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Northern Wisconsin Agricultural and Mechanical Association
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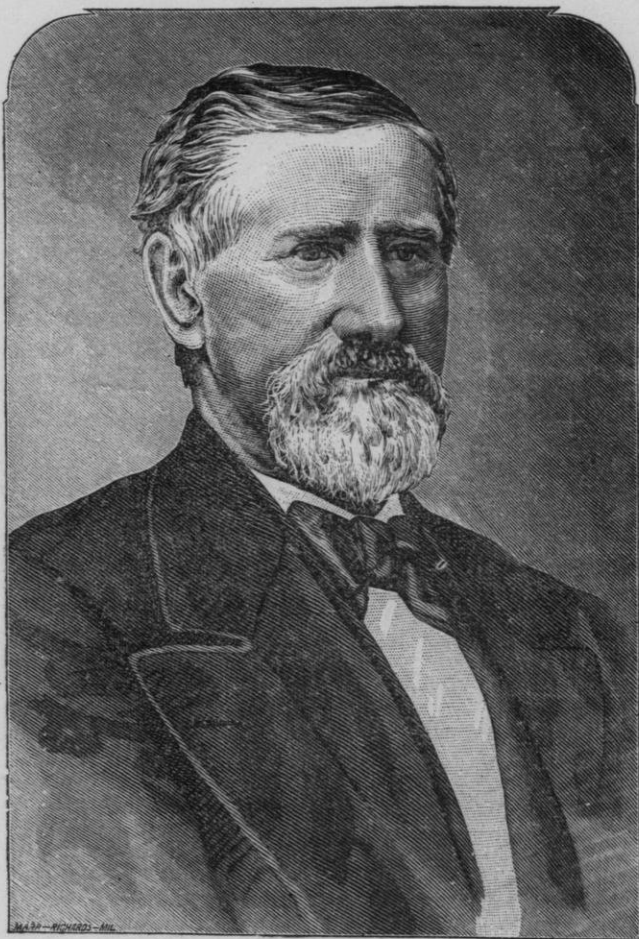
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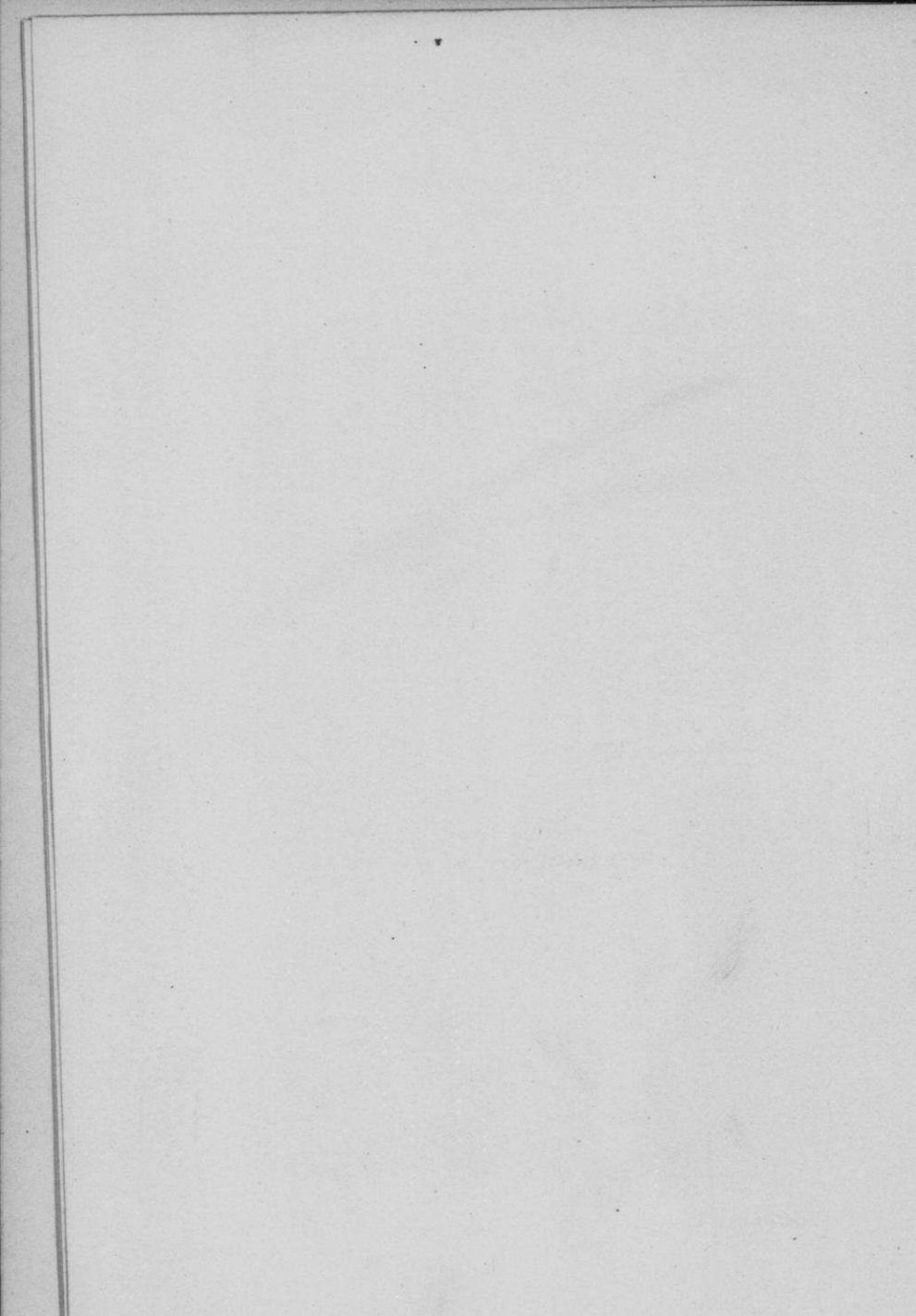


THE HON. A. M. SKEELS, OF RIPON,

The First President of the Northern Wisconsin Agricultural and Mechanical Association.



EXPOSITION BUILDING AT OSHKOSH, WISCONSIN.



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1880

TRANSACTIONS

OF THE

NORTHERN WISCONSIN

AGRICULTURAL AND MECHANICAL

ASSOCIATION,

INCLUDING A FULL REPORT

OF THE

INDUSTRIAL CONVENTION

Held at Appleton, Wisconsin, February, 1880.

WITH OTHER PRACTICAL PAPERS.

AGRICULTURAL LIBRARY
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VOL. VII.—April 1, 1879, to April 1, 1880.

AGRICULTURAL LIBRARY
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R. D. TORREY, Secretary.

OFFICERS FOR 1880.

PRESIDENT.

C. HAZEN..... LADOGA.

SECRETARY.

R. D. TORREY OSHKOSH.

TREASURER.

E. W. VIALI OSHKOSH.

VICE PRESIDENTS.

EARL P. FINCH, Oshkosh.	ISAAC STEPHENSON, Marinette.
J. GORDINIER, Little Wolf.	J. O'BRIEN, Nekimi.
D. HUNTLEY, Appleton.	GEO. H. DAUBNER, Brookfield.
A. A. LOPER, Ripon.	E. P. SAWYER, Oshkosh.

BOARD OF CONTROL.

S. BECKWITH, Oshkosh.	D. HUNTLEY, Appleton.
H. A. JEWELL, Oshkosh.	A. A. LOPER, Ripon.
R. N. ROBERTS, Waupaca.	

SUPERINTENDENTS OF DEPARTMENTS.

<i>Division A, Stock Horses —</i>	<i>Division F, Field, Garden, Dairy</i>
A. A. LOPER, Ripon.	<i>and Household —</i>
<i>Division B, Speed Horses —</i>	D. HUNTLEY, Appleton.
H. A. JEWELL, Oshkosh.	<i>Division G, Fruit and Flowers —</i>
<i>Division C, Cattle —</i>	E. M. BRAINERD, Oshkosh.
C. P. HOUGHTON, Algoma.	<i>Division H, Domestic Manufactures,</i>
<i>Division D, Sheep —</i>	<i>Fine Arts, etc. —</i>
E. R. MARTIN, Omro.	K. M. HUTCHINSON, Oshkosh.
<i>Division E, Swine and</i>	<i>Division I, Manufactures —</i>
<i>Poultry —</i>	R. N. ROBERTS, Waupaca.
J. O'BRIEN, Nekimi.	<i>Division J, Machinery —</i>
	G. H. DAUBNER, BROOKFIELD.

SUPERINTENDENT OF GATES.

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

SUPERINTENDENT OF GROUNDS.

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

MARSHAL AND CHIEF OF POLICE.

T. R. GOE..... OSHKOSH.

INTRODUCTORY.

It is expected that authors or compilers shall make some kind of preface or introduction to all books that come from their hands; in fact no book seems complete without it, and yet not one reader in five hundred probably stops to read it. This last thought prompts me to write this introductory.

Of the society and its work, nothing need be said. Those who have watched its steady growth for the last ten years are ready to accord flattering testimonials to the good it has accomplished in the state, unless, indeed, they are persons of extreme selfishness, with whom nothing is a success unless it contributes to their own individual interests financially.

The conventions of the society alone have been of incalculable benefit to the state; that of last winter, at Appleton, being specially noticeable for its good results.

Its fairs have been uniformly well managed, and always successful, unless bad weather interfered with its arrangements.

The society has had from the beginning some of the best men in the state as its managers, who have worked hard for success, which they have gained; and as the writer pens this introductory, he can but feel that at last a time has come when the society is acknowledged everywhere to be the leading one in the northwest.

The Board of Control for 1880 is no exception to those which have preceded it, in point of business capacity, integrity and perseverance. Come to the fair this fall and see for yourself.

The likeness of Hon. A. M. Skeels, of Ripon, is presented in this

volume. Mr. Skeels was the first president of the society, a position he held for nearly four years, until failing health compelled him to decline to serve longer. To him is due, more than any other one, the placing of the society on a good foundation, from which it has steadily advanced to its present success.

I desire to thank all the patrons and friends of the society for the uniform courtesy and kindness which for ten years has been shown me while acting as your secretary. That I have made mistakes, I freely admit. That my intentions have been good, I as freely claim. That the society may continue to grow and advance the interests of all classes and professions, I earnestly hope.

Yours respectfully,

R. D. TORREY,

Secretary.

LIFE MEMBERS.

<i>Names.</i>	<i>Residence.</i>
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.
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.
Bawman.....	Oshkosh.
Beardmore, John B.	Clemanville.
Bowers, A.....	Clemanville.
Beach, O.....	Oshkosh.
Catlin, W. S.....	Elo.
Cotton, M. T.....	Oshkosh.
Chase, L. S.....	Omro.
Cone, C. D.....	Chilton.
Cheny, Thos. H....	Oshkosh.
Cross, I. W.....	Algoma.
Chase, James.....	Oshkosh.
Clap, E. S.....	Winneconne.
Clough, W.....	Oshkosh.
Chase, O. F.....	Oshkosh.
Colvin, W.....	Oshkosh.
Cronkhite, H. F....	Neenah.
Campbell, Robert..	Oshkosh.
Camron, 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.
Daubner, Geo. H....	Brookfield.
Dake, J. W.....	Omro.
Dale, H. B.....	Oshkosh.
Davis, J. B.....	Oshkosh.
Dobson, J.....	Oshkosh.
Duane, T. J.....	Oshkosh.

<i>Names.</i>	<i>Residence.</i>
Eaton, Jefferson ...	Oshkosh.
Eastman, G. F.....	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.
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.
Hicks, J. H.....	Oshkosh.
Hawley, A. W.....	Waukan.
Heath, Irwin.....	Oshkosh.
Hubbard, Asher ...	Oshkosh.
Harding, Geo.....	Waukeshsa.
Hazen, C.....	Ladoga.
Huntley, D.....	Appleton.
Hoernig, John.....	Oshkosh.
Hart, A. H.....	Appleton.
Hall, Wm. M.....	Medina.
Hoaglin, J. H.....	Oshkosh.
Ham, J. D.....	Clemanville.
Hutchinson, K. M..	Oshkosh.
Hughes, Hugh F..	Oshkosh.
Hall, Elihu.....	Algoma.
Houghton, C. P....	Algoma.
Huxley, H. E.....	Neenah.
Hammon, L. D....	Oshkosh.
Heath, Chas. D....	Oshkosh.
Holister, S. W....	Oshkosh.
Harshaw, H. B....	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.
Keyes, George.....	Empire.
Kezertee, Ira.....	Oshkosh.
Kenedy, J. E.....	Oshkosh.
Kenedy, J. B.....	Oshkosh.

10 NORTHERN AGRICULTURAL AND MECHANICAL ASSOCIATION.

<i>Names:</i>	<i>Residence.</i>
Loper, A. A.	Ripon.
Lampard, G. R.	Oshkosh.
Lewis, James.	Winnebago.
Lane, Gib.	Oshkosh.
Libby, D. L.	Oshkosh.
Loper, J. R.	Oshkosh.

Mears, I. W.	Vinland.
Mayhew, Leander. . .	Greenbush.
Martin, E. R.	Omro.
Musser, B. J.	Oshkosh.
McConnell, J. C.	Dartford.
Meyer, Cornelius. . .	Appleton.
Miles, I.	Oshkosh.
Moore, J. J.	Oshkosh.
Mellen, 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.
Miracle, G. W.	Oshkosh.

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.

Quick, H. Elo.

Rogers, A. Berlin.
 Rollins, J. M. Oshkosh.
 Rogers, Geo. Oshkosh.

<i>Names.</i>	<i>Residence.</i>
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.

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.

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.

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.
 Whiting, S. L. Ripon.
 Woolcott, H. W. Ripon.

CONSTITUTION OF THE SOCIETY.

ARTICLE 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 \$10, 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 Treasurer and Secretary, who shall be elected by ballot at the annual election. The officers named in this article, having been duly elected, shall at this or some other time within ten days, and at such place as the President shall designate, elect, by ballot, five persons, who must be members of the Association, and who shall constitute and be designated *The Board of Control*; 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 Board of Control; shall preside at all meetings of the Association and of the Board of Control (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 Board of Control. 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 the Board of Control 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 Board of Control, 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 the Board of Control 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. *Board of Control.*—The Board of Control 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 employees, prescribe their duties and fix their compensation; also to make rules and regulations for the guidance of 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 of opening and closing the annual fair; to prescribe and publish, at least by the 15th of April 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 the 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 Board of Control 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 meeting.

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

TRANSACTIONS.

MEETINGS OF THE BOARD OF CONTROL.

SECRETARY'S OFFICE, *July 7, 1879.*

Meeting of the Board of Control held this day at 8 P. M., pursuant to call. Present: A. A. Loper, president; R. D. Torrey, secretary; and the following members of the board: D. Huntley, J. V. Jones, K. M. Hutchinson, G. H. Daubner.

The secretary was, on motion, directed to sell an invoice of ink received from Diamond Ink Company for advertising, at such price as he could.

Also to secure the presence at the fair of 1879 of the Menomonee Indians for the game of La Crosse.

Also to invite the several military organizations in the state to be present.

Also to change the premiums on sheep so the first four classes shall be equal or like the first one.

Also a motion was passed to authorize the superintendent of horses, J. V. Jones, and secretary R. D. Torrey, to join the National Trotting Association for the society.

The salary of the secretary was fixed at \$800 and expenses.

The previous action of the board appointing a building committee was confirmed.

The following resolution was passed unanimously:

“*Resolved*, That the lease of the grounds of the Oshkosh Stock Growers' Association, as read by the secretary, be and the same is hereby approved; and the president, A. A. Loper, is directed to execute the same on the part of this association.”

There being no further business, the meeting adjourned.

R. D. TORREY, *Secretary.*

ANNUAL MEETING.

CITY COUNCIL ROOMS, *September 18, 1879.*

Annual meeting was called to order by President Loper.

The business of the meeting being to elect officers for the year of 1880, on motion of Earl P. Finch, the following committee was appointed to nominate and report to the meeting.

The committee was D. L. Libby, A. C. Austin, S. Beckwith, E. R. Martin and J. Vosburg.

During the absence of the committee, Secretary Torrey introduced an amendment to the constitution, so as to provide for the notice of the annual meeting in the premium list, instead of in the papers, as heretofore. On motion, it was agreed to.

The committee on Nominations returned, and reported the following named members as officers:

President — H. B. Sherman.

Secretary — R. D. Torrey.

Treasurer — E. W. Viall.

Vice Presidents — J. O'Brien, John Gordinier, George H. Daubner, Isaac Stephenson, E. P. Sawyer, Chester Hazen, D. Huntley, E. P. Finch.

On motion, the report was accepted. Moved, that the secretary cast the ballot of the society for the gentlemen named. Agreed to.

The secretary cast the ballot so ordered, and the president declared the gentlemen named were elected to the several offices for the year 1880.

There being no further business, the meeting adjourned *sine die*.

R. D. TORREY, *Secretary.*

SECRETARY'S OFFICE, *September 26, 1879.*

Officers elected at the annual meeting, September 18, met pursuant to call of the president.

Members present were as follows: H. B. Sherman, R. D. Torrey, E. W. Viall, E. P. Finch, George H. Daubner, J. O'Brien, D. Huntley, C. Hazen, E. P. Sawyer.

Motion prevailed to proceed to elect a Board of Control.

The several ballots were taken, resulting in the choice of the following named gentlemen as the Board of Control for 1880:

H. B. Sherman, S. Beckwith,
D. Huntley, H. A. Jewell.

There being no further business, meeting adjourned.

R. D. TORREY, *Secretary*.

SECRETARY'S OFFICE, *Oshkosh*,
MONDAY, *September 30*, 1879.

Retiring Board of Control meet to settle with the secretary and treasurer, and audit bills.

On motion, settlement with the secretary and treasurer was deferred to January 5, 1880.

The following accounts were audited, and the secretary and president directed to issue orders therefor; also for all premiums awarded at the fair of 1879:

E. R. Martin, services as superintendent.....	\$18 00
Morley & Co, printing.....	23 50
Asa Daubner, assistant superintendent.....	6 00
Geo. H. Daubner, superintendent.....	24 00
K. M. Hutchinson, superintendent and assistant, Fine Arts.....	78 00
K. M. Hutchinson, disbursements.....	429 49
A. A. Loper, expenses and per diem.....	69 50
C. Hazen, superintendent.....	32 26
H. R. Clark, police.....	12 00
Oshkosh Times, printing.....	105 75
J. V. Jones, superintendent assistant.....	30 00
F. M. Powers, superintendent.....	15 00
John Lucy, gate service.....	12 00
A. M. Brainerd, gate service.....	12 00
Ed. Bentley, freight on roller.....	3 00
Perry Dale, assistant marshal.....	15 00
T. R. Goe, marshal ..	20 00
A. Ward, gate service.....	12 00
D. Huntley, superintendent and assistant.....	25 00
D. Huntley, expense account.....	12 80
Eli Stilson, straw.....	14 70
J. O'Brien, superintendent and assistant.....	28 50
S. Beckwith, expense of convention.....	20 50
Pay roll of watch and police.....	209 65
Morgan Bros., lumber.....	100 03

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Buckstaff Bros. & Chase, lumber	\$105 97
S. Lodge, teaming	30 00
Daniel & Gill, insurance	40 00
Allen & Hicks, printing	226 22
American express	8 80
Conlee Bros., lumber	26 07
J. L. Fisk, assistant superintendent	10 00
H. L. Lawson, insurance	40 00
E. M. Brainerd, superintendent	20 00
W. O. Stevens, assistant superintendent	10 00
Wisconsin Manufacturing Company, coops	30 50
J. H. Hicks, superintendent	15 00
W. B. M. Torrey, police	10 00
C. Ross, hay	122 00
H. B. Harshaw, postage	78 00
Clerk service	107 50
K. M. Hutchinson, disbursements	88 11
Omro Band, music	80 00
Geo. H. Daubner, expense account	12 20
Sawyer & Weston, reporting	113 37
D. A. Siewert, carriage hire	13 50
Farrand & Sweet, use of engine	29 50
C. Kohlman & Bro., printing	10 00
J. M. Bray, straw	8 00
Gary & Harmon, insurance	20 00
W. Clough, pumps	10 00
E. W. Viall, merchandise	7 75
Jerry Riordan, drayage	6 52
H. D. Sloat, telegraphing	5 31
Foote Bros. & Co, feed	6 98
H. Sarau, bill posting	5 00
H. M. Billings, gate service	12 00
Moses Hooper, legal services	7 50
K. M. Hutchinson, disbursements	4 20
Geo. H. Pierce, superintendent	10 00
Jerry Riordan, freight on books	16 55
W. Colvin, express	2 30
C. H. Swift & Co., bill posting	3 90
Will Bieber, bill posting	3 02
E. C. Brown, graphic	12 00
Carswell & Hughes, ribbon	16 80
H. B. Harshaw, postage	9 52
W. Colvin, express	5 70
Chicago Evening Journal, printing	150 00
Eli Stilson, treasurer	326 51
E. R. Torrey, assistant superintendent	10 00

September 26, 1879.

Board met at the secretary's office. Members present, K. M. Hutchinson, D. Huntley, G. H. Daubner, R. D. Torrey, A. A. Loper, C. Hazen.

C. Hazen was chosen president *pro tem*.

The meeting was called to audit bills which are included in the above list.

Adjourned.

R. D. TORREY, *Secretary*.

October 22, 1879.

Board met at the secretary's office. Members present, A. A. Loper, C. Hazen, D. Huntley, G. H. Daubner, R. D. Torrey, K. M. Hutchinson.

K. M. Hutchinson, treasurer of the Building Committee, reported as follows, which was, on motion, adopted as correct, having been fully examined.

On motion, the president and secretary were instructed to issue certificates of indebtedness in accordance therewith.

Motion prevailed to borrow \$600 to pay balance of premiums and expenses for current year.

Secretary was directed to sell plow and fanning mill for eighteen dollars each.

January 5, 1880.

The board of 1879 met at the secretary's office; full board present. The treasurer made his report, which was as follows, and was found correct and so reported by committee of Examination. Report adopted by the full board.

TREASURER'S REPORT.

Receipts from all sources, including appropriation, are as follows:

January 1, 1879, balance on hand.....	\$5 42
State appropriation.....	1,000 00
Gate receipts.....	4,880 50
Gib. Lane.....	519 90
Note.....	600 00
R. D. Torrey, secretary.....	1,529 93
Credit.....	\$8,535 75
By paid orders and dinners.....	8,279 62
Balance.....	\$256 13

January 5, 1880.

The board of 1880 assembled on the adjournment of the old board. Full board present, except the president, H. B. Sherman. C. Hazen was chosen president *pro tem*.

On motion, the time was fixed for the fair of 1880 on Sept. 13, 14, 15, 16, 17 and 18.

It was ordered on motion, that entries for all except speed, close on Monday, Sept. 13, at 9 o'clock P. M.

Also that an agricultural convention be held at Appleton in the third week of February, and that Messrs. Hazen, Huntley and Torrey be a committee of arrangements.

Also that the secretary proceed to canvass for advertisements for the premium lists, charging his expenses to the society.

Also, on motion of D. Huntley, the names of judges were to be omitted from the premium list.

The board then proceeded to revise the list as appears in the catalogue of 1880, striking out the words "pro ratio" on the payment of premiums.

Adjourned subject to call.

R. D. TORREY, *Secretary*.

February 26, 1880.

Board met pursuant to call. Full board present except H. B. Sherman. The meeting was called to consider the resignation of R. D. Torrey, secretary. A motion prevailed that Mr. Torrey be requested to withdraw his resignation.

A motion prevailed to make the salary of R. D. Torrey \$1,000 per year and expenses, payable quarterly. This action was made known to the secretary, who appeared before the board and stated that the reason for his resignation was that he had an offer of the same salary from R. M. McMillen & Co., but inasmuch as the society had by this action proposed to pay the same, he would withdraw his resignation, which he did.

R. D. TORREY, *Secretary*.

April, 1880.

Board met. All present except H. B. Sherman.

Meeting proceeded to consider the resignation of H. B. Sherman, president. On motion, the resignation was accepted, and the board

proceeded to ballot for president according to the constitution, resulting in the choice of C. Hazen, of Springvale.

There being two vacancies on the board canceled by the resignation of C. Hazen to take the office of president, and of H. B. Sherman, the board proceeded to elect, resulting in the choice of R. N. Roberts, of Waupaca, and A. A. Loper, of Ripon. Mr. Hazen also resigned as superintendent of manufactures, and Mr. Roberts was chosen in his place.

There being no further business, the board adjourned.

R. D. TORREY, *Secretary.*

SECRETARY'S WARRANT ACCOUNT,

For the year ending January 1, 1880.

