to us. Will our own system continue to prosper, and amidst all obstacles be accepted as the successful agricultural system of the world — a system supporting, not a peasantry, but a body of citizens enjoying all the rights and privileges which free citizenship can bestow? I am aware of the discouragements under which our agricultural population is now laboring — dull local markets, small profits and heavy expenses. But I cannot forget what industry and economy accomplished for our ancestors, who first occupied this soil — and I see no reason to doubt that, as it was with them so will it be with us continually. That an ingenious application of labor to a small homestead will meet with an ample reward I cannot doubt. The exercise of those virtues and faculties which give success in other branches of business must inevitably succeed in this.

A life thus profitably occupied means a life of frugality, foresight, prudence, industry and the most careful calculation. It furnishes no opportunity for the joy of successful or the despair of unsuccessful speculation. But it does provide a sphere in which self-control may lay the foundation of a contented and happy home, and a life of usefulness and happiness and prosperity. I am the more encouraged to state this from the fact that those who make this the land of their adoption are eager to possess the abandoned farms of our own people, and find in them all the prosperity and comfort they desire. I know many an outlying and idle farm from which a fair fortune was reaped in a former generation, and from which a crop of strong, capable and useful men has been sent forth to take part in the business of the world. Is this thing impossible now? The methods may have changed -- the advantageous localities may have changed — the markets may have changed — the economies of the business may have changed; but the opportunities for success have not changed. I am entirely unwilling to believe that a farm properly selected and properly managed, with reference to soil and markets, may not remunerate the cultivator now, as it did formerly. And I urge upon all individuals and associations, into whose hands are committed the theory and practice of agriculture in this country, to encourage that agricultural management which will remove the question of our system of land holding and farming beyond a doubt, and place it firmly among the prosperous industries of the world, and recognized as such by all men.

And now, gentlemen, the existence of this society indicates the desire of the farming community for investigation, comparison, education in all the important branches of agriculture. That the desire was created by the necessity I cannot for a moment doubt. The simple and easy farming of the fathers prospered under the exercise of industry, economy, good judgment and common sense. But it is not so now. With these faculties the successful farmer can hardly expect to succeed to the full measure of success, unless guided by the best rules laid down by those who have endeavored to apply the results of careful scientific investigation to their work. It is economy which succeeds now; the economical use of labor, of all the forces used on the farm; the economical use of manure and all fertilizers; the economical feeding of animals; the economical management of the domestic affairs of the farm.

Carelessness and extravagance cannot succeed. The unsystematic farmer may live, but he cannot thrive. But he who, with an enlightened mind, lays down a definite plan of industry and follows it, will never be betrayed by that calling which has always responded and will always respond to the earnest endeavor of those who pursue it with wisdom and devotion. We may be inclined to question the value of many of the modes of agricultural education which have been adopted in our day, but let no man who has the welfare of the country at heart, discourage the attempts which are made to cultivate and inform the minds of those who hold in their hands the most important of all our industries. The Agricultural Society may not display always an encouraging record of the crops or the applied labor of a farm, but it will inevitably rouse a spirit of emulation and excite ambition, and set an example which will be felt in the community. The Farmers' Club may arrive at no conclusion, may begin a season with discussion and end it with discussion, and decide no question under debate; but it will drop a hint or present an experiment which, being accepted by some bright and thoughtful member, will lead to a long experience of successful farming.

The Agricultural College may not send a class of practical farmers into the community and upon the land each year, but it will educate some keen and capable and observing youth, who will enter the field of farming and so cultivate it that the community will learn to have confidence in his work, and will discover many a useful rule written down on his well tilled and well managed acres.

As the wants and demands of American society increase, it will be found that the American system of land holding requires that the American system of education be carried into this occupation as well as into all others. And it will also be found, I think, that they who have succeeded best in arranging and tilling their farms, and supplying a market, have instinctively adopted rules of husbandry which education offers to all who ask them of her.

I urge, therefore, upon you, a constant spirit of inquiry, a profound respect for every form of agricultural education, remembering that the knowledge which you possess was wrought out for you by your fathers, and that a still more accurate knowledge is the best legacy you can transmit to those who succeed you as the citizen-proprietors of the American soil.— *Journal of The Am. Agr. Ass'n.*

THE DAIRY—ITS PROFITS AND PROSPECTS.

(Lecture delivered at the organization of the American Agricultural Association, December, 1879, by Hon. X. A. WILLARD, of Little Falls, N. Y.)

Mr. President and Gentlemen: I have been invited to make a few remarks to-day upon the dairy, an industry that has grown into vast proportions in several states, and is constantly increasing its dimensions.

It has, perhaps, made more rapid progress of late than any branch of agriculture that can be named. It embraces a wide range of labor, requiring great diversity in the exercise of skill and intellect. First, knowledge as to the nature of milk and its treatment in various relations; its manufacture into many different products and their care and preservation, and back of this the great arts of breeding; the management of dairy cattle both in health and disease; the production of their food, and all the details concerning the best use to which special feeding crops may be put. These it is important to understand to insure the largest success. There is no farm industry that has been so well organized. The co-operative factories extend in an almost unbroken line from Maine to California; they can scarcely number less to-day than five thousand, each factory sweeping a circle of influence on a radius of from two to three miles, and through which many thousands of dairymen are held by strong pecuniary bonds.

I cannot better illustrate the magnitude of the associated system than by referring to its operation in the state of New York. In 1874 New York had one thousand one hundred and thirty-nine of these co-operative factories, at which more than twenty-three thousand farmers were delivering the milk of three hundred and eight thousand three hundred and fifty-two cows. As the factories of New York have been considerably increased since 1874, it is estimated that at least thirty thousand farmers and thirty thousand farms are now identified with this interest. By having a complete list of factories every co-operative dairyman could be reached in a few days through the factory managers.

The dairy conventions, which, for sixteen years, have had remarkable sway, are an outgrowth of the co-operative system. These have stimulated inquiry and a desire for improvement, which

may be said to mark a new era in this branch of industry. The discussions and experiments of dairymen have so sharpened the intellect that there is now no class of men so critical, so exacting, or who can weigh a speaker's words with more precision, than those who gather at these conventions. Mere eloquence is of little avail with these men unless it be crowded with stubborn facts and suggestions that may at once be applied to business and turned to good account. They have carried the co-operative system into the marketing of their products, and now dairy boards of trade are established in the chief centers of the interior, where prices for goods are manipulated with a shrewdness gathered from a knowledge of values in the markets of the world. At Little Falls more than twenty-five millions of pounds of cheese from the factories annually change hands. At the Utica board as much more.

We have at the International Dairy fair a fit representation of this vast industry — an exhibition, both in magnitude and excellence, never before equaled. It represents not only the goods, but the appliances which have revolutionized the business and placed American dairying in the front rank among the nations of the world. Here also may be found the great merchants identified with its commerce, liberal and enterprising, who are at the wheels of the produce trade, moving and distributing over the world American dairy goods to the value of hundreds of millions of dollars. In discussing matters pertaining to the dairy, not the least important question to be considered is its profits and future prospects.

For the last twenty years, or up to 1879, dairying of all kinds has been very remunerative; in fact, so uniform have been its profits that the gains could be calculated with great accuracy and certainty months in advance of the crop. We had a foreign market for all our surplus; our goods were wanted at fair prices by one of the wealthiest nations on the globe. England imports annually of butter and cheese to the value of $75,000,000. English merchants assured us they could dispose of an unlimited quantity of our cheese at fair prices, providing it had plenty of quality; and so we sailed on in fancied security.

Near the close of 1878, however, it became evident that the American surplus, together with the English production, had reached the limits of ordinary consumption. It may be well to

more clearly define this in figures. The annual consumption of cheese in England, as stated by Morton and other statisticians, is five hundred and four millions of pounds; the British make has been estimated at three hundred and twelve millions, and is now, according to Prof. Sheldon, two hundred and eighty-two millions, leaving two hundred and twenty-two millions pounds as the annual amount required to fill the English demand for free consumption.

Now, let us see how nearly this has been reached. For the year ending December 31, 1878, our cheese exports, the largest ever made, amounted to one hundred and thirty-four millions of pounds, while the Canadian exports during the same time were about forty-two millions of pounds. The import of cheese into England from Holland, and other countries on the continent, as stated by Sheldon, is not far from sixty-four millions of pounds, and these three items foot up two hundred and forty millions pounds, or eighteen millions pounds more than is ordinarily required in Britain.

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I am not sure that the real prosperity of American dairymen is at present to be promoted by high prices. Low prices mean the reduction of the make in England, and an outlet for an increased exportation from America. If we can lay down American cheese of fine quality in London or Liverpool below the cost of English production, cheese dairying there must be abandoned, and in that event there will be room for an increased export from America of two hundred and eighty-two millions of pounds to supply the demand of her markets. It may seem hard for us to urge this point against our brother dairymen across the water, but in the end it must come to that. We must either arrest the spread of our cheese-making interest or find new markets, or press out English productions. But even should cheese-making be abandoned in the states, Canada and Australia would, in a short time, occupy the ground now held by us, and the wiping out of English dairying would only be a little delayed. I do not see how it is possible to maintain high prices under an increased production.

I know there are many dairymen in the Eastern and Middle states who complain that no money has been made in dairying at last summer's prices, and they doubtless speak the truth from a standpoint of their own experience, but I cannot believe that it is necessarily so. It is a humiliating thing to acknowledge, and yet

it is a fact susceptible of proof, that the mass of dairymen have not improved the milking qualities of their herds during a long period of high prices, but on the other hand they have allowed their herds to depreciate in this particular by using refuse cattle from droves, rather than in breeding stock on the farm. When cheese brings fifteen to twenty cents per pound, and butter from forty to fifty cents, cows that yield three hundred pounds of cheese or one hundred pounds of butter per year are supposed to turn some profit, but when prices fall to this year's rates, it is found that these inferior herds do not pay expenses.

Now, this is the condition of things largely prevailing in the east, and the whole system must be changed, or the poor cow dairyman will be obliged to drop out of the business or go to the wall. But if we assume that a herd can be made to yield six hundred pounds of cheese or three hundred pounds of butter per cow, cheese at seven cents and butter at twenty cents have not so discouraging a look; three hundred pounds of butter at twenty cents is sixty dollars; one hundred pounds at fifty cents but fifty dollars. I can remember when men bought farms and paid for them, and laid up money, by selling cheese at six cents and butter at fifteen cents per pound. Perhaps it cannot be so well done now, even with the help of our improved labor-saving machinery, for our wants are larger and there is less economy. But I do not think dairymen need feel discouraged at prospects in the future. Butter and cheese will always be needed, and if prices are lower than in the past, a way must be devised to meet the situation. We must remember also that means are constantly being discovered to cheapen the production of food, and this is in accordance with the designs of a higher than human power; not for the purpose of benefiting solely the producing class, but that the world's poor may receive their share of the blessing in cheap food.

As an indication pointing in this direction, the tide of immigration flowing into the Red River country of the British North American possessions may be cited. An uninterrupted development of this rich wheat-growing section, should it continue but for a single decade in the same ratio for the past two years, would add, it is estimated, 100,000,000 bushels to the wheat product of the globe. This quantity is about equal to the present annual importation of grain into Great Britain, from all sources; and the question

may well occur whether we shall not see, in a few years, a wheat production greatly in excess of the present rate of consumption.

The immense herds of cattle at the west, and the development of agriculture in new territory, plainly indicate cheap food in the near future, and the new discoveries and new processes will, without doubt, make the average profit on the crop nearly equal to that obtained now.

The system of ensilage for preserving green fodder by packing in silos; the new milking machine; the centrifuge, and other inventions for extracting cream from milk, immediately after being drawn from the cow, all promise the means of cheapening the production of butter and cheese very considerably, while hundreds of other new devices on the farm and in dairy appliance must lessen labor, and elevate dairying to a rank little dreamed of a few years ago.

Our cheese makers have made some mistakes in the past — in devoting all their energies to one style of product — in looking forward too exclusively to a foreign market, and neglecting home wants.

That we have a home market, the best in the world, is shown in the enormous consumption of butter. Our annual butter product has been variously estimated at from one billion to one billion four hundred millions of pounds, nearly the whole of which is consumed at home. Had the proper styles and qualities of cheese been put upon the home markets, our people would have become so educated in its use that nearly the whole make, it is believed, would now be required for home consumption. We need now to introduce a greater variety of goods, varieties that are esteemed as delicious — notably the Stilton, Neufchatel, and the soft French cheeses, with many other sorts suitable to the tastes of people coming from all the different nations of Europe. The plan so much in vogue of sending all the best goods abroad, and retaining the poorer sorts for our own population, does not promote consumption at home. There is no reason why we should not be large consumers of cheese, and this desirable object could surely be brought about, did our dairymen take half the pains to cater to home wants that they do to suit the export trade. The home trade in the many luxuries of the dairy, opens up a wide and prosperous field for dairy husbandry in the future.

In conclusion, the opinion may be confidently expressed that no branch of agriculture stands upon a more substantial basis than the dairy. It has the elements of success and prosperity; it must prove remunerative and enduring. It is endowed with vast capital; it has clearly inaugurated a system for the instruction of the people, by which the principles of science, mechanism, political economy, and the laws of trade are to be learned by the farmers of the country. It is to-day a tremendous power in the land, working for the progress of the whole country, and it is destined to sweep along with irresistible force.

And now, Mr. President, as a last word, I desire to express my conviction that the time is favorable for the inauguration of a National Agricultural Society.

The importance of agricultural societies in general, and of industrial fairs, cannot be overestimated. Since their introduction, lands are better tilled, manure more economically applied, better implements used, and larger crops obtained. And I am clearly of the opinion that a national society suited to the spirit of the age can be made a successful institution — an institution calculated by its example, no less than by its labors, to unite the farmers of this vast domain, and encourage them onward in the path of progress and improvement.

No country on earth contains such natural resources as belong to the United States. These resources should not only be developed and the fruits distributed to the full extent of our own wants, but a foreign demand should be created, and the whole world be made acquainted with American products, and enjoy the fruits of American industry. — *Journal of the American Agricultural Association.*

PRODUCTIVE INDUSTRY THE SOURCE OF NATIONAL WEALTH.

(A paper prepared by Dr. THOMAS P. JANES, of Penfield, Ga., for the first convention of the American Agricultural Association, December, 1879.)

Gentlemen of the American Agricultural Association: It seems peculiarly appropriate that the representatives of the great industrial and productive interests of such a country as we possess — so vast in extent, so varied and rich in its resources, and having such

vast susceptibilities of further and endless development, should meet in council to discuss questions both of local and general interest, that they may learn to appreciate each other's difficulties and advantages growing out of peculiar surroundings, to impart and receive information upon subjects relating to these great interests, to discuss questions of general interest to producers as well as consumers in this vast republic, and by greater familiarity with the wants of all classes to establish between the producers from all sections of the Union a community of feeling based upon the strong ties of community of interest. It is peculiarly appropriate that those engaged in furthering the interests of intelligent, progressive, profitable agriculture should assemble in this Empire State, the mother of true and successful co-operation, illustrated by her numerous creameries, the home of the father of drainage in this country, the home, too, of the Allens, the Thurbers, of Barry, of Elwanger, of Downing, of Harris, of Moore, and a host of others whose names are inseparably associated in the minds of the American people with the most advanced husbandry in all its branches of agriculture, horticulture and stock-raising, which they have illustrated by their practice and illuminated by their writings.

Meeting, as we do, under such influences, surrounded by evidences of thrift and comfort resulting from the application of science to productive industry, we are impressed with the fact that productive industries form the basis of national wealth.

Reviewing the history of the nations of the earth, we find that the development of the productive industries, agriculture, mining, manufactures and mechanics, has invariably been the forerunner of civilization, prosperity and national greatness. Where these have been neglected, or where the productive classes have been oppressed or unjustly discriminated against, civilization and national prosperity have declined just in proportion to the neglect of these interests.

We are in the habit of speaking of classic Greece and Rome, and associating them with literature, war, and the fine arts, but when we look to the basis of their rapid rise in greatness and power, we find that "if the Greeks were pre-eminently a nation of poets and artists, they were no less pre-eminently a nation of farmers." "The Greek mind absorbed beauty as the Greek body took in health and wholeness (another word of holiness) from the earth it loved. The

love of rural life was one of the deepest passions of the Grecian heart, beyond the realm of Arcadia real or ideal. Through the whole compass of Greek literature — the sights and sounds of the country — the murmuring of the bees, the rising sun smiting the earth with his shafts, the rich meadows, the cattle feeding in the pastures, furnish images upon which the city poets delight to dwell." "The plains of Attica were covered with rural homes, the country was full of little sanctuaries for the rural deities, nymphs, and others who frequented them." In the Greek classics we not only find how much they knew of agriculture, but how little we have improved upon their knowledge.

"They knew the virtues of guano, fish and sea-weed in the corn-field; that land recovered its strength by lying fallow."

Xenophon advised the turning under of green crops even if they had to be planted for that purpose. Indeed it is humiliating to the boasted pride of civilization of the nineteenth century, when we learn from the Greek and Roman authors how little progress has been made in the knowledge of man in relation to agriculture during the last two thousand years.

"The richest agricultural and horticultural contributions have come down to us from the master minds of Greece. They drew their inspiration directly from nature herself, and not from what some earlier writer had said about nature."

The pupil of Socrates, the leader of the immortal retreat of the ten thousand, from his farm at Elis, wrote: "Agriculture, for an honorable and high-minded man, is the best of occupations and arts by which men procure a living; for it is a pursuit that is most easy to learn and most pleasant to practice; it puts the bodies of men in the fairest and most vigorous condition, and is far from giving such constant occupation to their minds as to prevent them from attending to the interests of their friends and their country. A man's home and fireside are the sweetest of all possessions." So long as Greece gave proper attention to her productive interests, and especially to agriculture, her star stood at the zenith, but as luxury increased labor was degraded, education diverted from a practical to a speculative course, and agriculture became subordinated to trade and commerce, the star of her glory gradually sank to the horizon from which it has never again risen.

The policy of Rome was to "secure to the plowshare what she

won by the sword." Twice was Cincinnatus called from the plow to save his country, and not until effeminacy and luxury supplanted the rural tastes and habits of the people was she overrun by the hordes of the north.

Did time allow we might run through the whole catalogue of nations that are or have been powerful upon the earth, and show that in proportion as they dignified labor and fostered their productive industries they have been great, powerful and stable. Read the histories of these nations and we find that the development of their productive industries either by just laws or the fostering care of their governments has marked the era of their progress, prosperity and highest civilization. The accumulation of capital in the hands of a few, by trade and commerce, and the oppression or neglect of the productive industries, equally marks the era of their decline and overthrow.

We live in an age of progress unequalled in the annals of the past in the rapidity with which the powers of nature are being subordinated to the use of man.

American genius has contributed more than that of any other people to this wonderful progress in the useful inventions. By the invention of steam, coal has been called upon to do the work which required thousands of men to perform before. The continent is netted over with iron rails upon which the locomotive speeds with freighted trains until the map of some of our states seem, as it were, armed with a coat of mail.

The chained lightning has been taught to transmit with the rapidity of thought the human voice. When we contemplate the rapidity with which invention treads upon the heel of invention, we grow dizzy with the thought, and involuntarily ask, what next?

What are the inevitable consequences of these immense strides in inventive skill? What their effects upon our civilization? What upon the habits, thoughts and wants of man?

They create a restless activity in the minds of men, increase their wants, induce a disposition on the part of the young to leave the quiet retreats of rural life for the bustle and excitement of the marts of trade; to withdraw from the productive industries and crowd to overflowing the profession, trade and commerce. The means of rapid communication and transportation increase the power of capital to control the products of industry and oppress the producer.

The capitalist sits in his office on Wall street, and dictates the prices of corn and wheat at Chicago, and of cotton at New Orleans. He bears the price upon the producer, and bulls it upon the manufacturer, until both become tenants at will, laboring for his emolument. We are following in the footsteps of Greece and Rome, and unless those engaged in the productive industries of our country keep pace with the progress of the age, maintain their dignity, increase their productive power in proportion as the wants of man multiply, and by education and co-operation assert and exercise their rights as citizens, it may happen, within the next century, that capital will dictate laws to congress and install presidents at will.

The vital question for us to consider is, How can the industrial interests of the country be organized so as to best promote their production, and such increased development as will enable them to keep pace with the progress of the age? How can those engaged in the productive industries be reached to excite in them an interest in the practical education of their youth, and in organized co-operation for the furtherance of their own interests? Can these ends be accomplished by voluntary organization, or will it require the fostering care of the government, state and federal?

If the latter, would any means adopted by the said government be amenable to the charge of class legislation, or would it be of such a nature that all citizens would be either directly or indirectly interested and benefited? We will devote a few moments to the discussion of these questions, and throw out a few suggestions for the consideration of this body.

Much can be done through the agency of voluntary organization, local, state and national, but these alone cannot so well accomplish the work demanded by the best interests of our whole people, as they can as auxiliaries to state and federal departments, when the information collected through these and other sources can be, as it were, focalized and crystalized under official sanction, and again reflected forth throughout the whole extent of our country, to enlighten, encourage and stimulate the toiling millions engaged in feeding and clothing the world. Isolated as producers must necessarily be, in a country so vast as ours, organization is almost impossible, and concerted action impracticable, without central heads and media of communication, such as state and federal departments

afford. The department at Washington, during the present and previous administrations, has paralyzed its strongest arm by failure to recognize and utilize for the general good, the work of local and state societies, and state boards and departments.

I hold that all citizens are either directly or indirectly interested in the promotion of the industrial productive interests of the country or state in which they live, and that legislation which fosters these, either by protective laws or the appropriation of the public money to increase their efficiency, enures to the good of the whole people, and is not amenable to the objection that it is class legislation.

A state is nothing more than the embodiment of the aggregation of individual interests, and should be so administered as not only to protect its citizens in the enjoyment of their natural and constitutional rights, but should foster those industries from which its own life blood flows into its coffers. None will deny that however magnificent the superstructure of an edifice may be, it cannot withstand the storms of time unless the foundation is strongly laid.

So long as Greece and Rome built upon the solid foundation of their productive industries, they increased in influence, wealth and power; but with their neglect came decline, and with their oppression, downfall.

Let us take warning from the lessons of history, and cherish those industries which furnish the life blood of individual, state and national prosperity.

Let our statesmen look more to the sources of national wealth; to the basis of national greatness, and to the conservative productive element of our population, upon which not only the stability of our peculiar political institutions rests, but upon whose labor man depends for food and raiment, and governments for their revenue, and less to the perpetuation of political parties, and we may look for greater prosperity and less strife, universal employment and no strikes.

The agricultural classes, the owners of the soil, have in all time and in all countries constituted, together with the mechanical and manufacturing interests, not only the sources of national wealth but of national stability. The very slowness with which they grasp and embrace new ideas, while obstructive to progress in their business as producers, constitutes them the most conservative element as citizens.

Believing, then, that the productive industries are the very corner stone of our material prosperity and political stability, it behooves us, as a people, to foster these interests in such a manner that the foundation upon which our grand superstructure of national prosperity rests shall maintain its stability and due proportion to the superstructure.

We have a department of agriculture at Washington, established and sustained by the federal government, for the purpose of learning and supplying the wants of the productive interests of the Union. How far the objects for which this department was established have thus far been subserved, I will not discuss, but will have the presumption to suggest what should be the mission of this department to more fully realize the expectations of those for whose benefit it was established. We would not join those who doubt the utility of such an establishment, because it has not accomplished what was reasonably to have been expected from its work, but would rather unite with the friends of progress to sustain and increase its usefulness.

What should be the mission of this department? How can its efficiency be increased? These are appropriate questions for discussion by this body of representative men from the different states and territories of this great republic. I will make a few suggestions, and leave the matter for the consideration of this body.

In the first place, the appropriations should be increased to an amount adequate to the thorough performance of the great work demanded by the productive industries of the Union, and commensurate with the magnitude of the interests involved.

The total amount appropriated by the United States government during its existence is only $3,216,114.37.

On this subject, Commissioner Le Duc in his report for 1877 says: "The utter insignificance of this sum becomes apparent when compared with the amounts appropriated for the maintenance of other departments of the general government. Dividing the total amount appropriated by the number of years during which these appropriations have been made, and it gives the small sum of $84,634 as the average annual expenses of the department. When it is remembered that the last census establishes the fact that one-half of the population of the United States is either directly engaged in agricultural pursuits, or is wholly dependent upon them

for support, this sum becomes still more insignificant as an appropriation for fostering and promoting so vast an interest."

The following appropriations for the years named will be sufficient to illustrate the difference in the amounts appropriated for the various departments of the general government:

DEPARTMENTS.	1877.	1878.
Department of State	$1,188,797 50	$1,147,660 48
Treasury Department	14,837,357 47	12,784,718 94
War Department	7,337,675 02	1,983,902 73
Military Establishments	29,651,769 86	.....
Navy Department	388,588 24	365,966 67
Naval Establishments	12,739,790 90	14,536,432 90
Department of Interior	3,418,432 89	3,450,627 14
Indian Affairs	5,147,897 63	4,877,990 00
P. O Department	567,860 29	936,549 20
Postal Service	5,917,498 00	2,939,725 00
Department of Justice	385,876 20	412,622 05
Department of Agriculture	174,686 96	208,640 00

By consolidating the appropriations to the war and navy departments, military and naval establishments, we find that the United States government appropriated in 1877, $50,117,824.02 to defense, while during the same year it appropriated only $174,686.96 to the encouragement of production, or two hundred and eighty-six times as much for defense as to production.

I do not say that too much is appropriated to defense, but that too little is done to encourage, increase and develop the productive industries of the country.

Not less than $1,000,000 should be devoted by the general government to the encouragement of the productive interests of the whole country, and as the proportions of these interests expand, the appropriation should be increased.

The department of agriculture at Washington should place itself into close communication with all auxiliary organizations, national, state and local, and stimulate as far as possible not only the activity and usefulness of such organizations, but encourage the formation of new ones in every state and county.

To aid the commissioner in the discharge of his duties there should be a secretary from each state who is familiar with the character of the soil, climate and productions, and the needs of producers of his state. These secretaries, all acting under the general

supervision and direction of the commissioner, and actively co-operating with him and with each other, could give an intelligent and efficient direction to the work of the department which we have not recognized in the past. Such an arrangement would diffuse and localize the interest in the work of the department and vastly extend its influence and usefulness. It would give each state, as it were, a personal interest in the work and induce inquiry and contributions now never thought of. It would give each state a direct representation, and consequently a voice and a direct *interest* in the working of the department. It would afford facilities for collecting and disseminating information not now at the command of the commissioner. It would enable the commissioner to make a more wise and judicious distribution of seeds and the publications of the department. It would contribute to the elevation of the department to that position of dignity and influence which the importance of the interests which it represents demands.

Gentlemen, upon the elevation of agriculture, and its cognate productive industries, depends not only the prosperity of the country, but the stability of the government.

Hon. H. G. Davis said in his place in the senate of the United States last January:

"From the time of the landing at Jamestown and Plymouth Rock, the American farmers have always constituted the advance guard and the largest part of that grand army of progress and liberty which, in its triumphant march in the face of dangers, trials, privations, and the cruelty of the savage, has gradually subdued forests, crossed rivers and climbed mountains, until civilization, society, churches, schools and happy homes have been established from ocean to ocean, and from the lakes to the gulf.

"The American farmers have laid the foundation of an empire on this continent, destined, largely through their efforts, virtues, industry, courage and devotion to free government, to surpass in substantial glory, grandeur, wealth, progress and prosperity, all the nations of this world and the achievements of history.

"Our liberties were conquered and our constitution made mainly by farmers, and to them, in any and every great crisis, we must look for the safe-keeping and protection of both. As a rule the agricultural classes have always been devoted to liberty, peace and good order, and the friends of established society, and the enemies

of disorder, wrong, change, violence and unjust revolution; they constitute the reserve forces of conservatism in all governments, particularly in ours.

"The collection of large populations in commercial centres, by depleting the country, has a dangerous tendency. It is in the cities and these great centres, that rings, strikes, frauds, trade unions, centralization and consolidation are born, fostered and best flourish, while in the agricultural districts the tendency is in the opposite direction."

Washington, in a letter to Sir John Sinclair, said:

"I know of no pursuit in which more real and important service can be rendered to any country than by improving its agriculture and its breed of useful animals."

General Jackson, in his fourth annual message to congress (December, 1832), says:

"The wealth and strength of a country are its population, and the best part of the population are the cultivators of the soil. Independent farmers are everywhere the basis of society and the true friends of liberty."

Washington, in his eighth message to congress, said:

"It is not to be doubted with reference either to individual or national welfare, agriculture is of primary importance. In proportion as nations advance in population and other circumstances of maturity, this truth becomes more apparent, and renders the cultivation of the soil more an object of public patronage. Institutions for promoting it grow up, supported by the public purse; and to what object can it be dedicated with greater propriety?"

The most prosperous nations of the earth foster agriculture by appropriations of money from the public treasury, and find it a productive investment.

The following amounts were expended by some of the governments of Europe in aid of agriculture in the year 1877. I invite a comparison of these amounts with the sum appropriated by the United States:

Austria and Hungary	$5,495,125
France for agriculture and commerce	20,534,410
Prussia	2,612,340
Italy for agriculture and commerce	2,715,995
Russia for agriculture and public lands	14,826,184
Great Britain	795,590
Sweden	651,737
United States	174,686

The little Kingdom of Sweden, with twenty-one times less area and almost one-twelfth the population of the United States, appropriates more than three times as much to the protection and promotion of her productive interests as the United States. This little kingdom with a little more than half the area of Texas, and with a population less than that of the state of New York, does more to foster production than this great agricultural nation does.

Russia, itself a great agricultural nation, with less than twice the population, and a little more than twice the area of the United States, devotes to the support of agriculture and her public lands more than *seventy* times as much as the United States, while France, with an area of only 210,830 square miles, appropriates to agriculture and commerce more than twenty and a half millions annually.

The time has come when the intelligent producers of this country should demand at the hands of their representatives the substantial recognition of the fact that the productive industries form the basis of national wealth, by extending to them fostering protection, support and encouragement commensurate with their importance.

There is much that can and should be done by individual and voluntary co-operative enterprise, but there is important work that must be done to foster and extend the producing capacity of these industries which can only be done by governmental agencies, laboring in harmony and conjunction with individual and co-operative enterprise.

With all of these agencies properly adjusted, liberally supported and wisely directed, who, without prophetic vision, can adequately paint the future of this grand republic?

Judging from the progress of the last century in the development of the productive industries of this country, who can picture, even in his imagination, the grand proportions which productive powers of this republic may attain within the next century, under the influence of such liberal and enlightened policy as we have shown is pursued by the most advanced nations of Europe, or the grand superstructure of civilization, the natural outgrowth from such a foundation.

Gentlemen, the hope of this country rests in the education of the people and the development of the material resources with

which the God of Nature has blessed us more abundantly than any other people upon the globe. Let us wisely use the heritage thus given us for the advancement of civilization, the perpetuity of the liberties bequeathed us by our fathers and for the glory of Him who gave.— *Journal of the Am. Agr. Ass'n.*

ON INCREASING THE FERTILITY OF PASTURES.

(By J. B. LAWES, LL. D., F. R. S., Rothamsted, St. Albans, England.)

The report of the department of agriculture for 1875 shows that in the state of New York the number of acres under crops is returned as a little below seven and three quarter millions, and that on more than four millions of the total acreage crops of hay are grown. In the transactions of the New York State Agricultural Society of a few years before this date I find that the improved land amounted to nearly fifteen million acres. The term "*permanent pasture*," as far as I know, never appears in the United States reports; still it would appear probable that a very considerable area of ground in the state of New York must be under permanent pasture.

In the neighborhood of cities or large towns it is found more profitable to keep the land in pasture; and hay, dairy products, vegetables and fruit usually take the place of grain crops, for this reason, that the former give a much larger money value return per acre than the latter.

Owing to the complicated character of the herbage of a pasture, and also the extremely different uses to which it may be applied, a simple treatment of the subject on which I am about to write is almost impossible. I will give an example by way of illustration. A great many years ago, a very remarkable improvement of some pasture land, in one of our northern counties, was obtained by the application of a large dressing of bones. The land had been always employed in the production of cheese, for which this county was celebrated. This success induced others to use bones, and people whose land had been impoverished by the continued sale of hay could not understand why the bones, in their case, produced no effect, not distinguishing the difference in the character of the ex-

haustion of the soil due to the sale of cheese, as compared with that which took place by the constant removal of hay.

Before entering upon any remarks respecting the influence of manures upon the produce of grass, it will be necessary to notice its general character and composition.

An ordinary pasture is made up of a variety of plants, belonging to different botanical species, which we generally classify under three heads, although the third, called miscellaneous, or weeds, belongs to a variety of orders.

The general composition will be found in the following table:

	Nitrogen, per cent.	*Mineral matters, per cent.*
Gramineous herbage	1.17	5 9
Leguminous herbage	2.32	6.8
Miscellaneous herbage	1.32	8.7

Hay being a mixture of these different classes of plants, must necessarily vary a good deal in composition; but it may be considered to contain, on the average, one and three-tenths per cent. of nitrogen and seven per cent. of mineral matter. In treating of the application of manures, I shall assume that carbon, hydrogen and oxygen are derived from the atmosphere, and the mineral matter and nitrogen from the soil. This would be equivalent to nearly ninety-two in each one hundred parts of dry hay being derived from the atmosphere and eight from the soil.

I am quite aware that in making the soil the source of the nitrogen in plants I am liable to be misunderstood; I will, therefore, briefly state the views which I hold in regard to the subject.

I believe that the atmosphere is the original source of the nitrogen in plants; that the very large amount which we find in our soils has been stored up by natural vegetation, such as forests, pastures, etc. The nitrogen thus obtained is one of the main elements of the soil's fertility, and is derived from atmospheric sources by the accumulation of ages.

On the Rothamsted pasture, which has been under experiment for the last twenty-five years, the nitrogen upon the permanently unmanured land amounts to eight thousand pounds per acre within the first fifteen inches from the surface. It is this large amount of nitrogen which enables us to increase very considerably our hay crops by means of mineral manures alone. Still we obtain a much larger increase when nitrogen is added to the minerals. If we consider that the permanently unmanured land has produced two

thousand pounds of hay per acre; that land liberally supplied with all the necessary minerals produces three thousand pounds per acre, and that the addition to these minerals of nitrogen in some soluble form, such as nitrate of soda or salts of ammonia, produces a crop of six thousand pounds of hay to the acre, it almost appears that, if we could command temperature and moisture, there would be hardly any limit to the possible growth, provided that nitrogen and minerals were present in the soil in sufficient abundance.

It is evident that the source of the carbon must be the atmosphere, and not the soil, as no ordinary soil contains the amount of carbon which would be fixed in the plant under the assumed conditions.

There is one point of great practical importance in regard to the employment of artificial nitrogen, to which I will refer, viz.: that its application is always attended with more or less loss; and, in consequence, it does not perform all the work which it otherwise might do. Throughout the whole of the Rothamsted experiments the amount of nitrogen recovered in the increased produce has always been very much less than the amount applied in the manure. This is a subject of very great importance to the United States farmers, and I would recommend it to their consideration. Artificial nitrogen, in all its forms, is a very costly substance; and, although it might be profitable to employ it, provided that it did all the work which was possible, still the difference between the possible and the actual result might turn the profit into a loss — while unfortunately the amount of nitrogen which may be lost is dependent upon such a variety of contingencies that it is impossible to lay down any rule on the subject.

A crop of corn, wheat, oats, barley, as carted from the field — I refer to the total produce — contains about one per cent. of nitrogen; by adding nitrogen to a mineral manure, we can more than double the produce given by the application of mineral manures only; but if the whole of the nitrogen applied as a manure could be recovered in the crop, the result would be that each pound of nitrogen would produce one hundred pounds increase in the crop. Let us assume that a crop of wheat, fully supplied with mineral manures, yields twelve bushels per acre, and that double that crop is wanted: Twelve bushels at sixty-one pounds to the bushel give seven hundred and thirty-two pounds of grain, and estimating one

hundred pounds of straw to each sixty-one pounds of grain, the amount altogether is one thousand nine hundred and thirty-two pounds, containing nineteen pounds of nitrogen. Now, one hundred pounds of sulphate of ammonia, or one hundred and forty pounds of nitrate of soda, ought to produce this increase, but we find that it does not, as our results appear to show a loss of about one-half of the nitrogen applied; whatever the loss may ultimately prove to be, the fact that a loss will occur must not be lost sight of in dealing with so costly a substance.