No.	To whom and for what.	Amount.
1	Allen & Hicks, counterfeit money taken for tickets.....	\$5 00
2	A. C. Barry, expenses for lecture.....	7 80
3	J. G. Morris, premiums and bill posting.....	5 00
4	F. J. Jackson, premiums of 1878.....	6 60
5	T. F. & C. McConnell, premiums of 1878.....	28 50
6	Thompson & Sprague, livery, fair of 1878.....	8 00
7	Stephen Bowron, assistant superintendent.....	9 00
8	R. D. Torrey, disbursements.....	43 45
9	Luther Rawson, premiums for 1876.....	30 25
10	Mrs. M. K. Stowe, premiums.....	3 50
11	Wm. Discon, livery.....	3 50
12	H. B. Harshaw, postage.....	9 49
13	R. D. Torrey, salaries in part.....	100 00
14	J. K. Tyrrell, premiums.....	3 50
15	W. T. Griffith, premiums, 1878.....	1 50
16	R. D. Torrey, expense in canvassing.....	30 00
19	H. Sarau, bill posting.....	75
20	R. D. Torrey, salary in part.....	100 00
21	Mrs. Belz, premiums, 1878.....	50
22	H. Sarau, bill posting.....	75
23	H. B. Harshaw, postage.....	30 75
24	A. S. Hollenbeck, premiums.....	6 00
25	Geo. H. Daubner, expense account.....	11 20
26	Geo. H. Daubner, expense account.....	8 50
27	A. D. Parker, premiums, 1878.....	1 00
28	Mrs. L. Thompson, premiums, 1878.....	1 00
29	C. B. Fuller, balance on races.....	3 00
30	Thomas Cheny, premiums.....	3 00
31	Building Committee, repairing on fair grounds.....	200 00
32	Benj. Edwards, premiums.....	22 00
33	H. A. Babcock, premiums.....	79 00
34	Thos. Bowles, premiums.....	20 00
35	Kingsbury & England, premiums.....	39 00
36	Geo. Harding, premiums.....	79 00
37	H. S. Sackett, premium.....	25 00
38	D. H. Hillman, premiums.....	43 00
39	A. E. Austin, premiums.....	17 00
40	E. R. Martin, premiums.....	19 00
41	Jno. Abercrombie, premiums.....	5 00
42	Jerry Murphy, premiums.....	15 00
43	Wm. Hall, premiums.....	30 00
44	W. S. White, premiums.....	40 00
45	S. H. and A. E. Joiner, premiums.....	75 00
46	E. J. Austin, premiums.....	57 00
47	J. N. G. Morris, premiums.....	15 00
48	Edward Bither, premium.....	125 00
49	G. Adams, premiums.....	130 00
50	W. A. Giddings, premiums.....	14 00
51	C. Buckner, premiums.....	14 00
52	J. Russell, premiums.....	8 00
53	F. Brinkerhoff, premiums.....	23 00
54	P. T. Parish, premiums.....	7 00
55	G. H. Daubner, premiums.....	90 00

No.	To whom and for what.	Amount.
56	E. R. Martin, superintendent.....	\$18 00
57	Morley & Co., printing.....	23 50
58	Asa Daubner, assistant superintendent.....	6 00
59	George H. Daubner, superintendent.....	24 00
60	K. M. Hutchinson, superintendent and ass't in fine art dept....	78 00
61	K. M. Hutchinson, disbursements.....	429 49
62	C. Hazen, premiums.....	195 00
63	Millard Wright, premiums.....	6 00
64	A. A. Loper, expenses and per diem as president.....	69 50
65	C. Hazen, superintendent services.....	32 26
66	Mrs. J. J. Dillion, premiums 1878.....	50
67	E. W. Bassett, premiums 1877.....	4 00
68	H. R. Clark, police.....	12 00
69	Oshkosh Times, printing.....	105 75
70	J. V. Jones, superintendent horse and ass't superintendent..	30 00
71	F. M. Powers, superintendent gates.....	15 00
72	John Lucy, gate service.....	12 00
73	A. M. Brainerd, gate service.....	12 00
74	Ed. Bentley.....	3 00
75	Perry Dale, assistant marshal.....	15 00
76	T. R. Goe, marshal.....	20 00
77	A. Ward, gate service.....	12 00
78	D. Huntley, superintendent and assistant.....	25 00
79	D. Huntley, expense account.....	12 80
80	Eli Stilson, straw.....	14 70
81	J. O'Brien, superintendent and assistant.....	28 50
82	T. R. Morris, premiums.....	11 00
83	S. Beckwith, premiums.....	16 00
84	S. Beckwith, expense of convention 1879.....	20 50
85	Wm. Abrams, premiums.....	28 00
86	D. Huntley, premiums.....	105 00
87	J. R. Padelford, premiums.....	35 00
88	S. B. Paige, premiums.....	110 00
89	Hobart & Holmes, premiums.....	180 00
90	Thomas Davis, premiums.....	63 00
91	E. G. Stone, premiums.....	24 00
92	M. B. Green, premiums.....	28 00
93	G. P. Peffer, premiums.....	14 00
94	Kate Peffer, premiums.....	20 00
95	Pay roll of watch and police.....	209 65
96	Morgan Bros., lumber.....	100 03
97	Buckstaff Bros. & Co., lumber.....	105 97
98	S. Lodge, teaming.....	30 00
99	N. H. Biddlecone, entry money refunded.....	20 00
100	Daniel & Gill, insurance on exposition building.....	40 00
101	A. B. Wade, premi ms.....	14 50
102	M. V. Speibeck, premiums.....	6 00
103	Allen & Hicks, printing.....	226 22
104	American Express.....	8 80
105	Conlee Bros., lumber.....	26 07
106	J. L. Fisk, assistant superintendent.....	10 00
107	S. Eton, premium.....	7 00
108	John Athern, premium.....	15 00
109	H. L. Lawson, insurance on building.....	40 00
110	W. O. Stevens, assistant superintendent.....	10 00
111	E. M. Brainerd, superintendent services.....	20 00
112	Manufacturing Company, chicken coops.....	30 50
113	J. H. Hicks, superintendent services.....	15 00
114	James Brainerd, premiums.....	17 00
115	Lillie Brainerd, premium.....	

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No.	To whom and for what.	Amount.
116	N. Dougherty, premiums.....	\$58 00
117	S. A. Churchill, premiums.....	5 00
118	Almon Stone, premiums.....	24 25
119	W. B. M. Torrey, police.....	10 00
120	Millie Rich, premium.....	1 00
121	Mrs. N. Dougherty, premiums.....	8 00
122	Thomas Davis, premiums.....	19 50
123	Mrs. M. H. O'Brien, premiums.....	50
124	Allen & Hicks, premiums.....	10 00
125	H. B. Dale, premiums.....	16 00
126	Harley E. Clough, premium.....	1 00
127	Braingerd Bros., premiums.....	8 00
128	Mrs. J. L. Dorance, premium.....	50
129	Mrs. F. L. Wilkie, premium.....	2 00
130	Lottie Glaze, premium.....	15 50
131	Carrie Lewis, premium.....	50
132	E. Humphrey, premium.....	7 00
133	M. s. J. N. Hoag in, premiums.....	7 00
134	J. N. Hoaglin, premiums.....	8 00
135	Geo. M. Beardmore, premiums.....	33 00
136	Willie Bell, premiums.....	3 50
137	Rudd & Holden, premium.....	4 00
138	J. Dobson, premiums.....	4 00
139	Miss A. Bloss, premium.....	3 00
140	Geo. Cameron, premiums.....	35 00
141	C. Ross, hay.....	122 00
142	Mrs. Carlyle.....	1 00
143	Natie Smalley, premium.....	3 50
144	Mrs. D. Fowler, premium.....	50
145	Mrs. C. C. Miller, premiums.....	1 00
146	Miss Mary Camburne, premium.....	1 00
147	J. Nelson, premium.....	53 25
148	Gertie Torrey, premium.....	1 00
149	Mrs. F. F. Kellogg, premium.....	1 50
150	Hugh F. Hughes, premium.....	1 50
151	John O'Brien, premiums.....	48 00
152	H. B. H. rshaw, postage.....	78 00
153	Mrs. K. M. Hutchinson, premiums.....	17 00
154	J. M. Rhins & Co., premiums.....	7 00
155	J. Sullivan, premiums.....	12 00
156	Isaac Miles, premiums.....	40 25
157	Maggie McCourt, premium.....	1 50
158	Isaac Miles, balance of premiums.....	1 50
159	Theo. Grube, premiums.....	5 00
160	Mrs. Grube, premium.....	6 00
161	Clerk service, fair of 1879.....	107 50
162	R. M. Burtis, premium.....	8 50
163	Willie Burtis, premium.....	2 50
164	Mrs. J. Himebaugh, premium.....	3 50
165	J. McKeen, premium.....	21 50
166	Linda McKeen, premium.....	2 00
167	J. McKeen, premium.....	1 50
168	R. D. Torrey, balance of salary.....	600 00
169	M. Campbell, premium.....	26 00
170	N. Olin, premium.....	26 50
171	W. W. Wright, premium.....	5 00
172	F. N. Appleyard, premium.....	15 00
173	Fred Zenner, premium.....	2 50
174	W. S. White, premium.....	20 00
175	Mrs. R. E. Merton, premium.....	2 00
176	Mrs. J. Fowler, premium.....	1 50
177	Parsons, Neville & Co., premiums.....	13 00

No.	To whom and for what.	Amount.
178	J. P. Roe, premium	\$30 00
179	W. L. Stroud, premium	8 00
180	Albert Potter, premium	8 00
181	Mr. F. X. Readles, premium	1 00
182	Miss Hannah Winter, premium	1 50
183	Belle Baker, premium	1 00
184	Noah Davis, premium	12 00
185	J. R. Washburn, premium	10 00
186	K. M. Hutchinson, disbursements	88 11
187	Mrs. L. F. Thompson, premiums	13 00
188	Omro band, music	80 00
189	Henry Bowers, premium	8 00
190	G. H. Dautner, expense account	12 20
191	Sawyer & Weston, reporting	113 37
192	L. Dimpsey, premium	5 00
193	Thompson & Hayward, premiums	10 00
194	D. F. Siewert, carriage hire	13 50
195	Wm. White, premium	1 00
196	Wm. Vance, premium	2 00
197	Louise Mears, premiums	2 00
198	Kittie Maxwell, premium	1 50
199	Spikes & Co., premiums	11 00
200	Farrand & Sweet, use of engine	29 50
201	C. Kohlman & Bro., printing	10 00
202	Mattie Campbell, premium	2 00
203	Mary Steffens, premium	2 00
204	Willie Thomas, premium	2 00
205	Mrs. Nellie Palmer, premium	1 00
206	Minnie Martin, premium	2 00
207	Mrs. Mary Knight, premium	2 50
208	J. M. Bray, straw	8 00
209	J. M. Bray, premium	12 00
210	Gary & Harmon, insurance on building	20 00
211	Mrs. C. B. Howard, premium	6 00
212	Mrs. L. M. Taylor, premium	1 50
213	Julia Woodside, premium	2 00
214	M. B. Green, premium	3 00
215	E. W. Sanders, premium	20 00
216	W. Clough, premium	10 00
217	Mrs. F. Thrall, premium	1 50
218	Albert Randall, premiums	69 00
219	Cook Ely, premium	16 00
220	A. Z. Blodgett, premium	67 00
221	H. B. Sherman, premium	143 00
222	Willie Cater, premium	4 00
223	W. H. Turneure, premiums	37 50
224	Mrs. C. H. Root, premiums	35 00
224½	Wm. Servis, premium	32 25
225	Geo. H. Pierce, premiums	15 75
226	E. W. Hadcock, premium	7 00
227	M. Palmer, premium	6 00
228	Sadia Goe, premium	3 00
229	Mrs. James Goe, premium	2 00
230	Mattie Goe, premium	1 50
231	E. W. Viall	7 45
232	E. W. Viall, treasurer's help	46 00
233	E. Homiston, premiums	69 00
234	Isaac Anthony, premiums	11 00
235	C. E. Angle, premium	8 50
236	Mrs. Alice Clume, premium	5 00
237	Harry Clume, premium	1 00
238	W. S. Catlin, premium	10 00

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No.	To whom and for what.	Amount.
239	John Freeborn, premium.....	\$5 00
240	Jerry Riordan, drayage.....	6 50
241	E. Walker & Son, premium.....	2 00
242	Mrs. J. F. Kien, premium.....	1 00
243	Maude Morrison, premium.....	4 50
244	L. W. Cross, premium.....	2 00
245	Mrs. E. Gadbar, premium.....	2 00
246	Pierce & Co., premium.....	19 00
247	Davis & Co., premium.....	3 00
248	F. Weyerhorst, premium.....	20 00
249	Bassler & Goe, premium.....	2 00
250	C. A. Johnson & Co., premium.....	2 00
251	Henry Sarau, bill posting.....	5 00
252	Foote Bros. & Co., feed.....	6 98
253	Telegraph Company, messages.....	5 31
254	Wm. Sheldon, premium.....	13 00
255	H. M. Billings, services superintendent.....	12 00
256	Appleton Nail Co., premiums.....	2 00
257	M. Gurrier, premium.....	1 00
258	Marston & Beveridge, premium.....	2 00
259	J. Atkinson, premium.....	5 00
260	H. C. Blackman, premium.....	3 00
261	Jno. Dery, premium.....	3 00
262	Mary C. Kendall, premium.....	3 00
263	H. C. Kendall, premium.....	3 00
264	J. K. Terrell, premium.....	2 50
265	C. F. Pasco, premium.....	4 00
266	A. A. Winslow, premium.....	11 00
267	Mrs. F. S. Haller, premium.....	3 50
268	Minnie Klingel, premium.....	1 00
269	A. B. Hooper, premium.....	2 00
270	Mrs. L. Durfee, premium.....	1 00
271	Mrs. and Flora Houghton, premium.....	4 50
272	Mary L. Stroud, premium.....	2 00
273	J. J. Moore, premium.....	10 00
274	J. Roberts, premium.....	1 00
275	E. Ward, premium.....	1 00
276	J. H. Haigh, premium.....	8 00
277	M. Culberison, premium.....	8 75
278	Mrs. Jas. Wilson, premium.....	8 75
279	A. C. Blackman, balance of premium.....	1 00
280	Hiram Stone, balance premium.....	2 00
281	Mrs. W. F. Kent, premium.....	1 50
282	Mrs. Ed. Kent, premium.....	7 50
283	Mrs. A. H. Dorris, premium.....	1 50
284	G. E. Hannan, premium.....	8 00
285	Moses Hooper.....	7 50
286	Emma Jones, premium.....	1 00
287	K. M. Hutchinson, disbursements.....	4 20
288	Hugh McConnell, premium.....	7 00
289	G. H. Pierce, superintendent.....	10 25
290	C. Hazen, premium.....	14 00
291	Jerry Riordan, freight on books.....	16 35
292	W. Colvin, express.....	2 30
293	C. Meyer, premium.....	11 50
294	A. Cowling, premium.....	1 00
295	Nellie Kent, premium.....	2 00
296	N. Christenson, premium.....	3 00
297	C. H. Swift & Co., bill posting.....	3 90
298	Will Bieber, Jr., bill posting.....	3 02
299	Bergstrom Bro. & Co. premium.....	8 00
300	H. M. Billings, balance for services.....	2 00

No.	To whom and for what.	Amount.
301	Streich Bros., premium	\$3 00
302	Charles Barnes, water	3 00
303	W. S. & M. E. Montgomery, premium	2 50
304	B. H. Soper, premium	11 00
305	E. C. Brown, graphic	12 00
306	J. S. Cross, premium	3 00
307	Geo. S. Church, premium	2 00
308	Carswell & Hughes, ribbon	16 80
309	Ida Chappell, premium	1 00
310	Wm. Sill, premium ..	8 75
311	J. C. Plumb, pr mium....	3 50
312	J. McKeen, premium, etc.....	3 50
313	Mrs. Darlington, premium....	1 00
314	Mrs. H. E. Huxley, premiums.....	2 50
315	H. Floyd, premiums.....	26 00
316	Geo. J. Kellogg, Mr. Lawrence, Dr. Ozanne & Mr. Olds, prem	28 00
317	Clark & Underhill, premium	7 00
318	W. Cone, premiums.. ..	1 00
319	E. J. Carpenter, premium.....	3 00
320	G. E. Griffith, premium	1 00
321	W. Cone, balance of premium	1 25
322	Mrs H. M. Qu ck, premium	13 00
323	Eliza & Mrs. R. M. Washburn, premium	2 50

PREMIUMS AWARDED AT THE FAIR OF 1879.

DIVISION A. — HORSES.

CLASS 1.—*Roadsters.*

Best stallion 4 years old and over, J. N. G. Morris.....	\$15 00
Second best, H. B. Dale.....	7 00
Best stallion 2 years old and under 3, W. A. Giddings.....	10 00
Best stallion 1 year old and under 2, J. Russell.....	8 00
Best sucking stallion foal, John Dobson.....	4 00
Second best, S. Beckwith.....	2 00
Best brood mare 4 years old and over, with sucking colt, S. Beckwith,	10 00
Second best, J. Freeborn.....	5 00
Best filly 3 years old and under 4, C. Bunker.....	8 00
Second best, W. A. Giddings.....	4 00
Best filly 2 years old and under 3, C. Bunker.....	6 00
Second best, Kingsbury, England & Co.....	3 00
Best filly 1 year old and under 2, S. Beckwith.....	4 00
Second best, Kingsbury, England & Co.....	2 00
Best filly foal, Kingsbury, England & Co.....	3 00
Second best, H. B. Dale.....	1 00

CLASS 2.—*Horses for all Work.*

Best stallion 4 years and over, A. Z. Blodgett.....	\$12 00
Second best, Isaac Anthony.....	6 00
Best stallion 3 years old and under 4, J. R. Padelford.....	10 00
Second best, Isaac Anthony.....	5 00
Best stallion 2 years and under 3, Wm. Sheldon.....	8 00
Second best, M. Campbell.....	4 00
Best stallion 1 year and under 2, T. J. Norris.....	6 00
Second best, M. Campbell.....	3 00
Best sucking stallion foal, J. R. Padelford.....	4 00
Best brood mare 4 years old or over, with sucking colt, W. S. Catlin.	10 00
Second best, T. J. Norris.....	5 00
Best filly 3 years old, J. R. Padelford.....	8 00
Second best, Jno. Edwards.....	4 00
Best filly 2 years old, F. N. Appleyard.....	6 00
Second best, H. A. Babcock.....	3 00
Best filly 1 year old, F. N. Appleyard.....	4 00
Second best, H. A. Babcock.....	2 00
Best filly foal, M. Campbell.....	2 00
Second best, N. Johnson.....	1 00

CLASS 3. — *Imported and Pure Bred Norman and other French Draft Horses.*

Best stallion 4 years and over, Thomas Bowles	\$15 00
Second best, P. T. Parish	7 00
Best stallion 2 years and under 3, H. A. Babcock	10 00
Second best, F. N. Appleyard	5 00
Best stallion 1 year and under 2, J. R. Padelford	8 00
Best sucking stallion foal, H. A. Babcock	4 00
Best brood mare 4 years old, with colt, William Abrams	10 00
Second best, H. A. Babcock	5 00
Best filly 3 years old and under 4, J. H. Haigh	8 00
Second best, J. R. Padelford	4 00
Best filly 2 years old and under 3, H. A. Babcock	6 00
Best filly 1 year old and under 2, H. A. Babcock	3 00
Second best, H. A. Babcock	2 00
Best sucking filly foal, H. A. Babcock	2 00

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

Best stallion 4 years old and over, A. Z. Blodgett	\$15 00
Second best, A. E. Austin	7 00
Best stallion 3 years old and under 4, Noah Davis	12 00
Best stallion 2 years old under 3, A. Z. Blodgett	10 00
Best stallion 1 year old and under 2, A. Z. Blodgett	8 00
Best brood mare 4 years old and over, with sucking colt, Wm. Abrams	10 00
Best filly 3 years old, A. Z. Blodgett	8 00
Second best, H. A. Babcock	4 00
Best filly 2 years old, A. Z. Blodgett	6 00
Best sucking filly foal, H. A. Babcock	2 00

CLASS 5. — *Sweepstakes — Rings.*

Best herd of horses, Kingsbury, England & Co.	\$20 00
Second best, H. A. Babcock	10 00

CLASS 6. — *Roadsters — Sweepstakes.*

Best stallion any age, H. B. Dale	\$10 00
Second best, L. F. Thompson	5 00
Best mare any age, Kingsbury, England & Co.	8 00
Second best, Kingsbury, England & Co.	4 00

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

Best stallion any age, M. Campbell	\$10 00
Second best, Wm. Sheldon	5 00
Best mare any age, Thos. Davis	8 00
Second best, H. A. Babcock	4 00

CLASS 8. — *Normans and other French Draft Breeds — Sweepstakes.*

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, Wm. Abrams	4 00

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CLASS 9. — *Clydesdale and other English Draft Breeds — Sweepstakes.*

Best stallion any age, A. E. Austin.....	\$10 00
Best mare any age, A. Z. Blodgett.....	8 00
Second best, Wm. Abrams.....	4 00

CLASS 10. — *Double and Single Mares and Geldings in Heavy Harness.*

Best pair farm geldings, J. R. Thompson.....	\$10 00
Second best, E. B. Ransom.....	5 00
Best single mare, Thos. Davis.....	7 00
Best single farm gelding, A. B. Wade.....	4 00

CLASS 11. — *Carriage Teams, Matched and Single Mares and Geldings.*

Best matched and mated team owned by exhibitor, Geo. Cameron ...	\$15 00
Second best, M. Campbell.....	7 00
Best single gelding, Mrs. L. F. Thompson.....	7 00
Second best, J. Abercrombie.....	5 00
Best single mare, S. Eaton.....	7 00
Second best, H. B. Dale.....	5 00

DIVISION B. — CATTLE.

CLASS 13. — *Short-horns.*

Best bull 4 years old and over, H. B. Sherman.....	\$15 00
Best bull 3 years old and under 4, F. Briakerhoff.....	15 00
Best bull calf, D. H. Hillman.....	8 00
Second best, H. B. Sherman.....	4 00
Best cow 4 years old and over, H. B. Sherman.....	15 00
Second best, H. B. Sherman.....	7 00
Best cow 3 years old and under 4, H. B. Sherman.....	15 00
Second best, H. B. Sherman.....	7 00
Best heifer 2 years and under 3, H. B. Sherman.....	12 00
Second best, H. B. Sherman.....	6 00
Best heifer 1 year old and under 2, H. B. Sherman.....	10 00
Second best, H. B. Sherman.....	5 00
Best heifer calf, H. B. Sherman.....	8 00
Second best, H. B. Sherman.....	4 00

CLASS 14. — *Ayrshires.*

Best bull 4 years old and over, C. Hazen.....	\$15 00
Second best, D. Huntley.....	7 00
Best bull 2 years old and under 3, C. Hazen.....	12 00
Best bull 1 year and under 2, D. Huntley.....	10 00
Second best, J. P. Roe.....	5 00
Best bull calf, D. Huntley.....	8 00
Second best, C. Hazen.....	4 00
Best cow 4 years old and over, C. Hazen.....	15 00
Second best, C. Hazen.....	7 00
Best cow 3 years old and under 4, C. Hazen.....	15 00
Second best, C. Hazen.....	7 00
Best heifer 2 years old and under 3, C. Hazen.....	12 00
Second best, C. Hazen.....	6 00

PREMIUM LIST.

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Best heifer 1 year old and under 2, D. Huntley	\$10 00
Second best, C. Hazen	5 00
Best heifer calf, C. Hazen	8 00
Second best, D. Huntley	4 00

CLASS 15.—*Jerseys.*

Best bull 3 years and over, Wm. McConnell	\$12 00
Second best, Willard Wright	6 00
Best bull 2 years old and under 3, C. Hazen	10 00
Second best, E. B. Ransom	5 00
Best bull 1 year old and under 2, Wm. McConnell ..	8 00
Second best, Willie Cater	4 00
Best bull calf, Wm. N. McConnell	6 00
Best cow 3 years old and over, Wm. N. McConnell.....	12 00
Second best, Wm. N. McConnell.....	6 00
Best heifer 2 years old and under 3, Wm. N. McConnell.....	10 00
Second best, Wm. N. McConnell.....	5 00
Best heifer 1 year old and under 2, Wm. N. McConnell.....	8 00
Second best, J. K. Washburn	4 00
Best heifer calf, Wm. N. McConnell.....	6 00

CLASS 16.—*Devons.*

Best bull 3 years and under 4, E. Homiston	\$10 00
Best bull 1 year and under 2, Thos. Davis	8 00
Best bull calf, E. Homiston	6 00
Best cow 3 years and under 4, E. Homiston	12 00
Second best, E. Homiston ..	6 00
Best heifer 2 years and under 3, E. Homiston	10 00
Second best, Thos. Davis	5 00

CLASS 18.—*Grade and Native.*

Best cow 4 years old and over, Jno. Sullivan	\$8 00
Second best, Jno. Athern	4 00
Best cow 3 years old and under 4, Jno. Athern	8 00
Second best, Thos. Davis	4 00
Best heifer 2 years old and under 3, M. V. Spenbeck	6 00
Second best, Jno. Athern	3 00
Best heifer 1 year old and under 2, Jno. Sullivan	4 00
Second best, Thos. Davis..	2 00
Best heifer calf, Thos. Davis..	2 00
Second best, Thos. Davis.....	1 00

CLASS 19.—*Oxen and Steers.*

Best yoke of oxen 4 years old, Bray & Choate	\$12 00
Second best, J. R. Washburn	6 00
Best yoke of steers 3 years old, E. Homiston.....	10 00
Second best, Thos. Davis.....	5 00

CLASS 20.—*Short-Horns — Herds.*

Best herd, H. B. Sherman	\$35 00
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CLASS 21.—*Ayrshires — Herds.*

Best herd, C. Hazen	\$35 00
Second best, D. Huntley.....	20 00

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CLASS 22. — *Jerseys — Herds.*

Best herd, Wm. McConnell \$20 00

CLASS 23. — *Devons — Herds.*

Best herd, E. Homiston..... \$15 00
 Second best, Thos. Davis..... 10 00

CLASS 24. — *Breeders' Herds — Sweepstakes.*

Best bull any age and four heifers of his get under 2 years of age,
 C. Hazen \$40 00
 Second best, D. Huntley..... 30 00

DIVISION C. — SHEEP.

CLASS 25. — *American Merino.*

Best ram 2 years old and under 3, D. Huntley \$10 00
 Best ram 1 year old and under 2, E. G. Stone 10 00

CLASS 26. — *Pure Bred Downs.*

Best ram 2 years old and under 3, Geo. H. Daubner. \$10 00
 Second best, Geo. H. Daubner 6 00
 Best ram 1 year old and under 2, Geo. H. Daubner..... 10 00
 Second best, Geo. H. Daubner 6 00
 Best three ram lambs, Geo. H. Daubner 8 00
 Best three ewes 2 years old, Geo. H. Daubner..... 6 00
 Second best, Geo. H. Daubner 4 00
 Best three ewes 1 year old, Geo. H. Daubner..... 6 00
 Second best, Geo. H. Daubner 4 00
 Best three ewe lambs, Geo. H. Daubner 4 00
 Second best, Geo. H. Daubner 2 00

CLASS 27. — *Pure Bred Cotswold.*

Best ram 2 years old, George Harding..... \$10 00
 Second best, George H. Daubner..... 6 00
 Best ram 1 year old and under 2, George Harding 10 00
 Second best, George Harding..... 6 00
 Best three ram lambs, George Harding..... 8 00
 Second best, George Harding..... 4 00
 Best three ewes 2 years old, George Harding 6 00
 Second best, George Harding..... 4 00
 Best three ewes 1 year old, George Harding 6 00
 Best three ewe lambs, George Harding..... 4 00
 Second best, George Harding..... 2 00

CLASS 28. — *Pure Bred Leicester.*

Best ram 2 years old, J. O'Brien..... \$10 00
 Second best, J. O'Brien..... 6 00
 Best ram 1 year old, George Harding 10 00
 Best three ram lambs, George H. Daubner..... 8 00
 Second best, J. O'Brien 4 00
 Best three ewes 2 years old, J. O'Brien..... 6 00
 Second best, George H. Daubner 4 00

Best three ewes 1 year old, John O'Brien.....	\$6 00
Second best, George H. Daubner.....	4 00
Best three ram lambs, John O'Brien.....	4 00
Second best, George H. Daubner.....	2 00

CLASS 29.— *Grades from Fine Wool Bucks.*

Best ram 2 years old, E. R. Martin.....	\$3 00
Second best, E. R. Martin.....	2 00
Best ram 1 year old and under 2, E. G. Stone.....	3 00
Best pen three ram lambs, E. G. Stone.....	3 00
Best pen three ewes 2 years old, E. R. Martin.....	3 00
Best pen three ewes 1 year old, E. G. Stone.....	3 00
Best pen three ewe lambs, E. G. Stone.....	3 00
Second best, E. G. Stone.....	2 00

CLASS 30.— *Grades from Long Wool Bucks.*

Best ram 1 year old, Geo. Harding.....	\$3 00
Best pen three ewes 2 years old, Geo. Harding.....	3 00
Best pen three ewes 1 year old, Geo. Harding.....	3 00
Second best, E. Humphrey.....	2 00
Best pen three ewe lambs, E. Humphrey.....	3 00
Second best, E. Humphrey.....	2 00

DIVISION D.— SWINE.