I have stated that in two thousand pounds of hay there are twenty-six pounds of nitrogen; now, it is perfectly certain that the application of one hundred pounds of sulphate of ammonia, containing about twenty pounds of nitrogen, will not increase the hay by one thousand five hundred and forty pounds. In dealing with manures containing nitrogen, the atmospheric supply of nitrogen to the crops is no longer in question, as the soil and atmosphere are presumed to have furnished all they could, and that a larger yield is required. The following table gives a summary of the results, obtained over a period of twenty years — showing the produce per acre of hay on an average of the first ten years, on the second ten years, and the total period of twenty years. The full detail of these experiments, so far as regards the agricultural portion, have already appeared in the philosophical transactions of our Royal Society; the botanical and chemical portion we hope to publish during this and the coming years. Those who wish to go more fully into this very complicated subject, I must refer to these papers; all I can undertake to do at present is to point out some of the most prominent features in the results:

EXPERIMENTS WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.

The land has probably been laid down with grass for some centuries. No fresh seed has been artificially sown within the last forty years certainly; nor is there record of any having been sown since the grass was first laid down. The experiments commenced in 1856, at which time the character of the herbage appeared uniform over all the plots. Excepting as explained in the table and in the foot-notes, the same description of manure has been applied year after year to the same plot. (Area under experiment, about seven acres.)

TABULAR STATEMENT.

PLOTS.	MANURE, PER ACRE, PER ANNUM.	PRODUCE OF HAY PER ACRE, 20 YEARS — 1856-1875.					
		First period.	Second period.	Total periods	Duration of periods.		
		Lbs.	*Lbs.*	*Lbs.*	*Years.*		
1	1856–63, 8 years, 14 tons farmyard manure and 200 lbs. ammonia salts[1] ..... 1864 and since, 200 lbs. ammonia salts alone.....	5,538	4,348	4,824	8	12	20
2	1856-63, 8 years, 14 tons farmyard manure..... 1864 and since, unmanured.....	4,804	3,682	4,131	8	12	20
3	Unmanured, continuously.....	2,531	2,236	2,383	10	10	20
4 (1)	3½ cwts. superphosphate of lime[2].....	2,732	2,384	2,527	7	10	17
4 (2)	3½ cwts. of lime, and 400 lbs. ammonia salts.....	4,440	3,414	3,837	7	10	17
5	400 lbs. ammonia salts.....	3,420	2,471	2,946	10	10	20
[3]6	1856–68, 13 years, 400 lbs. ammonia salts..... 1869 and since, 300 lbs. sulph. potass, 100 lbs. sulph. soda, 100 lbs. sulph. magnesia, 3½ cwts. superphosphate.....	3,425	3,502	3,452	13	7	20
7	300 lbs sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia and 3½ cwts. superphosphate	3,797	4,118	3,958	10	10	20
[3]8	1856–61, 6 years, 300 lbs. sulphate potass, 200 lbs. sulphate soda, 100 lbs. sulphate magnesia, and 3½ cwts. superphosphate..... 1862 and since, 250 lbs.[5] sulphate soda, 100 lbs. sulphate magnesia, and 3½ cwts. superphosphate	4,027	3,098	3,377	6	14	20
9	300 lbs. sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphates, and 400 lbs. ammonia salts.....	6,002	5,421	5,711	10	10	20
[3]10	1856–61, 6 years, 300 lbs. sulphate potass, 200 lbs. sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphate, 400 lbs ammonia salts..... 1863 and since, 250 lbs.[5] sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphate, 400 lbs. ammonia salts	6,222	4,725	5,647	6	14	20
11 (1)	300 lbs. sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphates, 800 lbs.[6] ammonia salts.....	6,913	6,006	6,459	10	10	20
11 (2)	300 lbs. sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphate, 800 lbs.[6] ammonia salts, and 400 lbs. silicate soda.[7].....	7,077	6,909	6,993	10	10	20

12	Unmanured continuously ..	2,808	2,564	2,686	10	10	20
13	300 lbs. sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia, 3½ cwts. superphosphate, 400 lbs. ammonia salts, 2,000 lbs. cut wheat-straw	6,185	6,678	6,432	10	10	20
14	550 lbs. nitrate of soda,[8] 300 lbs. sulphate potass, 100 lbs.[4] sulphate of soda, 100 lbs. sulphate magnesia, and 3½ cwts. superphosphate	5,944	6,777	6,406	8	10	18
15	550 lbs. nitrate of soda	4,038	3,913	3,968	8	10	18
16	275 lbs. nitrate of soda, 300 lbs. sulphate potass, 100 lbs.[4] sulphate soda, 100 lbs. sulphate magnesia, and 3½ cwts. superphosphate	5,058	5,332	5,210	8	10	18
17	275 lbs. nitrate of soda	3,837	3,755	3,791	8	10	18
18	Mixture supplying the quantity of potass, soda, lime, magnesia, phosphoric acid, silica and nitrogen contained in one ton of hay (commencing in 1865)	3,908	3,301	3,604	5½	5½	11
19	275 lbs. nitrate of soda, 200 lbs. sulphate of potass, and 3½ cwts. superphosphate (commencing in 1872)	.....	.....	4,318	4	..	..
20	327 lbs. nitrate of potass, and 3½ cwts. superphosphate (commencing in 1872)	.....	.....	4,092	4	..	..

[1] "Ammonia salts" in all cases equal parts sulphate and muriate of ammonia of commerce.

[2] The "superphosphate of lime" is, in all cases, made from 200 lbs. bone-ash, 150 lbs. sulphuric acid Sp. gr. 1.7 (and water).

[3] Plots 6, 8 and 10 had, besides the manures specified, 2,000 lbs. sawdust per acre per annum, for the first 7 years, 1856–1862, but without effect.

[4] 200 lbs. 1856–1863 inclusive.

[5] 500 lbs. in 1862 and 1863.

[6] Only 400 lbs. in 1859–60–61.

[7] The application of silicates did not commence until 1862.

[8] 550 lbs. nitrate of soda is reckoned to contain the same amount of nitrogen as 400 lbs. of "ammonia salts.

It will be observed that of the two unmanured acres, No. 3 and No. 12, one always gives rather more produce than the other, the average produce of one over the whole period of twenty years being two thousand three hundred and eighty-three pounds, and of the other two thousand six hundred and eighty-six pounds; for reasons which we have fully gone into in the original paper, we have considered it advisable to adopt the produce of plot 3 instead of the mean of 3 and 12, as our standard of unmanured produce; but both show a decline in the second ten years as compared with the first. Experiment 2 received fourteen tons of ordinary yard manure annually, for the first eight years of the period, in all one hundred and twelve tons per acre; but since the first eight years it has received no manure. During the eight years of the application of the dung, the increase of hay obtained on plot 2 over the unmanured land was two thousand one hundred and thirty-nine pounds of hay per acre, and for the next six years after the application of the dung had ceased, the increase was much the same, being two thousand one hundred and forty-seven pounds per acre; since then the produce has gradually declined, but even at the present time — seventeen years after the last application of dung — the produce is still several hundred pounds more than that of the unmanured land; and, compared with the constituents contained in the dung, there is still a very large amount to be accounted for, which has not been taken off by the increased produce.

In the two experiments, 5 and 15, we have equal quantities of nitrogen supplied to the grass every year; in one the nitrogen is in the form of ammonia combined with sulphuric and hydrochloric acid; in the other, it is in the form of nitric acid combined with soda. The ammonia experiment commenced two years earlier than the other, but in 1858, when the first application of the nitrate took place, the hay produced in the two experiments was nearly equal; since then, the produce under the ammonia salts has rapidly declined, until it is now very little above that of the unmanured produce, while upon the experiment receiving the nitrate, the produce of the last ten years, as compared with the first eight years, has been the same.

This great superiority of the hay producing properties of the nitrate over the ammonia — equal to about one thousand pounds of hay per acre annually, over the whole period — is due partly to the

superior power of the nitrate to liberate and render available the stores of the soil, and partly to the supply of soda which it yields to the plant.

The property possessed by growing vegetation of using soda where there is a deficiency of potash in the soil, is very clearly established in several of these experiments, and will be alluded to when we write upon the chemistry of the subject.

The superiority of nitrate over ammonia is equally apparent when all the necessary minerals are employed in conjunction with these two substances, as is the case in experiments 9 and 14. During the first period, which includes ten years with ammonia and only eight years with nitrate, the average produce is almost exactly even in the two experiments, being six thousand pounds of hay per acre annually. In the same period of ten years, the produce of the ammonia plot had fallen from six thousand pounds to five thousand four hundred and twenty-one pounds; while the nitrate had risen to six thousand seven hundred and seventy-seven pounds, thus again showing the superiority of the nitrate over the ammonia.

In experiments 11 and 12, where much larger quantities of ammonia are used with the minerals, we have the largest growth of hay produced on any of the plots — the average in one case is close upon seven thousand pounds of hay per acre; and even this does not show the full effect of the manure, for since 1874 we have been taking two crops of hay annually, and the produce has amounted on the average to ten thousand pounds; and in 1877 it reached the amount of twelve thousand three hundred and forty-four pounds of hay per acre. Of this great weight of produce the soil has contributed about eight or nine per cent., and the remainder comes from the atmosphere.

In plot 7 we have an experiment in which, from the commencement, no manure containing nitrogen has been placed upon the land; a very liberal supply of potash, soda, magnesia and phosphate of lime has been applied every year, and the average produce of the twenty years has been close upon four thousand pounds of hay per acre. It may be noticed also that the produce of the last ten years is rather the highest. Compared with the unmanured land, the produce upon plot 7 is a little over one thousand five hundred pounds, but it is nearly one thousand eight hundred pounds below the increase given by the minerals combined with

ammonia, and two thousand four hundred and forty-eight pounds below the minerals combined with the nitrate, annually.

In experiment eighteen, which has only been carried on eleven years, up to 1875, we supply the exact quantity of minerals and nitrogen which we estimate to be taken out of the soil by one ton of hay. It is not easy to find any basis for comparison in this case, as the fertility of the unmanured land had already been reduced by the removal of nine crops. If, however, we take the produce of the last ten years of the unmanured land for comparison, we find that we have only obtained one thousand four hundred and fifty-three pounds by materials which were competent to furnish two thousand two hundred and forty pounds of hay; this is about two-thirds of what we should have obtained if all the manure had been taken up. The nitrogen contained in the increased produce amounts to fifteen pounds, which is nearly one-half of that supplied in the manure. It may be mentioned also that there was a considerable decline in produce in the last ten years of the unmanured land, which we took for the basis of comparison.

I have now pointed out some of the most prominent of the experiments, and will conclude this part of the subject with a few remarks on the practical knowledge which may be derived from them.

In the remarks which I have made up to this point, I have purposely abstained from saying anything about the difference of the quality of the herbage produced by the different manures; as this point will be more appropriately treated when I have done with hay as an article of sale.

Whatever may be the case in New York, in Great Britain the value of hay depends upon its being of good color, and got in without any injury from rain, than from any difference in its feeding qualities. Hay is sold in the London market by the load of eighteen trusses, weighing fifty-six pounds each; this is as nearly as possible the United States ton of two thousand pounds. The price of a load of meadow hay is from $20 to $25, which does not differ much from the New York quotation of $1 to $1.25 per one hundred pounds.

The price of the most important ingredients in manures would not, I conclude, differ very much in the two localities. With regard to the effect produced by manures here and in the state of

New York, possibly we may lose more of the soluble portion of our manures by drainage, while in New York, want of sufficient rain, combined with a higher temperature, may prevent the crop from making use of all the elements of plant food which are readily available.

Let us now endeavor to estimate the cost of the hay grown by the manures applied. In plot eighteen, the exact ingredients contained in one ton of hay are applied as a manure. And as these ingredients are not specified in the table of manures, I will give them here:

Chloride of potash	76 lbs.	38 lbs potash. 7 lbs soda. 36.7 chlorine.
Sulphate magnesia	35 lbs.	5.6 magnesia. 11.1 sulphuric acid.
Bone ash.....	26 lbs.	11. lime. 8.2 phosphoric acid.
Sulphuric acid.....	26 lbs.	
Silicate soda	50	31 lbs silica.
Silicate lime	50	
Salts of ammonia	164 lbs.	34 nitrogen. 90.6 chlorine and sulphuric acid.

It is somewhat difficult to estimate the cost of this manure, but I do not think it could be bought and sown upon the land for much less than $16; with a produce of one thousand four hundred and fifty-three pounds of hay there would be little or no profit.

Plot 7 — The manures used in this experiment could be probably bought and spread upon the land at a cost of from $12 to $13; the increased produce amounts to one thousand five hundred pounds of hay; there would, therefore, be a small profit upon this transaction. But it must be remembered that the success of a purely mineral manure depends upon the amount of nitrogen liberated from the store in the soil; and in the course of time this store will be reduced by the process of exhaustion to the same level as that which we now have in our arable land.

Plot fourteen received the same minerals as plot seven, but with the addition of five hundred and fifty pounds of nitrate of soda, which, when placed upon the land, would probably cost about $20; this, added to the cost of the manure of plot seven, would amount to $32 or $33 per acre. The increase of hay obtained by these manures was four thousand pounds. It must, however, be observed that I have made no charge for the cost of labor attending the cutting and converting this increased .produce into hay; I might

also add that I have taken, as the basis for comparison, the lowest in produce of the two unmanured acres.

During the whole period of twenty years the one hundred and twelve English or one hundred and twenty-five and one-half United States tons of dung had produced thirty-five thousand pounds of increased produce of hay, which is equivalent to a produce of about two hundred and eighty pounds of hay to each ton of dung of two thousand pounds; but the crops of the last six years prove that the efficacy of the dung is by no means yet exhausted. It is not in my power to place a value upon dung, as the cost turns entirely upon the carriage. I live twenty-five miles from London, and my farm is one mile from a station. The cost of dung by rail is sixty cents per English ton; delivery on my land costs an additional forty-two cents, making altogether $1.02.

The result of these experiments make it somewhat doubtful whether hay can be grown profitably by means of artificial manures applied to permanent pasture. With us hay is generally grown near large towns, and the same conveyance which takes it to market brings back the manure at little or no cost.

Compared with its selling price, hay removes more of the soil constituents from the land than most of our other salable products. One hundred pounds of hay will remove nearly as much nitrogen and much more mineral matter than one hundred pounds of wheat. These considerations must all be studied when the question comes as to the profitable application of expensive manures. While, therefore, the evidence is somewhat against the use of artificial manures when hay is grown for sale, it by no means forbids their employment when grass land is used for the production of meat, milk, butter or cheese; and to illustrate this I will merely allude to one manure ingredient, viz.: potash. In the large crop of hay which we take from plot eleven, we carry off annually one hundred and forty pounds of potash per acre; one thousand pounds live weight of an ox or sheep contains about one and one-half to one and three-quarters pounds of potash. There are very few acres of land in the state of New York which will fatten one bullock per acre, and even if there were, the potash carried off would not amount to more than one pound. Of milk, one hundred pounds weight contains a little over one-half a pound of mineral matter, or about one-thirteenth part of what would be contained in one hundred pounds of hay, while butter robs the land of nothing.

If land has been impoverished by the sale of hay, and hay is to be sold, dung is the cheapest manure to apply; but if land so impoverished is intended for the future to produce milk, meat, or other animal products, potash is sure to be wanting, and the best manure to apply will be either two hundred pounds of sulphate or muriate of potash, or three times that quantity of kanit salts, and, in addition to whichever of these substances is selected, two hundred pounds of superphosphate of lime and from sixty to eighty pounds of nitrate of soda.

If, however, the land has been impoverished merely by feeding stock, then the exhaustion will be more likely due to the absence of nitrogen and phosphate, and fertility must be restored by an application of these substances as manures.

I mentioned in a previous part of my paper that quantity, rather than quality, was the object to be attained when hay was the crop grown; but when animal products are produced from grass, the quality of the grass is of very great importance. Quality of pasture is dependent upon the food in the soil; in land under grass there is a constant struggle going on between the various plants which constitute what we call a pasture. Upon my experimental ground, the pasture contained about fifty different species of plants when the experiments were commenced, and upon the unmanured ground these have been subject to but little change; but it is far otherwise upon the variously manured portions; if the food is abundant and good, the good grasses drive away all the weeds and bad grasses, and the ultimate result is a very simple herbage, consisting of not more than from fifteen to eighteen of the best species. The constant mowing, although it enables us to establish a great deal of valuable information respecting growth, is, at the same time, most destructive to the finer sorts of herbage; it cannot be expected, for instance, that much white clover will be found amongst grasses standing three feet high, and yielding seven thousand pounds of hay to the acre; with liberal manuring, therefore, there must be close feeding, and the coarse but highly nutritious cocksfoot and foxtail must not be allowed to smother the clover and trefoil.

Having once started a permanent pasture by means of a judicious mixture of artificial manures, the question arises whether it is more economical to keep up the fertility by a fresh application of artificial manures, or by the manure obtained by feeding stock upon

the land with food grown in other localities? It is not easy to decide this point. I am myself inclined to think that the latter process is the most economical, and, in the conversion of arable into pasture land, upon which operation I have been engaged for the last ten years, I have trusted to the fertilizing properties of the manure from cotton cake to enable me to accumulate the stock of fertility which, being exhausted by ages of arable culture, had to be replaced before the land could again become a pasture.

When hay, which is the produce of arable land, is grown for sale, it is by no means certain that the increase, obtained by the application of artificial manures, would repay the cost of the operation. Nitrate of soda at the rate of one hundred pounds per acre, applied in the spring, about a month before the crop began to grow actively, would probably give a considerable increase to a crop of timothy, but I cannot venture to give an opinion as to what would be the pecuniary result of the transaction.

Sunlight is cheaper than all artificial sources of light, and natural fertility is cheaper than any artificial compound; in the absence of sunlight we have recourse to purchased light; and as the natural fertility is exhausted from our soils we are driven to use fertility derived from other sources.

It is the object of science to investigate and explain the laws which regulate the growth of plants, rather than to enter upon the question of economy. In the present paper I have endeavored to unite, to a certain extent, science with practice, in the hope that the farmers of the United States, who take the trouble to read what I have said, may add something to their present stock of knowledge.—*Journal of The Am. Agr. Ass'n.*

THE AYRSHIRE BREED OF CATTLE.

By J. D. W. FRENCH, Editor of *The Ayrshire Record;* Secretary Ayrshire Breeders' Association, North Andover, Mass.)

The county of Ayr, Scotland, is divided into three separate districts—Carrick, Kyle and Cunningham. In the last named the greatest improvements in the Ayrshire breed are said to have taken place.

Previous to 1780 the cattle in Ayrshire are generally admitted to

have been an unshapely and inferior breed. Since that date a great improvement has been apparent, so that at the present time, for vigor of constitution and general adaptation for the dairy, they stand at the head of all British breeds.

The climate of Ayrshire is generally humid, and the surface of the country is diversified with knolls, hills and dense woodlands. In 1867 only three hundred and fifteen thousand acres, less than one-half the area of the county, was cultivated, and about one-third of the remainder was reckoned as good grazing ground, and even that often gave scanty feed to the cattle. As to the origin of the Ayrshire breed, we are somewhat in the dark; but from the best authorities we gather that the first decided improvements began to appear soon after the introduction of some foreign breed. Whether the Teeswater, the Dutch, or the Alderney, had the chief part in this improvement, is still a matter of uncertainty.

The Ayrshire breed is pre-eminently adapted to many parts of our own country, for the reason that it has been bred in a country very similar to many sections of our own in climate, soil and its natural features; for all these have a marked influence on the organization and structure of an animal.

"It is highly necessary to take into consideration the class of animals that will suit the farm, it being much better to get them of a size rather under than over the capabilities of the soil, as in that case improvement will begin at once, whereas if the opposite has been the case the stock will recede."

There need be no fear that a cow raised on the hills will recede when moved to the lowlands. With improved feed would come better results; but the opposite policy might be disastrous.

BEEF QUALITIES.

Although not a beef breed, the Ayrshires will make as good if not better beef than any other dairy breed, and will put on flesh more easily. Youatt says that "they unite, perhaps, to a greater degree than any other, the supposed incompatible properties of yielding a great deal of milk and beef;" that "they will feed kindly and profitably, and that their meat will be good;" that "they will fatten on farms and in districts where others could not be made to thrive at all, unless partly or principally supported by artificial food." Gilbert Murray, in "The Cattle of Great Britain,"

published in 1875, writes: "The most desirable quality of dairy cows of any breed is that they should yield a large quantity of milk in proportion to the feed consumed; and that when dry they should feed quickly. The pure bred Ayrshire certainly excels all others in the former, and, as to the latter, she is in no way inferior to many of the best-established breeds inhabiting these islands." Some of the actual weights of Ayrshires butchered in this country are given below:

"Ada" (cow), dressed meat, eight hundred and eighty-two pounds; tallow, one hundred and eleven pounds; hide, seventy pounds.

"Str. Lass" (cow), dressed meat, six hundred and eight pounds; tallow, sixty-eight pounds.

"Betty Burke" (cow), dressed meat, five hundred and fifty pounds; tallow, forty-two pounds; hide, sixty-three pounds.

"J. Burke," 3d (heifer), dressed meat, four hundred and twenty pounds; tallow, forty pounds; hide, fifty pounds.

"Julia Douglass" (heifer), dressed meat, four hundred and sixty pounds; tallow, thirty-five pounds; hide, sixty-two pounds.

"Fitz James" (bull), dressed meat, nine hundred and eighty pounds; tallow, eighty-four pounds; hide, one hundred and twenty-five pounds.

"Andover" (bull), dressed meat, eight hundred and sixty pounds; tallow, sixty-one pounds; hide, one hundred and thirty pounds.

"Edmund Burke" (bull), dressed weight, one thousand one hundred pounds.

"Birnie" (bull), live weight, one thousand eight hundred pounds.

DAIRY QUALITIES.

The real merits of a dairy breed are not to be judged by the exceptional cases of extraordinary yields, which are generally so well advertised, but by the average yields of different herds. The true criterion is not what one cow will do, but what will the cows of a herd do. This is the test which will show whether a breed or herd is profitable or unprofitable to keep. Again, the true test of an individual is her yield for a year, not for three or six months only. Another important factor in estimating the value of a dairy cow is the amount and value of food consumed in proportion to the yield of milk. Twelve Ayrshires of Mr. A. Libby, of Maine, averaged in one year seven thousand five hundred and eighty-two pounds. Their feed was two quarts shorts, one quart Indian meal, one-half bushel roots, and hay, in winter; in summer, pasturage, with fodder corn in season. The Oneida Community's herd of thirty-seven

cows average for one year five thousand four hundred and ninety-eight pounds, or two thousand five hundred and fifty-seven quarts.

The average yield of the herd of C. M. Winslow, Brandon, Vt., thirteen head (cows and heifers), was last year (1880) five thousand six hundred and seventy-nine pounds, or two thousand six hundred and forty-one quarts.

The yield of the Waushakum Farm Ayrshires for a series of ten years is as below: 1871, two thousand three hundred and thirty-four quarts; 1872, two thousand eight hundred and twelve quarts; 1873, two thousand five hundred and twenty-eight quarts; 1874, two thousand six hundred and thirty-three quarts; 1875, one thousand nine hundred and one quarts; 1876, two thousand three hundred and twenty-six quarts; 1877, two thousand four hundred and sixty-six quarts; 1878, two thousand one hundred and sixty quarts; 1879, one thousand nine hundred and three quarts; 1880, two thousand three hundred and sixty-two quarts. Average for ten years, two thousand three hundred and forty-two and one-half quarts.

The yield of the "Cherry Brook" Ayrshires, Weston, Mass., for six years is as follows: 1875, two thousand nine hundred and forty-one quarts; 1876, two thousand six hundred and sixty-one quarts; 1877, two thousand four hundred and twenty-two quarts; 1878, two thousand six hundred and seventy-eight quarts; 1879, two thousand six hundred and thirty-three quarts; 1880, two thousand six hundred and ninety-one quarts. Average for six years, two thousand six hundred and seventy-one quarts.

The New Jersey Agricultural College reports the following yield for three years: 1871, seven cows, three thousand one hundred and thirty quarts; 1872, six cows, three thousand two hundred and fifty-eight quarts; 1873, five cows, two thousand six hundred and fifty-one quarts.

The following yields are credited to the herd of A. M. Cornell for the year 1875: Phœmie, eight thousand five hundred and thirty-eight pounds; Pawkie, seven thousand nine hundred and sixty-one pounds; Moss Rose, seven thousand six hundred and eighty-three pounds; Lucky Lass, five thousand five hundred and forty-nine pounds.

The Maplewood herd, Fitchburg, Mass., for five years averaged two thousand six hundred and forty-two quarts per cow.

Cochichewick Farm, North Andover, Mass., yield for seven years: 1874, three cows averaged six thousand nine hundred and thirty-four pounds of milk; 1875, eleven cows averaged six thousand two hundred and eighteen pounds of milk; 1876, eleven cows averaged five thousand three hundred and ten pounds of milk; 1877, twelve cows averaged five thousand three hundred and forty-three pounds of milk; 1878, ten cows averaged five thousand three hundred and sixteen pounds of milk; 1879, thirteen cows averaged five thousand two hundred and twenty-two pounds of milk; 1880, thirteen cows averaged five thousand seven hundred and twenty pounds of milk. Average for seven years, per head, five thousand seven hundred and twenty-three and twenty-eight one-hundredths pounds, or two thousand six hundred and sixty-two quarts.

The record closes each year January 1, so that the actual number of days a cow is in milk is not given, but only the number of days in milk during the current year.

The feed has been very moderate, the chief object being to keep the animals in good breeding condition rather than to force them to make a large milk record. In summer the feed has been pasturage, sometimes, in addition, fodder corn or grass, and a part of the last season, on account of drought, two quarts of shorts. In winter the daily ration is hay, eight to ten quarts roots (mangolds), and two quarts grain. The milk is weighed daily.

The Royal Agricultural Society's Journal of 1868 gives the record of an Ayrshire cow producing, besides supplying the family with milk and cream, two hundred and sixty-nine, two hundred and eighty-two and one-half and two hundred and seventy-four and one-half pounds of butter for three successive years. Another cow under the same circumstances yielded three hundred and ninety-nine and one-half pounds in ten months. Cows have been known in this country to produce ten pounds per week.

A communication to the *Country Gentleman* from Crary's Mills, New York, gives the yield in butter of twenty-three Ayrshire cows for one year, which amounted to six thousand three hundred and twenty-three pounds, or two hundred and seventy-four and ninety-one one-hundredth pounds per cow. During the winter the cows were fed on hay, corn stalks and green oats (probably cut hay is meant), and a small feed of bran and corn meal mixed, and after calving about one peck of beets to each. In Scotland nine to

twelve quarts of milk is estimated to one pound of butter, and in cheese five hundred to six hundred pounds is an average yield for a cow.

The Ayrshire is pre-eminently the farmer's cow; she quickly responds to good treatment, and under less favorable circumstances does surprisingly well.

There is no dairy breed that, with an equal amount of roughing under bad treatment or poor food, can surpass her yield or condition.

Although many additional facts might be stated in advocating the claims of the Ayrshire cow to the attention of farmers and dairymen, the space already occupied warns me to forbear.

In conclusion I take pleasure in quoting from an essay published in 1880, on "The Milk Pail and the Cows that Fill it," by Prof. J. P. Sheldon, author of "Dairy Farming," who says of the Ayrshires: "They are wonderful milkers, doing well in milk where most other breeds would hardly live — more completely than most, if not all other breeds, they possess the property of converting into milk the elements of food. They are hardy enough to stand severe climates, while they have the faculty of quickly adapting themselves to altered conditions. A careful examination of the milk of different families of Ayrshires would seem to indicate that the breed might be divided into two classes — the one for butter and the other for cheese. The milk of one of these types has butter globules scarcely inferior to those of Jersey milk, though they vary much more in size, while the globules in the milk of the other are much smaller and more numerous; the former represents the butter and the later the cheese type of Ayrshire cows."

He then proceeds to classify them in the order of merit for the dairy under different heads:

For milk the Ayrshire is placed	first.
For cheese the Ayshire is placed	first.
For butter the Ayrshire is placed	fifth.
For milk and beef the Ayrshire is placed	fourth.

In classing for butter only, he disregards the mere quantity of milk, and considers the yield of butter in connection with size of cow, which may partially account for the Ayrshires not taking a higher and perhaps deserved rank.

The Ayrshire breed, however, has the highest average excellence for all classes. No other breed stands at the head in two classes.

POINTS.

The committee appointed by the general meeting of the Ayrshire Agricultural Association (Scotland), May, 1853, "to fix the points in Ayrshire cattle which shall be held of most importance as indicating superior quality," after careful inquiry and consideration report the following points which should, in their opinion, be attended to:

Head — Short; forehead wide; nose fine between muzzle and eyes; muzzle moderately large; eyes full and lively; horns wide set on, inclining upwards, curving slightly inward.

Neck — Long and straight from head to the top of the shoulder; free from loose skin on the under side, fine at its junction with the head, and the muscles symmetrically enlarging towards the shoulders.

Shoulders — Thin at the top; brisket light; the whole forequarters thin in front and gradually increasing in depth and width backwards.

Back — Short and straight; spine well defined, especially at shoulders; the short ribs arched, the body deep at flanks and the milk veins well developed.

Pelvis — Long, broad and straight; hook bones (ilium) wide apart and not much overlaid with fat; thighs deep and broad; tail long and slender, and set on level with the back.

Milk vessels — Capacious and extending well forward; hinder part broad and firmly attached to the body; the sole or under surface nearly level; the teats from two to two and one-half inches in length, equal in thickness, and hanging perpendicularly — their distance apart at the sides should be equal to about one-third length of the vessel, and across to about one-half of the breadth.

Legs — Short; the bones fine and the joints firm.

Skin — Soft and elastic, covered with soft, close wooly hair.

Colors preferred are brown or brown and white, the colors being distinctly defined.— *Journal of The Am. Agr. Ass'n.*

JERSEY CATTLE.

(By RICHARD GOODMAN, Jr., Yokun Farm, Lenox, Mass.)

This breed of cattle surpasses all others in both quality and quantity of butter product. They are also distinguished for vigor of constitution, gentleness of disposition and beauty of form and color.

No breed of animals is receiving more attention in England and America to-day, from practical and theoretical breeders, than this race of cattle, and none, it may safely be said, have ever proved more responsive, more interesting or more profitable. The Jersey has as long a history, and as creditable, as any of the well-established breeds, and a history which, while it shows that they possessed positive qualities at the first, they possessed also the capability of great development in respect to these good qualities, and that in the face of what were at times very unfavorable circumstances.

Over one hundred and fifty years ago visitors to the Island of Jersey found there a race of cattle as distinctive as any in their general characteristics, and surpassing all in the quality of their butter. Among other proofs that this race had at an early date a peculiar character of its own, and a peculiar value in the eyes of its owners, is the fact that a law was passed by the States of Jersey, as long ago as 1789, prohibiting, under the most severe penalties, the importation of cattle from France; and earlier yet, in 1734, Rev. Mr. Falle wrote an elaborate and enthusiastic argument in proof, as he expressed it, of "the peculiar goodness of our butter."

Regarding the origin of this breed little can with certainty be said. There is little doubt, however, that the progenitors of the race now known as Jerseys came from the mainland, the nearest points of the coasts of France being within easy reach, and a close resemblance between the cattle of Jersey and Brittany being observable to-day.

Admitting the common origin of the cattle of these two countries, the wide divergence at present existing between them can easily be explained. Three leading causes can be pointed out, any one of which would be sufficient for our purpose. In the first place the Jersey cow is the result of the remarkable *climate* of the

Channel Islands. The mild and uniform character of the climate of Jersey has hardly its equal in the world. It is as warm and genial as the south of France when the south of France is at its best, and it has the uniformity which the presence of the warmer waters of the Atlantic in that region of the earth probably accounts for. This mildness, this moistness, and this unchangeableness, give us all the conditions necessary for the constant production of sweet, tender and nourishing herbage. In consequence, we find the *pastures* of Jersey praised by all writers, and this pasturage is the second factor in the development of our butter cow. The third element is the character and conditions of the people who had these cattle in charge. By race and language French, by conquest and business relations English, the inhabitants of the Island of Jersey can be said, from an agricultural point of view, to possess many of the merits of both races. They are frugal where the English are lavish; they are enterprising where the French would be tied down by traditions; they hold fast to what is good with Gallic tenacity, yet they have shown an interest in the improvement of their crops and their cattle truly British.

What conditions could have been more favorable than those produced by such a climate, such food, and such careful and intelligent breeders? But to these there is an important item to add, namely: the markets in which the Jersey cow and the Jersey butter were sold; markets in which close competition was to keep up a high standard, but markets in which many wealthy purchasers would be ready to reward the highest skill. Such markets were found in London. Near at hand and regular in their demand the year through, the markets of London did much to encourage the Jersey farmer. The Jersey breeder and butter-maker enjoyed a climate equal to the best of France, but being a British subject he had access to English markets which was denied to all Frenchmen.

At the beginning of this century, Thomas Quayle who had passed six months in a careful study of the industries of the Channel Islands writes at great length of the large and steady demand in England for Jersey cattle; they not only brought fancy prices for gentlemen's places, but there was a regular sale at uniformly high prices for the general English market. What the number of cattle sent from Jersey to England, annually, in the early part of this century was, we have no means of knowing, but in 1846 the num-

ber had risen to seven to eight hundred cows and heifers every twelvemonth. At the present time, though many Jerseys are bred in England and America, these two countries receive from the island nearly three thousand animals a year.

During the first quarter of this century, though the purity of the breed was jealously guarded, nothing of importance was done in the way of "breeding" as we now understand the term. The better animal was bred from and the poorer killed; the better animal was kept at home because of the higher price put upon her, and the poorer and cheaper one sold. But this was done in a careless, unsystematic way. And the same may be said, to an extent, of the raising of the crops upon which the animals were to be fed. The result was that, though farming and breeding on the Island of Jersey kept far ahead of that upon the continent, it fell so far behind England that the prices of the island cattle for export began to fall off.

At length, believing that the character of their cattle was deteriorating, and believing also that good results had followed the institution of agricultural societies in England, some of the leading citizens of Jersey decided upon establishing for themselves a society for the improvement of their crops and their cattle; "to preserve," as they expressed their intentions, "the original breed from all admixture, and to preserve the trade that had hitherto proved of so much advantage to the island." Cattle shows were forthwith established; judges were appointed, and a scale of points for the guidance of these judges was adopted; the prizes offered were coupled with valuable regulations in regard to the retention of the prize animals on the island. No person, for example, was allowed to receive a prize for a bull until at least one whole season after the prize was awarded; moreover, any person withholding the service of a prize bull from the public was to forfeit his premium; all heifers having had premiums adjudged them were to be kept on the island until they had dropped their first calf.

The work of this society was so wisely planned, and so patiently and industriously carried out, that in less than a dozen years from its foundation the price of the best animals exported had risen to fully double those of 1830, and by 1850 the price had tripled.

During the first twenty years of the Jersey Society the best animals were discovered, so to speak, and were distinguished by their

awards; the best "families" among the cattle became known, "a spirit of industry and emulation" was aroused, and not only were the cattle as a breed improved, but the food they ate, the stables they occupied, and the care they received, all felt the good influences of the society.

It was just at this auspicious time — when the poorer animals had been put aside, when the leading animals and the leading families were easily recognized, and, if money enough was offered for them, could be bought — it was just at this time — 1853, 1854, 1855 — that the early American importations were made. Since those days many Jersey cattle have been imported to the United States; much intelligence and much money have been devoted to the selection of these cattle, and on numerous occasions the first-prize animals of the island have been brought across the Atlantic. But it may be said with truth that no better animals have ever been imported than those which came to us twenty-five and thirty years ago.

Though the change of climate and of foods was certainly great, these cattle adapted themselves promptly to the conditions of their life in New England and the Middle states, and within the past few years they have successfully penetrated to all parts of the Western and Pacific states, as well as to those lying about the Gulf of Mexico, and in Canada and Cuba also they are well established. They have in this country, moreover, not only retained the peculiar and valuable characteristics of their race — the great yield of fine butter — but they have, as we shall see, exceeded the best performances of their race in the Island of Jersey.