CLASS 31.— *Berkshire.*

Best boar 1 year old and under 2, Albert Randall.....	\$10 00
Second best, F. Weyerhorst.....	5 00
Best boar 6 months old and under 1 year, Albert Randall.....	6 00
Best breeding sow 1 year old and under 2, Albert Randall.....	10 00
Second best, Albert Randall.....	5 00
Best sow 6 months old and under 1 year, Albert Randall.....	6 00
Second best, Albert Randall.....	3 00
Best pair of pigs, boar and sow, under 6 months, Albert Randall.....	4 00
Second best, F. Weyerhorst.....	2 00
Best five pigs under 6 months, Albert Randall.....	6 00
Second best, Albert Randall.....	3 00

CLASS 32.— *Poland China.*

Best boar 1 year old and under 2, E. J. Austin.....	\$10 00
Second best, Henry Bowers.....	5 00
Best boar 6 months old and under 1 year, W. Palmer.....	6 00
Second best, E. J. Austin.....	3 00
Best breeding sow 1 year old and under 2, E. J. Austin.....	10 00
Second best, E. R. Martin.....	5 00
Best sow 6 months old and under 1 year, E. J. Austin.....	6 00
Second best, H. Bowers.....	3 00
Best pair of pigs, boar and sow, 6 months old and under 1 year, E. J. Austin.....	5 00
Best pair pigs, boar and sow, under 6 months, C. Hazen.....	4 00
Second best, E. R. Martin.....	2 00
Best five pigs under 6 months old, A. B. Wade.....	6 00
Second best, E. J. Austin.....	3 00

CLASS 32½. — *Chester White.*

Best boar 6 months old and under 1 year, M. B. Green	\$6 00
Best breeding sow 1 year and under 2 years, G. M. Beardmore.....	10 00
Second best, G. M. Beardmore.....	5 00
Best breeding sow 6 months old and under 1 year, M. B. Green.....	6 00
Pair pigs under 6 months, M. B. Green.....	4 00
Best five pigs under 6 months, G. M. Beardmore.....	6 00

CLASS 33. — *Essex and Suffolks.*

Best boar 1 year and under 2 years, S. H. and A. E. Joiner	\$10 00
Best boar 6 months old and under 1 year, S. H. and A. E. Joiner.....	6 00
Second best, S. H. and A. E. Joiner	3 00
Best boar 6 months old and under 1 year, Benj. Edwards.....	6 00
Second best, D. H. Hillman.....	3 00
Best breeding sow 1 year and under 2, S. H. and A. E. Joiner.....	10 00
Second best, S. H. and A. E. Joiner.....	5 00
Best breeding sow 1 year and under 2, D. H. Hillman.....	10 00
Best breeding sow 6 months and under 1 year, S. H. and A. E. Joiner,	6 00
Second best, S. H. and A. E. Joiner	3 00
Best breeding sow 6 months and under 1 year, D. H. Hillman	6 00
Second best, Thos. Davis.....	3 00
Best pair pigs 6 months and under 1 year, S. H. and A. E. Joiner....	5 00
Best pair pigs under 6 months, S. H. and A. E. Joiner.....	4 00
Second best, S. H. and A. E. Joiner	2 00
Best pair pigs under 6 months, B. Edwards.....	4 00
Second best, D. H. Hillman.....	2 00
Best five pigs under 6 months, S. H. and A. E. Joiner.....	6 00
Second best, S. H. and A. E. Joiner	3 00
Best five pigs under 6 months, D. H. Hillman	6 00

SWEEPSTAKES RINGS.

CLASS 34. — *Berkshire.*

Best boar any age, F. Brinkerhoff.....	\$8 00
Second best, A. Randall	4 00
Best sow any age, A. Randall.....	8 00
Second best, A. Randall	4 00

CLASS 35. — *Poland China.*

Best boar any age, E. J. Austin	\$8 00
Second best, E. R. Martin	4 00
Best sow any age, E. J. Austin.....	8 00
Second best, E. J. Austin.....	4 00

CLASS 35½. — *Chester White.*

Best boar any age, M. B. Green	\$8 00
Second best, G. M. Beardmore.....	4 00
Best sow any age, G. M. Beardmore.....	8 00
Second best, M. B. Green.....	4 00

CLASS 36. — *Essex and Suffolks.*

Best boar any age, Ben. Edwards.....	\$8 00
Second best, D. H. Hillman	4 00
Best sow any age, S. H. & A. E. Joiner.....	8 00
Second best, S. H. & A. E. Joiner.....	4 00
Best sow any age, Thos. Davis.....	8 00
Second best, D. H. Hillman	4 00

DIVISION D.—POULTRY.

CLASS 37.—*Poultry.*

Best pair light Brahma fowls, W. H. Turneure	\$2 00
Best pair light Brahma chicks, J. McKeen	1 00
Second best, W. H. Turneure	50
Best pair dark Brahma fowls, W. H. Turneure.....	2 00
Second best, A. B. Wade	1 00
Best pair dark Brahma chicks, W. H. Turneure.....	1 00
Second best, A. B. Wade	50
Best pair black Cochin fowls, G. E. Hannan.....	2 00
Second best, G. E. Hannan	1 00
Best pair black Cochin chicks, J. O'Brien.....	1 00
Second best, J. McKeen.....	50
Best pair Partridge Cochin fowls, G. E. Hannan.....	2 00
Second best, W. H. Turneure	1 00
Best pair Partridge Cochin chicks, J. McKeen.....	1 00
Second best, W. H. Turneure	50
Best pair white Cochin fowls, W. H. Turneure	2 00
Best pair buff Cochin fowls, J. McKeen	2 00
Second best, W. H. Turneure	1 00
Best pair buff Cochin chicks, W. H. Turneure	1 00
Second best, J. McKeen	50
Best pair Plymouth Rock fowls, E. W. Sanders	2 00
Second best, J. McKeen	1 00
Best pair Plymouth Rock chicks, W. H. Turneure.....	1 00
Second best, J. McKeen	50
Best pair Dominique fowls, W. H. Turneure.....	2 00
Best pair Dominique chicks, W. H. Turneure	1 00
Best pair Leghorns, any variety fowls, W. H. Turneure	2 00
Second best, E. W. Sanders	1 00
Best pair Leghorns, any variety chicks, D. Huntley.....	1 00
Second best, J. McKeen	50
Best pair black Spanish fowls, W. H. Turneure.....	2 00
Second best, J. McKeen	1 00
Best pair black Spanish chicks, W. H. Turneure.....	1 00
Best pair Polish, any variety fowls, W. H. Turneure.....	2 00
Second best, J. McKeen	1 00
Best pair Polish, any variety chicks, W. H. Turneure	1 00
Second best, W. H. Turneure	50
Best pair Hamburgs, any variety fowls, W. H. Turneure	2 00
Second best, G. E. Hannan.....	1 00
Best pair Hamburgs, any variety chicks, J. McKeen.....	1 00
Second best, W. H. Turneure.....	50
Best pair Houdon fowls, W. H. Turneure.....	2 00
Second best, W. H. Turneure.....	1 00
Best pair Houdon chicks, W. H. Turneure.....	1 00
Second best, W. H. Turneure	50
Best pair B. B. red game fowls, I. S. Cross	2 00
Second best, J. Johnson.....	1 00
Best pair B. B. red game chicks, I. S. Cross	1 00
Best pair B. B. red game Bantam fowls, Willie Bell.....	2 00
Second best, J. McKeen	1 00
Best pair B. B. red game Bantam chicks, Willie Bell	1 00
Second best, Willie Bell.....	50
Best pair Seabright Bantam fowls, W. H. Turneure	2 00
Second best, J. McKeen.....	1 00
Best pair Seabright Bantam chicks, J. McKeen.....	1 00
Best pair Copper Bronze turkeys, J. O'Brien.....	2 00

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Best pair black turkeys, J. O'Brien.....	\$2 00
Second best, G. E. Hannan	1 00
Best pair white turkeys, J. McKeen.....	2 00
Best pair Aylesbury ducks, J. O'Brien....	2 00
Second best, J. O'Brien.....	1 00
Best pair wild geese, J. O'Brien.....	2 00
Second best, J. O'Brien.....	1 00
Best pair Pekin ducks, J. McKeen.....	2 00
Second best, J. O'Brien.....	1 00
Exhibition of pigeons, J. McKeen.....	2 00
Best pair Bronze turkeys, A. B. Wade.....	2 00
Second best, A. B. Wade.....	1 00
Best pair red fowls, J. McKeen.....	2 00
Best and largest collection, W. H. Turneure.....	5 00
Second best, J. McKeen.....	3 00

EXHIBITS NOT ON LIST BUT AWARDS RECOMMENDED BY COMMITTEE.

Pair Pea Fowl chicks, J. McKeen.....	First
Pair Copper Bronze turkey chicks, J. O'Brien.....	First
Second best, J. O'Brien.....	Second
Pair Slate turkey chicks, J. O'Brien.....	First
Pair white guineas, J. McKeen.....	First
Second best, J. McKeen.....	Second
Pair Cayuga ducks, J. O'Brien.....	First
Pair Rowen ducks, J. O'Brien.....	First
Pair Rowen ducklings, J. O'Brien.....	Second
Pair Silk Angora rabbits, J. McKeen.....	First
Second best, J. McKeen.....	
Gray squirrel, J. McKeen.....	First
Pair Silver D. W. Bantam game chicks, J. McKeen.....	First
Second best, J. McKeen.....	
Pair duckling chicks, J. Johnson.....	First
One Partridge Cochinchick, J. McKeen.....	First
Pair Red Pyle game fowls, J. O'Brien.....	First
Second best, J. O'Brien.....	
Pair Red Pyle game chicks, J. O'Brien.....	First
Pair crested ducks, J. O'Brien.....	First

DIVISION E.—GRAINS AND SEEDS.

CLASS 38.—*Grains and Seeds.*

Best exhibition of grains and seeds in glass jars, not less than two quarts, Thos. Davis.....	\$8 00
Second best, N. Dougherty.....	4 00
Best bushel spring wheat, hard, Frank Weyerhorst.....	2 00
Second best, Thos. Davis.....	1 00
Best bushel spring wheat, soft, I. W. Cross.....	2 00
Second best, T. Davis.....	1 00
Best bushel rye, T. Davis.....	2 00
Second best, T. Davis.....	1 00
Best bushel Navy beans, C. E. Angell.....	2 00
Second best, N. Dougherty.....	1 00
Best bushel barley, Thos. Davis.....	2 00
Second best, F. Weyerhorst.....	1 00
Best bushel white oats, F. Weyerhorst.....	1 00
Second best, C. E. Angell.....	50
Best bushel buckwheat, Thos. Davis.....	1 00
Second best, C. Meyer.....	50
Best display of Yellow Dent seed corn, W. W. Wight.....	2 00
Second best, F. Weyerhorst.....	1 00

Best display of White Dent seed corn, C. E. Angell	\$2 00
Second best, N. Dougherty	1 00
Best display Yellow Flint seed corn, Will. Thomas	2 00
Second best, W. W. Wright	1 00
Best display White Flint seed corn, C. Meyer	2 00
Second best, N. Dougherty	1 00
Best display sweet seed corn, C. Meyer	2 00
Second best, N. Dougherty	1 00
Display of pop corn, E. W. Sanders	2 00
Second best, W. W. Wright	1 00
Bushel timothy seed, Thos. Davis	2 00
Bushel clover seed, C. E. Angell	2 00
Second best, I. Van Doren	1 00
Six samples of corn on stalks, E. W. Sanders	1 00
Second best, N. Dougherty	50
Bushel red top, C. E. Angell	2 00
Half bushel peas, Thos. Davis	1 00
Second best, Thos. Davis	50
Half bushel of peas, Champion of England, N. Dougherty	1 00
Barrel of spring wheat flour, White Hall Mill Co., E. J. Carpenter...	3 00

AWARDS RECOMMEND BY COMMITTEE.

Exhibit of grain and seeds in glass jars, I. O. Van Doren	
Second best, I. O. Van Doren	
Millet, B. C. Matteson	1st
Millet, B. C. Matteson	2d
Display Red Dent seed corn, I. O. Van Doren	1st
Barrel spring wheat flour, White Hall Mill Co	1st
Bushel corn, J. K. Kynell	1st
Butter beans, N. Dougherty	1st

DIVISION E.—DAIRY AND PANTRY.

CLASS 39: — Dairy and Pantry.

Best plate five pound print or roll butter, M. B. Green	\$3 00	
Second best, C. P. Houghton	2 00	
Best cheese which grades 42 points in a scale of 50, on which society offers \$35.00, to be divided equally among exhibitors	{ Clark & Underhill, 42	7 00
	{ J. S. Roblee, 42	7 00
	{ C. Hazen, 45	7 00
	{ C. Hazen, 48	7 00
	{ Wm. Hadcocks, 42	7 00
Best butter which grades 42 points in a scale of 50, on which society offers \$35.00, to be divided equally among exhibitors	{ Mrs. Wm. Sill, 48	8 75
	{ G. H. Pierce, 42	8 75
	{ M. Culbertson, 45	8 75
	{ Mrs. J. Wilson	8 75

THURBER'S SPECIAL ON FIFTY POUND BUTTER.

Mrs. J. Wilson	1st Gold.
G. W. Pierce	2d Silver.
M. Culbertson	3d Bronze.

THURBER'S SPECIAL ON FIFTY POUND CHEESE.

C. Hazen, 50 points	1st Gold.
J. S. Roblee, 42 points	2d Silver.
J. S. Roblee, 40 points	3d Bronze.

CORNISH & CURTIS'S SPECIAL ON TWENTY POUNDS OF BUTTER CHURNED IN
RECTANGULAR CHURN.

Mrs. P. R. Roberts, first.....Rectangular churn
M. Culbertson, second.....Butter worker

RECOMMENDED BY COMMITTEE.

Butter Cutter, J. C. Hall.
Cooley Creamer, J. Kellogg.

CLASS 40.—*Apiary.*

Largest product extracted honey from one swarm and increase, A. A. Winslow	\$4 00
Second best, G. H. Pierce.....	2 00
Largest product box honey, Albert Potter	3 00
Second best, Albert Potter.....	2 00
Bees in hive or case, W. L. Stroud	4 00
Second best, S. A. Churchill.....	2 00
Practical hive for profit, S. A. Churchill.....	2 00
Second best, W. L. Stroud.....	1 00
Sample box honey, 10 pounds, W. L. Stroud	3 00
Second best, G. H. Pierce.....	2 00
Extracted honey, 2 quarts, A. A. Winslow.....	3 00
Second best, G. H. Pierce	2 00
Honey extractor, A. A. Winslow.....	2 00
Second best, S. A. Churchill.....	1 00
Beeswax, A. A. Winslow	2 00
Second best, G. H. Pierce.....	1 00
Best bee hive, S. A. Churchill.....	Dip.

RECOMMENDED BY COMMITTEE.

Comb foundation, A. A. Winslow.

CLASS 41.—*Bread and Cakes.*

Two loaves Graham bread, Kate Peffer.....	\$2 00
Two loaves white bread, milk yeast, H. M. Quick.....	2 00
Two loaves Indian bread, Kate Peffer.....	2 00
Sponge cake, Lottie Glaze.....	1 00
Jelly cake, Lottie Glaze	1 00
Gold cake, Lottie Glaze	1 00
Fruit cake, Kate Peffer.....	1 00
Second best, Lottie Glaze.....	50
Chocolate cake, Lottie Glaze	1 00
Delicate cake, Lottie Glaze.....	1 00
Basket fancy cake, Lottie Glaze.....	1 00
Coffee cake, Kate Peffer.....	1 00
Spiced cake, Kate Peffer	1 00
Marble cake, Lottie Glaze.....	1 00
Basket cookies, H. M. Quick.....	1 00
Second best, Kate Peffer	50
Basket doughnuts, Lottie Glaze.....	1 00
Second best, Kate Peffer	50
Largest exhibit cakes, Lottie Glaze	3 00
Exhibition baking powder, B. J. Musser & Co.....	3 00
Exhibition flavoring extracts, B. J. Musser & Co	3 00
Special on bread, Mary Stroud	2 00

CLASS 42.— *Vegetables.*

Two quarts Lima beans, N. Dougherty	\$2 00
Second best, W. W. Wright	1 00
Half bushel blood turnip beets, John Nelson.....	2 00
Second best, Pierce & Co.....	1 00
Half bushel long blood beets, John Nelson.....	2 00
Second best, N. Dougherty.....	1 00
Half bushel mangel wurtzel, Mammoth Red, N. Dougherty.....	2 00
Second best, Brainerd Bros.....	1 00
Half bushel mangel wurtzel, Yellow Ovoid, C. Meyer.....	2 00
Second best, Pierce & Co.....	1 00
Half bushel mangel wurtzel, Imperial, C. Meyer.....	2 00
Second best, Pierce & Co.....	1 00
Half bushel orange globe beets, C. Meyer.....	2 00
Drumhead cabbage, J. N. Hoaglin.....	2 00
Second best, N. Dougherty.....	1 00
Winningstadt, N. Dougherty.....	2 00
Second best, John Nelson.....	1 00
Half bushel short horn carrots, Isaac Miles.....	2 00
Second best, Pierce & Co.....	1 00
Half bushel long orange carrots, N. Dougherty.....	2 00
Second best, J. P. Roe.....	1 00
Cauliflower, Theo. Grube.....	2 00
Second best, Mrs. C. H. Root.....	1 00
Dwarf celery, N. Dougherty.....	2 00
Second best, J. N. Hoaglin.....	1 00
Egg plant, N. Dougherty.....	2 00
Second best, J. N. Hoaglin.....	1 00
Citron melon, E. W. Sanders.....	2 00
Second best, N. Dougherty.....	1 00
Musk melon, N. Dougherty.....	2 00
Second best, Pierce & Co.....	1 00
Water melon, J. N. Hoaglin.....	2 00
Second best, Pierce & Co.....	1 00
Half bushel red onions, John Dey.....	2 00
Second best, J. P. Roe.....	1 00
Half bushel white onions, Brainerd Bros.....	2 00
Second best, E. W. Sanders.....	1 00
Half bushel Yellow Danvers onions, John Nelson.....	2 00
Second best, N. Dougherty.....	1 00
Half bushel any other variety, N. Dougherty.....	2 00
Second best, J. K. Tyrrell.....	1 00
Half bushel parsnips, Pierce & Co.....	2 00
Second best, John Nelson.....	1 00
Show large red peppers, Brainerd Bros.....	1 00
Show seedling potatoes, E. W. Sanders.....	2 00
Second best, W. Cone.....	1 00
Half bushel Early Rose, Theo. Grube.....	2 00
Second best, N. Dougherty.....	1 00
Half bushel Peach Blow, N. Dougherty.....	2 00
Half bushel Snow Flake, N. Dougherty.....	2 00
Second best, John Dey.....	1 00
Half bushel Compton Surprise, Pierce & Co.....	2 00
Half bushel Early Ohio, N. Dougherty.....	2 00
Second best, J. McKeen.....	1 00
Half bushel New Variety, N. Dougherty.....	2 00
Second best, Theo. Grube.....	1 00
Half bushel any other variety.....	2 00
Second best, N. Dougherty.....	1 00
Salsify, C. Meyer.....	2 00
Second best, N. Dougherty.....	1 00

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Hubbard squash, N. Dougherty.....	\$2 00
Second best, Brainerd Bros.....	1 00
Fall squash, N. Dougherty.....	2 00
Second best, Pierce & Co.....	1 00
Largest squash, any variety, Brainerd Bros.....	2 00
Half bushel tomatoes, Almon Stone.....	2 00
Second best, Brainerd Bros.....	1 00
Half bushel flat turnips, E. N. Sanders.....	2 00
Half bushel rutabagas, Pierce & Co.....	2 00
Second best, J. N. Hoaglin.....	1 00
Show by one exhibitor, N. Dougherty.....	12 00
Second best, Pierce & Co.....	6 00

PREMIUMS RECOMMENDED BY COMMITTEE.

- Chicory, Pierce & Co.
- White sugar beets, J. P. Roe.
- Blood red cabbage, Pierce & Co.
- Mammoth pumpkins, M. V. Spurbeck, first.
- Second best, M. V. Spurbeck, second.

DIVISION F.—FRUIT.

CLASS 43. — *Apples, Pears, Grapes, etc.*

Collection deciduous nursery grown trees, quality to rule, J. C. Plumb	Dip.
Collection evergreens, etc., J. C. Plumb.....	Dip.
Greatest variety of apples, H. Floyd.....	\$8 00
Second best, Geo. Kellogg.....	4 00
Third best, N. Olin.....	2 00
Ten varieties adapted to northwest, N. Olin.....	4 00
Second best, H. Floyd.....	2 00
Third best, D. Huntley.....	1 00
Five varieties adapted to northwest, N. Olin.....	4 00
Second best, D. Huntley.....	2 00
Largest variety winter, N. Olin.....	4 00
Second best, G. P. Pepper.....	2 00
Third best, H. Floyd.....	1 00
Five varieties of winter, H. Floyd.....	4 00
Second best, Geo. Kellogg.....	2 00
Show of ten varieties without regard to adaptation, H. Floyd.....	4 00
Second best, G. P. Pepper.....	2 00
Five varieties of autumn, N. Olin.....	4 00
Second best, Geo. Kellogg.....	2 00
Largest variety of autumn, B. B. Olds.....	4 00
Second best, Dr. J. Ozanne.....	2 00
Plate of Astrachan, Geo. Kellogg.....	1 00
Plate of Duchess of Oldenburg, D. Huntley.....	1 00
Plate of St. Lawrence, J. C. Plumb.....	1 00
Plate of Fameuse, J. N. Hoaglin.....	1 00
Plate of Utters, George S. Church.....	1 00
Plate of Plumb's Cider, H. Floyd.....	1 00
Plate of Seek-no-Further, G. P. Pepper.....	1 00
Plate of Willow Twig, John Dey.....	1 00
Plate of Ben Davis, E. W. Sanders.....	1 00
Plate of Tallman Sweet, John Dey.....	1 00
Plate of Golden Russet, E. W. Sanders.....	1 00
Plate of Walbridge, H. Floyd.....	1 00
Plate of Pewaukee, G. P. Paffer.....	1 00
Plate of Alexander, N. Olin.....	1 00
Largest apple, N. Olin.....	1 00
Heaviest apple, Geo. S. Church.....	1 00

PEARS.

Six varieties, H. Floyd.....	\$3 00
Second best, G. P. Peffer	2 00
Six varieties adapted to the northwest, H. Floyd	2 00
Second best, N. Olin	1 00
Single variety to rule, Dr. J. Ozanne.....	1 00
Second best, N. Olin.....	50

PLUMS.

Best exhibition, G. P. Peffer.....	\$3 00
Second best, Geo. Kellogg.....	2 00

GRAPES.

Show of not less than 12 varieties, J. P. Roe.....	\$5 00
Second best, J. Brainerd.....	3 00
Third best, John Nelson	2 00
Six varieties, J. P. Roe	3 00
Second best, J. Brainerd.....	2 00
Third best, John Nelson.....	1 00
Five varieties adapted to northwest, John Nelson	2 00
Second best, J. P. Roe... ..	1 50
Third best, J. Brainerd.....	1 00
Three varieties adapted to northwest, John Nelson	2 00
Second best, J. Brainerd.....	1 00
Two varieties adapted to northwest, Geo. Kellogg	1 00
Second best, J. P. Roe.....	50
One variety adapted to northwest, Geo. Kellogg	2 00
Three clusters, one cane, Concord, Thos. Nelson	2 00
Second best, John Nelson	1 00
Three clusters, one cane, Delaware, Thos. Nelson	2 00
Second best, F. L. Lawrence.....	1 00
Three clusters, one cane, Walter, John Nelson	2 00
Second best, J. P. Roe.....	1 00
Three clusters, one cane, Janesville, N. Olin	2 00
Second best, J. P. Roe.....	1 00
Three clusters, one cane, Isabella, J. Brainerd	2 00
Second best, Thos. Nelson.....	1 00
Three clusters, one cane, Diana, J. P. Roe	2 00
Second best, J. Nelson	1 00
Three clusters, one cane, Iona, N. Christenson	2 00
Second best, J. P. Roe.....	1 00
Three clusters, one cane, Rogers No. 3, J. Nelson.....	2 00
Three clusters, one cane, Rogers No. 4, J. P. Roe	2 00
Second best, J. Brainerd.....	1 00
Three clusters, one cane, Rogers No. 9, Thomas Nelson.....	2 00
Second best, J. P. Roe.....	1 00
Three clusters, one cane, Rogers No. 10, J. Brainerd.....	2 00
Three clusters, one cane, Rogers No. 15, J. P. Roe	2 00
Second best, John Nelson	1 00
Three clusters, one cane, Rogers No. 19, John Nelson.....	2 00
Second best, J. Brainerd	1 00
Three clusters, one cane, Rogers No. 22, J. Brainerd	2 00
Second best, J. P. Roe.....	1 00
Three clusters, one cane, Rogers No. 32, J. Brainerd	2 00
Three clusters, one cane, Isabella, F. L. Lawrence	2 00
Three clusters, one cane, Worden's Seedling, F. L. Lawrence	2 00
Second best, N. Olin	1 00
Three clusters, one cane, Rogers No. 28, N. Olin.....	2 00
Three clusters, one cane, Martha, J. P. Roe.....	2 00
Second best, William White.....	1 00
Seedling, F. L. Lawrence.....	2 00

CRAB APPLES.

Exhibit not less than five varieties, G. P. Peffer.....	\$2 00
Second best, J. C. Plumb.....	1 00
Single variety, G. P. Peffer.....	1 00
Second best, J. C. Plumb.....	50

AWARD RECOMMENDED BY COMMITTEE.