In 1868 the American Jersey Cattle Club was established. This society has done vigorous and successful work in guarding the purity of the stock and in extending the knowledge of the merits of this breed. These merits were not, at first, either widely or willingly recognized; and the Jerseys, or as they were then and are sometimes now wrongly called Alderneys, were seldom seen except upon the lawns or in the stables of men of wealth. Gradually, however, the reports of the great annual yields of butter made by cows of this breed roused the interest of practical farmers, and the growing demand for the butter of these cows further increased their popularity; and soon the little cow which had been laughed at as an expensive and foolish luxury, became to practical breeders

of butter stock an absolute necessity. In fact, the growth in numbers and in value of this breed of cattle in this country during the past eight or ten years has no parallel in the history of thoroughbred stock. A dozen years ago Jersey cattle were not seen at the shows; half a dozen years ago they were shown, but with no expectation of rousing much interest, much less with the expectation of winning prizes, for none were offered for this despised breed; three years ago, at large fairs, Jerseys were not classed with or judged according to the rules which govern the exhibition of thoroughbred cattle. To-day, in nearly every state of the Union, the Jerseys shown outnumber any breed upon the grounds, and in some states they outnumber all other breeds; it is about the stalls of this breed that, to-day, the largest number of interested spectators gather; and this breed during the past year has, in the average amount realized at public auction, taken its position at the head of all others in the United States.

In beauty of form and color, in gentleness of disposition, in length of life, they have no superiors; in amount of butter produced in a year, they have no equals, and in color, flavor and texture, the butter of this breed is now accepted in all markets as the standard of excellence.

The cows of this breed weigh about eight hundred pounds. Their eyes are large and mild, the head small and lean, the face dished, the horns small, incurved and yellow, the ear small, thin and yellow inside, neck and throat straight, thin and clean, back level and broad at loins, barrel well-ribbed and deep at flanks, legs short and small, tail fine and long, hide thin and mellow and yellow, hair soft, udder very full forward and behind and free from hair, teats squarely placed, milk veins large and long, escutcheons large and full on thighs, disposition kind and quiet. The general appearance of the Jersey, as compared with other breeds, is not only small, but thin. The colors include all shades of fawn, drab, brown, and gray, either in one uniform color, or varying in shade with different parts of the body, or broken in patches of white. Unfortunately there was for a time a "fashion" in colors in England and this country, and breeding with reference to a particular color, or for a uniform color, undoubtedly interfered with the more important occupation of breeding for butter. Happily, this vagary has almost passed away. The color of the hair of a Jersey has no connection

whatever with the butter yield as to quality or quantity, nor is it any indication of the vigor or of the disposition of the animal. The Jersey is a good eater and a good "digester," but when compared with what she produces she does not eat more than the cows of other breeds. The rations most favorable in this country for the health of the cow, the development of the calf in the womb, and the production of the largest amount of the best quality of butter, are about twenty pounds of hay, four to six quarts of a mixture of equal weights of cob-corn meal and wheat-bran, and half a peck of carrots and beets chopped up and mixed with the grain. This for a winter ration. In the summer it is well to supplement the pasture with a grain fodder of oats and peas, millet, sweet corn stalks or barley, according to the season, and to this a couple of quarts of corn and wheat-meal may be added.

A larger grain ration than the cow can at once direct toward the warmth of the body and the supply of fat in the udder will occasion a tendency to put fat on the carcass, and this tendency encouraged will be fatal to the greatest butter yield. From the start care must be taken to give the Jersey enough food to keep it warm and keep it growing if young, and keep it steadily developing the fœtus and manufacturing butter, if mature; but all food beyond that required for these purposes will be worse than wasted, for it will divert the Jersey from the butter-producer, in which character she is a success, to the beef producer, in which role she always must be and always should be a failure.

Great care should be exercised with regard to high feeding before the cow calves; with cows of this breed it is well to withdraw all grain for at least six weeks before the calf is born. While it is important to give the cow food sufficient to supply all of her needs and those of the almost fully developed fœtus, yet it should be remembered that at this time the cow is taking comparatively little exercise, she is giving little or comparatively little milk or butter, and the fœtus, until it comes into the world, requires less than one ounce of nourishment a day; all of these needs good hay and perhaps a few roots will supply; grain will unduly rouse the system. Our object should be to prepare the cow as far as possible for the great change which her system will undergo when all the energies of her organism are turned suddenly from the nourishment of the fœtus in the womb to the nourishment of the calf from

the udder, and this strain, great in all cases, is vastly increased, it should be remembered, in the case of artificially high-bred cows who pour into the bag enough milk to supply half a dozen calves instead of the one which nature has made them to bring forth. It cannot be too strongly urged that in order to avoid the too frequent cases of death or injury from milk fever and garget, *all grain* should be removed for a month at least before the period of parturition, and given sparingly for at least a week thereafter.

It seems to be better for the dam and no worse for the calf, if the latter is removed at the end of forty-eight hours. For the first two or three weeks let whole warm milk be given; at the end of this period skim milk, warmed, may be substituted; this may be given up to six or eight quarts a day until the calf is well established in the habit of eating grass or whole oats and hay.

The Jersey has been brought to her present state of excellence by not a little in-breeding. "In no other way have our present well-known breeds of live stock been established than by in-breeding;" in no other way can the desirable characteristics be fixed. It has been well said that "this system of breeding has a refining influence; it develops the good and desirable qualities, and it fixes them; it undoubtedly also, in many instances, develops the weaknesses and the undesirable qualities, and this renders it necessary that the breeder should have considerable experience before attempting this department of breeding;" but just as certainly as this in-and-in breeding has been an important agent in bringing the Jersey up to where they now stand, just so certainly must it be depended upon in our efforts toward carrying them to a yet higher position.

That this breed of cattle has reached its best performance, no one thoroughly familiar with them in their past and present condition will be willing for a moment to admit. Though they to-day as a class surpass all other breeds in annual butter yield, there are no substantial indications yet visible that the limit of this production has by any means been reached. On the contrary, not a month during the past year has gone by without bringing reliable reports of increased individual records, and of increased averages for herds. Nor are the best reports received from any one section of the country; northern New England and southern New York each report nearly eight hundred pounds of butter as the

amount produced by one cow in twelve running months; eastern Massachusetts gives us a cow with a record of over seven hundred pounds in a year, and in Illinois and Tennessee we are receiving reports of great yields.

Nor does the Jersey, who gives seven or eight hundred pounds of butter in twelve months, and who also develops a calf during this period, show any falling off in vigor of constitution, either in herself or in her offspring; in other words, though she produces tenfold more butter in a year than she would do in a natural state, she gives this increased yield without drawing unduly upon any of the necessary functions of her organization; it is a legitimate result of systematic, thorough breeding.

We claim, then, that the Jersey is the *most profitable butter producer.* She makes more butter than any other cow; she is as long lived as the cow of any other breed, and she comes into profit earlier; she is as economical to feed, as easy to "handle," and more easy to make butter from, giving more butter in her milk in proportion to the other elements, making, in particular, a great saving in the amount of water to be milked from the bag, to be carried to the milk rooms and to be provided with pan surface — this is no unimportant characteristic, from a practical point of view; no small amount of time, labor and material is thus saved in the course of a year.

The Jersey not only gives richer milk, but in her milk the "globule" is larger than in the milk of other breeds; in consequence of this larger globule, the cream rises quicker, and hence is exposed a shorter time to injury from fermentation, from odors, and from dust and insects.

The larger globule, with its thinner envelope, churns more quickly and more satisfactorily, and is better adapted to all varieties of churns.

It may also be said that cream cheese from the milk of this breed are highly esteemed; and Jersey veal brings a high price in the market.

To sum up:

First.— The Jerseys are a thoroughbred and well established race. As far as there is anything of value in systematic breeding with a particular end distinctly in view, purity of blood and a long line of worthy ancestors, and favorable conditions with respect to

food and climate, the Jerseys compare favorably with any and all other breeds.

Second.— They possess as fully as any breed the power of transmitting their desirable qualities to their offspring. They are thoroughly responsive to in-and-in breeding when intelligently carried on, for the purpose of intensifying and perpetuating their peculiar powers as butter producers. The leading Jersey cows in America to-day show in their pedigree much close breeding among their ancestors, and they are better than any of their ancestors.

Third.— Having smaller bodies than any of the other leading breeds, they require less food to build up and develop these bodies while they are growing, and they require less food for the repairs of their bodies when they have reached their full size.

Fourth.— They come into profit at least a year earlier than other breeds, and thus make a saving to their owners of a year's food, handling and housing. This is no small item, considering the labor, the expense and the risk attending the younger years of valuable stock.

Fifth.— They have shown a power, unequaled by any other breed, of adapting themselves to the various climates and to the varieties of foods of all parts of the United States.

Sixth.— No cattle in this country are more quiet, gentle, hardy, prolific or long lived.

Seventh.— They are the most persistent milkers of any breed. They seldom go dry for more than six weeks; many instances are on record of cows giving half a dozen calves in as many years without ever ceasing to give a good yield of milk.

Eighth.— They make more butter from a given amount of feed than the cows of any other breed. Two pounds and a quarter of butter a day is not an uncommon yield for a cow in the winter, receiving a dozen pounds of dry hay and two pounds of corn meal mixed with two pounds of wheat shorts.

Ninth.— They will make more butter in twelve running months than will the cows of any other breed. Several cows in this country made in 1880 over seven hundred pounds of butter, two of them nearly eight hundred pounds, and none of these cows are believed to have yet reached the full limit of their powers. Records for herds of three hundred, three hundred and fifty and four hundred pounds are to be found in many states.

Tenth.— Their butter has a higher color in winter, as well as in summer, than any other breed except the Guernsey.

Eleventh.— The milk, the cream and the butter of the Jersey has a richer taste and a more lively and agreeable flavor at all times of the year than that of any other breed.

Twelfth.— The butter of this breed, in texture and grain, has no equal. Its firmness, its freedom from salvy character in the heats of summer, is particularly noticeable.

Thirteenth.— There is no breed which has been crossed upon the common stock of the United States with more immediate or more satisfactory results. It is an important fact in cross breeding that the most favorable results are obtained where the bull belongs to a race whose bodies are smaller than are those of the race to which the cow is allied, and the same is true where the male represents a race older and better established than that to which the female belongs; both of these favorable conditions exist in the case of the Jerseys and our common stock.

Fourteenth.— The Jersey breed is surpassed by no other in respect to the opportunities it offers for the efforts of the practical or the experimental breeder.— *Journal of the Am. Agr. Ass'n.*

DAIRY CATTLE.

(By CORNELIUS BALDWIN, Nelson, Ohio.)

It may be safely asserted that no other domestic animals are of such importance to mankind and civilization as those of the bovine race. None others supply so large a number of wants in both luxuries and necessities. It is also true that those cattle are most valuable which produce milk in large quantity, and of good quality, particularly if they also have a fair degree of fitness for the shambles, in form and size. In all breeds or kinds a certain number are superior for the dairy, while the remainder represent every grade and shade of mediocrity and inferiority.

That some of the breeds or kinds are superior to others for dairy purposes is certainly a fact, but it is believed that the difference between them is not so great as has been generally supposed. It is true that those cattle which are practically superior for the dairy, no matter of what kind, nearly always possess what is called "milk

shape" or "milk form," while those which are of the "beef form" or "beef shape," in great perfection are, with rare exceptions, undesirable for the dairy. It is unfortunate that this natural difference exists, but it seems unavoidable.

Within all the breeds there is to be found both the "milk shape" and "beef shape" in greater or less numbers, notwithstanding the persistent efforts of the breeders to make all conform to one shape or the other.

Phenomenal cases in the production of milk and yield of butter can be shown in individual animals and "family strains" of any breed. In fact, size and weight being considered, and taking those large yields as the rule by which to compare breeds for dairy use, they will be found about equal. But this is certainly not true. Careful examination of large numbers of cattle will disclose the fact that large yields of milk or butter belong to those animals having the "milk shape," but it will also appear that a large minority of cattle having good "milk shape" will range from medium to worthless for the dairy.

Farmers and cattle breeders generally have for a long time given particular attention to the "milk shape" in breeding dairy cattle. and have succeeded, as far perhaps as is possible, in using that as their almost only guide. As a result of this method, we find several breeds possessing the "milk shape," but which do not, upon actual test of a really average lot, prove as satisfactory as might be desired or expected by the amateur.

A great degree of uniform excellence for the dairy has not yet been attained in any of the breeds, except that the Jerseys show uniform excellence for making a choice article of butter. Notwithstanding the foregoing may seem like serious charges against the several thoroughbred races of cattle, the writer wishes it distinctly understood that all of the different breeds are of great advantage and value, in that the cattle of the future will be largely the descendants of the best animals in the different breeds of the present, and the great improvement which is yet likely to take place will be an outgrowth from the thoroughbred races of the present. The question arises, can the present breeds of dairy cattle be greatly improved upon by any additional methods in selecting animals to breed from, and can uniform excellence be attained in nearly all of the individual animals that shall constitute the future herds of the

thoroughbred races of dairy cattle? It cannot be otherwise if those most powerful to bring about such results will improve upon the opportunities and knowledge extant upon this subject. A careful "weeding out" should occur all along the line, and the saying that "an ill-bred thoroughbred is worse than a mongrel" should be rigidly put in practice. Thoroughbred cattle should only be bred by those having skill and knowledge in the business, and purchasers should be careful to buy of such. Careful attention must be given to certain physiological peculiarities and developments. Among these are the escutcheon or milk mirror, with its many differences of form and value; the lacteal veins, of which there are as many as eight distinct variations in kind and value, as well as other veins in the vicinity of the udder; the absence or prevalence of a deposit of calcelous structure upon the ends of some of the bones, which may be detected by feeling with fingers' ends; the hair, eyes, horns, color, size, shape and quality of flesh.

It is much easier to succeed in breeding superior cattle for the dairy than superior excellence for the shambles. Great possibilities are within the easy grasp of the prominent cattle breeders of the world. Like begets like, it is said. This is not strictly true; but like begets a strong similarity. No two things in the world are alike so far as man has discovered. These variations may run in direction of degeneracy even in the most perfectly bred animals, and the careful eye of the professional cattle breeder is necessary that too great distance is not made in the wrong direction. The foregoing opinions, which the reader may think to be rather positive or pretentious, are held by the writer after years of careful observation with thoroughly practical tests in this branch, or twig, of science, and are given with a slight hope that they may be of some practical importance and interest to farmers and professional cattle breeders, and thereby to mankind generally.— *Journal of the Am. Agr. Ass'n.*

HOLSTEIN CATTLE.

(By CHARLES HOUGHTON, Boston, Mass.)

The race of large, improved black and white cattle, known in America as "Holstein cattle," are animals or the descendants of animals imported from North Holland or the neighboring provinces,

having been selected there with the greatest care in reference to purity of blood and the fine qualities of each individual animal.

Previous to and for some time after 1871, Mr. Winthrop W. Chenery, of Belmont, Mass., was the principal if not the only importer of Holstein cattle for purposes of improvement.

In March, 1871, about ten persons, to whom Mr. Chenery had previously supplied one or more Holstein animals each, at his suggestion united with him in an association called the Association of Breeders of Thoroughbred Holstein Cattle, with a constitution and by-laws, and a register of all the pure blooded animals of that race owned by them. The principal object of this association was and is to keep and preserve a register of animals known to be of pure blood, and of their progeny, including future importations.

At that time the persons uniting in the association knew of no name by which this race of cattle were generally known in Holland and the neighboring provinces. They had been usually called "Dutch" or "Holstein" by Mr. Chenery and his associates.

In 1864, Mr. Chenery was requested by the department of agriculture, at Washington, to contribute an article upon the cattle in question for publication in the commissioner's report. The paper was prepared and forwarded to the department with the title of "Dutch Cattle." In due time the article appeared in the commissioner's report with the title changed from "Dutch" to "Holstein Cattle." This circumstance, together with the fact that no other name more appropriate could be suggested, decided the question of name, and Holstein was adopted.

Since then the association has increased its membership to include about fifty persons. It has published four volumes of the "Holstein Herdbook," in which, and the manuscript for the fifth volume, is a list of about six hundred and thirty bulls and about eleven hundred and twenty-five cows, distributed among five hundred owners residing in nearly all the states of the United States, the larger herds being in Massachusetts, New York and Illinois.

Large additions to the number of Holstein cattle in the United States are being made by frequent importations, as well as by the natural increase.

They are easily acclimated and grow as large as in their native country. The descendants of animals imported by Mr. Chenery fifteen years ago are equally as fine as the best selections made in Holland this year.

The bulls are gentle and docile, and excellent workers in the yoke, and the cows are large milkers, far excelling in that respect all other breeds.

They are easily fattened, and males often attain a weight of two to three thousand pounds, females ranging from twelve to twenty hundred pounds.

There is considerable demand for both males and females for breeding purposes, enough to take up all the importations, amounting to more than four hundred in 1879, and the natural increase at prices affording a reasonable profit both to importers and breeders. It is a notable fact that half-breed heifers sired by Holstein bulls bring twice, and often three times as much as the grades of any other breed will sell for, and this fact is perhaps the most reliable indication of the estimation in which Holstein cattle are held by American farmers who have had experience with them.— *Journal of The Am. Agr. Ass'n.*

THE MERINO SHEEP OF THE UNITED STATES.

(By ALBERT CHAPMAN, Secretary of the Vermont Merino Sheep Breeders' Association, Middlebury, Vermont.)

The flocks of Merino sheep now owned in the different states are descended from importations from Spain; first, in 1802, by Col. David Humphreys, about one hundred, into Connecticut, and in 1810 and 1811 by Consul William Jarvis, of Wethersfield, Vermont, and others, of many more, into nearly all the seaports of the United States. These importations comprised selections from all the best and most celebrated of the old Cabannas or flocks of the migratory sheep of Spain, at the breaking out of the French and Spanish wars. At that time these were the choicest and finest wool-bearing sheep of the world; they had been preserved with the greatest care, and, with a few exceptions granted as royal favors, had not been permitted to leave Spain.

The vicissitudes of war and confiscation of estates brought many of these large Cabbannas into the market; they were sold in very large numbers — a few thousand were taken to England, and at least twenty thousand brought to this country, within the years 1810 and 1811.

The descendants of the importations by Col. Humphreys had

been somewhat scattered in Connecticut and Vermont previous to the arrival of the importations of 1810 and 1811, and the experiments with them had proved so successful that the latter were welcomed on their arrival and sold for very high prices. They were then introduced throughout the eastern and northern portions of the Union, and somewhat in the southern states, but they did not succeed as well there, or become so popular and profitable, as in the east and north. In the more hilly portions and colder climate of the New England States they became great favorites, and have reached the greatest improvements achieved in any race or breed in the United States, until it is now confidently believed by intelligent men who are excellent judges of sheep, and who have visited the flocks of Merinos in foreign countries, that nowhere else has the improvement in these sheep for practical, profitable wool-bearing purposes reached so great perfection, and that the best specimens in this country are without rivals, and are capable of perpetuating these excellencies and thus improving the sheep of countries outside the United States.

When these sheep were imported from Spain, the representatives of the different Cabannas varid much in their different characteristics — some excelling in size and constitution, some in large yield of fleece, some were finer and more even in fleece, some were more fully wooled about the head and down on the legs, some had dense fleeces, some less dense but longer in staple, some had a great abundance of yolk or oil, and while some were comparatively smooth on the skin, others were covered with large folds or wrinkles, especially on the neck, and in some cases over the entire body.

The more intelligent and successful of the American breeders, by taking advantage of these varying excellencies, by judicious crossing and careful selection, intermingled the blood of these different Cabannas and bred up a race of sheep that combine in a marked degree these various excellencies, and from which the undesirable qualities of some of them have been estimated.

Some of the improvements that have been accomplished will now be noticed. The sheep as imported from Spain sheared only about seven per cent. of unwashed wool to live weight of carcass; indeed, selected specimens rarely exceeded that, while the average yield was much less. At the present time whole flocks shear more than twice as much, and the best specimens from twenty to thirty

per cent. of wool. In some extreme cases there has been thirty-five per cent. of unwashed wool to live weight of carcass, the growth of one year.

Three selected imported rams, at a public shearing in 1810, gave a yield of seven and one-tenth per cent. of unwashed wool to live weight, while three selected rams shorn in Vermont within five years gave a yield of thirty-one, thirty-seven and thirty-five pounds of unwashed wool, that, after thoroughly scouring for the cards, weighed eight pounds six and one-half ounces, nine pounds and eleven ounces, and eight pounds and thirteen ounces; the live weights of carcass of these three rams after shearing was one hundred and eight pounds, one hundred and forty-seven pounds and one hundred and twenty-one pounds. This would give twenty-seven and three tenths per cent. of unwashed, and seven and one-tenth per cent. of cleansed wool to live weight; the latter, it will be observed, is the same per cent. of cleansed wool as was given of unwashed wool by the three rams that were imported. Twenty-one rams, from which fleeces or samples were taken to send to the last Exposition at Paris, gave twenty-two and eight-tenths per cent. of unwashed wool to live weight; nine of this number, whose live weights averaged one hundred and twenty and one-half pounds, gave an average yield of a little over twenty-nine pounds each, or a per cent. of twenty-four and one-tenth to live weight of carcass.

Forty-six ewes, from which fleeces or samples were sent to the same Exposition, cut nearly the same per cent. of wool to live weight; grouped with the twenty-one rams, the whole gave twenty-two per cent. These sheep were all bred in Vermont. The excellence of their wools is found in the fact that they drew two gold medals, one silver medal, eight bronze medals and two honorable mentions.

One of the gold medals was awarded to the fleece of a ram five years old, which weighed thirty-one and one-half pounds, cleansed for the cards nine pounds and three ounces. The same ram at three years old cut thirty-seven and one-half pounds unwashed fleece, cleansed nine pounds and eleven ounces; live weight after shearing, one hundred and forty-seven pounds. Other rams, weighing less in carcass, have given a larger per cent. of wool than this one.

The careful and thorough manner in which these fleeces have

been cleansed should remove any impressions that may have been entertained in regard to the vast increase in amount of wool. It should not be entertained that the great fleeces have been accomplished at the expense of amount of cleansed wool. Other careful investigations and measurements from many fleeces, and from different parts of the same fleeces, prove that, with this vast increase of wool, a very material improvement in fineness and evenness of fleece has been accomplished.

A breeder of western New York had the fleeces of his whole flock carefully cleansed; the result was a yield of over four pounds of cleansed wool per fleece — an amount larger than was obtained of unwashed wool from the average of these sheep when imported from Spain. While it is certain that the gross amount of fleece has been so largely increased, records of the yield of unwashed and cleansed fleeces produced by the Merinos imported from Spain compared with those obtained at the present time from their descendants, as improved by the skill of our breeders, assisted by most favorable conditions of climate, soil and location, proved that the ratio of increase has been quite as great in cleansed wool as in gross amount of fleece.

This natural oil or yolk is a very important assistant in obtaining this increase of wool, as well as of great value to preserve the strength of fibre, elasticity, felting qualities and beauty of fleece.

Our best and most intelligent breeders, those that have accomplished the greatest improvements, believe that wrinkles are absolutely essential, especially in the stock rams, to keep pace with the improvements assured and advanced to those not yet attained, but are more than possible in the future. Some breeders that are making marked improvements in their flocks are using rams with excessively wrinkled skins; on the tops of some of these wrinkles in old age will will be found *jar hairs*, yet these rams produce through their offspring remarkably beautiful, lustrous fleeces, and, what is of great consequence to the flock-master, fleeces of great weight that return him large profit. The absence of oil and crimp in the wool on these wrinkles gives appearance to the naked eye of a harshness and coarseness that careful microscopic examinations, measurements and tests prove to be erroneous; while in most cases there is a slight difference in the size of the fibres from these wrinkles, and the body of the fleece, it is so slight as to make no difference

in its intrinsic value for all common clothing fabrics. In some cases there proves to be no difference in the fineness of the wool on the wrinkles, and in the body of the fleece accurate microscopic measurements have proved this to be the case — in the fleeces of rams, shearing nearly thirty pounds of unwashed, that gave nearly nine pounds of cleansed wool.

Fibres from many fleeces have been measured, proving that as great improvements have been made in the quality as in the quantity of these fleeces from the heavy wooled Merinos of the United States, the finest approximating to, even rivaling, the finest fleeces from the light shearing descendants of the old Saxony race of Merinos.

The much greater strength of fibres in the heavy oily fleece gives it a greater advantage in value over the lighter, while the profit to the raiser is several times greater, even though he may obtain a less price per pound for his wool.

A couple of intelligent Australians, after looking over several flocks of our improved Merino sheep, and examining their fleeces, said to the writer of this: "While our wools are in demand, and we get prices for our best somewhat larger than you, we are obliged to confess that you are receiving two or three times as much money for one of your fleeces as we are for one of ours."

Recent thorough experiments made in cleansing fleeces selected by Australian gentlemen as the best grown in their country with selected fleeces from our Merino sheep grown in Western New York, resulted in a yield of double the amount of cleansed wool and value of the American over the Australian. I have not the exact figures at hand, but a fleece of a Western New York ram, weighing nearly thirty pounds unwashed, gave about eight and one-half pounds of cleansed wool, while a fleece from an Australian ram, shrinking about the same per cent., gave only half as much cleansed wool as the New York ram. The shrinkage of the ewe's fleece from Australia was less than from the Australian ram, but the yield of cleansed wool was proportionately smaller. The result altogether demonstrated a greater value to the manufacturer of the heavy Merino fleeces of this country in proportion to their market price over the Australian wools.

As these improvements have steadily advanced and the Merino blood become more generally diffused in the United States, the av-

erage weight of wool per head has increased. During ten years, from 1860 to 1870, the average weight had increased one pound and thirteen ounces per fleece.

The greatest and most rapid improvement in these sheep having been made in the eastern states, and notably in Vermont, has caused great demand for them in the western and southwestern states and in the territories, and they have become scattered through those sections adapted to fine wool-growing, though in many of those states and territories there are as yet but few flocks representing the advanced improvements. There are about three hundred and fifty registered flocks in Vermont, one hundred or more in Ohio, about the same number in Michigan, about sixty in New York, fifty or more in Wisconsin, and smaller numbers in Maine, New Hampshire, Massachusetts, Connecticut, Illinois, Missouri, Pennsylvania, West Virginia, Kansas, Colorado and Texas.

There are already six associations that have either issued, or are preparing to issue, registers of these sheep. The Vermont Merino Sheep Breeders' Association has issued one volume with records, pedigrees and histories of two hundred flocks, and is preparing a second volume for which over three hundred flocks have been accepted in addition to those accepted for the first. The Vermont Atwood club has a membership of about fifty, and has accepted nearly that number of flocks to be recorded in their first volume to be issued in the near future.

The New York Association has already issued its first volume, in which are pedigrees of about forty flocks, and is preparing to issue its second volume, in which an additional number of flocks will be recorded. An association in Ohio issued the first volume or register of the sheep ever published; it had histories of sixty-two flocks. It has not since grown as fast as some of the younger associations, but I am informed it is preparing to publish a second volume. An association in Michigan has a large membership, has accepted nearly one hundred flocks, and promises to soon issue a register. A vigorous association in Wisconsin has a good membership, and has accepted quite a number of flocks for record, and it is presumed will soon issue a register.

These several associations are doing a most useful work by investigating the histories of these flocks of sheep, and determining the justice of their claims to be recorded as pure bred Merinos de-

scended unmixed from the importations from Spain. Since this work has been done, those who would wish to purchase these sheep have assurance that they have in these registers protection against fraud and imposition; as a consequence, the demand for this blood to start new flocks and improve old ones has greatly increased and the prices greatly enhanced. Selected ewes sell in many instances as high as one hundred dollars each, and in some cases as high as three hundred, and in some extreme cases, for very choice ones, even higher; selected rams from one hundred to five hundred, and some superior celebrated rams from one thousand to two thousand dollars. In the northeastern states, where these improvements commenced, and where, favored with great natural advantages, they have been carried to the greatest extent yet attained, there has been very active demand for breeding stock. During the year 1880 over sixty car-loads, containing five thousand nine hundred and sixty-five of these improved Merino sheep, were sent west and southwest from one railway station in Vermont, and smaller numbers from smaller stations in other parts of the state, though this being the central point of shipment in the midst of the section of the state where these flocks are most numerous, these car-loads probably embrace more than half the number sent from the state during the year.

As these sheep become known there is first a demand for the poorer rams at moderate but remunerative prices, to cross upon the grade flocks of our western states and territories. The produce from this cross is a great improvement upon the old sheep of those sections in weight of fleece as well as in quality of wool. The improvement is more marked as the number of crosses is increased. As the improvements become greater, a better and higher priced class of rams is demanded; this has been the case from the first, and the newer western states now demand sheep — both rams and ewes — of the highest type of excellence to improve flocks already established and found new ones representing the highest grade of improvement yet attained, and for these highly remunerative prices are paid to the breeders. — *Journal of the Am. Agr. Ass'n.*

MILLS' SYSTEM OF ENSILAGE.

(By FRANCIS D. MOULTON, President of the International Dairy Fair Association, New York.)

Many years ago I used to distribute tracts to the poor, the needy, and those supposed to be at least the ungodly, of what is now the wealthiest district of the city of New York. Where the poor are that I visited I do not know, but the lessons of that early time remain with me. Each tract I distributed was, I have no doubt, intended to be a short treatise on practical religion; but as I was stoned for this service one day near what was known as "Quality Row," in Forty-second street corner of Fifth Avenue, which old New Yorkers will remember for its absence of quality, I abandoned a work that I began with enthusiasm under the direction of my teachers of the Mount Pleasant Reformed Dutch Church, then located in Fiftieth street near Cato's road.

I saw much of want and misery in the days I speak of, and I could not help feeling, what I have ever since felt, that the bread of life I was appointed to carry around and give away, and often with sincere prayers in its behalf, was, on the whole, a hard and unsatisfactory and unnourishing crust. I have known many good men and good women, able and willing to relieve the sufferings of the poor; but I was led to believe through my own experience, confirmed by the observation of those I allude to, that it was not so much the meal of to-day and the coat for to-day that was wanted as the way to earn both for to-morrow. I have since traveled much through the manufacturing and agricultural sections of this and other countries for business, pleasure and observation, and have not found, until within this month, what I believed in the end would prove to be a discovery in industry that would make living for the masses sure and cheap with accompanying comfort, education and enlightenment, to be followed with prosperity, enrichment, near neighborhood and good government, and so I propose to tell as briefly as possible of what I found and where I found it.

I found financially prosperous farming made easy; and I cannot do better just here than to quote, with reference to its value, the

words of *The New York Tribune*, when the International Dairy Fair was in progress at the American Institute during December, 1878: "There is nothing of better import to the country than financially prosperous farming. It is money-making, without many of the evils which accompany some of the other methods of making money. It is cleanly, honest, and of all good influences."

I found financially prosperous farming made easy at Arrareek farm, in Pompton, New Jersey; and the statement of its owner, Mr. C. W. Mills, whom I have known for many years, will, I have no doubt, be as much of a surprise and delight, to all who read it, as it was to me. The statement was made to me Monday, April 4, 1881. It was that, during the winter of 1880–81, he had kept one hundred and twenty horned cattle and twelve horses, and should keep them for seven months more, with half the ground feed that would have been necessary if feeding the best of hay instead of the GREEN FODDER, which was the product of thirteen acres of his farm. The two pits, or silos, in which Mr. Mills preserved the green fodder, cost him about seven hundred dollars, and the fodder less than five hundred dollars; hay, to answer the same purpose, would have cost him seventy-five hundred dollars; so that, as the grain consumed in either case would have cost the same, the profit was about seven thousand dollars — not taking into account at all the extra price for milk, which was sold at a premium in New York because of its richness.

I walked with Mr. Mills over his farm. I do not want to say that I never saw a poorer one, but I do not think I ever did. I looked at the stock and they were in unusually fine condition — clear-eyed, fat, sleek, and lazy as pets. I tasted the milk and it was the best I ever drunk. In order to ascertain its quality accurately (by permission of Mr. Mills), I had it analyzed by Dr. A. R. Ledoux, one of the most reliable chemists in the country, in comparison with the best product of Orange county. Of course I cannot picture the farm in these pages, nor drive the stock through them, but I subjoin the analysis of the milk, which speaks well enough of the condition of the cows and the quality of their fodder.

CERTIFICATE OF ANALYSIS.

NEW YORK, April 5, 1881.

SIR — The samples of milk marked I and II, and submitted to us for analysis, contain:

	I.	II.
Water	89.85 per cent.	88.28 per cent.
Butter, Caseine, Sugar	9.68	11.02
Ash	0.47	0.70
	100.00	100.00
Specific gravity	1.0259	1.0328

Your obedient servants,

A. R. LEDOUX & CO.

Mr. Mills' was the parcel marked No. II; the Orange county No. I.

Mr. Mills claims with enthusiasm that the system of ensilage which he has discovered and adopted will revolutionize the present system of farming, and so I will, as nearly as I can, tell how he was led to its discovery, and give his reasons for believing in the good he thinks it must accomplish.

The first experiment which Mr. Mills made, and through which he discovered his system of ensilage, was in the fall of 1876. He was led to it through a blunder committed in undertaking to improve the quality of corn common to the section of the state in which he lives. He tried to hybridize it with a very superior species of southern corn, and in order to accomplish his purpose planted each in alternate rows in the spring of 1876. The home corn was fully ripe and ready to harvest when the southern corn had only begun to develop its pollen, notwithstanding the latter stood twice as high as the former. Mr. Mills had failed to take into account, at the time of planting, this difference in the time of maturity of the two species. He harvested the home species and left the other standing, trusting that with favorable weather he might be able to harvest it before the frost came; but late in October the frost nipped the leaves while the corn was yet in the milk. There were about twenty acres of it, standing twelve to fifteen feet high, and what to do to save it was the question. After thinking the matter over he concluded to dig four or five good-sized pits in a dry gravel bank, line them with straw, cut and place the corn in them as soon as possible, cover it over with straw

and plank, and press it down with earth. This he did; the work occupying him about a week. In the spring of 1877, as early as the frost permitted, he opened the first pit and found the fodder in an excellent state of preservation. Not having cut it up when he placed it in the pits, he was obliged to use a derrick with a double purchase, and a heavy team of powerful horses to break it out. He found that his animals liked the fodder very much, and in order to consume the whole of it he added to his herd by purchasing a number of cows. In consequence of the blunder in planting his corn, and the success he had in preserving his fodder as the result of it, Mr. Mills says he then and there devised the method which he has since perfected, and now has in practical and successful use.

Mr. Mills prepares the soil for planting the corn from which he makes his ensilage, just as he would for an ordinary crop of corn, and puts the seed in about the last of May or the first of June, according to the condition of the season, so that the seed shall not be subject to any drawback from frost or cold. He plants it in drills of about three inches wide, with a space of three feet between each drill, about twenty or thirty grains to the foot, and uses a blood and bone phosphate as a fertilizer to stimulate the young plant at the start. The first cultivation he gives it is by plowing it with the ordinary corn plow, throwing a furrow away from the drills, then afterwards throwing it back by the hilling cultivator. For seed he uses a species of southern white corn, a kind easily obtainable in the New York market.

The corn is harvested in the latter part of September, when the stalks are fully matured — not dead, but whilst still green in color — and filled with saccharine matter. This stage of growth is indicated by full tasselling and the beginning to ear. The harvesting is done in the ordinary old-fashioned way, by hand, with a stalk-knife, and a sufficient labor force is employed to fill a pit of three hundred tons capacity within three days, because it is essential to gather and cut the corn and put it into the silo, and get it under uniform and continuous pressure within the shortest possible time, in order to save all the food properties. Mr. Mills uses two corn cutters, one cutting one-half inch and the other an inch length, of a combined capacity of one hundred tons per day, using steam power for the purpose.

He has two silos or pits, each forty feet long, thirteen feet wide

and twenty feet deep located in the center of his barn, the walls of which are constructed of a concrete of stone and cement two feet thick, the sides and ends parallel, and the bottom well cemented. Upon the walls, flush with the inside of them, a structure of ordinary boards is built, fifteen feet high, which serves as a feeder to the pit, and which, when both are filled, will compensate for the shrinkage of the mass by compression. When the pit and feeder are filled, the surface is leveled, and sectional covers four feet in width, and in length one inch shorter than the width of the pit, are placed upon it, upon which are placed fifty tons of grain in bags (making five tons to each section), evenly distributed. Mr. Mills uses grain for weight because it is convenient. Anything else that can be uniformly distributed would answer. It takes about ten days for the whole mass to compress sufficiently for the covers to be on a level with the top of the pit, and then the feeder can be taken down. Mr. Mills allows no tramping or mussing of the mass, for the reason that he finds that any portion of the succulent stalks subjected to pressure will cause the juice to exude, and immediately upon relieving the pressure the air takes its place in the cellular tissue of the plant, and fermentation results in the body of the mass. The one inch of space between the cover and the sides of the pit is left for the escape of air and ambient moisture; the uniform and continuous pressure forces out the atmosphere and gases — which may have accumulated while preparing the mass for pressure — through the half-inch opening between the cover and the sides, and keeping them out until the pressure is removed.