Plate Perry Russet, George S. Church	First
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CLASS 44.—*Delicacies, Preserves, etc.*

Collection preserved fruit, Mrs. C. H. Root.....	\$3 00
Second best, H. M. Quick	2 00
Sample preserved pears, H. M. Quick.....	1 00
Second best, Mrs. C. H. Root	50
Sample preserved peaches, H. M. Quick.....	1 00
Second best, Mrs. C. H. Root.....	50
Sample preserved plums, Mrs. N. Dougherty.....	1 00
Sample preserved cherries, H. M. Quick.....	1 00
Sample preserved strawberries, H. M. Quick.....	1 00
Second best, J. K. Tyrrell.....	50
Sample preserved raspberries, Mrs. C. H. Root.....	1 00
Second best, H. M. Quick	50
Sample preserved blackberries, H. M. Quick.....	1 00
Sample preserved currants, H. M. Quick.....	1 00
Second best, Mrs. C. H. Root	50
Sample preserved gooseberries, Mrs. N. Dougherty.....	1 00
Sample preserved grapes, Mrs. C. H. Root.....	1 00
Sample preserved tomatoes, E. W. Sanders.....	1 00
Second best, Mrs. N. Dougherty.....	50
Collection of jellies, Mrs. C. H. Root.....	1 00
Sample currant jelly, Mrs. J. N. Hoaglin.....	1 00
Second best, Mrs. L. M. Taylor.....	50
Sample apple jelly, Mrs. C. H. Root.....	1 00
Second best, Mrs. L. M. Taylor	50
Sample crab apple jelly, E. W. Sanders	1 00
Second best, H. M. Quick.....	50
Sample grape jelly, Mrs. C. H. Root.....	1 00
Second best, Mrs. N. Dougherty.....	50
Sample raspberry jelly, Mrs. C. H. Root	1 00
Second best, Mrs. J. N. Hoaglin.....	50
Sample blackberry jelly, Mrs. C. H. Root.....	1 00
Sample apple butter, Mrs. C. H. Root.....	1 00
Collection canned fruits, Mrs. C. H. Root.....	3 00
Second best, Mrs. N. Dougherty.....	2 00
Sample canned apples, Mrs. C. H. Root.....	1 00
Sample canned pears, Mrs. C. H. Root.....	1 00
Second best, E. W. Sanders.....	50
Sample canned pared peaches, Mrs. C. H. Root.....	1 00
Second best, Mrs. J. N. Hoaglin.....	50
Sample canned whole peaches, Mrs. C. H. Root.....	1 00
Second best, Mrs. J. N. Hoaglin.....	50
Sample canned plums, Mrs. C. H. Root.....	1 00
Sample canned cherries, Mrs. N. Dougherty.....	1 00
Second best, Mrs. C. H. Root	50
Sample canned crab apples, E. W. Sanders.....	1 00
Second best, Mrs. C. H. Root.....	50
Sample canned strawberries, Mrs. C. H. Root.....	1 00
Second best, Mrs. J. N. Hoaglin.....	50
Sample canned raspberries, Mrs. J. N. Hoaglin.....	1 00
Second best, Mrs. C. H. Root.....	50

PREMIUM LIST.

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Sample canned blackberries, Mrs. J. N. Hoaglin.....	\$1 00
Second best, Mrs. C. H. Root	50
Sample canned gooseberries, Mrs. C. H. Root.....	1 00
Second best, E. W. Sanders.....	50
Sample canned currants, E. W. Sanders.....	1 00
Second best, Mrs. J. N. Hoaglin.....	50

CANNED FRUITS.

Sample canned grapes, Mrs. C. H. Root	\$1 00
Sample canned tomatoes, Mrs. J. N. Hoaglin.....	1 00
Second best, Mrs. C. H. Root	50
Sample canned corn, Mrs. C. H. Root.....	1 00
Sample canned peas, Mrs. N. Dougherty	1 00

PICKLES.

Greatest variety, not less than six, Mrs. C. H. Root.....	\$2 00
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AWARDS RECOMMENDED BY COMMITTEE.

- Sample preserved crab apples, H. M. Quick.
- Sample preserved cranberries, H. M. Quick.
- Sample preserved blueberries, H. M. Quick.
- Strawberry wine, H. M. Quick.
- Canned pie plant, N. Dougherty.
- Preserved water melon, Mrs. C. H. Root.

DIVISION F. — PLANTS, ETC.

CLASS 45. — *Plants and Cut Flowers — Professional.*

Floral ornament, Almon Stone	\$3 00
Second best, Isaac Miles	2 00
Basket cut flowers, A. Stone	2 00
Second best, Isaac Miles	1 00
Collection immortelles, N. Christenson.....	1 00
Collection dahlias, J. C. Plumb.....	1 00
Collection roses, I. Miles.....	1 00
Second best, John Nelson	50
Collection pansies, John Nelson.....	1 00
Second best, A. Stone	50
Collection verbenas, John Nelson.....	1 00
Second best, I. Miles.....	50
Collection asters, I. Miles.....	1 00
Second best, John Nelson.....	50
Collection balsams, John Nelson.....	1 00
Collection gladiolas, I. Miles.....	1 00
Second best, John Nelson.....	50
Variety cut flowers, A. Stone	2 00
Second best, I. Miles.....	1 00
Best bouquet, A. Stone.....	1 00

CLASS 46. — *Cut Flowers — Amateurs.*

Floral ornament, Kate Peffer.....	\$3 00
Second best, Mrs. K. M. Hutchinson.....	2 00
Basket cut flowers, Kate Peffer.....	3 00
Second best, Mrs. K. M. Hutchinson.....	2 00
Collection immortelles, Geo. E. Haskell.....	1 00
Second best, Geo. E. Haskell.....	50

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Collection dahlias, D. Huntley.....	\$1 00
Second best, Kate Peffer.....	50
Collection pansies, Kate Peffer.....	1 00
Collection verbenas, Kate Peffer.....	1 00
Collection gladiolas, Kate Peffer.....	1 00
Variety cut flowers, Kate Peffer.....	2 00
Boquet, Mrs. K. M. Hutchinson.....	1 00
Second best, Kate Peffer.....	50

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

Collection green house plants, I. Miles.....	\$5 00
Second best, John Nelson.....	3 00
Third best, A. Stone.....	2 00
Collection of foliage plants, John Nelson.....	3 00
Second best, A. Stone.....	2 00
Third best, I. Miles.....	1 00
Collection of tricolor geraniums, I. Miles.....	2 00
Second best, A. Stone.....	1 00
Collection zonale geraniums, J. Nelson.....	2 00
Second best, A. Stone.....	1 00
Collection of double geraniums, I. Miles.....	2 00
Second best, J. Nelson.....	1 00
Single geranium, J. Nelson.....	1 00
Second best, I. Miles.....	50
Oleander in bloom, J. Nelson.....	1 00
Display pelargoniums in bloom, I. Miles.....	1 50
Display euonymus, J. Nelson.....	1 00
Second best, I. Miles.....	50
Display fragrant geraniums, J. Nelson.....	1 00
Second best, I. Miles.....	50
Single specimen geranium, I. Miles.....	1 00
Second best, J. Nelson.....	50
Variety fuchsias in bloom, A. Stone.....	2 00
Second best, J. Nelson.....	1 00
Specimen fuchsias in bloom, J. Nelson.....	1 00
Second best, A. Stone.....	50
Display roses, I. Miles.....	2 00
Second best, J. Nelson.....	1 00
Specimen rose, I. Miles.....	1 00
Second best, A. Stone.....	50
Variety carnation, J. Nelson.....	1 00
Display double petunias, J. Nelson.....	1 00
Second best, I. Miles.....	1 50
Display single petunia, I. Mills.....	75
Hanging basket, etc., A. Stone.....	1 00
Second best, I. Miles.....	50
Display cacti in variety, I. Miles.....	2 00
Second best, A. Stone.....	1 00
Single specimen, I. Miles.....	75
Second best, A. Stone.....	35
Display begonia in variety, I. Miles.....	2 00
Second best, J. Nelson.....	1 00
Third best, A. Stone.....	50
Single specimen begonia, I. Miles.....	50
Second best, H. F. Hughes.....	50
Third best, J. Nelson.....	25
English ivy on trellis, J. Nelson.....	1 00
Second best, I. Miles.....	75
Display tuberose, I. Miles.....	2 00
Second best, A. Stone.....	1 00
Pomsittia, I. Miles.....	1 00
Second best, A. Stone.....	50

Calla lily in bloom, A. Stone	\$1 00
Second best, I. Miles	50
Calladiums, J. Nelson	2 00
Second best, I. Miles	1 00
Smilax on trellis, I. Miles	1 00
Second best, A. Stone	50
Fernery, J. Nelson	2 00
Second best, I. Miles	1 00
Specimen house plant, any variety, A. Stone	2 00
Second best, I. Miles	1 00

AWARD RECOMMENDED BY COMMITTEE.

Collection of single geraniums, A. Stone..... First

CLASS 48.—*Plants in Pots — Amateurs.*

Collection of foliage plants, Mrs. K. M. Hutchinson	\$2 00
Display of zonale geraniums in bloom, Mrs. K. M. Hutchinson	1 00
Single specimen geranium, Mrs. K. M. Hutchinson	1 00
Second best, Fred. Zentner	50
Variety fuchsia in bloom, Mrs. K. M. Hutchinson	2 00
Single specimen fuchsia in bloom, Mrs. K. M. Hutchinson	1 00
Single specimen rose in bloom, J. K. Tyrrell	1 00
Display of double petunia, Mrs. L. F. Thompson	1 00
Single specimen ornamental foliage plants, Mrs. K. M. Hutchinson ..	1 00
Second best, Alice Clum	50
Single specimen begonia, Alice Clum	1 00
English ivy on trellis, Alice Clum	1 00
Display of tuberose, Mrs. James Goe	2 00
Smilax on trellis, D. Huntley	1 00
Fernery, Miss Sadie Goe	2 00
Specimen house plant any variety, Fred Zentner	2 00
Second best, Sadie Goe	1 00
Aquarium containing fish, Lottie Glaze	3 00
Display euonymus, Mrs. K. M. Hutchinson	1 00

AWARDS RECOMMENDED BY COMMITTEE.

Orange tree, H. F. Hughes

Rose geraniums, Mrs. L. F. Thompson. 1 00

Floral shield, Mary E. Brock.

DIVISION G.—CABINET WORK.

CLASS 49.—*Cabinet Work, etc.*

Bedstead, B. H. Soper	\$1 00
Folding bedstead, Wm. Spikes	1 00
Sofa spring seat, B. H. Soper	1 00
Dressing bureau, Wm. Spikes & Co.	1 00
Writing desk, Wm. Spikes & Co.	1 00
Spring bed, B. H. Soper	1 00
Hat rack, B. H. Soper	1 00
Cane seat chairs, B. H. Soper	1 00
Set chamber furniture, Wm. Spikes & Co	3 00
Second best, B. H. Soper	2 00
Set parlor furniture, B. H. Soper	3 00
Second best, Wm. Spikes & Co	2 00
Center table, marble top, B. H. Soper ..	1 00
Easy chair, Wm. Spikes & Co	1 00
Mirror, Wm. Spikes & Co	2 00

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AWARDS RECOMMENDED BY COMMITTEE.

Bedstead, J. F. Atkinson.
 Set chairs, J. F. Atkinson.
 Patent swivel chair, Wm. Spikes & Co.
 Chiffoneries, Wm. Spikes & Co.
 Coin case, J. F. Atkinson.
 Rocker, J. F. Atkinson.
 Altar, J. F. Atkinson.
 Hammock, J. P. Travers & Son, diploma.
 Bookcase, Wm. Spikes & Co.
 Bookcase and secretary, Wm. Spikes & Co.
 Folding chair, L. Simmons.
 Lounge, B. H. Soper.
 Side board, B. H. Soper.
 Ottoman, Wm. Spikes & Co.
 Casket, Wm. Spikes & Co.
 Largest collection furniture, Wm. Spikes & Co.
 Patent rocker, B. H. Soper.
 Full rigged ship, Frank Clark.
 Fancy stand, Wm. Spikes & Co.
 Camp chair, Wm. Spikes & Co.
 Mosaic table, B. H. Soper.
 Mosaic cabinet, B. H. Soper.
 Pier glass, Wm. Spikes & Co.

CLASS 50. — *Printer's Work, etc.*

Ledger, Allen & Hicks	\$1 00
Printing, not less than 48 pages, Allen & Hicks.....	1 00
Card printing, not less than 20 specimens, Allen & Hicks	1 00
Ornamental printing, not less than 3 specimens, Allen & Hicks.....	1 00
Poster printing, not less than 2 specimens, Allen & Hicks.....	1 00
Greatest variety work, Allen & Hicks	3 00

AWARD RECOMMENDED BY COMMITTEE.

Display of paper, Winnebago Paper Co.

CLASS 51. — *Staple Goods, etc.*

Rag carpet, 20 yards, Mrs. E. Gadbau	\$2 00
Second best, S. Darlington.....	1 00
Rag rug, Mrs. Theo. Grube.....	1 00
Second best, Mrs. W. S. Montgomery	50
Yarn rug, Mrs. F. F. Kellogg.....	1 00
Second best, Mrs. F. F. Kellogg.....	50
Plain cotton knitting, Mrs. E. Ward.....	1 00
Second best, Mrs. H. Huxley	50
Fancy knitting, Mrs. E. Kent.....	1 00
Second best, Eliza Washburn.....	50
Fine shirt, Mrs. E. Kent.....	1 00
Second best, Mrs. E. Kent	50
Door mat, Mrs. K. M. Hutchinson	1 00
Second best, Eliza Washburn.....	50
Woolen yarn, home made, Mrs. Wm. Vance	1 00
Second best, Mrs. H. Huxley.....	50
Woolen mittens, Mrs. Ed. Kent	1 00
Second best, Mrs. Wm. Vance.....	50
Men's wool socks, Mrs. H. Huxley.....	1 00
Second best, Mrs. Wm. Vance	50
Women's wool stockings, Kittie Maxwell.....	1 00
Second best, Mrs. C. H. Root	50

CLASS 52.— *Quilts.*

Silk quilts, Mrs. Thrall.....	\$1 00
Second best, E. A. Young	50
Best Log Cabin quilt, Mrs. Carlisle.....	1 00
Second best, Mrs. J. L. Dorance.....	50
Best cotton patchwork quilt, Mrs. L. Durfee.....	1 00
Second best, Mrs. H. Huxley	50
Quilt made by a lady over fifty years, Mrs. A. Cowling.....	1 00
Second best, Mrs. E. M. Washburn.....	50
Crochet spread, Mrs. J. F. Kien.....	1 00
Second best, Mrs. O. Eastman.....	50
Knitted spread, Eliza Washburn	1 00

AWARD RECOMMENDED BY COMMITTEE.

Velvet patchwork sofa pillow, Mrs. J. Fowler.

CLASS 53.— *Embroidery.*

Silk embroidered child's skirt, Mrs. E. Kent....	\$1 00
Silk embroidered child's dress, Mrs. F. Schallar	1 00
Silk embroidered child's blanket, Mrs. E. Kent.....	1 00
Second best, Mrs. C. H. Root	50
Raised worsted embroidered chair, Mrs. J. Himebaugh	1 00
Raised worsted embroidered sofa pillow, Mrs. J. Himebaugh	1 00
Plain worsted embroidered sofa pillow, Mary Camburn.....	1 00
Second best, Mrs. Theo. Grube.....	50
Plain worsted embroidered lambrequin, Mrs. J. Fowler.....	1 00
Second best, Mrs. J. Fowler	50
Plain worsted embroidered ottoman, Maud Morrison.....	1 00
Second best, Mrs. M. Knight	50
Plain worsted embroidered foot rest, Mrs. M. Knight.....	1 00
Worsted canvas embroidery, Mrs. M. Knight.....	1 00
Second best, Mattie Goe.....	50
Chenille embroidered cushion, Maud Morrison	1 00
Second best, Mrs. M. H. O'Brien.....	50
Worsted and silk embroidered sofa pillow, Maud Morrison.....	1 00
Worsted and silk embroidered lambrequin, Maud Morrison	1 00
Slipper case, Mattie Goe.....	1 00
Second best, Mrs. L. M. Taylor.....	50
Bead and worsted embroidered cushion, Miss A. Bloss.....	1 00
Bead and worsted embroidered lambrequin, Mrs. J. Himebaugh	1 00

AWARDS RECOMMENDED BY COMMITTEE.

Silk embroidered hose, Mrs. E. Kent	1 00
Second best, Mrs. G. W. Pratt	50
Plain worsted embroidered slipper case, Mrs. C. C. Miller.....	1 00
Velvet table embroidered cover, Mrs. F. Schallar.....	1 00

CLASS 54.— *Cotton Embroidery, etc.*

Cotton embroidered pillow sham, Mrs. K. M. Hutchinson.....	1 00
Second best, Mrs. F. Schallar.....	50
Cotton embroidered set underwear, Mrs. Theo. Grube	1 00
Braided pillow and sheet sham, Mrs. F. Schallar.....	1 00
Second best, Mrs. W. F. Kent.....	50
Braided set underwear, Mrs. C. H. Root.....	1 00
Applique work, Mrs. A. H. Dorris.....	1 00
Second best, Mrs. A. H. Dorris.....	50
Java canvas toilet set, Nettie Smalley.....	1 00
Second best, Mrs. J. Himebaugh.....	50

Java canvas tidy, Lottie Glaze.....	\$1 00
Second best, Mrs. J. N. Hoaglin.....	50
Honey comb canvas toilet set, Jennie Roberts.....	1 00
Honey comb canvas tidy, Nettie Smalley.....	1 00
Second best, Mrs. D. Fowler.....	50
Card board air castle, Lizzie Holmes.....	1 00
Second best, Maggie McCourt.....	50
Card board match receiver, Nettie Smalley.....	1 00
Second best, Mrs. C. H. Root.....	50
Card board lambrequin, Lillie Brainerd.....	1 00
Second best, Nettie Smalley.....	50
Point Honiton handkerchief, Mrs. C. B. Howard.....	1 00
Point Guipure lace, one yard, Mrs. C. B. Howard.....	1 00
Point Honiton lace barbe, Mrs. C. B. Howard.....	1 00
Point Honiton lace tie-ends, Mrs. C. B. Howard.....	1 00

AWARDS RECOMMENDED BY COMMITTEE.

Point lace tie-ends, Hannah Winters.....	1 00
Point lace neck-lace, Hannah Winters.....	50

CLASS 55. — *Crochet and Tatting Work.*

Carriage afghan, Mrs. K. M. Hutchinson.....	\$1 00
Second best, Mrs. Geo. Pratt.....	50
Crochet shawl, Gertie Torrey.....	1 00
Second best, Mrs. C. H. Root.....	50
Crochet scarf, Alice J. Clum.....	1 00
Second best, Alice J. Clum.....	50
Crochet tidy, worsted, Alice J. Clum.....	1 00
Second best, Kittie Maxwell.....	50
Crochet cotton tidy, Mrs. J. F. Kien.....	1 00
Second best, Maud Morrison.....	50
Crochet thread tidy, Mrs. W. E. Montgomery.....	1 00
Second best, Carrie Lewis.....	50
Crochet hood, Mrs. C. H. Root.....	1 00
Second best, Mrs. C. B. Howard.....	50
Crochet sack, adult, Mrs. E. Kent.....	1 00
Second best, Mrs. C. B. Howard.....	50
Pair crochet lamp mats, Mrs. C. B. Howard.....	1 00
Tatted tidy, Mrs. W. F. Kent.....	1 00
Second best, Mrs. Theo. Grube.....	50
Five yards tatted inserting, Mrs. Theo. Grube.....	1 00
Display millinery goods, Mrs. Davis & Co.....	3 00

CLASS 56. — *Fancy and Ornamental Goods.*

Ornamental leather work, Mrs. C. P. Houghton.....	\$1 00
Second best, Flora Houghton.....	50
Ornamental shell work, H. M. Quick.....	1 00
Ornamental bead work, Maggie McCourt.....	1 00
Ornamental hair work, Mrs. F. X. Raedler.....	1 00
Agricultural wreath, Mrs. R. E. Merton.....	1 00
Wax flowers, Mrs. R. E. Merton.....	1 00
Worsted fruit, Mrs. M. E. Montgomery.....	1 00
Spatter work, Mrs. Nellie Palmer.....	1 00
Second best, Mrs. F. Thrall.....	50

AWARDS RECOMMENDED BY COMMITTEE.

- Basket of relics, H. M. Quick, diploma.
 Wax fruit, emblem of Odd Fellows, Mrs. R. P. Craig, diploma.
 Alabaster vase with wax fruit and autumn leaves, Alena Weber, diploma.
 Dried flowers, grasses, etc., G. E. Haskell, diploma.

CLASS 57. — *Misses' Department.*

Pencil drawing, Louise Mears	\$1 00
Map drawing, Louise Mears.....	1 00
Hair work, Flora Houghton.....	1 00
Worsted work, Belle Baker.....	1 00
Crochet work tidy, Minnie Lingel	1 00
Neatest darned stocking, Lina McKeen	1 00
Specimen of penmanship, Ida Chappel.....	1 00
Best organist, Georgie Root.....	1 00
Worsted motto work on card board, Millie Kich.....	1 00
Worsted motto work on card board, Emma Jones.....	1 00
Silk motto work on card board, Georgie Root	2 00
Worsted design on card board, Minnie Martin.....	2 00
Second best, Lina McKeen.....	1 00
Silk design on card board, Matie Campbell.....	2 00
Silk embroidered hose, Nellie Kent.....	2 00

AWARDS RECOMMENDED BY COMMITTEE.

Bracket sawing, Flora Burtis.....	\$1 00
Fancy card basket, Flora Burtis	1 00

CLASS 58. — *Boys' Department.*

Map drawing, Harry Clum	\$1 00
Specimen of writing, Harley Clough.....	1 00
Card receiver, R. M. Burtis.....	50
Cabinet picture frame, R. M. Burtis.....	50
Card photograph frame, Willie Burtis.....	50
Best easel, R. M. Burtis	50
Glove box, R. M. Burtis	50
Doll's cradle, R. M. Burtis.....	50
Doll's carriage, R. M. Burtis.....	50
Clock shelf, R. M. Burtis.....	50
Corner bracket, R. M. Burtis.....	50
Book rack, R. M. Burtis.....	50
Work box, R. M. Burtis	50
Clock case, Walter Cone	50
Best towel rack, R. M. Burtis.....	50
Best exhibition of bracket work, R. M. Burtis.....	3 00
Second best, Willie Burtis.....	2 00

AWARDS RECOMMENDED BY COMMITTEE.

Best knife tray, Willie Burtis	First.....	
Best wheelbarrow, Willie Burtis	First.....	
Best brush and comb box, Willie Burtis.....	First.....	
Picture rest, Willie Burtis	First.....	
Window cornice, R. M. Burtis	First.....	
Second best, Willie Burtis	Second.....	
Wall pocket, R. M. Burtis.....	First.....	
Bouquet holder, Willie Burtis.....	First.....	
Fancy vase, R. M. Burtis.....	First.....	
View holder, R. M. Burtis.....	First.....	
Paper holder, R. M. Burtis.....	First.....	
Wall bracket, Walter Cone	First.....	50
Card basket, Walter Cone	Second.....	25

CLASS 59. — *Natural History.*

Specimen of copper ore of Wisconsin, Willie Hewitt.....	Dip.	
Collection illustrating botany of Wisconsin, E. B. Wood....	Dip. and	\$2 00
Botany of ferns from Sandwich Islands, Lucy Andrews.....	Dip.	

CLASS 60. — *Works of Art.*

Original oil painting, A. Maxson	\$8 00
Original oil painting, A. Maxson	3 00
Original oil painting, A. Maxson	3 00
Second best, C. F. Pasco	2 00
Portrait in oil, F. Weyerhorst	3 00
Second best, Cook Ely	2 00
Pastel portrait, Cook Ely	2 00
Second best, F. Weyerhorst	1 00
India ink portrait, Cook Ely	2 00
Second best, Cook Ely	1 00
Portrait in water color, Cook Ely	2 00
Second best, Cook Ely	1 00
Solar photo, Cook Ely	2 00
Second best, Cook Ely	1 00
Exhibit of sun pictures, Cook Ely	3 00
Second best, Geo. Horton	Dip. and 2 00
Coins, H. C. Kendall	3 00
Medals, Mary C. Kendall	3 00
Collection of stamps, A. B. Hooper	2 00
Pen and ink drawing, C. F. Pasco	2 00
Second best, A. C. Blackman	1 00
Best collection pencil drawings, M. Weyerhorst	4 00
Second best, Julia Woodside	2 00
Pencil drawing, Mary Bloss	Dip. and 2 00
Cone work, Mrs. Theo. Grube	2 00
Specimen of sculpture, J. J. Moore	2 00
Specimen of penmanship, A. C. Blackman	2 00
Second best, A. C. Blackman	1 00

AWARDS RECOMMENDED BY COMMITTEE.

Show of jewelry, G. R. Strickland.
 Sewing machines, J. W. Smith and others. Exhibition was very fine.
 Pianos and organs, G. R. Lampard.
 Pianos and organs, S. M. Bridge & Son.
 A very fine and creditable exhibition of pianos and organs.
 Portrait in oil, copied, A. M. Barnum.
 India ink, copied, A. M. Barnum.
 Chromo type, A. M. Barnum.

CLASS 61. — *Textile Fabrics, Clothing, etc.*

Piece cassimere, Hutchinson & Co	\$2 00
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AWARDS RECOMMENDED BY COMMITTEE.

Piece goods, Wm. Leard, second.
 Display gloves and mittens, Luther & Gale, second.

DIVISION H. — MANUFACTURES.

CLASS 62. — *Manufactures of Iron, Stone and Clay.*

Ornamental cast iron, J. J. Moore	\$1 00
Ornamental statuary, Allen & Hicks	2 00
Specimen of brick, Cook, Brown & Co	2 00
Specimen drain tile, Cook, Brown & Co	2 00
Iron chair, J. J. Moore	2 00
Cook stove with furniture, Bergstrom Bros.	Dip. and 2 00
Office stove, Bergstrom Bros	2 00

Largest display monuments and headstones, J. J. Moore	\$5 00
Exhibition of paints, Geo. F. Stroud.....	2 00
Parlor stove, Bergstrom Bros.....	Dip. and 2 00
Horse nails, Champion Steel Mill Co	2 00

AWARD RECOMMENDED BY COMMITTEE.

Ornamental statuary, J. J. Moore.