When this fodder is to be used for the cattle, the bags of grain from the first section of the cover are removed and their contents ground for use, while the fodder lying immediately underneath them is being fed. The fodder is taken down perpendicularly to the bottom of the pit. While one section is being used the pressure on the remaining sections continues the same, thus excluding the atmosphere as effectually as if each section were a small pit by itself. Thus, one section after another is fed until the whole is exhausted.

The two pits completed cost Mr. Mills about $700. When filled last fall they contained about six hundred tons of ensilage of maize grown on about thirteen acres of ground, costing, including seed, tilling, gathering and putting into the pits ready for feeding, less

than $500. This was the only fodder Mr. Mills used on his farm, not having a ton of hay since he commenced feeding his animals on the 15th of October last. The preserved fodder in the first pit was not exhausted until the 25th of last January, and sustained one hundred and twenty horned cattle and twelve horses in good and healthy condition a period of more than three months, with less grain or ground feed than would have been required if the best of hay had been used instead of the ensilage. The balance in the second pit will keep the stock to the end of the seven months, as before stated in this article.

The important conditions to observe in order to secure perfect preservation and good fodder are, first, the use of the proper kind of seed; second, facilities for cutting the fodder and filling the pit as quickly as possible after harvesting; third, to allow no more tramping, and consequent injury of the mass, than is absolutely necessary to level it off for the covers. As soon as the covers are in place see that the weight is immediately and uniformly applied, and allow no straw or other dessicated vegetable matter to come in contact with or be mixed with the fodder in the pit.

Mr. Mills claims that he is the discoverer of the value of continuous and uniform pressure for ensilage, or the preservation of green fodder, and the originator of the means and method of applying it. He claims that this system of ensilage will obviate the necessity for green soiling in the summer — a practice which he considers most pernicious, and of the effects of which many farmers seem ignorant. He says the meat of the animals which are fed on it is injurious to health, and their milk is the frequent cause of dysentery and death amongst children; that the butter and cheese produced from animals fed upon this unripe annual plant are necessarily bitter and unwholesome. In short, Mr. Mills believes that the natural effect upon an animal of eating unripe fodder is to poison its product, because in consuming the unripe feed it eats only poison. Disease is the immediate effect of it on the animal. In the winter succeeding its use, the farmer finds on his hands ten or a dozen cows that are sick with hollow-horn or some other disorder that he does not know how to account for — not even imagining that it is the result of the green, unripe annual fodder that they have been fed on the preceding season.

Mr. Mills intends to enrich his farm for the cultivation of the

sweetest and best grasses, and to keep them in the form of ensilage, cutting them, of course, when ripe for this purpose, and feeding them instead of the coarse fodder which he is now using. He thinks his animals will fare better on ten tons of such grasses than they will upon forty tons of the corn fodder; in other words, that ten tons to the acre of ripe, sweet grass, is fully equivalent to forty tons of corn. He does not propose to pasture his stock after this year, believing that the same grass harvested when it is in the flower will be productive of more profit than to let the animals eat it when it is just starting out of the ground. And he finally proposes not to sow corn for fodder, but to raise only rich, sweet perennial grasses for ensilage.

A farm of one hundred acres ordinarily keeps about twenty cows. On a farm of one hundred acres, upon Mr. Mills' system of ensilage, he proposes to keep three hundred, using thirty acres for ensilage and the other seventy to grow his grain on. From the exceeding richness produced by the manure from so many animals he thinks he can raise sufficient grain on the seventy acres; that is to say, about eighty bushels of corn to the acre, or thirty bushels of wheat. Heretofore, he says that it has required two hundred acres of land to pasture his animals, but he proposes in future to keep the same number on eleven acres, and keep them for the winter, to say nothing about grain. And then, instead of planting ten or eleven acres to winter them, he will plant twenty-five acres and winter and summer them on the product. He says he shall keep one hundred and fifty head of cattle on the product of twenty-five acres of land the year round, and have the balance of his farm — say two hundred and seventy-five acres — to grow grain on. The difference in cost between the maintenance of an animal under the system ordinarily adopted by farmers and that adopted by Mr. Mills, he claims is the difference between $80 per annum and $12 per annum; in other words, it does not cost him over $12 per head to maintain his animals for one year, while it costs a farmer under the ordinary process $80 for the same time.

I am aware that there are many interested in agriculture who doubt the ultimate success of the system of ensilage, and who have expressed a fear as to its effect on the health of stock and the value of their product; but I know of no more practical man amongst them than the gentleman whose views I have quoted. He is a well-known

and conservative business man, a member of the Produce Exchange of New York, and his conclusions as to the system which he is pursuing are entitled to the gravest consideration. That he has no doubt of their correctness is evident. He has demonstrated their value to himself and can certainly show, through the condition of his stock and the value of their product, a reason for the faith that is in him. I hope and believe that the system which I have seen successfully working on his farm will be established as a safe system for the agriculture of this country. From Maine to the Ohio line, including the New England and Middle states, the farmers are bemoaning the condition of their lands, under which they cannot compete with the rich and easily cultivated lands of the west. The Western states, too, are suffering annually an immense loss through the depletion consequent on raising grain for export. How great this depletion is can be clearly comprehended from the fact that the exhaustion of mineral constituents from the soil, namely, phosphoric acid and potash, was equal in value to $100,000,000 in 1879, when the value of the corn crop was estimated at $500,000,000, or twenty per cent. of the value of the crop. Mills' system of ensilage will, in my opinion, re-create the agricultural industry of the east, re-enrich the depleted lands of the west; and I greet it with welcome and thanksgiving, because of the blessing that inheres in it for the agriculturists of this country, and the consumers of the world. The great dairying industry of the country must greatly prosper under this system; butter and cheese can be produced at a much lower price than the present cost, and at more profit, and of much better quality than the best now on the market; and the oleomargarine or manufactured grease now sold fraudulently in conflict with natural butter, and the lard-cheese, will be displaced by genuine butter and cheese of the best quality, both in the home and foreign markets.

To an American will belong the honor and fame of having perfected the system of ensilage, in his discovery of the value of uniform and continuous pressure and the method of applying it. His honor and fame will endure and grow brighter and brighter, burnished by laborers working with the energy of enthusiasm in an attractive, honorable and profitable industry, which this discovery has made possible, and from which it has eliminated the discouraging elements of drudgery and uncertainty. But enthusiasm in

behalf of Mr. Mills is no reason for withholding recognition and gratitude from one whose experiments in the same direction for thirty years in France have enabled him to do great good — not only to himself, but to the agriculturists of his own country and those of our own who have received suggestions from him.

Auguste Goffart, of Sologne, began his experiments on ensilage in 1850, and constructed his first underground silos in 1852; and with the peristence and intelligence of a moral and agricultural enthusiast, has been working in this direction for the development of the agriculture of his own country and the world ever since, in the face of discouragement, and loss at times that might fairly have excused him for the abandonment of his work. I am sure that no one will hail with greater delight the success of Mr. Mills than will Auguste Goffart. They have worked in different fields, and unknown to each other, but for the accomplishment of the same purpose. The work of Mr. Goffart, and his enthusiasm in it, while, of course, begun on his own behalf, has its highest motive in the behalf of others. His farms and stables have always been open to the inspection of the farmers of his neighborhood and country. Speaking of his own work and his ambition in it, he has said: "What I have done can be done by thousands of others, and my sole desire, my sole ambition, is to enable them to imitate me as soon as possible." Mr. Goffart was of course obliged to confront those who doubted the success of his system, who told him that he would lose all his stock if he continued to feed them exclusively on maize throughout the year; but he says, "I continued to do it, and all my animals enjoy health, without even a shadow of disease." He faced disaster after disaster in the preservation of his fodder; but went on undaunted in his work, and the spirit that went with him is shown in his simple story of the great misfortunes that befell him in 1871. He says: "I returned to Burtin, after having taken part in the defense of Paris, to find that typhus had emptied my stables by carrying off sixty-three horned cattle out of sixty-four. With Norman bulls, which I had changed every two years, I had created for myself a new and fine race, and my stables were renowned in Sologne. In ten days I lost the fruit of twenty years' labor; the blow was severe, but what was the loss of a few thousand francs compared with the great natural grief which caused all our hearts to bleed? With courage I begun my work again. I pur-

chased for the replenishment of my stable young animals which continually improve, although aware that time would fail me to replace what I had lost. Let us strive courageously. Perhaps the most obscure of the pioneers of agriculture brings you to-day an effective means by which you can charm away the dearth of fodder, which is one of the greatest plagues of agricultural industry. Do not deny to this poor but interesting Sologne the honor of having been the cradle of a system of ensilage that is effectively preservative, and of having given an example that the richest countries will not be slow to imitate. This is my earnest prayer and brightest hope."

The thanks of the Central Agricultural Society of France were unanimously given to Mr. Goffart in April, 1875. The decoration of the Legion of Honor was conferred upon him in 1876; but when this decoration has faded and is entirely forgotten, the memory of him will bear the decoration of the spirit that actuated him in his work, and he will survive long in the grateful memory of those who have followed, and who shall hereafter follow his example and his method.

Alluding to a pamphlet issued by him in 1873, he said: "My profound conviction is, that the culture and ensilage of maize is destined to cause a complete agricultural revolution. It ought in ten years to double the number of animals supported on our soil. Was this a chimerical hope? God has preserved me from all discouragement on this point. In the last four years the progress that I have made at Burtin has exceeded all my hopes; and upon my reserve of thirty-five hectares (eighty-six and one-half acres), I kept during the winter of 1876 forty-three horned cattle, and I shall keep during the winter of 1877 seventy, with the assurance of going much beyond this at the end of 1878. Here are facts more conclusive than any arguments. The great establishment that I have finished, and shall inaugurate in October, 1877 (to which I invite all agriculturists), proves my firm faith in my work. I have spared no pains nor expense to insure solidity in my buildings, in dear Sologne — which may be considered as the cradle of this new industry — and they represent the point of departure of an immense agricultural progress. Perhaps I may, without too much pride, inscribe upon them the words of the great Latin poet: '*Exegi monumentum, aere perennius.*'" Remembering his service to agri-

culture, and the spirit which actuated him in it, the agriculturists of the world would say, if they could give voice to their thought — "Inscribe not only, 'I have completed a monument more enduring than brass,' but write under it for expression of yourself and your motives, the words of another Roman poet, '*Homo sum, humani nihil a me alienum puto*' (I am a man, and therefore am interested in all that concerns humanity)."— *Journal of the Am. Agr. Ass'n.*

PROCEEDINGS OF THE WISCONSIN CANE GROWERS' AND MANUFACTURERS' ASSOCIATION,

Held at Fond du Lac, January 5 and 6, 1881.

During the forenoon of Wednesday, January 5, 1881, there assembled at the court house in Fond du Lac, Wisconsin, a company of gentlemen, brought together for the purpose of forming a State Cane Growers' and Manufacturers' Association, and discussing matters relating to the amber cane industry.

The meeting was called to order at 11 o'clock by A. J. Decker, of Fond du Lac.

Upon motion, A. J. Russell, of Janesville, was made temporary president, and J. W. Lockin, of the *Wisconsin Farmer*, temporary secretary.

Prof. W. A. Henry, of the agricultural department of the State University, moved that the chair appoint a committee on permanent organization. The motion was carried, and H. D. Hitt, of Oakfield, Dr. Williams, of Woodhull, and G. C. Hill, of Rosendale, were appointed as such committee.

The meeting then adjourned until one o'clock.

At the opening of the afternoon session, the report of the committee on permanent organization was submitted and adopted until a more complete constitution could be prepared. Before the final adjournment of the convention, the constitution as amended by Mr. S. D. Hastings, of Madison, was permanently adopted. It is as follows:

CONSTITUTION.

Name.

ARTICLE 1. This association shall be known as the Wisconsin Cane Growers' and Manufacturers' Association. The object of the

association shall be to encourage the growing of cane and the manufacture of syrup and sugar therefrom.

Officers.

ARTICLE 2. The officers of the association shall consist of a president, four vice-presidents, secretary, corresponding secretary, treasurer, and an executive committee consisting of three. The president and secretary shall be *ex-officio* members of the executive committee. The officers shall be elected at the annual meeting. In case of a vacancy occuring in the office of president the first vice-president shall fill the place, and in case of a vacancy in any other office, the vacancy shall be filled by the executive committee.

Membership.

ARTICLE 3. Any person may become a member of the association by the payment of one dollar annually.

Meetings.

ARTICLE 4. The annual meeting of the association shall be held on the fourth Wednesday of January of each year.

The place of holding the meeting shall be designated by the executive committee, who shall give due notice of the same.

Special meetings may be called by the executive committee on application of five members.

Claims.

ARTICLE 5. Claims against the association shall be audited by the executive committee, and shall be paid by the treasurer on the order of the secretary, countersigned by the president.

By-Laws.

ARTICLE 6. By-laws may be adopted defining the duties of the officers, and regulating the management of the business of the association.

Alterations.

ARTICLE 7. This constitution may be altered or amended at any annual meeting of the association, by a vote of three-fourths of the members present.

Upon motion by Mr. Decker, proceedings were had for the permanent election of officers, with the following result:

President, A. J. Russell, of Janesville; vice-presidents, Prof.

W. A. Henry, of Madison, H. D. Hitt, of Oakfield, Austin P. Clinton, of Waukesha, D. A. O. McGowan, of Waushara county; J. W. Lockin, of Fond du Lac, secretary; S. D. Hastings, of Madison, corresponding secretary; A. J. Decker, of Fond du Lac, treasurer. Executive committee: Frank Lehmann, of Watertown; Charles Eustis, of Fort Atkinson; Hiram Smith, of Sheboygan Falls.

The following committees were appointed to report to the association upon the several subjects allotted to each:

Quality of soil, planting, cultivating, etc.: R. L. Clason, of Beaver Dam; D. R. Williams, of Woodhull; E. W. Sanders, of Oshkosh.

Shipping, hauling, storing at mill, and grinding: Frank Lehmann, of Watertown; Thomas Thomas, of Omro; Charles Eustis, of Fort Atkinson.

Best methods of defecating and evaporating. Evaporating by steam or direct heat: Prof. Henry, of Madison; Byron Sanders, of Oshkosh; B. C. Matteson, of Rosendale.

While the committees were preparing their reports, several communications and letters of regret were read by the secretary. Prof. Henry moved that the report of Prof. Scovil, of the Illinois Industrial School, be emboded in the printed report of the proceedings. Seconded and carried. It will be found elsewhere in this pamphlet.

Mr. Hastings introduced the following resolution, which was seconded and carried:

Resolved, That a committee of three be appointed to prepare a memorial to the legislature asking an appropriation to aid the agricultural professor of the State University in ascertaining the best manner of planting, cultivating and manufacturing cane so as to produce the largest quantity and best quality of syrup and sugar.

The committee appointed for this purpose consisted of S. D. Hastings, D. R. Williams and G. C. Hill.

The following is the report of the committee on quality of soil, planting, cultivating, etc.:

SOIL — First, sandy or gravelly soil; second, clay or ridges; third, prairie soil.

Mr. Sanders recommends that the hills be three by three and one-half feet apart; pull suckers and weeds, but not hoe; leave four to five stalks in a hill; thoroughly cultivate both ways.

Mr. Williams recommends the above, with the exception that he favors hoeing; plant three feet one way, one foot to fourteen inches the other; thorough cultivation, pulling, sucker and harrowing.

Mr. Clason favors drilling, leaving but one or two stalks at last hoeing.

Plant as soon as the soil will work up mellow and loose.

Respectfully submitted,

R. L. CLASON,
D. R. WILLIAMS,
E. W. SANDERS.

Reports of the committee on shipping, hauling, storing at mill and grinding:

We recommend stripping the cane when standing, with a sword-stick or buckskin mitten.

Cut with common corn cutter, lay the cane on a saw-buck from three to four feet wide, and bind with twine, hay or rye straw.

Haul on trucks with a woodrack, laying the cane crossways.

Store in shed or open air. Pile crossways or set on end.

Grind as soon as possible.

Respectfully submitted,

FRANK LEHMANN,
THOMAS THOMAS,
CHAS. EUSTIS.

The committee on defecating, evaporating, etc., made no report, preferring to leave the matter for open discussion.

The above reports were accepted, when the following discussion ensued:

Mr. Decker — How to strip cane with the least amount of work is a great question. The experience of the people of this locality is, that the stripping of cane is a great objection. Of all kinds of farm work, they regard stripping cane as the most disagreeable. The manner of stripping that I adopted was with what they call wooden swords or lath, striking from the top of the stalk downward.

The cane that I raised was grown upon black prairie soil. There was a fraction over two acres in the piece. From cane produced thereon, I made four hundred and eighteen gallons of syrup. It cost me, figuring the expenditure of time and money, considerably less than $100. The money realized from the sale of the syrup

amounted to over $200, and, if figures don't lie, I made over $100 from that little lot right here in the city.

Mr. Lehmann — I have been in the amber cane business for about eleven years, and have tried various ways of stripping and cutting off the heads. The manner of stripping suggested by Mr. Decker is probably the quickest way. I generally save my leaves, having them laid between the rows of cane for about two days, or until they are quite dry, and then raked up, tied in bundles, and put in the barn. I regard this feed as better for cattle than the best timothy hay. I generally have the seed cut off before I cut the cane. The seed, in the ground state, having been thoroughly dried and threshed, is worth to me about twice as much as oats. It is especially good as feed for milch cows.

Mr. Morris — I would like to ask Mr. Decker whether he charged against himself the same amount per gallon as he did his customers?

Mr. Decker — I did not. I was figuring the actual cost, and worked it the cheapest I possibly could.

Mr. Day, of Buffalo, N. Y. — The unpleasant task of stripping having been spoken of, I will say that in Minnesota they are running cane through the mill without stripping. Mr. Miller, a pioneer in the amber cane culture in that state, and Seth Kenney now work up their cane with the leaves on. The spirit of the St. Louis convention, which I attended, was in this direction.

Mr. J. W. Bailey, of Green Lake county — My experience has been with stripped cane entirely, and therefore I cannot speak of syrup produced from unstripped cane. In regard to converting cane into syrup as soon as it is cut, or as quickly as possible, as stated in the report, my impression, based upon observation and experiment, is that to produce a good article of syrup, cane should first be allowed a certain time to cure, and thus avoid that unpleasant taste so common in syrup made from fresh cane. I have some syrup that was made from fresh cane, and some from cane that stood four weeks after being cut, and there is a difference of flavor in favor of the latter.

Mr. Spencer, of Fond du Lac county — We raised one acre of cane last year. The cane stood up nicely, the growth in height being from nine to twelve feet. We topped the cane while standing, and found that we gained nearly one-half time in topping and

cutting, over topping after it was laid in bundles. We used sheep twine for binding, cutting and making the bands in the evening to save time. The cane stood ten days before it was taken to the mill. When worked up, it yielded one hundred and seventy-seven and one-half gallons of syrup.

Mr. A. J. Russell, of Janesville — In regard to stripped and unstripped cane, I will say that it cost me one-third more to manufacture syrup from the latter than from the former. The syrup was about the same, but there was much more work involved in the defecation. It seemed very difficult to reduce it to the proper consistency. I strongly advocate the stripping of cane. It is best to strip at least four or five days before cutting, and even two weeks, if there are promises of fair weather; but care should be taken in regard to that. The analysis made by Prof. Scovil, of Illinois, in several experiments, shows that after the cane had been stripped standing in the field, in two weeks it gained nearly two per cent. sucrose.

Mr. Spencer — What do you think of topping it a few days before cutting, provided the seed is not hardened?

Mr. Russell — My impression is, from the analysis of the juice, that it would hasten the ripening of the cane.

Mr. Decker — As regards the question of grinding cane with the leaves on, I will say my experience has been that it costs as much to make one hundred and fifty gallons with the leaves on, as it does to make two hundred gallons with the leaves off.

Mr. Spencer — I will ask what effect it has on the syrup to leave in the suckers in the grinding process?

Prof. Henry — The suckers undoubtedly contain a great deal larger per cent. of glucose than they do of cane sugar. I imagine they would, from the fact that they must be more immature, and that a larger per cent. of glucose mingling with the richer cane juice would bring the percentage of cane sugar down and prevent its crystalizing. I think it is admitted by all, that when there is a large per cent. of glucose present, then the cane sugar fails to crystalize.

Mr. Orvis, of Oakfield — I wish to know how long the cane will keep, after being stored in a perfect state.

Mr. Russell — It will commence to deteriorate twenty-four hours after it is cut from the field. While it deteriorates more rapidly

when not under cover, it will slowly deteriorate under the very best circumstances.

Mr. Decker — In regard to storing at the mill, I will tell the gentlemen what I had last year. I had a shed nearly one hundred feet long, with a truck railway running from one end thereof to the other, through the center. The cane was piled on either side, with a drive way entirely around the shed. The cane was not laid directly upon the ground, but on timbers. It was all piled one way, like wood. In some cases it was piled ten feet in depth, without injury. The cane was conveyed directly to the mill on a truck as needed.

Mr. Sanders, of Oshkosh — What is the proper time to cut the cane to obtain the best results?

Mr. Russell — By the analysis of the juice, it has been determined, not only by the chemist, but by practical field operations, that to obtain the best results in sugar, the cane should be cut during the transition of the dough to the ripening state.

Mr. Sanders — How long can you let the cane stand after you cut it, and still work it up and make it profitable for sugar?

Mr. Russell — Circumstances would govern that a great deal — the state of the weather, condition, storage, etc.

Prof. Henry — In regard to soil and planting, there is one point we should be very particular about, and that is to have the ground in mellow condition, which is favorable to rapid germination. Whenever soil is stirred and worked up mellow and loose, a sort of fermentation takes place. By that fermentation the soil is slightly warmed, and heat generated — all of which is favorable to the rapid development of the seed.

Mr. Bailey — I planted my cane three feet and a half one way, and half that distance the other. My ground was well pulverized. My seed was put to soak about twelve hours before planting. One man dropped and covered an acre per day, putting from five to six kernels in a hill, and about half an inch in depth. In about four days from the time of planting, the heads of the young plants were visible above the ground. When full grown, it stood from ten to twelve feet in height. I noticed that cane on spring plowing required about twice as much cultivation as that on fall plowing. My yield of syrup per acre was one hundred and fourteen gallons. We read of syrup yields of from two hundred to

four hundred gallons. It is hard for me to believe those reports, but they may be true.

Mr. Eustis — I planted forty acres of cane in the spring. A part of it was on clover sod, a part on fall plowing and a part on spring plowing. A part of it was manured last fall and plowed under; another part was manured two years ago, heavy. I took particular pains to notice the growth of each piece, and came to the conclusion that on good, highly manured land, I got double the quantity of cane and a better stand, while the best yield and the best quality was from clover sod, without any manuring. I planted my cane three feet each way.

Mr. Matteson — I will state that my experience has been that in forcing the growth of the stalk by manure, you don't get the average yield from the syrup, and that what syrup is produced has a strong taste; and that land made up of a leaf mold or natural soil or that which has not been manured, but has raised a good crop of corn, yields the most saccharine matter. It is not the large growth of the stalk that I find profitable; it is that which contains the most saccharine matter.

Adjourned until Thursday, January 6, 1881, at 10 o'clock A. M.

Promptly at the appointed time the convention was called to order, there being an attendance of seventy-five, which increased in the afternoon to over one hundred. The attendance of the previous day was about sixty.

A question having arisen in regard to the care of cane after it is ripe, Mr. Decker said:

I think that as soon as the cane is ripe it is better to cut it and put it under cover, at least in our latitude, for we are so liable to have a frost at the time of the ripening of the cane, that the risk would be very much greater in leaving it in the field a single day later than it was ready to cut. If it is well taken care of it will make good syrup from four to six weeks after cutting.

Mr. Bailey — How much does frost hurt cane?

Mr. Decker — Not any, so long as the cane does not thaw after being frozen. If it thaws, fermentation takes place, and works ruin.

Mr. Bailey — Which is the best kind of a cane shed; one entirely closed or one partly open, with slats on the side?

Mr. Russell — My cane has kept best in sheds that allow a free access of air, but still afford protection from rain. I stand the cane on end, but not very thickly. In unstripped cane there is danger of the leaves moulding, which injures the juice, makes it hard to defecate, and greatly reduces the quality of the syrup.

Mr. Matteson — In storing cane I pile it in bundles "first one way and then the other," just as green wood is often piled. This gives the air a chance to circulate thoroughly, and I have seen no case of mould among the many tons that have been piled at my works.

Mr. Sanders — I would like the opinion of the president regarding the assertion of some that it makes no difference on what kind of land cane is grown.

Mr. Russell — I have worked up cane grown on a great variety of soils. Cane that is grown on a sour soil, or one that has been highly manured with stable manure, is injurious to the syrup, for the reason that there are so many impurities in the juice and you have to use so many different re-agents to eliminate those impurities, that you destroy the sugar and injure the color and flavor of the syrup. Cane grown on clover sod requires very few, and in most cases no re-agents to produce a beautiful syrup, and the flavor is almost equal to honey.

Prof. Henry — I would like to inquire whether any person present ever tried the use of plaster in advancing the growth of cane.

Mr. Mills — I have used plaster with very satisfactory results. It hastens the growth of the cane very much.

Mr. Matteson — In regard to the question of evaporating, etc., I will say a few words. I evaporate about two hundred and fifty gallons, and heat by steam coil pipe. I heat to the boiling point, and then put in enough lime to neutralize the acid. I remove the green scum from that vat, and then run the juice into a settling vat. There are two of those vats that hold two hundred and fifty gallons each. It is allowed to settle, assisted by agencies employed, and deposits sometimes three inches of muddy sediment. The juice is drawn from these vats by pipes and conducted to the storage vat of two hundred and fifty gallons which is supplied with a Cook evaporator. In this evaporator it is reduced to a semi-syrup, and then run into the finisher, which is regulated by steam and controlled at any point desired. It is boiled down in the finisher to a certain

degree on the thermometer, according to the heft desired by customers. All the scums that arise are removed very carefully, and by so doing we relieve our syrup of any green taste.

Mr. Thomas — In regard to putting lime in to neutralize the acid, I will say that we didn't do it at all and heard no complaint of bad tasting syrup.

Prof. Henry — You can get glucose syrup without using any lime, but if you use lime or anything else that gets rid of the acid, your chances are in favor of sugar. When your manufacturers talk about using nothing for defecation, remember you are never going to get any amount of sugar. There is an acid in the cane juice which corresponds somewhat to the malic acid of apples, which has the power of converting cane sugar into grape sugar or glucose. Now if you allow that to remain, it does not affect the sweetness of your syrup or anything of that kind, but it does have an effect on the crystalization of sugar. An important matter in this connection is defecation. As long as you fail to defecate you must never expect to get sugar in paying quantities, but you can get just as good syrup, perhaps, without defecation.

Mr. Lehmann — How long should it stand after the lime is put in, before it runs into the evaporator?

Mr. Russell — It ought not to stand at all. The defecation completed, run it directly into the evaporator.

Mr. J. W. Bailey — In reference to evaporating by direct fire, I will relate my practical experience during the past season. I used one of the Madison Manufacturing Co.'s twenty-foot pans, similar to the Cook, with a foot bay in the upper end, a twenty-foot arch with two fire-boxes, one in the upper end and the other six feet from the lower end on the opposite side from where the skimmers stand. This I found to be very convenient at the close in syruping off. In doing this, I let water follow the juice, put out the upper fire, wash and scrub the upper part of the pan, while the lower fire is finishing the syrup. My pan was scrubbed, and scoured and rinsed every morning before commencing a new batch. At the commencement of the season I used a damper under the pan and near to the lower end. I could not find the first scientific principle in its use; so I discarded it, and pronounced it a nuisance.

In the construction of the top of the arch, I found it necessary to have the one-half the length of the sides of the end, eight inches

in thickness. This gave the heat beneath the pan an excellent chance to throw off the scum, a better show for skimming and a less liability of boiling the scum back into syrup. With good wood in the upper fire-box I could produce a boil that would make it impossible to see a ledge between the two ends of the pans. The force of the boiling was easily regulated by the quantity of wood and the opening or closing of the draft in the fire-box.

My smoke-stack was of sheet iron, thirty feet in height. Another year, I shall discard the lower half, and use instead a brick chimney, because of the immense heat thrown out over the lower end of the pan, which makes it uncomfortable for the skimmer. The juice, as it leaves the mill and flows to the juice tank, is strained through a wire screen. As soon as the juice falls into the bay of the pan and receives the force of the heat, the skimmers are brought into use, and kept constantly going till it becomes syrup, and leaves the pan. As the syrup leaves the pan it passes through a strainer and into the cooler, and when cooled is skimmed again and then measured up. I use nothing to purify the juice, relying solely upon the canes being properly cured, the juice well strained, constant skimming and a good, quick and direct fire.

A motion was seconded and carried for the appointment of a committee of three to examine the various samples of syrup and sugar on exhibition, and report. The following named gentlemen were appointed as such committee: Hiram Smith, Sheboygan Falls; Byron Town, Fond du Lac; John Meiklejohn, Empire.

Mr. Russell — While the committee's report is being prepared, I will relate my experience in defecating and evaporating, which has been entirely with steam. As soon as the juice runs from the mill into the receiving tank, I commence pumping immediately into the defecating tank.

As soon as enough juice is received in the defecating tank, I put in enough milk of lime to neutralize the acid. I then let on the steam as rapidly as possible, and bring it not to a boiling point, but simply to a simmering point — just so it will not break. In a few minutes you will see a thick, heavy scum rise to the top. I wait until the scum becomes a little hardened, and then draw the plugs, slowly at first, and then in a few minutes to their fullest capacity. By the time the juice is in the evaporator it is boiling very rapidly, and the evaporating is so hastened, that the time

spent in defecating, evaporating and finishing one hundred and sixty gallons is a little less than forty-five minutes. In that way I have produced the best syrups and the largest percentage of sugar. As regards defecating, I will say that I know a man who makes an excellently flavored syrup, and uses no lime, but it is owing to his soil having arrived at that stage of perfection, that it is just what he wants for growing good cane. In relation to sugar making, the centrifugal is the principal instrument used in obtaining sugar from the syrup, and to obtain the largest percentage, a vacuum pan is indispensable.

My opinions in regard to the future industry of the sorghum business has been expressed so many times through the different periodicals that have sent to me for articles in relation to the subject, that I presume many of you are familiar with my views. I have seen no cause to change my opinions as embodied in my first report at the St. Louis convention. If this industry is to be made a financial success to all interested, I can see no way by which that can be accomplished except by the establishment of central refineries. The central works must have in connection therewith, expert chemists who understand the use of the polariscope, so that when syrups are sent to them from the auxiliary works they can be tested and then bought and handled upon their merits, which will depend upon the qualifications of the ones who made them. With these auxiliary works under the care of properly educated men, and within easy shipping distance of the central works (under whose direction they would be), semi-syrups could be produced that might profitably be worked into sugar at the central refineries. The rapid growth of this business would depend upon the amount and number of experts that the central refiners could turn out annually to make semi-syrup.

Mr. Matteson —Did you notice any difference in the crystallizing of syrup in cane that had not received any rain from the time it was matured until the time it was cut?

Mr. Russell — The experience of last year demonstrated that excessive rain has an injurious effect on cane. When cane has been exposed to a great deal of cloudy and rainy weather, it is almost impossible to get a good granulation.

As Mr. Russell took his seat Mr. Bailey arose and offered the following resolution, which was seconded and carried:

Resolved, That the *Wisconsin Farmer* be the official organ of this association, and that all communications and questions pertaining to the cane interest be given through its columns.

Adjourned until 1 o'clock P. M.

At the opening of the afternoon session a majority of the committee appointed to prepare a memorial to the legislature, asking for an appropriation to aid in developing the cane growing interests of the state, offered the following memorial and accompanying resolutions:

To the Legislature of the State of Wisconsin — The Memorial of the Cane Growers' and Manufacturers' Association respectfully represent: that the cane growers' interest is one of vast importance to the people of the state; nearly six millions of dollars being expended annually for sugar alone, in return for which, and for the large amount expended for syrup, we receive in many cases articles largely and injuriously adulterated; that the experience of the past few years has fully demonstrated that syrup and sugar of a most excellent quality can be made from Amber cane and that the cane can be grown to advantage in almost all portions of our state; that in the introduction of a new industry of this kind to make it successful, there is much to be learned that is beyond the reach of the ordinary farmer; that we are of the opinion that a comparatively small amount spent in making accurate, scientific and practical experiments with a view of ascertaining the best manner of planting, cultivating and manufacturing cane so as to produce the largest quantity and best quality of syrup and sugar, would result in the saving of hundreds of thousands of dollars to the people of the state. We therefore respectfully ask your honorable body to make an appropriation, sufficient to enable the agricultural department of the State University, to make the scientific and practical experiments needed, to furnish the farmers of the state the information by which they may be enabled to render this new industry a complete success.

Resolved, That as soon as the bill is introduced, the secretary be instructed to prepare and circulate as extensively as possible, petitions to the legislature asking for the passage of the bill.

Resolved, That a committee of three be appointed, whose duty it shall be to prepare the necessary bill for the appropriation asked

for, and see that it is presented, and do all in their power to secure its passage.

Resolved, That Professor Henry be requested to call upon Governor Smith, immediately upon his return to Madison, and request the governor to recommend to the legislature in his forthcoming message, favorable action for the encouragement of the cane growing interests of the state. Accepted and adopted.

A motion was carried to the effect that the committee be appointed by the members present, resulting in the acceptance of the following named gentlemen as such committee: A. J. Decker, of Fond du Lac; A. J. Russell, of Janesville, and J. T. Huntington, of Sauk county.

A resolution to the effect that each member of the association be entitled to the pamphlet report of the proceedings of the association, free of charge, was adopted.

A motion was carried allowing Mr. Decker seven dollars and ten cents, the amount of incidental expenses incurred by him for the benefit of the association.

Of course there was no objection to the following resolution of thanks, introduced by Mr. Hastings:

Resolved, That the thanks of the convention be presented to Isaac A. Hedges, of St. Louis; Prof. Scovil, of the Illinois Agricultural College; John F. Porter, of Red Wing, Minn.; George Grant, of Janesville; Dr. Wilhelm, of Faribault, Minn., and others who have kindly sent to us samples of syrup and sugar made from Amber cane.

The majority of the committee on syrup and sugar offered the following report, which was accepted:

Your committee appointed to examine the several varieties of syrup and sugar on exhibition beg leave to report as follows: Our limited knowledge respecting this new article of production does not warrant us in assuming to point out the excellence of one, and the defects of another, but we have no hesitation in saying that we see real value in all of them. We notice that the character of the syrup does not appear to be changed, whether it is simply syrup or part syrup and part sugar intermixed, or where there is a plain separation of sugar in a portion of the bottle evidently showing that syrup is not merely dissolved sugar, but a distinct and separate article, resulting in the different methods of manufacture; and the idea that

cane juice, simply reduced to thick syrup and stored in barrels, expecting it to turn into sugar, like Cinderella's pumpkin into a carriage, must be abandoned; but that the manufacturers should have a definite object in view — to either work for syrup, or else with the intention to produce sugar. The several specimens of sugar on exhibition show much excellence, and hold out strong inducements to strive earnestly for increased knowledge to perfect this growing enterprise. All of which is respectfully submitted.

HIRAM SMITH,
JOHN MEIKLEJOHN, *Committee.*

A motion was carried for the appointment of a committee of three, who shall give information in regard to the purchase of seed and machinery. The committee was made up as follows: J. W. Lockin and A. J. Decker, of Fond du Lac; A. J. Russell, of Janesville.

The following preamble and resolution, introduced by Prof. Henry, was carried:

WHEREAS, Our present commissioner of agriculture has, by his energy and perseverance, made the agricultural department at Washington one of real value to the farmer; and

WHEREAS, We believe that the farmer will suffer a serious loss by any change in the head of that department; therefore be it

Resolved, That we, the members of the Wisconsin State Cane Growers' Association, do earnestly petition James A. Garfield, president-elect of the United States, to retain our present commissioner of agriculture.

Mr. D. A. O. McGowan offered the following resolution:

Resolved, We, the members of the Wisconsin Cane Growers' Association, learning that efforts are being made to secure the passage of bills through congress extending to a third term certain patents of D. M. Cook, on sugar evaporators, which have already had a life of twenty-one years, do hereby protest against the passage of any such bills, on the ground that their owners having already been munificently rewarded, their further extension will impose upon cane growers an unjust and grievous burden, and we hereby urge the honorable members of the United States senate and house of representatives from the state of Wisconsin to oppose the passage of any such bills. Seconded and carried.

Adjourned *sine die.*

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