CLASS 63. — *Leather and Leather Manufacturing.*

Pair gents' summer boots, C. A. Johnson & Co.....	\$1 00
Pair gents' winter boots, J. M. Rollins	1 00
Pair cowhide boots, J. M. Rollins.....	1 00
Pair ladies' summer walking shoes, J. M. Rollins.....	1 00
Pair ladies' winter walking shoes, J. M. Rollins.....	1 00
Pair gents' slippers, J. M. Rollins.....	1 00
Pair ladies' slippers, C. A. Johnson & Co	1 00
Gents' riding saddle, M. Gurnee.....	1 00
Display boots and shoes, all kinds, J. M. Rollins.....	Dip.
Assortment of India rubber goods, J. M. Rollins.....	Dip. and 2 00
Display leather brackets, Mrs. F. J. Wilkie.....	1 00

AWARDS RECOMMENDED BY COMMITTEE.

Display of trunks and satchels, Schmidt Bros.
 Display of soaps and oils, J. R. Loper.
 Refined cylinder tallow, J. R. Loper.
 Bone phosphate, J. R. Loper.
 Guano, J. R. Loper.

CLASS 64. — *Wagons and Carriages.*

Extension two seat carriage, Wm. Servis.....	\$5 00
Second best, Rudd & Holden	3 00
Phaeton, Parsons, Neville & Co.....	5 00
Second best, Parsons, Neville & Co	3 00
Single top buggy, Wm. Servis	5 00
Second best, Wm. Servis	3 00
Single open buggy, Wm. Servis.....	2 00
Second best, Parsons, Neville & Co.....	1 00
Track wagon, Wm. Servis	2 00
Single platform spring wagon, Thompson & Hayward.....	5 00
Double platform spring wagon, Wm. Servis.....	5 00
Second best, Thompson & Hayward.....	3 00
Spring wagon, Thompson & Hayward.....	2 00
Two-horse sleigh, Wm. Servis.....	2 00
Second best, Rudd & Holden.....	1 00
Single cutter, Wm. Servis	2 00
Second best, Parsons, Neville & Co.....	1 00
Lumber wagon, Streitch Bros.....	2 00
Second best, Streitch Bros.....	1 00
Lumber or logging sled, E. Walker & Son	2 00
Display wagon timber, Webster & Lawson.....	2 00
Best display carriages, Wm. Servis.....	6 00
Second best, Parsons, Neville & Co.....	3 00

AWARDS RECOMMENDED BY COMMITTEE.

Patent adjustable carriage top, Goddard & Burrows, diploma.
 Two seated open buggy, Rudd & Holden, premium recommended.
 Two seated open buggy, Streitch Bros., premium recommended.
 Independent runner, B. C. Fewson.

4.— N. A. M. A.

50 NORTHERN AGRICULTURAL AND MECHANICAL ASSOCIATION.

Display sawed shingles, J. L. Clark.
 Spring buggy for trial of springs, Empire Cross Springs Co., diploma.
 Hubs and spokes, Marston & Beveridge.
 Gate roller, Wm. Schwendler, diploma.
 Screen door, L. S. Kellogg, diploma.
 Screen door, L. S. Kellogg, diploma.

CLASS 67. — *Bell's Stoves and Tinware.*

Cooking stoves, Bergstrom Bros.....	\$2 00
Parlor stove, L. Dimpsey.....	2 00
Cooking range, L. Dimpsey...	3 00
Coal stove, Bassler & Goe	2 00

AWARDS RECOMMENDED BY COMMITTEE.

Cooper's heater, Bergstrom Bros. & Co.
 Coal stove No. 26, L. Dimpsey, complimentary.
 Best display of stoves, Bergstrom Bros., diploma.

CLASS 68. — *Household.*

No. 3 Rectangular Churn, Cornish & Curtis	\$1 00
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RECOMMENDED BY COMMITTEE.

Butter worker, Cornish & Curtis, diploma.
 Cream extractor, L. W. Clark, diploma.
 Cream extractor, L. W. Clark, diploma.

THE FAIR OF 1879.

REPORTS OF SUPERINTENDENTS AND COMMITTEES.

REPORT OF COMMITTEE ON FRUITS AND FLOWERS.

Your committee would call special attention to the exhibition of fruits presented, entered and arranged by George Kellogg, of Janesville, having in charge twenty-two varieties of choice grapes grown by F. S. Lawrence, of Janesville; forty varieties of apples grown by B. B. Olds, of Clinton; sixteen varieties of grapes and twenty-six varieties of apples by Dr. J. Ozanne, Somers, besides his own collection of grapes, among which the Worden, a new variety, made a very fine showing. We believe this variety is the one variety for the thousands, owing to its earliness and hardiness; its quality is of the very best as a dessert grape.

Mr. Kellogg has added very much to the exhibition, and had fruit enough to cover five hundred plates if there had been room. The space allotted for fruit and flowers is very deficient; not more than two-thirds room enough to make a display suitable for the exhibitors.

In F. S. Lawrence's collection of grapes, we find a new seedling, very compact and worthy of trial; of fair quality, ripens early — the first of September; has fruited three years; is now six years old, healthy and vigorous.

Mr. H. Springer, of Fremont, Wis., presents specimens of his seedling apple, Wolf River, very large and handsome, and of good quality. It is said to be as hardy as the crab, and adheres well to the limb. A very promising seedling, resembling the Alexander.

T. S. Hubbard, of Fredonia, N. Y., sent to R. M. Hutchinson specimens of his new seedling Prentiss grape, which was on exhibition; as a light green grape, it is very promising and worthy of trial.

Mr. J. C. Plumb, of Milton, Wis., exhibited many specimens of crabs worthy of general cultivation: Winter Lake, Brier's Sweet

and Whitney's No. 20. All orchards and gardens should contain one or more of each of the varieties above named.

Ten varieties of apples adapted to the northwest: Golden Russet, Utter, Fameuse, Duchess of Oldenburg, Red Astrachan, Perry Russet, Haas, Tallman Sweet, Fall Orange, St. Lawrence.

Five varieties: Golden Russet, Utter, Fameuse, Tallman Sweet, Duchess of Oldenburg.

Six varieties of pears adapted to the northwest: White Doyenne, Bell Lucrative, Swan's Orange, Flemish Beauty, Louis Bonne de Jerse and Bartlett.

Five varieties of grapes adapted to the northwest: Concord, Delaware, Rogers No. 15, Worden and Martha.

Three varieties: Concord, Delaware and Worden.

Two varieties: Delaware and Rogers No. 15.

One variety: Worden.

REPORT OF THE SUPERINTENDENT OF THE AGRICULTURAL DEPARTMENT.

The fair of 1879 was held in the large and commodious exposition building erected by the enterprising citizens of Oshkosh for the use of the society, in which to hold its annual exhibitions. Everybody was lavish in its praise. The superintendents and judges found it much easier and more pleasant performing their duties, the exhibitors in arranging and showing their products, and the people in examining them, than in former years. The exhibition of grain was not large, being confined to some half dozen persons. The premiums in this class have been greatly increased and there should be many more exhibitors in the future.

The show of vegetables, as usual, was large, consisting mostly of garden products. Several very fine specimens of new varieties of potatoes were particularly noticeable. The absence of the usual fine exhibition from the insane asylum was regretted. The show from the apiary was excellent. The absence of the genial face of the veteran bee-keeper, the late Mr. A. H. Hart, of Appleton, was deeply regretted by very many who, at previous fairs, had met him at his post, always ready and pleased to impart instruction in reply to the many questions asked him of the mysteries of "bee-keeping." "*Peace to his ashes;*" may his virtues be long remembered. Among the new exhibitors was A. A. Winslow, who produced five

hundred and eight pounds of honey from one swarm and one increase in one season. Certainly a remarkably large yield, and only possible by the use of the extractor. A strong argument for improved methods. The show in Class 41 was very deficient, owing probably to a charge of a fee of twelve shillings to exhibitors, and but for the exertions of Mrs. Houghton and others after the opening day, would have been an entire failure. Let the ladies see to it that this class be well filled in the future.

The display of B. J. Musser & Co. was very fine.

There were some twenty exhibitors of dairy products, which was an improvement over former years. Let it be still larger at coming fairs.

REPORT OF SUPERINTENDENT OF MANUFACTURES OF WOOD, IRON,
ETC.

As was expected, when the room for a larger exhibition in this department was provided, the goods were on hand to fill all the space that could be spared. The exhibition was a grand success. In addition to our previous exhibits, the enterprising manufacturers of the banner manufacturing town of Wisconsin, the city of Appleton, made a splendid display of the products of their mills and workshops, one that would do credit to many of our older states. The usual display of marble work, stone, brick and drain tile was included in this department. Also the finest and largest display of carriages, double and single, that has ever been exhibited in Wisconsin, which means a heap of those goods. The competition on many articles was so close, that it seemed almost impossible to do all parties justice. The display of carriages attracted much attention, and the arrangement of this part of the exhibition, in the north of the center of the new building, seemed to be admired by the immense crowd of people that visited the fair.

It is no longer a question whether northeastern Wisconsin can manufacture its own goods or not; but it has become an established fact that her goods are second to no other portion of Wisconsin, or any other state in the Union, and the supply is equal to the demand of the public. Many fine carriages were sold at the close of the fair at satisfactory prices, and I believe the exhibitors were usually happy.

In passing in at the center front of the exhibition building, and

turning to the right, you came in contact with a novelty of a machine that attracted its full share of attention. At first it was an undecided question whether this machine belonged in my department or not, but after due consideration (after hearing a full explanation of the merits of the machine, including George Washington's testimony in the case, which seemed to me to be irresistible, as it has always been stated that George could not tell a lie), it was decided that it did, and it was soon set up and put in operation, to the general satisfaction of the fun-seeking portion of the immense crowds of spectators. This piece of mechanism, although no very extraordinary mechanical skill was exhausted in its manufacture, was voted a success with but one exception — it was not of sufficient capacity or strength to chastise the proprietor, George Washington Peck. George Washington Peck was wise in the planning of this machine, making it only strong enough to hold small boys, thus, in this case, escaping a trial of the merits of this machine on himself. The machine referred to was known as Peck's Spanking Machine.

We hope that the failure of this machine in this one point will not discourage our revered friend, George Washington Peck, and prevent him from attending our next fair, in September, 1880. At that time we expect to hold the grandest exhibition ever witnessed in Wisconsin.

ADDRESSES DELIVERED AT THE NORTHERN WISCONSIN FAIR OF 1879.

ADDRESS OF PRESIDENT LOPER.

President A. A. Loper, of Ripon, was introduced by Hon. J. V. Jones, and spoke as follows:

Members of the Northern Wisconsin Agricultural and Mechanical Association:

LADIES AND GENTLEMEN — It becomes my duty to open this, our tenth annual fair, for your inspection.

We meet to-day under favorable auspices. Our old, inadequate and unsightly buildings, in accordance with the spirit of progress of the day, have given place to this commodious and substantial structure, so well calculated to display to the best advantage the various articles for exhibition. And I desire to thank, in the name

of the society, the generous, public-spirited citizens of this city, who, by their liberality, have made this building possible, and thereby, with your earnest co-operation, secured the future success of this society and its annual fairs. I congratulate you, and we may justly take pride in the splendid exhibition before us, embracing as it does, the finest products of the farm, the garden, the household and the mechanics' shops, and with favorable weather will make a complete success of this fair.

We have cause for congratulation in the brightening prospects around us; thanks to our wise financial policy, and the indomitable pluck and energy of the American people, the promise of "the good time coming" seems near its fulfillment. We are recovering from our depression; the long stagnant industries of the country are reviving; evidences of renewed confidence may be seen on every hand. Millions of foreign gold are being poured in upon us in exchange for our surplus products; which, with the products of our mines, our vast forests of timber and our immense agricultural resources, must furnish a basis for great and permanent prosperity. And we of Wisconsin may reasonably expect a fair share of this prosperity, for we have the natural advantages and a people unsurpassed for intelligence, industry, and all the attributes that go to make a happy and prosperous community.

This society was organized in March, 1870, having for its object the promotion of the agricultural, mechanical and other material interests of the state, more especially the northern portion. We have had our seasons of adversity as well as prosperity. There have been times, occasioned principally by bad weather, and consequent inability to pay our premiums in full, when it was difficult to keep up the interest in the society, but the management has never lost faith, never allowed its energy to slacken, and are still determined that this society shall take a front rank among kindred societies in the west. We can hardly ever estimate the important work agricultural societies, when properly conducted, have done and are doing, bringing together as they do, people of different occupations and localities, with their varied and choicest products, enabling us, by comparison and interchange of ideas, to profit by each others' successes and to avoid failures.

I trust I may be permitted a few words of advice to judges. You have a delicate and difficult duty to perform, but upon the proper

performance of that duty depends much of the success of our fairs. I trust you will, so far as possible, divest yourselves of all prejudice, and without favoritism give to each article a careful and candid inspection, and that your awards be made strictly in accordance with merit. Thanking you for your kind attention, I now formally declare this fair open for your inspection.

GOVERNOR WILLIAM E. SMITH.

The thought uppermost in my mind, as I look upon this vast assembly, is that it is a representative assembly, and as such it is the best, and emphasizes the fact that this Wisconsin of ours is a country, and a pleasant land, and that its people are not only free and independent, but intelligent, prosperous and happy, a people whom it is an honor to serve and with whom it is a pleasure to meet.

It is with unfeigned pleasure that I have witnessed and examined somewhat, this morning, this imposing and instructive exposition of the agricultural, mechanical and civic resources of the commonwealth of Wisconsin. The samples of dairy and farm products here exhibited, the displays of the domestic and fine arts, the contributions from shops and manufactories, and the exhibition in the various other departments, all give abundant and conclusive evidence that Wisconsin is true to her motto. That not content with the achievements of last year, and despite all clamors to the contrary, she is this year and to-day moving grandly forward, every industry and every art in place. In this grand army there is room and work for all, and this is as it should be. There is an equal division of labor, and the factory and the farm, the school house and the store are all within supporting distance.

I congratulate the officers and the members of this association upon the success of this exhibition. I congratulate them, and you, and myself, and the state of Wisconsin, upon the enterprise, the good judgment and the ability which has led them to the erection of this most beautiful and imposing edifice. I spent an hour or two here this morning with infinite pleasure, examining the beautiful displays in it.

In attendance and exhibits, I desire to say that in my judgment this exhibition is highly creditable to all concerned. It does not need the experience of a practical farmer to detect the excellence

of these specimens, or the various evidences of the success with which agriculture has been pursued in northern Wisconsin. It is only recently and within the recollection of all here, that an effort was made to arraign the agriculturists, as a class, against other classes of society. That effort failed, as it ought to have failed. Now the effort is transferred to some of our cities, and the same arguments are used to arraign those who work for wages against those who, by prudence and good fortune, have arisen one or two steps above them in industry. But I will not detain you here on this subject, as it is not my purpose to enter upon a discussion of these subjects, further than to suggest that reason and experience prove that a community which represents all classes, trades and professions, constitutes the best and highest type of civilization. In such a community it is the office of the farmer to create. He it is, who, calling to his aid the subtle forces of nature, obtains from the earth the bread and the meat, which, transmitted to the community, enables them to tunnel mountains, harness speed, establish schools, plant churches, promote justice and establish liberty. In such a community no one can live to himself alone, but each lives for all and all for each. The mechanic and the trader, the merchant and the lawyer, the manufacturer and the banker, the clergyman and the schoolmaster, all co-operate with the farmer to work out the problem of man's possessions. It is not a mere figure of speech that we are members of one body, and if one may suffer all must suffer, and that a member shorn of its symmetry and power affects the whole. It is the simple truth, whether we admit it or not, that we are interdependent, and this is the highest type of civilization, where there is a most perfect division of labor, and where each works for all and all for each. The roots and the fibres, the physical and the moral thread and branch run through all the latitudes and longitudes of society, and in proportion as the nourishment is brought to the dealer the friction is diminished, and thereby the force is increased. It has therefore been a fortunate circumstance for Wisconsin that all industries and professions have been developed side by side.

This has given all stages of growth a full and complete civilization. It has made every year a year of progress, and far better than that, it has made our population a cosmopolitan people — a people receiving a harmonious and symmetrical development.

There is no natural or necessary antagonism between him who labors on the farm and in the shop, the store, the office or counting room. All are necessary in the economy of nature for the attainment of best results.

While, therefore, I esteem it very fortunate for Wisconsin that she has within her borders mines such as lead, iron and copper, magnificent forests of inexhaustible timber, and these with the climate and soil adapted to the cultivation of grasses and grain, all makes her future far more promising.

You have heard much during the last few years about the hard times. We have heard many complaints. We have heard orators and we have read of men who have delighted in dwelling upon the hardships under which the people suffer, but I believe it is far better and far more profitable to dwell upon the blessings of life than upon its ills. And for a few moments I will refer to the blessings instead of the ills. I have noticed where one persistently lives in a cave, never coming out in the sunlight, he becomes pale and sallow, without warmth, without life, a mere animated corpse. Just so if we continually refuse to gratefully accept the innumerable blessings with which kind Providence surrounds us. We lose all capacity for enjoyment, and are only happy in proportion as we are bitter.

There is said to be a skeleton in every closet. Let it be true, but if not true, grant it to be true; but it does not mean that we should be opening doors and exhibiting those skeletons. Now look at it from such a standpoint, and what is lacking to us; what essential thing to complete the circle of human happiness or to administer to the legitimate desires of human ambition? First, we have general health, physically and morally, no pestilence or epidemic has devastated the cities of our state. Science is successfully battling with disease in all its various forms, to such an extent that statistics shows that the average of human life is perceptibly increasing, and that the capacity of the human body to labor is much greater with us than it was with our great-grandfathers. I am aware that there is a popular belief to the contrary, but I also know that this popular belief is erroneous, and in this matter it will not do to believe all you hear. Crimes and immorality also are limited comparatively to narrow limits, and under the benign influence of Christian civilization are rapidly decreasing.

Reflect for a moment how completely all that we have is at the mercy of strangers alike. Our locks and bars are merely nominal, and serve merely to emphasize the fact that our safety is upon the concurrent and general consent of universal society, not that deprecations are so frequent but they are so few. Thus the criminals of Wisconsin do not average one in three thousand of our population, and the sentences to our state prison during the year 1878 was only one in seven thousand. The same with pauperism and insanity. There is only one to each twelve hundred of our population in poor houses, and only one insane, including those in hospitals and poor houses, to each eleven hundred of our population, while the admittance of patients does not exceed one to every four thousand of our population. Now I submit, my friends, these simple statistics, when rightly understood, tend to encouragement.

Examine, if you please, the grievous burden of taxation of which we hear so much. The state tax for the year of 1878 was less than fifty cents per capita, and for this year it will be less than forty cents per capita. The entire state tax last year amounted to fifteen cents and three mills upon each one hundred dollars of valuation. Only one dollar and fifty cents where one was assessed one thousand; and on ten thousand, only fifteen dollars went into the state treasury. How any one can expect a showing much better than this, is beyond my comprehension. Something has been done in way of retrenchment in state affairs. But it is to be remembered that about nine-tenths of our public expenditures are for county, town, municipal and school purposes.

It does not become me to say more in an assemblage like this. Matters so nearly related to personal expenses must be left largely to us, without advice or criticism from outsiders. Now passing for a moment to the broader domain of national affairs. The republic which was an experiment, has now become an established success. With its wars without and convulsions within, it has demonstrated its capacity to live, to win affection at home and command respect abroad. It has become the great teacher of the world, the one great exponent of conservative radicalism successfully escaping the dangers of a monarchy. It is not surprising, therefore, that it has a credit, a reputation, at home and abroad, not excelled by any nation. Thousands and tens of thousands now seek our shores in search of liberty and protection, and surer success

than is offered elsewhere. And to crown all, an era of prosperity, such as we have never experienced, begins to dawn. I have not the time nor you the patience to enter into details. Suffice to say, that the pulse by which the condition of all business is detected and measured, to wit, the iron industry, in its thousands of factories and mills, and with its hundreds of operatives, feels and responds to the demands of growing manufactures and art. I beg, in conclusion, for I must not trespass upon the time of others, that you will bear in mind that this condition of things which I have briefly presented to you, is not the result of political or legislative stimulus of any kind, but we have grown to it by conforming to the simplest of natural laws. I hope it may not be considered out of place, and with the permission of the president, I desire to say, in my mind, we have given to it every effort consistent with a successful determination to rid ourselves of the incubus of an inflated and fluctuating currency from whose merciless stroke no legitimate business could hope to escape. It is, therefore, in my judgment, of paramount importance and a condition precedent to health, growth and continual prosperity, and especially so for all persons engaged in business not purely speculative, that we hold fast to what we have accomplished; that we refrain from tinkering any further with the currency, and wisely say, let well enough alone.

ADDRESS OF HON. THAD. C. POUND,

Delivered at a meeting of the Northern Wisconsin Agricultural Association, held at Oshkosh, September 18, 1879.

Such occasions as this are more for the gratification of the eye, than the ear; for observation and comparison of facts and *things*, than listening to theories or speculation of speech. I believe this to be true of your entire catalogue of exhibits, even including the strangers advertised to be with you and talk. *Men* as well as famous quadrupeds are put upon your boards to draw, and you are quite content to *see them*, observe their gait and general contour, and pass on to note an exhibit of cheese, fruit, patchwork, or labor-saving machinery. Keenly impressed with this fact, I promise not to weary you with a long address. Nor will I undertake to advance any theories, or give you any practical lessons in agriculture, although it is the branch of industry into which I was first inducted.

You know it is peculiarly the province of the professions and city editors to tell what they know about farming.

My theme is human industry. Is it not most appropriate here and now? You call this an agricultural fair. Is that sufficiently comprehensive? Have you not in this grand exposition, competing with commendable rivalry, the products of nearly all the varied branches of human industry? Should we not, therefore, name it an Industrial Exposition? Grant, if you please, that agriculture is *fundamental* and *first in importance*, do we fully express, in that single term, the broad purposes of this occasion? No! And so, to-day, I would ask you to consider with me the question of *industry*, in its *broad* and *universal* sense, and its relations to personal and social advancement, *private* and *public morals*, *good order* and *good government*.

But, my friends, before entering upon the discussion proper, I want to pause, and ask you to join me in most hearty congratulations upon the glorious restoration of our long depressed and struggling land, to a *healthy financial business* and *labor basis*, whereon our crippled industries are already rapidly and substantially building anew. It is no idle, fulsome declamation. It is a verity more grand, more momentous, more pregnant of individual prosperity and national greatness, than can be fashioned into speech. From almost every section of our great land, come to us the grateful refrain and glad thanksgiving of reviving business and labor. With the fulfillment of our nation's faith, too long delayed, has come *confidence*, and with confidence *venture*, *investment*, *enterprise*; the booming blast of the mine, the blaze of the furnace; the spindle's whirl; the mill's glad hum; the sail's unfurling; the cloud's "*silver lining*." Are there any so blind they can not see this bright dawning, or any seeing, will not rejoice with us to-day? Alas, I fear, I *know* there be both *blind* and *mad*. False prophets, who had bet their all politically on calamity; calamity, which was to follow resumption.

Malcontents, political soothsayers who predicted national bankruptcy and individual ruin, on the first day of January, 1879, when it was said a line of bankers, brokers and Shylocks would march in solid column to the sub-treasury of the United States, in New York, and demanding coin for their horded greenbacks, speedily break Uncle Sam, and bring destitution and ruin upon

the land. These alarmists, "blind leaders of the blind," do not rejoice; "are not happy." I saw one not long since at the head of a congressional committee, seeking in Chicago to discover the "cause of depression in capital and labor," and when he was confronted by prosperity in *full blaze*, where idleness, and rags, and hunger and despair were expected, he was saddened and sickened, even as one of old, when the Lord declined to fulfill his prophecy, and denied him the sweet spectacle of Nineveh's destruction, and he cried aloud in his utter despair, "Therefore now, oh Lord, take, I beseech Thee, my life from me, for it is better for me to die than to live." Jonah, you remember, had prepared him a booth upon the hill side, wherein, with ineffable delight, he might witness the destruction of Nineveh, and all the inhabitants thereof.

But our modern Jonah — Hendrick B. Wright, the "poor man's friend," — at somewhat more expense, had prepared him a committee, with clerks, stenographers, and other paraphernalia of the modern investigating committee; free transportation and a liberal appropriation, wherewithal to witness the desolation swiftly to follow resumption. He was indeed very sad when I saw him, but may have revived somewhat after visiting the Mormon elders, and the *sand lots* of California, where stock gambling is the rule and insanity the chief product. I trust there are no disciples of our modern Jonah here, and if any, they may speedily cease to be such.

Out of the experiences of the past few years, and with this return of better times, may we not glean some profitable lessons of life and public policy? *Human industry* underlies *human destiny*, and to promote it is the primary interest of society and government. Employment in some useful sphere is absolutely essential to the economy and well being of every human soul. There is no safety in idleness for man or society. There is no salvation for the soul in the realms of idleness. Not to trench on the domain of religion, I make bold to assert that there is no grace so far-reaching, no system of religion sufficiently potent to effect the salvation of a man or woman, when unaccompanied by employment of hand or head.

I would not trust the best disposed person within the sound of my voice, during a protracted term of absolute idleness. Work is the material and moral savior of man, woman, society and a nation; and it is potent in degree, as such savior, as it is useful, intelligent and progressive — the brain, hand and conscience, working and co-

working. Public opinion has been, and is, impregnated with a mischievous and baneful sentiment touching the question of labor, and it should be radically reformed. This poison has taught our youth of both sexes to dishonor, if not despise, labor; to look upon toil as a disgrace, industry as debasing. I am happy to say, however, that reform has already begun. Our public schools and colleges are generally adopting the industrial system, and teaching the hands to work as well as the tongue to translate dead languages, or transpose the scale in music.

It is furthermore most significant that in New England, during the recent summer vacation, many scholars and teachers of both sexes have been employed in our most popular hotels, doing all kinds of service. I have seen many of them at work as porters, table waiters, and doing chamber work. This was to me an omen of progress and society reformation. It was notable that these young gents and ladies did not behave as menials, but as equals of the guests whom they politely served. The shackles have fallen from the colored race, and it behooves us now to dissipate the barriers of prejudice which confront the white man and white woman, teaching them to avoid honest labor and the honest laborer. Work must be made honorable and idleness a disgrace. Public opinion must condemn the unemployed, male or female. I want to tell those who would broaden and elevate woman's sphere, it can only be done through the enshrinement of labor.

"Idleness is the Devil's workshop," and the hot-bed of social evil and crime. To supplant it with industry, labor must be popularized, ennobled, encouraged and protected. How is this to be accomplished? I have only time to summarize, leaving the elaboration to your own intelligent reflection. It must be popularized at the home fireside, the church, and in the social circle, whence public opinion gets its inspiration. It must be ennobled and made progressive through an industrial school system, where the brain and hand are trained for reciprocal service. It must be encouraged by just such competitive exhibitions as this, and protected by wise legislation, state and national.

The mischievous efforts of disappointed place seekers, to create antagonism between capital and labor, should be overcome. Labor and capital are mutually dependent, one upon the other. Neither can be sustained without the other, and they should be reciprocal

and friendly, in speech and action, and alike fostered by law. Tariffs for revenue should be so levied as to be protective of home industry, and all revenue laws remain undisturbed, except for most grave and urgent *necessity*. Our revenue system is now so nearly equitable and complete, that change would be hazardous. Luxuries and follies—such as diamonds, silks, laces and wines—and tobacco, cigars and beer, mainly pay our revenues, and hence it may truthfully be said that the rich and indulgent support our government—I mean national government. Possibly the *very* rich should contribute more by an income tax, if so defined as not to affect the fruits of yearly industry, and made applicable only to such excessive accumulations of wealth, as are generally derived from accident or inheritance.

Property calls upon the strong arm of government for protection, even more than *Life* or *Liberty*, and hence should contribute correspondingly to governmental support. Moreover, to encourage industry, its products must have *markets, stable money* to carry on exchanges, and *adequate facilities* for *transportation*. Home markets are better than foreign, since they avoid the variable expense of carrying, and the drain of commissions and middle-men. These are promoted as home industries are diversified and enlarged, each branch being a purchaser from and supporter of the other. But our productions, especially of the soil, are largely in excess of home consumption, and we are compelled to go to foreign markets with more than seven hundred million dollars worth annually; a compliment which we return by purchasing of other nations less than four hundred millions. With this balance of more than two hundred millions yearly, we ought to be content.

But to reach markets abroad, so as to leave a margin of profit to the producer, is the problem which can only be solved through ample and competitive transportation. The effort of the producing classes of this country should be continually to increase transportation facilities by rail and water. No place should be content with one railway, for it will be a monopoly; and above all, *natural* highways, *rivers* and *lakes* should be utilized to their utmost capacity. These being free to all the people, should be protected and improved through a liberal policy and adequate appropriations. Such, I am happy to say, is the existing policy of the government. But, my friends, there are two other important considerations affect-

ing the fairness and stability of our markets, to which I desire to call your attention in conclusion.

First, to insure stability of markets we must have a *stable* and *truthful currency*, and such as will command the confidence of the world. I rejoice that we have to-day just such a currency. Never since the dawn of creation was there a better; and the united voice of all the people, irrespective of party, should demand that it be let alone. Gold, silver, greenbacks, national bank notes, as you will — all exchangeable at par; no possibility of loss to the holder, and adjustable, as to quantity, to the demands of trade. See to it that any public man, who undertakes to disturb the present currency of the country, be speedily retired to private life. We should be proud of it, and cherish it as our fortunes. The hand raised against it should palsy, and the tongue of whomsoever detracts, cleave to the roof of the mouth.

Now to the final thought. Who has yet said that trade should be *real*, not *fictional*; that the *markets*, upon which production depends, should be based upon, and regulated by, *demand and supply*, and *facts* of exchange, instead of being subject to a popular system of gambling, run up or borne down by the manipulations of "bulls and bears," who on Sabbath days fill the choicest pews of our city churches? Is it not a fact that more than nine-tenths of the nominal trades, made by or through our chambers of commerce and boards of trade, are *mere wagers*, implying no *bona fide* purchase or sale of the thing named? Sustained by a depraved public sentiment, this system of gambling, in the centres of trade, is doing untold mischief, by destroying the *legitimate foundations* of exchange and business, lowering the standard of business morals, and educating young men and women to despise labor and seek their fortunes through chance, and yet society winks at it, while our moral and spiritual teachers are silent. I am happy to say that in this, too, there is evidence of reform. It has been begun by the business men of St. Paul, and rebuked by the press of that city.

It is hoped that we shall soon see an assault by pulpit and press, all along the line, upon this infamous and ruinous system of *business fiction* and *approved gambling* in the central and controlling circles of trade.

Now, my friends, thanking you for your indulgent attention, I

will only add that if a little good fruit shall come of these few seeds of thought thus rudely sown, I shall be most happy. If not, I know the fault is mine, for better soil cannot be found.

ADDRESS OF HON. P. V. DEUSTER, OF MILWAUKEE.

Mr. President, Ladies and Gentlemen:—Let me first congratulate you on your exposition. I do this understandingly. It is now twenty-one years since I first visited your thriving place; I at that time was interested in some pine lands up near New London. I went up the Wolf river to New London, and when I got there I wanted a horse and buggy to look after my lands, and they all laughed at me because they had neither roads nor buggies there. Your fair convinces me more and more that Wisconsin is the best state in the Union. I say this understandingly, because I have had a chance and occasion to travel in all the states, and I can say I have seen every one, with the exception of Oregon, and I have examined the soil, the advantages and disadvantages of every state. And now, after taking Mexico, which I saw last winter, I can assure you that there is no better soil, no better country, than right here in this Mississippi valley. You take Wisconsin, Illinois, Minnesota and Iowa, and a part of Indiana and Ohio, and you have the best country and the best soil in this United States. And as the United States is the best country in the world, consequently you live in the best place on God's footstool. (Applause.) And when I take into consideration, Wisconsin with its peculiar advantages, with its forests, its mines, its schools and its benevolent institutions, I say that this is the best state, and I will advise every one to remain where you are. I say there is nothing like Wisconsin! Our good Wisconsin home.

Now, ladies and gentlemen, you expect me to say something about farming. Why, there are so many men who try to advise you about agriculture and about farming, men who never saw a farm—lawyers, newspaper men and others—and the farmers laugh in their sleeves when they listen to the advice of those men who don't know anything about it. Now I belong to those who don't know much about it, and it reminds me of what the "Fat Contributor" said once. He said Horace Greeley advised him to write a book on "What he knew about farming;" so he tried it and began to advertise it, and a farmer sent him a letter asking

him, "How long cows should be milked," and he answered: "Just as long as short ones." On another occasion, when asked what he thought of late plowing, he said: "It should last no longer than ten or eleven o'clock, because it might corrupt the horses and expose the plow." Another time, he said the corn grew so large where a great deal of manure was put, because it couldn't stand the smell. (Applause.)

And there are men who try to teach you about farming that would ask you, "which cow gave the buttermilk." Now, ladies and gentlemen, I believe that farming is a science, and that it ought to be studied, and must be studied just as any other science, and unless a man is familiar with this science, he cannot advise you very much. In 1799, the first colleges of agriculture were established at the same time in Russia, England and Austria, and immediately following in almost every European state. There agriculture is considered one of the noblest of pursuits. The first agricultural college in this country was established in 1859, in the state of Michigan. It started with seven professors and sixty-one scholars. New York and Maine followed. Although we have colonels enough in this country since the war, they have a colonel in the state of New York named Ezra Cornell, who donated a million of dollars for establishing an agricultural college, which is now in a flourishing condition. At one time congress granted public lands to this state for an agricultural college. But it was given to the university, and they have established a kind of side show for agricultural teaching. Now we ought to have an agricultural college in our state, and I believe that it would do more good, and prove more beneficial to our community and to our state at large, than the various colleges that we have. For example, a farmer who believes in education will send one of his sons to these colleges. I will bet you ten to one that that boy will never return to a farm. He will seek some position, either as book-keeper, or he will be an insurance solicitor in one of your cities. You send your daughter to a college, and she comes home to sneer at her mother on account of her manners, and that is the benefit the farmer's daughter will get. Now, I believe we ought to have an agricultural college, not one but more than one, and then we could be more respectable in the eyes of those who look down upon that noble and foremost pursuit in life. In England, the people are proud if they can retire to the country;

and an Englishman will sell his house in the city, but he will never sell his country home. Whose American heart does not beat with emotion when I tell you that our first statesman, and the father of our republic, had their homes in the country. I only need name to you Mount Vernon and Monticello. The first, Daniel Webster, when he was on his dying bed, said, "bring up my cattle, so I may look once more in their humble eyes."

Our American people must come, not only to follow this pursuit, but to love and honor it, because it is the foundation of everything else. Where would you have six hundred thousand miles of railroad, or seven hundred thousand miles of telegraph lines, if it were not for agriculture? It has been said very eloquently, ladies and gentlemen, that we will now have a better time. Your lumber has increased over eight millions of dollars. Everything seems to prosper again, and after the panic of 1873, we have struck bottom rock. When certain parties or certain men claimed that contraction was the cause of this, you will see now that it was folly, and that they were demagogues when they said so. This panic was not only in our country but it was all over the civilized world. It started first where industry started first, and that is in England. After England came France, and after France came Germany, and after Germany came Austria, after Austria came Italy, and after Italy the United States. It was over-production which caused luxury all through the civilized world, and that time arrived in 1873, when they found that an over-production had taken place, and that luxury had set in. It was the farmer and the farming community that did not suffer, unless they went into luxury and into speculation. The *London Times* said, a few weeks ago, that England would need one hundred and twenty-five million dollars worth of wheat, barley and oats, and that on account of the failure of the Irish potato crop, they would need about seventy-five million dollars worth of potatoes and other articles of necessity. This will amount to two hundred millions for England and Ireland. France will use, and must have, about sixty millions, and Germany forty millions; and if it wasn't for this blessed country, you would see starvation in those countries. We have an abundance, and we can send over there; and the Englishman who calls this "damned America," and the German who works against emigration to this country, can now thankfully receive what we send over there. I

tell you, ladies and gentlemen, that this emigration cannot be stopped and will not be stopped. And from those civilized countries that were settled by barbarians in former times, we get the best of men, and we get courageous men, and they come over here into our free country and establish a home. This will be a nation in the future never excelled in any part of the globe, and the best that the world has ever seen. (Applause.)

ADDRESS OF GEO. W. PECK.

Mr. President, Ladies and Gentlemen:—I am always glad to meet people of Oshkosh and the vicinity. I have a love for Oshkosh, which, perhaps, though not requited, is there yet. If I had been up all night at my home in Milwaukee, searching for soothing syrup to quiet the baby, and just got into a nap, and received a dispatch from the people of Oshkosh asking me to speak, I would go right up before breakfast. I think a great deal of the people up here. Though the rains fall and the floods descend, and the winds blow down your Methodist tent, your flag is still there. I started from Milwaukee in a rain storm, and the people told me the fair would be a failure. I said, you don't know this crowd up here. It's the finest fair ever held in the state of Wisconsin. You cannot expect much from me on the subject of agriculture. A year ago I gave you some advice which I hope you have taken to heart, and I know that it has done you good. One piece of advice I gave you, about stopping the rusting of wheat by rubbing it with a flannel cloth soaked in kerosene. Mr. Stilson told me he tried it, and he said he got twice as much wheat to the acre as last year. Others may have tried it, and I may state my advice has not been illy expended. The first man that ever organized an exposition, that history speaks of, was Noah. I suppose it was around here somewhere, and I think a great many years ago. Noah wanted to get up a show and he proceeded to build an exposition building. It began to look like rain, and they told him up there to put it on a scow. He put it on a scow and it rained all the time, and when the thing was over and the water began to subside, he at last landed on Garlic Island. The result was, as fast a horse race as ever was, notwithstanding the rain. I am glad to say this building has been built upon that plan. This building is upon a boat, and if it would rain so that the water would come eight feet high, we would

float all around. We have got to learn something of the horse race business. We want ear-locks on our sulkies, and our horses to have webbed feet, so if the track is covered with water, everything will be lovely and the drivers can row the sulkies.

This fair, I think, is the finest ever held in this state, and speaks of the inventive genius of this whole country, of whom I am proud to say I am which. Now they laugh at my machine. I have studied on that machine over eighty years in my sleeping moments and in my waking moments, and when I got done I said "Eureka," and that's what the boys say when they get on.

The government and the congress have congratulated you on everything, and have left no chance for me. I don't know as they have congratulated you upon your health. I never saw such health. I have felt of everybody's pulse since I have been here, and found no yellow fever at all. Everybody is feeling good enough to knock a chip off your shoulder. I like to see such health as that; it does a man good. Now speaking about the times; now I am satisfied with the times; they are ten times as good as they were ten years ago. Three or four years ago I had to stand off my creditors, and I have told them my safe was locked and I had lost the key, and my book-keeper had gone away. I put up a small-pox flag in front of my office. I can get a hundred dollars for a baby that I have at home that ain't more than two years and a half old. Everything brings a good price. Where I owed ten dollars three years ago, I have over fifty cents coming. It's all right. I don't know the reason; it may be gold is coming back, it may be in imports. I know that years ago we have been importing dogs — five hundred dollars for an imported dog. Now we begin to export sausage all over. Our governor has been speaking about the pleasures and happiness of human life; now I know what he said is so; I know a man in this city who was fifty, and to day that man ain't more than forty. It stands to reason things are getting better. Governor Smith says only one in twelve hundred is in the poorhouse. We should all see we ain't the one. I don't know that anyone has stated that to-morrow they have made arrangements to go and lath and plaster the track all around and to-morrow there will be splendid races. We are all right now, and it has stopped raining. Thanks to our friends who can pray; we can't all pray, but we will chip in. I am very much obliged for your attention. (Hearty applause.)

INSECTS INJURIOUS TO THE FARM AND GARDEN.

BY HON. D. J. PULLING.

(Contributed to this volume by request of Secretary Torrey.)

Of all the departments of natural science, there is, perhaps, none that possesses so much practical interest to the agriculturist as entomology, or that part of it which relates to the character, transformation and habits of insects. They concern him everywhere, they spring up at every step. Each plant introduced into cultivation introduces new enemies, and every plant is preyed upon in its several parts, roots, stems, leaves, and seeds, by as many as five or six different species of insects. It may be safely affirmed that insects cause more loss to the farmers of the United States, destroy more of their crops, and cause greater deductions from their profits, than all other animals combined, and perhaps more than all other causes. From the time the seed is put into the ground until the ripened seed is in the granary, there is a continued succession of attack, and experience shows that even when deposited in the granary, it is far from being safe from these feeble but still powerful depredators to the produce of man's skill and labor. Insects are more injurious because their insignificance serves in part as a protection; and in general, it will be found the smaller and more despicable the individuals of any tribe of insects may be, these things will be fully compensated by their greater number, activity and voracity.

The amount of injury such minute animals can inflict is incredible. Insects so minute and frail as to require a glass for their examination, by their numbers destroy the hopes of the farmer and convert the fruitful fields into a desert. It requires no argument to prove that animals capable of producing such effects, whatever may be their insignificance individually, are deserving of careful attention, and if any means of arresting their multiplication and preventing their ravages can be discovered, it should be made known. In entering upon a notice of some insects most injurious to agriculture, it is believed a short account of insects, as such, may be useful. In doing so I will, as far as possible, avoid all technicalities. The trivial or common name will be given, and the whole made as practical as possible. These insects are classed by

entomologists into ten different classes, each class being given a scientific name. The common name of class one includes all kinds commonly called beetles; their wing cases are hard, of various colors, and protect the true wing from injury. The second class are crickets, grasshoppers, locusts, etc. The third class includes the frog-hopper, bugs, aphides, etc.; the name is hemiptera, and means half-wing. The fourth class are known under the common name of dragon fly. The fifth, the ichneumon-fly, hornets, bees, etc. The sixth are all butterflies and moths. The seventh, the parasitical insects found on wasps and bees. The eighth, the horse, cattle and house flies. Of the ninth class, the flea is the most common insect of this order. The tenth is the louse found on man and those on birds and animals.

Such distinctions may seem unnecessary, but the value of observation and the habits of insects mainly depends upon the descriptions being such that there may be no mistake as to the animal itself, when seen by others. I will mention one instance. The words bug and beetle are used by many as synonymous; but the above distinction will show that beetles have hard wing cases, while bugs proper have only half wings, or the rudiments of wings. The wheat weevil by some has been confounded with the wheat fly, and much useless discussion has taken place that might have been spared, had it been known that the true weevil is always a bug or beetle, while the fly frequently mistaken for it is a true fly, belonging to the eighth class above named, instead of the first; and unless these distinctions are understood, the remedy for their destruction cannot properly be applied, for what would be poison to one class might be food for the other. The changes that insects undergo are among the most curious things in the whole range of animal existence, and the nature of these changes should be understood or mistakes as to the identity of insects would occur. That most insects are produced from eggs, people are aware of; but many even now are ignorant that from the common wriggler of our cisterns and ponds of running water, proceeds the mosquito; from the hairy caterpillar of autumn the beautiful tiger moth, or from the stinking, odious, caraway worm, one of the most splendid butterflies. There has been some discordance as to the mode of the successive developments of insects, but it is enough for the present purpose that we know of their existence in the state of egg or larva, or pupa or chrysalis, and the perfect insect.

Some few do not pass through these several transformations, but issue from the egg nearly in the form they are to maintain through life. Insects without wings, such as the ant, are mostly of the latter class. The stage of life in which the insect becomes of interest to the agriculturist, is the larva or worm stage. In this they usually continue the longest and effect the greatest mischief; they eat voraciously and generally increase in size rapidly. At the termination of the larva state, the insect frequently sheds its former covering, becomes motionless, and in this stage is called the pupa. After remaining in this condition for a longer or shorter time, the shell or covering of the pupa cracks and the perfect insect issues, to enjoy for a few days its new life, propagate its species and die. Comparatively little damage is done to the farmer by insects in the perfect stage, though there are some exceptions, as in the case of the locusts, grasshoppers, etc.; but the damage they effect by their voraciousness in their larva state is immense. The egg of the insect is generally deposited on or near the spot where the future insect is to find its subsistence, and after a short time is hatched, and the larvæ issues from it to commence its depredations; but in a few instances the egg is hatched on the body of the parent and is active immediately on expulsion.

In treating this subject it will be more convenient, perhaps, to divide them into the following classes: Those injurious to domestic animals; those injurious to orchards and fruit trees; those injurious to the vegetable garden and to the field crops.

First. Insects injurious to domestic animals. It must be considered a singular circumstance that scarcely an animal of any kind can be named, which is not made the prey, in some form, of animals parasitical or otherwise, lower in the scale of being than themselves. Even man himself suffers in this way, and the animals domesticated by him not unfrequently fall victims of some of the various insects that seek their food and provide for their offspring by preying on the living. The hair, skin, flesh and the intestines all have their injurious insects, and even the vital parts are not always exempt. Lice multiply in the hair and feathers, grubs in the face or nostrils, skin and stomach. The entozoa are found in the flesh of a living and apparently healthy beast, and one species, the filaria, in more instances than one, taking up its abode in the eye itself. Worms harbor in the intestines, and in many ways

cause irritation, disease and death. Where the field is so large, it cannot be expected that every part of it will be fully explored, but much useful information, partly acquired from experience and partly from books, will be spread before the farmer in the hope it will be beneficial to him.

THE HORSE BOTS.—The larva of a specie of gad or horse fly. One of the most common of these flies is the parent bot, commonly observed in the stomach of the horse. The female deposits its eggs on the legs and sides of the horse, where a glutinous fluid attaches the eggs to the hair. The horse in licking himself breaks the eggs, and a small worm adheres to the tongue, and is conveyed with the food to the stomach; there it clings firmly by means of a hook on either side of its mouth, feeding on the mucus during the winter and passing out with the chyme at the end of spring, by which time it has considerable size. The larvæ buries itself in the ground, becomes a chrysalis, and in a few weeks is changed into a fly. Any person may satisfy himself of the manner in which this worm is produced from the egg by scraping some freshly deposited ones from the hair and placing in his closed hand, first moistening it with saliva; or he may place his hand thus moistened on the leg of the animal so as to cover a quantity of nits, and in either case he will soon find his moistened hand covered with living larva. Another kind deposits its eggs on the lips of the horse, whence the larva are taken to the stomach. It also, and perhaps more frequently, deposits its eggs during evacuation of dung and subsequent protrusion of the intestines. These bots are frequently upon the verge of the anus.

They are less injurious to the horse than the other kind, but sometimes occasion no little irritation or itching, when an injection of linseed oil may be used to dislodge them. The horse, while feeding or standing in the harness, will at times be observed to fling up his head suddenly, as if hurt or alarmed, and if at liberty, will run for some other place. The trouble is occasioned by another bot fly, which, poisoning itself under the belly of the animal for a moment, darts between the forelegs and strikes the throat of the horse immediately between and above the upper curve of the jaw, depositing an egg at each blow. Hard swellings are sometimes caused at that point from the frequent stinging inflicted. It is supposed that the red bot, found occasionally in the stomach of the

horse, proceeds from this fly. We have found bathing the stung part or swelling with spirits of turpentine, acts favorably, allaying the swelling and irritation and destroying the young larva. In what manner the bot in the stomach of the horse causes its death, does not seem to be well understood, and from the fact that horses in perfect health, when suddenly killed, have had their stomachs found filled with bots, some have denied that they ever do injure the horse or cause his death. It is a law of nature, however, that all parasites, whether on plants or animals, do inflict injuries; and from the fact that they do sometimes fix themselves in the upper part of the wind-pipe and produce fatal irritation and cough, that they sometimes collect in such masses in the first intestine as to completely choke it up and fatally obstruct it, and that when death, attributed to bots, has happened, the stomach, immediately upon death, has been found perforated in a multitude of places, it seems scarcely possible they should not occasion death. Whilst the bot may not be guilty of all the mischief charged upon him, enough will remain to justify us in considering it a formidable insect enemy of the horse.

Little can be said in favor of any of the thousand remedies prescribed for the bot. They cannot be removed by medicine, because they are in that part of the stomach to which medicine is not usually conveyed, and if they were, their mouths are too deeply buried in the mucus for any medicine that can safely be administered to effect them. In due course of time they usually detach themselves and come away. Horses are frequently injured, however, by the medicines which are ignorantly given to remove the bots. This will be understood when it is stated that bots have lived for many days together in olive oil, and even in oil of turpentine, and that tobacco and nitric and sulphuric acids do not immediately kill them. Prevention is better than cure. If, while the season of the bot fly lasts, the legs be wiped down carefully once a day, with a cloth moistened in warm water, or where this is not convenient, if the eggs are scraped from the hair with a sharp knife as often as they are deposited, there will be little danger of enough getting into the stomach to produce injury. There are two other kinds of worms that are sometimes injurious to horses. One of these is the long, rounded worm found in the stomach and small intestines. A smart dose of physic will usually expel these;

but I have found emetic tartar, in quantity about what will lie on our old fashioned sixpence, thrown into their feed three mornings in succession, and then omitted three mornings, is a specific for these worms as well as for the other small needle worm found principally in the rectum and large intestines. These last may be discovered by the great irritation they cause about the anus, and in that case an injection of oil will generally prove an effectual remedy.

SHEEP.—Sheep have several insect enemies. Of these, one of the worst is the sheep bot or grub in the head. During the summer months flocks of sheep may be observed in a state of great agitation; their noses close to the ground, stamping violently occasionally, and seeming to listen as if for some enemy. The cause of this disturbance is the presence of a fly, one of which is sufficient to alarm a whole flock. The fly is smaller than the horse bot fly, of an ash gray appearance, owing to white spots on a dark ground, and glistening wings. It makes its attack on the nostril of the sheep, in the mucus covering of which it deposits an egg, the young larvæ from which crawls up the nostrils and makes its way into some of the sinuses of the upper part of the nose. Here it remains until the next year, when it quits its hold, descends to the nostril, and is usually expelled by sneezing. It penetrates the earth, in which it passes the pupa state, and emerges a perfect insect in June or July. The irritation the worm occasions as it works its way up the nose, is maddening to the animal. The inflammation caused sometimes extends to the brain, and the animal dies in convulsions. Unless more than one is present the sheep is in not much danger after the first irritation is over, but where a number of them are found, they are very injurious in all their stages.

Many remedies have been prescribed for this worm in the head of the sheep, but unfortunately, as in the case of the horse bot, with little success. Injections of soapsuds, or animal oils mixed with water, or spirits of turpentine reduced with water, have sometimes been successful when the larva was accessible, as have fumigations of burned leather or horn, causing the animal to sneeze violently. As a preventive, it has been found that troughs, to which the sheep can have access at all times, the bottoms being smeared with tar over which salt has been strewn, is one of the readiest and best, but on no account should occasional tarring of the nose be omitted during the summer months, on those farms on

which the fly is found. Furrows should occasionally be opened in sheep pastures, as instinct teaches the animal, when attacked, to fly to those or some other places where dry earth, dust, can be found, as his best security against this enemy.

Another enemy of the sheep which operates most injuriously to the health of the animal, and on its wool, is the well known sheep-tick. This animal lays only one egg, which is the nymph or pupa. It is first white and then brown, and fastened to the wool of the sheep. The sheep-tick is found most commonly on poorly fed sheep in the spring, and all that are not taken off with the wool in shearing, take refuge on the lambs, and bite and irritate them at pleasure.

One remedy for the tick is, at the time of washing, to rub a handful of soap on the animal before putting it in the vat, and as in the process of washing one or two hundred the water will become strong suds, dipping the lambs in it will free the whole flock. In England, a common wash is a pound of arsenic boiled with a pound of soft soap, and a pound of purified potash in four gallons of water. When the arsenic is dissolved, the solution is thrown into a dipping tub and forty gallons of water added, into which the sheep are plunged.

Dipping in a decoction of tobacco is also quite efficacious, Some advise that sheep infested with ticks be dipped in a decoction of the leaves of the common maple. Care must be taken in all these dippings to allow none of the fluid to enter the mouth of the animal.

Sheep are exposed to the attacks of a flesh fly. The offspring are commonly known as maggots. They deposit their young in any offensive matter collected in the wool on any part of the animal, and attack the flesh with such voracity that unless speedy relief is afforded, the animal may be said to be eaten alive.

Occasionally the effects of this fly are severely felt in this country, but in a slight degree compared with some others. When a sheep is discovered to be infested with maggots, it should at once be removed from the flock, which should be taken from that field to another as a partial preventive from the evil. The diseased animal should be thoroughly washed in strong soapsuds, the wool and filth being removed to show the extent of the evil; all the insects visible picked out of the lacerated flesh, and the wounded parts completely washed in spirits of turpentine.

In most cases this course has proved entirely successful, a single application of the turpentine, if the wounded parts are thoroughly penetrated by it, bringing out the insects concealed from sight. This application of turpentine is also the best remedy in all cases where sores or wounds on animals have been attacked by flies, and if used previous to the attack, it is one of the most certain preventives.

HOGS.—The most dangerous enemies to which the hog is subject are two species of entozoa, one of which causes the disease called in swine, the measles, and the other, that peculiar weakness of the spine causing the animal to drag its hinder parts along, and which is now known to be produced by the kidney worm.

Doses of spirits of turpentine and tar are said to destroy the kidney worm. Some have been cured by giving them twenty grains of arsenic. Other writers assert that the free use of copperas dissolved in water and mixed with meal, so as to form a dough, is an effectual cure. One ounce a day is sufficient for a dose, and some six or eight doses may be necessary for a cure. If farmers would allow each of their hogs a handful of salt and ashes once or twice a week, and a handful of sulphur once a fortnight, their swine would neither be troubled with measles or kidney or intestinal worms.

THE HONEY BEE.—The bee is subject to a kind of louse which causes much damage. The insect looks like a small spider and is of the size of a flea, dark brown, and sometimes three or four are found on a bee.

By examining bees as they enter the hive the louse is easily detected, and when seen, is readily scraped off with a feather and killed; but the most dangerous and troublesome enemy the bee owner has to encounter is the bee moth, sometimes called the honey comb moth, the larva of which live on the comb and destroy the bees by filth and stench.

The moth usually deposits its eggs around the bee hive or in its crevices, and the worm, immediately on issuing from the egg, provides for its safety by spinning a web in a covered way, where it is safe from the attacks of the bees, and from which it issues at night in search of wax, its proper food.

Ascending to the combs, where this does not reach the floor of the hive, the worm soon makes a lodgment in the masses and bids defiance to the bees to dislodge it.

Several hundred have been found in a single hive, and when they become numerous, the hives and comb become covered with their webs, and the space between the comb with the thicker pieces and filth of the worms. The grub attains its sizes in about three weeks, when it makes for itself a heavy thick web or envelope, in which it passes the pupa state. The moth appears in about fourteen days after the caterpillar enters the pupa state, and as there are two generations in a year, those that enter the pupa state in the fall remain in that condition through the winter. According to the best writers, the moths of the first generation appear early in the spring; those of the second, in July.

Many kinds of hives intended to protect the bees from the moth have been tried and used. I do not know as any are certainly safe. The best method of saving the bees is to frequently examine the hive; keep the bottoms and corners clean; carefully trace out and remove with the grub any webs and cells formed, and it will do no injury to frequently sprinkle salt on that part of the board occupied by the base of the hive. Some apiarians have recommended that a light should be placed near the hive to attract the moth at night, but this will do little good, as the moth, if it hatches in the hive, rarely leaves it until her eggs are deposited. Some have used a shallow vessel containing oil of spikes, spirits of turpentine, and such substances offensive to the moths. These covered with muslin and placed under the hives, are said to be useful in preventing the entrance of the moths from without to deposit their eggs in the combs.

INSECTS INJURIOUS TO MANY ANIMALS.—Among these the most common, as well as injurious, is the ox gad fly. This fly somewhat resembles a small bumble bee, of dark brown color, dark wings and round pointed abdomen. The after part of the body consists of four parts that slide into each other like the parts of a telescope.

Selecting the victim of attack, which is usually a young beast in good condition, the fly alights on its back, generally a little on one side, and speedily deposits an egg beneath the skin. From the fright and terror of the animal the operation must be painful, and it is probable that some acrid or irritating material is injected at the same time with the egg. A small swelling called a warble soon appears, and if examined is found to contain a small white worm. This grub lives in the fatty tissue, forming a kind of a bur-

row partially filled with pus, furnished with an opening to admit air or the escape of useless matter.

The egg is usually laid in August, and the grub remains until June, when it leaves the animal and escapes to the earth, in which it passes the pupa state, emerging in a month or six weeks, a perfect insect.

Too little attention is commonly paid by farmers to this insect, for though after the egg is once laid the grub appears to give but little uneasiness to the animal, yet the fright and uneasiness the sting of the fly will occasion in a whole herd, day after day, should induce the farmer to do all in his power to check their increase; besides, though the hole made by the grub will apparently close, every tanner is aware that such places are never as firm and sound as is the hide in other places.

By passing the hand over the back of an ox or cow, the presence of the worm is at once detected by the tumor. It is easy to destroy the grub at this time. The pressure of the thumb and finger well effect it, or a few drops of spirits of turpentine poured into the opening after having forced out, by pressure, what pus it contains, will kill it. If the larvæ has attained a considerable size, it will be better to extract it by slightly enlarging the orifice with a sharp pointed knife and squeezing out the grub.

Various species of lice hold a prominent place among the insects that injure domestic animals. All kinds of animals, either in the skin, hair, wool or feathers, have, under certain circumstances, some species of this insect, and some more than one at the same time. When found in great numbers the irritation they cause is excessive. As the lice multiply in number, horses bite themselves and each other; their manes and tails fall off, the hair of the head and neck from cattle, and the wool from the whole body of sheep, and they swarm in every part of swine.

The first thing to be done when stock become infested with lice, is to remove the diseased ones from the healthy as soon as possible. If the latter are then kept clean, frequently curried and well fed, they will usually escape. Cleanliness of all kinds is indispensable where it is wished to free animals from this pest. The diseased animals may be first washed in soapsuds, when dry carefully curried once or twice a day; and these measures, taken in connection with the open air, either in the pasture or yards, may render other

measures unnecessary; but if the lice remain, recourse must be had to some lotion, salve or wash that will kill them.

One of the most common remedies is the common mercurial ointment of the shops, unguentum, rubbed on the skin around the neck, or in such places that the animal cannot reach it with its tongue. Washing animals with a decoction of tobacco will destroy lice, but it must not be made too strong nor applied unskillfully, for if so, it may kill the animal. If the decoction is made in strong lye, it is said to be more effectual.

A decoction of the common black hellebore of the swamps has been used with success. Water in which potato skins or parings have been boiled is said to free animals from lice.

Fowl, particularly those kept in confined situations, where they are unable to dust themselves, are apt to become infested with a kind of lice called the bird spider-fly.

We know of no positive application for this insect, but it will disappear from domestic fowls if a suitable place for dusting themselves is provided and the henhouse swept and whitewashed.

Lice on all animals appear oftener in the spring, when their condition is reduced, and are rarely troublesome when proper precautions are taken for cleanliness and good feeding; and if a little sulphur is occasionally fed to them, they will rarely be attacked by vermin.

INSECTS INJURIOUS TO ORCHARDS AND FRUIT TREES GENERALLY.

One of the most common insects that attacks the apple tree, and in this country our shade trees as well, is the caterpillar.

This caterpillar is, unfortunately, so common as to need no description. Within a few years they seem to have multiplied to an alarming extent, and there is every probability that their numbers will multiply so long as they are permitted to proceed in their transformations and work destruction unmolested. Scarcely anything is easier than to destroy them when taken at the proper time and before they wander to any considerable distance from their webs or nests.

A simultaneous effort of the people in a neighborhood for their demolition, would effectually abate the nuisance, perhaps for years.

Lye, whitewash, poles with brushes or cobs attached, whale oil, soapsuds, burning off the webs with gunpowder and with cotton

balls soaked in kerosene, and we know not how many other modes of destroying them, have been recommended, but the method most effectual is this: when the worms are all hatched from their eggs, and the webs become so conspicuous that they cannot well be overlooked, with a suitable ladder and a pair of stout mittens, if you are fastidious about using your hands, commence the attack in earnest. Select the time when the worms are all in their web, and then at a single grasp that and every occupant may be at once destroyed, or the leaves and twigs containing the web may be removed from the tree and burned.

When the caterpillar is ready for its transformation, it passes a few weeks in the pupa state, and then comes forth a moth or miller. It deposits its egg in a comb of a thimble form, around or near the extremity of some branch. The warmth of the next spring, that develops the leaves, hatches the eggs, and the young caterpillars, selecting a favorite spot on a branch, proceed to spin their web, feeding at the same time upon the open leaves and blossoms.

Caterpillars vary greatly in form and appearance, as may be judged from the fact that about six hundred species are known and probably many more are yet unknown. They vary greatly in size; the mean may be taken at an inch; those much exceeding this are large, while those much below it may be considered small. The size of the caterpillar compared with that of the egg is very great, and the rapidity of its growth is truly astonishing. There is no large animal at all comparable to it for voraciousness, for some species will eat in twenty-four hours more than double their own weight.

When they are very numerous scarcely any plant escapes their attacks. The sweetest fruits, as pears, plums and apples, ripen and fall prematurely, the abodes of caterpillars. Plums are especially liable to be thus inhabited.

The caterpillars which live in one nest all come from the eggs of a single insect, and are generally hatched on the same day. From two hundred to seven hundred may be thus found together, and may remain so from the chrysalis condition, or may spread at different periods of life. The natural enemies of caterpillars are numerous. Almost all insectivorous animals and poultry devour them eagerly. Other insects not infrequently feed upon them. In the northern states there are said to be about one thousand differ-

ent kinds of butterflies and moths. As each female lays from two hundred to five hundred eggs of its species, a single female of each would, on an average, produce in a year three hundred thousand caterpillars. If one-half of these were females, the second generation would be forty-five millions, and the third, six trillion seven hundred and fifty millions. With such fecundity, it may well be imagined that the destructive power of caterpillars is very great; hence the time to destroy them, as I have said, is when they are found in their nests.

Next to the caterpillar is what is called the canker worm. The canker worm belongs to the kind known by the different names of nich worms, loper caterpillar, surveyor, etc., from their mode of progress. There is a wide difference between the male and female parent moths. The former have wings, while the latter is only provided with their rudiments.

The usual time for the deposition of their eggs is in March, but in the mild winters they have been observed in every month busy in this work. The insects when they escape from the earth make for the nearest fruit trees, the male by flying, and the female by crawling up the body. In this progress, the pairing of the moths usually takes place; and the female, ascending to the top of the tree, glues her eggs upon the fruit buds and smaller branches, singly or in clusters. Rain cannot wash them off nor cold destroy their vitality. The warmth that opens the buds brings the canker worm from the egg, at first almost transparent and but little larger than a horse-hair.

They feed on the delicate young leaves, but soon take the blossoms and buds, their appetite appearing to increase with their size. When the fruit begins to form it becomes their favorite food, and when this is devoured the foliage is again attacked; and where they are numerous, the small webs they make to protect themselves add to the destruction of the foliage, and gives the tree the appearance of having been scorched. They leave off eating when about four weeks old, and begin to quit the trees. They generally let themselves down by a thread spun from their mouths, while some creep down the trunk, and others fall at once to the earth. When they reach the earth they penetrate it from two to six inches, where they are transformed into chrysalides. In this state they usually remain until spring, but any considerable degree of warmth, as be-

fore stated, will bring out the perfect insect at any previous time. As the female is without wings, it is only necessary to prevent the female from crawling up the tree, to put a total stop to the ravages of this worm; but this, so easy in theory, in practice is found to be difficult. Almost everything sticky, greasy, offensive or poisonous has been tried, and with very little effect. Tar spread on the trunk of the tree or on paper and secured about it, will check them for a time, but will soon become dry and is then passed at once; or where the insects are numerous, the tar will soon be so covered as to permit the ascending column to pass safely. Threads or papers smeared with mercurial ointment have been found ineffectual. In short, all ordinary obstacles are overcome readily.

Boxing the body of the tree, placing the bottom an inch or two deep in the earth, which must be trod down hard about it, and on the top a thin piece of wood three or four inches wide is nailed, and smearing the box with tar or cart grease on the outside, and on the underside in the angle thus formed, and repeating the smearing two or three days in succession, and afterwards occasionally, and smearing it again on the first appearance of warm weather, is probably the best thing discovered to prevent their ascent. Showering the trees infested by the worm with a mixture of water and whale oil soap, is said to be good. A sudden jar will cause many to spin down, when they can be destroyed. If hogs are allowed to run under the trees, and the ground is rooted over repeatedly during the time the insect is in the earth, from July to October, multitudes will be killed.

Another insect that does great damage, particularly to young apple trees, and is frequently found on the bodies and branches of other trees, is a species of bark louse. They are shaped not unlike mussel shells, about one-tenth of an inch long, and adhere firmly to the bark by means of their suckers, which are at the upper or pointed part. On lifting one of these shells in the spring, a great number of eggs may be found under it of a white color, resembling globules of starch. When vivified by the sun, the young soon creep from under the dead body of their parent and select a place on the bark for themselves, penetrate it with their sucker, and are fixed for life. The injury done to the young and old trees by this insect is great. The only effectual remedy we know of for this insect is common whitewash, or a wash made of two parts soft soap

and eight parts water, and lime enough to bring it to consistency of whitewash. The apple tree is frequently attacked by a grub commonly called the borer. The perfect insect is one of the long horned beetles, and is about three-fourths of an inch long, and has a pair of feelers more than half as long as itself. Its body is brown, with two bright, nearly white stripes. The beetle is seldom seen, as it is gone by day, but flies and works by night. The insects begin to appear in June, and the next month the female lays her eggs on the bank near the ground. The young grubs soon bore through the bank and enter the tree, where they live upon the sap wood just beneath the bark, forming a cell or excavation of the size of a half dollar. It lives, eats and grows here for about a year; then, having stronger jaws, in the second summer it bores upward towards the center of the tree, making a hole three or four inches long, when it curves outward until its upper end reaches the bark again; and at the beginning of the third winter it makes a bed and rests, in the next spring becoming a pupa, and soon after changes to a beetle, which bores an exactly round hole at the upper end of its gallery, and comes out into the world to lay eggs to produce more borers. This is the life history of the insect. Any remedy must be of a kind to keep the young borer out or to kill it after it is in. Soap is found to keep off the parent insect. The base of the tree is kept clear of weeds, and the lower part of the trunk is rubbed with soft soap. The application is repeated again in June, if washed off by the rains. Young orchards are to be examined in July or early in August. Weeds and trash and about an inch of soil are removed from around the base of the tree, and the bark is carefully examined. If chips are found or the bark loose, dead and dry, cut into it with a sharp knife and cut the borer out. If the insect has bored upwards, it is to be followed by a wire or piece of whalebone or twig and killed.

There is another most mischievous enemy of the apple, that attacks the fruit only, and is known as the apple worm. It is a true caterpillar, not a grub, like the plum and cherry weevil, and is the larva of a moth called the codling or fruit moth. The moths appear in the latter part of June or beginning of July, and deposit their eggs in the hollow at the blossom end of the fruit. As soon as the worm is hatched, which is in a few days, it commences eating into the young fruit, marking its presence by the powder

thrown out at the opening. The moth seems to prefer early to late apples, and thin-skinned summer fruits suffer the most extensively. In the course of two or three weeks the worm has burrowed to the core and attained its full size. To get rid of the matters made in its excavation, it cuts a round hole through the side of the apple and thus is enabled to keep its burrow clear. Sometimes the worm leaves the apple before it falls, but usually the injury it has received causes it to fall prematurely, when the worm leaves it and spins a cocoon, in which it changes to a chrysalis; in a few days more the perfect insect appears, to renew the work of destruction. These are only the earliest ones; the later ones do not perfect their transformations until the ensuing spring. The surest mode of destroying the apple worm is to allow swine to run in the orchard to gather all the fruit that first falls, or where this cannot be done, to pick them up by hand and feed them to some animal. The plum weevil, or curculio, and apple worm are distinct insects; the plum weevil has been found in the apple, but the apple worm never in the plum.

The plum tree seems peculiarly liable to the attack of insects. The principal of these is the plum weevil. Plums, cherries, peaches and stone fruit generally are attacked by this beetle, which is dark brown, about one-fifth of an inch in length, with long, curved snout. They puncture the fruit with their snouts, in a semi-circular form, and in each puncture deposit an egg; this hatches and becomes a white grub, and, feeding on the pulp and juice of the green fruit, causes it to become gummy, or fall prematurely. The grub, on arriving at maturity, leaves the fruit for the earth, in which it passes into the chrysalis state, and in three weeks appears as a perfect insect. No matter what may be the fruit attacked, the course pursued by the insect and the result is nearly the same. The plum more often falls, however, than other fruits, and hence in that fruit it attracts more notice than in others. Every one conversant with fruit has observed black, unsightly masses that collect on the branches of a plum tree and some varieties of the cherry tree; these are occasioned by the same insect that destroys the fruit, and the grub may usually be found in them, perhaps always, if the masses are examined at the proper time. Where the beetle attacks the fruit, which is usually soon after the fruit sets on the tree, its presence is easily detected by the marks

on the surface, particularly of the smooth skinned ones. If a sheet or sheets are at this time spread under the tree, and a sudden jar is given to the tree, the beetles will fall and be received by the sheet, and may be easily gathered and destroyed. If this operation is performed for a few days every morning and evening, the fruit will be secure. If a tin dish containing coal oil is suspended by wires from the center of the tree, and replenished occasionally, the perfume from the oil will drive the insects away. This must be done before the fall of the flowers. If hogs, or even geese, are allowed to run among the fruit trees, they will eat the fallen fruit and thus destroy most of the worms; and if the trees are carefully examined during the summer months, as often as once a week, and every branch where the swelling bark or appearance of black excrescence is discovered is at once cut out and burned, the trees will soon be free from the insect, and if this course is pursued, will remain so.

The currant and gooseberry have both borers and caterpillars, the first penetrating some part of the trunk, and the latter feeding upon the leaves. If the currant bush with its foliage suddenly withers and dies during the summer, it is probably caused by the borer, which, penetrating the wood from an egg in the butt, forms a burrow in the pith of the stem and kills the plant. All such injured stems should be cut off and burned at once, as the surest means of freeing ourselves from this pest. The worm sometimes appears in such numbers as to speedily strip the bushes of all their foliage, and as there are two or more crops of these worms in a season, the bushes are not infrequently killed by the closeness of the defoliation. It is said, dusting the bushes infested by worms with fine cayenne pepper when the dew is upon them, will kill the gooseberry worm, and it is probable that a decoction of the same preparation showered over the leaves will produce the same result. Showering the plant with soap suds has saved the bushes and fruit; but probably the best remedy now known is to cover the bush with cotton cloth, taking a small stove shovel with a few live coals on it, and put on the coals common flour of sulphur, of the bulk of a large pea, raise up the lower edge of the cover and shove it under, and hold it there half a minute, and everything of the insect kind, whether worm, bug or fly, is dead. Usually one application is sufficient for a season, but if the worm should reappear, repeat it. It is said that sifting white hellebore on the bushes from a pepper box,

when the dew is on, or immediately after a rain, may also destroy the worm. This may be repeated, and it will not injure the foliage or the fruit.

INSECTS INJURIOUS TO THE GARDEN AND FIELD CROPS.

Of the multitude of insects that infest our gardens there is, perhaps, none more common or more destructive than the cut worm. This is the larva of a moth; the worm is brown, fat and sluggish, usually about an inch in length, and feeds generally at night. Cabbages, beans, corn, etc., are its favorite food. These it cuts off at the surface of the ground, feeds on them until it is gorged, when it burrows in the ground near its place of feeding, where it may be easily found and killed. There are quite a number of different worms known by the name of the cut worm, black grub, etc., but as their habits are nearly the same, for all useful purposes they may be classed together. The egg deposited by the parent moth is hatched in the fall, and the larva buries itself in the earth on the approach of winter; consequently, late fall plowing, by bringing it to the surface, prevents the formation of a new place of retreat, and death from cold ensues; but it is not a perfect remedy, as many of the larvæ may be left in the ground. The only method of destroying them after they make their appearance, is either to visit the garden early in the morning, and where a plant has been cut down during the night, to dig out and kill the depredator at once; or a better way, as the worm feeds only at night, by taking a lantern and visiting the garden or field any time towards midnight, the worms will be found on top of the ground and quite active, when they may be easily killed. Many remedies have been tried, but experience shows there is nothing so good or so certain as an examination in the morning or in the night, and the death of the offender; besides, when the worm is killed, the transformation is stopped at once, and the laying of hundreds of eggs prevented. Where the cut worm is known to exist in a garden, cabbage plants, when set out, should be protected by wrapping some paper around the stems, extending an inch or two above. As the worm attacks the plant at the surface of the ground, this will save them.

The squash bug is another depredator on squash, melon and pumpkin vines, puncturing the stems and leaves, and thus weakening and destroying the plant. When it has attained its growth in

September, it is rather more than half an inch in length, of a rusty dark color, occasioned by small black punctures on a yellow ground. The eyes of the squash bug are two small, glossy eminences on the back of the head, but the most distinguishing characteristic of this insect is its powerful and disagreeable smell when crushed or roughly handled. The younger bugs are so different in appearance from the older ones, that they could easily be considered of a different family by careless observers. Squash bugs are to be treated in the same manner as the cut worm; the vines must be frequently examined while young, and all bugs and eggs found carefully destroyed. It should be remembered that the feeblest plants are the most liable to be assailed; consequently any manuring which gives them a rapid growth will the soonest place them beyond danger. We have found watering the plants with soot water, or water drained from manure, produced good effects, being destructive to the bugs and accelerating the growth of the plants. The yellow striped or cucumber beetle is another destructive and formidable enemy of the garden. Cucumbers, melons, and squashes, and all plants of that family, appear to be its favorite food. The suddenness of their appearance is a peculiar characteristic of this insect; one day none may be seen, and the next they are present in multitudes. Lay off your coat, and with thumb and finger destroy them. Snuff, tobacco, cayenne, plaster, soot, and infusions of many articles said to be infallible, we are sorry to say are nearly or quite useless. Small square boxes covered with milinet or mosquito bar, or even without such covering, are the best preventives probably ever tried, but the only effectual remedy, and the one the least costly, is the dexterous application of the thumb and finger.

ONIONS.—Between the time of their first coming up and until their growth is attained, more or less of them turn yellow. If these are examined they will be found to contain a small larva or maggot. These larvæ are the product of a small fly not so large as the common house fly, and of an ash gray color. The eggs are laid on the leaves of the young plant, and the worms, when they are hatched, make their way into the root or bulb of the onion. After the destruction of the onion, the larva passes into the earth, where it passes the pupa state, and emerges a perfect insect in about twenty days. There are several generations of worms in a season, and

where they become prevalent, are a source of great injury. No method has been found effectual in destroying these insects. Some say that strewing charcoal, made fine, on the beds is a good remedy.

In the spring, as early as possible, prepare the onion ground for the seed and let it remain for a week or ten days, that what seeds of weeds are near the surface may vegetate; then cover the beds with straw to the depth of eight or ten inches, and burn it off; then plant the onion seed as quickly as possible. By these means you destroy all the surface weeds and give the soil a capital dressing of ashes and charcoal, and you will be troubled with few worms in your onions. If the worm appears in the onions, they should be pulled up and destroyed by burning at once. The white onion is more liable to destruction by the worm than the other variety.

There are several species of a minute beetle, deriving their name from their leaping properties, which are very destructive to cultivated plants. The cucumber flea beetle, and the turnip or cabbage flea beetle, are the most common and voracious. The first attacks the cucumber and melon plants as soon as they appear above the surface, by devouring the seed leaves, effectually destroying their growth. This insect is black, and is justly regarded as the pest of the cucumber grower. Sprinkling with soot, lime, ashes, etc., proves but a doubtful preventive at best.

Whatever is used should be dusted on when there is dew on the plants, but at this early stage the plant is so tender that too heavy doses of this substance are apt to be more fatal than the beetle. Watering the plants with soapsuds operates favorably, or wetting the leaves with a decoction of an intensely bitter plant, such as tansy or wormwood. Where the farmer has but a few hills of cucumbers or melons, he may protect them until the rough leaves appear, by spreading a thin covering of tow flax over them. This is effectual until it is wet, and it may here be added, such covering is one of the best safeguards against the striped beetle.

It is the turnip beetle described above that infests the cultivated cresses, mustard, radishes, etc., of the garden, and the treatment in one case will be applicable in all. Aphides, or plant lice as they are usually called, present a very extraordinary as well as numerous race of depredators in the garden. Their most destructive effects are experienced on turnips, mustard, and other plants allied to these.

The plant louse presents many characteristics worthy of notice. Destitute of a mouth, it lives by sucking the juices of plants through a short tube. So exceedingly prolific is it, that it has been calculated a single female, in five generations, may be the progenitor of as many millions; a single fecundation rendering the females prolific to the seventh or eighth generation.

Fond of society and usually residing in dense masses or colonies, and what seems most peculiar of all, each aphid is a living manufactory, in which the crude juice of the plant on which it feeds is converted into a clear substance resembling honey, which it ejects at pleasure from two tubes at its hinder extremity, and on which multitudes of flies, wasps, ants, etc., feed at their leisure.

The plant lice usually fix themselves on the underside of the leaf of the plant they choose, and the leaf soon shows the influence they exert in its curled and discolored appearance. There are some kinds of plant lice that attack the stems of the plants beneath the surface, and destroy them before their presence is suspected.

On the radish and mustard, the colonies generally fix on the rapidly growing and tender stalks, rather than the leaves; while on the cabbage and turnip it is the latter they attack. The cabbage aphid is easily distinguished from the other kinds by its singular mealy appearance and its greasy feel.

Tobacco water, alkaline solutions, such as lye and soap suds, and even hot water, have been reported as remedies for the aphid. On any plant, over which a tight box or barrel may be turned, plant lice may be readily killed by fumigations with sulphur or tobacco; but much the best remedy where garden vegetables are concerned, is to keep a sharp lookout for their earliest appearance, and when a colony is discovered, to pluck the leaf at once, and crush the whole under foot.

The appearance of the plant is a sufficient guide to detect the aphid, and as they multiply with astonishing rapidity, the detection of a single colony in the outset frequently saves much labor, or perhaps the entire destruction of the plants.

Fortunately there are several insects, harmless to vegetation, that prey on the aphid, and greatly reduce their numbers; and there are several of the smaller birds, the yellow bird in particular, that render the gardener good service by feeding upon them.

The wire worm is frequently very troublesome in gardens, where it feeds on roots and various plants, and frequently destroys them wholly. It is in this country more destructive to Indian corn than perhaps to any other vegetable, though it occasionally makes great inroads on potatoes. There are many worms that go by the general name of wire worm among farmers, but the true one is readily distinguished by its deep yellow-brown color, and by having on the last segments of its body two minute black spots. It makes great ravages among the roots of plants, but it is generally more destructive in the field than the garden, owing to the soil of the latter being more frequently disturbed than that of the former. For some reason this insect is less troublesome on lands subject to a regular rotation of crops, than on those where the plow is less used, or fields lying long in meadow or pasture.

Deep plowing late in the autumn, or summer fallowing, is the most effectual remedy for the wire worm. In crops so attacked, such as corn or grain, there is no known remedy that can be relied upon. Salt has been recommended, but it must be recollected that most applications to the soil, if sufficiently active to destroy the worms, will also be fatal to vegetation.

The pea bug is well known in this country from its ravages, at times, on the pea, both in the field and garden. The perfect insect is found in peas that have been kept over winter. On examining seed peas, some will be found with small holes in them, and in such the beetle is found, or has just escaped. As soon as the pods are formed on the growing plant, the insect pierces the young pod, deposits its eggs in the seed, and in a few days a little white grub becomes visible on the external surface of the pea. It lives and thrives, and attains its full size about the time the pea arrives at maturity. In its hole it changes to the pupa — remains during the winter in this state, and emerges in the spring. Sometimes they become so numerous as almost to destroy the entire crop, and are generally present, more or less. Few persons, while indulging in the luxury of early green peas, are aware of the many insects they unconsciously swallow.

There are several ways in which the ravages of this insect may, in a great measure, be prevented, all of which are based on the plan of having the seed free from them when sown. First, the infected seeds are lighter than the sound ones. Throwing the seeds into water

before sowing, will separate many of them. Putting the seed into hot water for about two minutes will kill the bug and not injure the pea. Late sowing will frequently save the crop, as the period of the beetle's attack is quite limited. Sown after the middle of June, they are rarely disturbed to any extent; but the best method is to use peas for seed that are two years old, or have been kept over one season. As the insect comes to maturity and emerges the first spring, after they have escaped the pea is clear, and no insect will ever proceed from them. If those who cultivate the pea, either in the field or garden, would pay a little attention to freeing their seed from the insect, for a few seasons, it would soon cease to produce the extensive injury it is now known to inflict. There is one kind that attacks the bean, but they are very rare in this country.

The potato bug or Colorado beetle is known to all, and the sure and only remedy is Paris green.

The cabbage, turnip, etc., but more particularly the cabbage, are occasionally infested with caterpillars which produce great injury. One of these depredators is a caterpillar, bluish green, thinly haired, and sprinkled with black dots, having a yellow stripe on the back and the same on the sides. Another is of a dull green color, with fine, minute white hairs, a yellow stripe on the back and yellow spots on the side, on a pale ground. Another caterpillar is green, more or less covered with grey or black; there is a dark stripe on the back, on which there is a pale, indistinct line; above, it is sometimes furnished with dark or pale spots placed lengthwise; at the sides is a dirty yellow stripe; the back is reddish above. There are several others which may be found on the cabbage and turnip, at times, but these are the most destructive.

Some of these caterpillars are the larvæ of butterflies, others of moths, which deposit their eggs on the vegetables, and these, hatching, give rise to the multitudes of worms which at times so suddenly show themselves. With all insects of this kind, the better way is to gather the leaves on which the colonies appear, and destroy the whole at once, by burning or crushing. For some time all the worms remain together, and if the leaf is removed, on which they are hatched, before they find it necessary to scatter in search of food, their destruction is an easy matter.

If a broad cabbage leaf is selected, and placed over the head of

the plant infested by caterpillars, on removing it in the morning, a large part of them will usually be found collected upon it, and may then be killed. If they have left the plant, they may be picked off from the leaves on which they are feeding elsewhere, and killed singly. As there are usually two or more crops of these insects in a year, destroying the first that appear frequently prevents a prodigious increase.

As there is scarcely a cultivated plant in our vegetable gardens on which one or more insects do not prey, a complete notice of all, even were I competent for such an undertaking, would far exceed the limits of this article, and such only have been selected as produce the most mischief, an understanding of the habits of which are of the most consequence to the farmer.

Destructive as insects are in the garden, the damage they there occasion is but a tithe of that they inflict in the field. It is to be much regretted that so little attention has been paid by men of science, in this country, to our depredatory insects. That they frequently differ in appearance from those known by the same name in Europe, is certain in many cases, and it is fair to infer that their habits and modes of destruction may be also different from theirs.

The man who shall furnish the farmers of the United States with a full account of the different insects that prey upon our wheat crop, its roots, stems, leaves and seeds, will render the agriculture of this country a service, entitling him to gratitude and honorable remembrance.

SEVENTH ANNUAL CONVENTION.

Held at Appleton, February, 1880.

BERTSCHY'S HALL,
APPLETON, *February 17, 1880.*

Convention called to order by Mr. R. D. Torrey, Secretary of the Northern Wisconsin Agricultural Association.

Mr. Torrey said: We have been waiting some little time for Mr. J. M. Smith, of Green Bay. There seems to be a delay of the train or something, that he is not here, and it seems necessary that we organize. The first thing upon the programme is the organization. It seems to devolve upon some one to call the meeting to order for the purpose of organization. I have assumed to do it. I request that you now nominate a president of this convention.

On motion, Chester Hazen, of Springvale, was nominated for president. Motion carried.

Mr. Chester Hazen said: Ladies and gentlemen, it is with much pleasure that I am in this convention, but I would prefer you would take some one else for president of the meeting. Still, if it is your choice, I will endeavor to do the best I can. It is necessary to have a secretary of this meeting.

On motion, Mr. R. D. Torrey, of Oshkosh, was nominated secretary of the convention. Motion carried.

Mr. Chester Hazen — As the hour has arrived to proceed with our meeting, although there are but a few present, I think we had better proceed with the programme in the regular order. I hope we will all take an interest in it, and that those whose names are down on the programme will respond as their names are called. We are in hopes to have a lively time, by and by, when we get waked up to the subject. The first business on the programme now, is the opening congratulatory ten-minute speeches. I call upon Mr. J. M. Smith, of Green Bay.

Mr. J. M. Smith — Is not that a kind of a fraud ?

Mr. Chester Hazen — I would say to Mr. Smith, that we have a programme circulated among the audience, and we propose to abide by it as nearly as we can. Your name appears to be the first one. Unexpectedly, I was called to the chair at this meeting, not by my wishes, by any means, but I am taking hold and doing the best I can, under the circumstances. I cannot excuse Mr. Smith very well. I would state, however, that we do not propose to require each one to speak ten minutes, but that was put down as a limit, so we would not use too much time.

J. M. Smith — I have read the programme, but I had actually forgotten that my name was among the number who are to talk at random; besides that, I have just ridden up from Green Bay with two or three ladies and have talked myself nearly to death. We have been holding a great many conventions this winter, and it has been part of my business to give my time to them during the winter, and I have attended all the conventions that have been held. I want to say for your pleasure and comfort, that since we commenced holding agricultural conventions in the state, there has never been such an interest taken in them as during the past winter. As a general thing, our audiences have been limited only by the number the hall would contain, and they have been composed largely of farmers and men who are engaged in farming; men who want to get new ideas; men who are willing to give their own ideas in exchange for new ones. There has been a bright rubbing up between persons in some of our conventions; there have been very brisk and interesting discussions, where the people differed in their views, as they will, but in all cases they have been without the least bitterness. They have been genteel and polite. I have heard some discussions where the parties differed very widely, strong men on both sides, and very radical in their views, each advocating his own views, but yet they did it in a genteel and polite manner. I have contrasted these things with what they were eight or ten years ago, when we commenced holding conventions, and it shows a wonderful progress — a progress that, perhaps, can only be really understood and appreciated by those who have attended these conventions all the way through. If this interest is maintained and kept up, and increases as it has during the last few years, the time is not far distant when Wisconsin is going to take her place, not only at the head of the northwestern states

in one article, as she does now in butter and cheese, but she is going to take her place at the head of the list in farming as a general thing; in wide-awake, go-ahead, industrious farmers. There is no state in the northwest, to-day, that is doing so much in the right direction as Wisconsin. If we look back less than ten years, we find that no farmer in Wisconsin dared send his butter and cheese to the eastern markets, and brand it with his name, or even with the state in which he lived; it would ruin it. To-day, Wisconsin stands at the head of the list. She stands even higher than New York state. I want to tell you a little anecdote that just comes into my mind. A friend of mine was at a dairymen's convention in New York, held in December. He said a large dairyman in New York was talking to him, and he said, "we supposed we had the dairy interest all in our own hands; we thought you couldn't touch us. You had beaten us in raising corn; you had driven us out of the beef market; but we thought in the dairy we had a sure thing, and if we held on to that, you couldn't touch us; but now you have come up within the last five or six years, and now I want you to tell me, if there is anything in God's world we can take hold of here in the east, and you won't drive us off the ground after we get at it." He says, "I don't know." "I confess I am getting discouraged," he says; "you northwestern farmers are going to beat us and drive us out." We shall not drive them out, but we shall do this. Our cheap lands, our fine grass lands and cheap food in this state will enable us, it seems to me, for a great while to come, to make butter and cheese at a price and at a profit at which the people of the eastern states can scarcely live. These things are encouraged. The time may come when people still further west and northwest will occupy the same position towards us that we do to-day toward New York state, and then we may be driven to a change; but before this comes, if our people pursue the course they have been pursuing for the last few years, we shall be in an improved condition with our farms, so that we can turn them into other businesses. If our farmers keep on improving as a great many of them are now doing, their lands will be in a condition so they can turn them to almost anything without loss. I will conclude by saying that the prospects for improved farming in the northwest has, to my mind, never had so brilliant a future before it as it has to-day.

Hon. Samuel Ryan was next on the programme, but, owing to sickness, was absent. The following from him was read by the secretary:

APPLETON, *February 17, 1880.*

Hon. R. D. TORREY, *Secretary, etc.:*

My Dear Sir:—Here I am, at home—in dry-dock—flag at half-mast, meditating on agri-culture, horti-culture and rheumatic-culture; and I find, in summing up the whole matter, that the latter is a sure crop, every time, in this latitude. It is the marrow of all crops, and can be harvested in all weathers. Therefore I welcome you most cordially to Appleton, because, while we excel all the world in everything else, we are happy to assure you that we keep on hand a full supply of rheumatic pains, throbs, twists, jerks, and other equally ecstatic emotions, second to none on the continent. I will gladly divide with you anything I possess, even the non-walkative qualities bestowed so generously by old Sciatica himself.

Enjoy yourselves lustily, and believe me,

Yours excruciatingly,

SAM. RYAN.

Mr. D. Huntley—Mr. President, Ladies and Gentlemen: I don't remember a convention that I have attended, when the first session has had as many present as to day. We expect to be the recipients of a great deal of good here. We intend to ply these gentlemen and ladies with question upon question. We have a rich programme, and if you wish to learn anything about cheese, here is Mr. Hazen and Mr. Favill and Hiram Smith. They have been engaged in the milk business for a great while—I can hardly tell you how long. If you want to learn anything about housekeeping or flowers, we have ladies who will tell you all about it. If you want to learn anything about feeding cattle, we have a good many of that class of men here. The horse men have been left out entirely; there was nothing about the horse at all. I don't feel responsible for that neglect, entirely, and feel that our secretary here would stand a great deal of scolding, and ought to have it, for leaving them out. I did all I could. I wrote immediately to our secretary and Mr. Smith from Green Bay, and they said they wanted some gentleman to speak who knew something about the horse. We corresponded with Rev. Mr. Richardson, of Green Bay, and he has kindly consented to come and talk to us on the horse. Several gentlemen

said they had heard a great many reverends speak; they had listened to a great many sermons, and they never had heard anything that did them so much good, and brought them so near heaven, as Mr. Richardson's article on the horse. We thank you for your presence, and we shall try and learn something from each other. I believe the next name on the programme is Mr. Hazen, of Ladoga. I will occupy the chair until Mr. Hazen gets through talking.

Mr. Chester Hazen — Ladies and gentlemen, when I was elected to preside over this meeting, I thought I would be excused from making any remarks at the opening of the convention. I think I am entitled to be excused.

Mr. Huntley — Give us a little talk on the milk business, just a drop or two.

Mr. Hazen — In our programme we have laid down different topics to talk upon, and these different subjects will be discussed by men supposed to be capable of doing them justice, and they will come in their regular turn before the convention, and I think it would be out of place to discuss the milk question to any extent, at present. In regard to the ability of Mr. Richardson, I know not. He is a Republican and a Methodist minister. I will state a little instance in regard to a Methodist minister that I was well acquainted with. He said it was generally acknowledged that Methodist ministers were the best judges of the horse of any men we have in the country. Certainly, from a reverend gentleman like this, we expect a good talk on that subject. This gentleman stated to me, that a man in Fond du Lac at one time wished him to go into the livery business with him. He says, I have no capital to put into it; but the man said, I will put in five thousand dollars capital against your experience in horsemanship, and we will go into partnership. That was quite flattering, I think, to a Methodist minister. There is another subject we ought to have on the programme, and that is the sugar cane question. It is exciting a good deal of attention, at the present time, from Wisconsin farmers. It is a matter that is little thought of, or talked of, in our conventions. It is a little surprising to me to think that, with the large amount of sugar and syrups used in our country, we only produce three-tenths of them, seven tenths being imported; and that, too, from a country that receives no product from our land. It is a

matter of hard cash. I think it is a question that should be agitated in every convention in our country. I know of no one interest that it seems to me will do Wisconsin any more good than this sugar cane question. Last fall we had a mill and an evaporator in our county that manufactured two thousand gallons of syrup of very good quality. We have reports from conventions where a large representation talked up this matter. To-morrow there will be samples of sugar here made from the syrup of the amber sugar cane. It was sent to a refinery in St. Louis, and it is as fine as any sugar made in the world. We can produce it here in abundance, and the average yield, they tell me, is one hundred and sixty or one hundred and seventy-five gallons of syrup per acre. The largest yield reported was four hundred and twelve gallons to the acre. That was in Minnesota. If we can save the amount that is now paid out, and sent out of the country for seven-tenths of our sugar, I think there is no one industry that demands our attention more than this.

Mr. R. D. Torrey — I want to condole with brother Smith. He stated in his remarks that he had been talking all the way from Green Bay, entertaining three ladies. I want to congratulate him, also, for getting into good society. He has told us who they were, so I really want to congratulate him; and I wish to condole with the ladies, because if they have been afflicted the length of time necessary to come from Green Bay, they certainly need the condolence of this entire audience. I was forcibly reminded of the position that the secretary of an agricultural society occupies, by the remarks of brothers Huntley and Hazen. The horse was left out. The first I knew, I had to dodge a club from the hands of brother Huntley. It is a fact that if the horse be left out of our conventions and agricultural meetings and fairs, that the poor secretary has all he can do to dodge the clubs that will be thrown at him. The horse men have a right to be recognized. But if the horse is put in, and occupies a prominent part, then there are those who will be equally diligent in casting a club at the secretary's poor pate; but the "unkindest cut of all" is, that while I have been associated as secretary with these two gentlemen, Mr. Hazen and Mr. Huntley, for the last nine years, and they occupying the position, controlling everything, and I simply wrote down the records, that they should now come here and be the first to

throw this club at me, because the horse men were not recognized in this programme. Let me speak of this question, the horse. The horse is denominated the noblest animal on the earth. Fairs and agricultural meetings cannot be run successfully without the horse; without recognizing the men who are improving the horses of Wisconsin. That the meetings degenerate, and become disreputable, I acknowledge; but it is for you, gentlemen, for every farmer, to insist that they be not disreputable, and then give the horse his proper place in our fairs, controlling it, and in fact controlling everything, and there is no evil about it. There is no sin in the world except the abuse of a blessing. Go where you will, you will find sin is the abuse of what the Great Giver intended as a blessing. I came to Wisconsin in 1850, and I believe at that time there were only five miles of railroad west from Milwaukee, into the interior. I went over that road with my father, mother and sister, three days in a lumber wagon, in order to reach Columbia county.

I have had occasion to go over the same line by rail, and I have thought of the marked improvement that has taken place in Wisconsin since I came here, although I am now but a young man. I felt like congratulating myself that I was recognized as a citizen of the Badger State. In connection with this society, I have had to visit other states, and when I cross the line from the south and west, and get into Wisconsin, I feel different from what I did in Iowa, Minnesota and Illinois; it looks different; and when I get through, I want to grasp the hand of a man from the state of Wisconsin. (Applause.) Wisconsin, in my judgment, and the Fox River Valley in particular, in the next decade, will be the leading manufacturing center of the entire northwest; it will be the leading fruit producing region of the northwest; it will contain more happy homes, more prosperous churches and better schools than any region of Wisconsin or the northwest. (Continued applause.)

The reason is this: that from the very nature of the case, the very nature of the men who settle here, and the women who help to make up this prosperous country. Here we find the sturdy New Englander, with all his love of thrift; with all his back-bone. We find the Buckeye, with perhaps a little more rush, but with that same love of thrift; and all classes from all states, and from all nations under heaven, have settled here. This section possesses

more pluck, using a homely word, to the square inch, than any other place I ever saw. The elements are here; the men are here, to develop it, and the country progresses. I will stop by giving you a toast and a motto that I heard given at a Fourth of July celebration, before I left Ohio. I will change it a little. A gentleman had been to the west; had visited Wisconsin and was charmed with its beauty, and he came back and they called upon him for a toast, and he gave this toast: "Wisconsin, with her bright blue lakes and prairies green, will soon take the rag off the old Thirteen."

I will change it. "Wisconsin, with her bright blue lakes and prairies green, already excels the old Thirteen." (Loud applause and cheers.)

Mr. J. M. Smith—I received Mr. Huntley's card, and went immediately to the house of Mr. Richardson and read it to him, and asked him what reply I should make. He said, "tell them that I will come." I have never heard Mr. Richardson talk "horse." I have heard him preach the gospel, and if he can talk horse as well as he preaches the gospel, we shall have a treat.

Mr. T. W. Rhodes—Mr. Chairman, I was hoping I wouldn't be called upon, and although a very bashful boy, I made up my mind that bashfulness was foolishness, and tried to overcome it, and that when a duty was placed upon me, I would do the best I could. I will try and do so now. I have been seven years in Waupaca county, and this is only my second visit to Appleton, and the first time I have seen this beautiful city by daylight. These are to be speeches of congratulation, I presume. Since I came into your town I have been busy examining its water power and its manufactures, the beautiful residences and places of business, and I must say I have been noticing the countenances of the people whom I met upon the streets, and I do not wonder that friend Torrey, and the residents of this section, are proud of the capacities of the Fox River Valley.

I met with a citizen who is manufacturing here, and I remarked to him that I was wondering how much was the price of such water power; how much they paid per year for so many inches of water power. He said they didn't do it that way; they sell the power outright with the building sites. I asked the price, and he mentioned a case of a party who had the opportunity of purchasing

at a certain price, and I will say that — being reared as I was in central New York, and having passed a good deal of my time among manufacturing establishments — I will say that I expected the price would be ten times what it actually was. “Why,” says I, “is not a perfect torrent rushing in here to take up this water privilege?” Says he, “it has only been for a year or two past that any imported capital has settled down here.” Says I, “why haven’t you filled the eastern papers with the knowledge of your immense water power?” I was reared in the heart of old York State, upon one of the richest farms in the state. I spent a portion of my life in the center of Iowa. I went there to buy a farm, but I didn’t buy a farm. I engaged in manufacturing. Most of the farmers there were hard up. Most of the prosperous farmers were stock growers, and I found that those stock growers were paying twenty per cent. for money, and since I have been in the state of Wisconsin, I have not seen a single farmer who I knew to pay over ten per cent. No farmer can afford to pay even ten per cent. My friends in Waupaca county think that I brag some, but I think when brag is on a solid basis, it will hurt nobody. In Waupaca we have been experimenting a little to find out what our country was good for, and some of us have settled down into sheep growing, and some into cattle raising, and some in the dairy. As for myself, I have made dairying and butter making a specialty. During the past winter we have changed our market. Hitherto we have been shipping to Chicago, to commission men. This winter we became dissatisfied with the Chicago market. We commenced shipping to New York this winter to a complete stranger, to a commission house. We knew nothing of them, nor they of us, and we found we got the highest quotations of the eastern creameries. The butter sold on its merits. I tell you, brother farmers, that we have a mint of gold, and it is in the golden butter.

Mr. Geo. C. Hill — You will see that I am not accustomed to make a speech, for one reason that I generally have nothing to say, and for another reason, that I don’t know how to say it. Friend Smith wants to know something about the Rosendale Farmers’ Club. It is a very small institution with a large name; has a very few average men in it; very few, if any, smart men; consequently they get hard up sometimes for material of which to make their officers, and that is the reason I happened to be connected with it.

(Applause.) It is an institution which has been running about fifteen or eighteen years successfully; keeping up its meetings with the exception of one season. I don't recollect the reason they were not kept up that winter. Some of the best men that helped us organize it have moved away, and left us to plod on alone. We meet every Saturday afternoon in the winter, and discuss the different topics connected with our business. We generally work pretty near together, and if one man strikes oil, the rest of us soon commence boring, and if we don't find out everything, by sending out our feelers in such conventions as this, we get some information, and are prepared to discuss topics intelligently and for our own benefit. I have in my overcoat pocket one of our printed constitutions and by-laws, and any one who desires them with view of organizing a society, can have them. We met last week at Fond du Lac, our county seat, and organized a county club. I don't know how we will succeed, but we hope to make it a success, because there are a large number of towns and neighborhoods in the county where they say they have not been able to sustain a neighborhood club. We have now an agricultural paper, which is getting to be quite a paper. It is published in Fond du Lac, and as a medium of communication for the farmers, and in connection with the county club, we hope there will be a great deal of good done.

Mr. S. Griswold—I came here to represent Waushara county, of my own accord. I see there are some gentlemen here from Waupaca county, and Waushara county adjoins Waupaca. You know Waushara county is a very celebrated county; there is no better place to raise white beans than Waushara county, especially if you have a large family of children to gather the beans. Now I am not much of a farmer. I come to represent the unsuccessful Waushara county farmer. I cannot afford to wear a gold watch and chain. I come with my home-spun clothes, to represent Waushara county, which, you know, some say is the poorest county in the state of Wisconsin; still I think that Adams is as poor, if not poorer. I came down here to learn something about farming. My farming for the last fifteen or eighteen years has been through tenants. I have a farm; I have owned it for eighteen or twenty years. It is about three miles from a station, on what is called the Portage and Stevens Point railroad. Years ago there was no rail-

road nearer than Berlin, and I said I didn't want to stay there; I should sell out as quick as possible. I cannot afford to haul my grain thirty-one miles at the expense of \$1.50 or \$2.00, and stay over two days. Now I have a railroad within three miles of my farm. If I raise twenty acres of potatoes, I can draw two loads a day to the market. There is a gentleman there who buys potatoes for the Chicago market. I am not a stranger to Appleton; years ago I was in this place, and canvassed every house for a book. The last time I was in Appleton was when we had a convention here in this hall. I cannot recollect how many years ago. Before I started to come to this convention, I anticipated having a good time, and I have faith that we shall have a grand, glorious time in this hall during this convention. I remarked years ago that Appleton was the best place in Wisconsin to buy real estate.

Here is an immense water power, almost inexhaustible. Perhaps only a twentieth part of this power is now occupied. Gentlemen, you must look forward to the future of Appleton. Who knows what it will be in twenty years from now? Look at your mills and factories that have grown up since I met you here in Appleton before. I see buildings going up, and new manufactories going up in this city, which will add to the wealth of this country and of Wisconsin. I am proud of this great northwest, with its unlimited and almost inexhaustible water power on this river. It is a grand and great river. I don't know but I may sell out and move down here, if I sell some of this Waushara county land. I have got quite a number of acres more than I am able to till. Sometimes I think I will sell just as quick as I can, but, gentlemen, until I sell out, I am going to keep on making improvements, and then if I sell, I will get a little more for my farm. Some people get discouraged in that county and sell out, and go to California with three or four thousand dollars, and stay two or three years, and come back and buy their own buildings back. A merchant went from Wautoma with four or five thousand dollars, and thought he was going to get rich. You cannot get rich with five thousand dollars in California; you must have twenty-five or thirty. I have not sold out yet, but I have been buying land. As it is stated, we have a great deal of poor land in Waushara county. If my land was within five or ten rods of Appleton, it would be worth forty dollars an acre. I can't sell out now for ten. That makes no dif-

ference; I can raise as many bushels of potatoes to the acre as you can on your fifty dollar land. I can raise two hundred bushels to the acre with ordinary cultivation, if I plow deep; but if I only plow two inches deep, as my tenants do, if I get thirty bushels to the acre, I do well. I believe in deep plowing, even on sandy soil. We have got some good land, and I intend to stay on my farm until I can get something for my labor. I am not going to give it away, as some of my neighbors have done.

Mr. Chester Hazen — I had the pleasure of traveling in Waushara county, some twenty years ago, with a view of starting a farm up there near Plainfield. We found some pretty good buildings. We came to some places where I thought I wouldn't want the land, for I was afraid a warranty deed wouldn't hold it. The fences were getting covered with sand.

Mr. S. Griswold — You are obliged to build a high board fence on one side of your farm to hold the sand.

Mr. Chester Hazen — I came to the conclusion that I didn't want a farm there.

Mr. J. M. Smith — I was in Waushara county, and I supposed from what I heard, that there is some sand there. I recollect stopping in Oshkosh, and coaxing friend Torrey to go with me. He had no faith in it. When we started he says, "there will be no convention there; we shall be back here to-morrow; there is nobody there to make a convention. Nobody lives there." We went out there. They opened the church for us to hold the convention in. It was the largest hall in town. It was a moderate sized church. This was at Auroraville. It is really a very fine farming country. There was one of the finest audiences, one of the most attentive, wide-awake, interested audiences that I have ever seen at a convention anywhere. The church was literally packed. The seats were full. Then they placed boards in the aisles, and even then a great many were obliged to stand up. The interest was maintained all through the convention. I have not seen a convention where they exhibited a better spirit. There were wide-awake men there, men who meant business every time.

Mr. W. Masters — When the gentleman on the floor from Waushara county said how poor a county it was, I could not help but think how customary it is in this country for a man to run down his own county. I recollect once of being upon the Board in

Waupaca county when we attempted to fix the valuation of each of the towns by itself, and every man was immediately upon his feet, and if any stranger had heard them, he would not have taken the whole county as a gift. Every man was ashamed of it afterward. Mr. Griswold stated that he had no way to get his produce to market. If his farm is as poor as he represents it to be, he does not want any railroad. A very small team would take out all he could raise. Waushara county probably has some as good land as there is in the state of Wisconsin, and that county has some advantages that no other part of Wisconsin has. I hail from Waupaca county. We have some advantages there. To be sure, we have a good deal of sand, but we can raise any crops that can be raised in the state.

Mr. S. Griswold — How many bushels of potatoes to the acre can you raise?

Mr. W. Masters — It is now thirty-five years since I came into this state, and I traveled through this place thirty-four years ago. There was not a house here. I have traveled through Marquette and Green Lake counties, and I was astonished to see the changes made in as short a time. There is one thing that keeps the farmers down, and that is interest. We are paying too much interest. Four-fifths of the farms in Waupaca county are mortgaged, and have been mortgaged to pay the hired help, and the farms will not net the owners more than three or four per cent. That keeps the farmers down.

I do not believe there is a state in the Union where the farmers could have done better than in Wisconsin, if they could have kept their money in their pockets. No state in the Union has filled up any faster. I took the census in Marquette, that was taken to form the state government. We numbered less than a thousand people. At the same time, Winnebago numbered less than seven hundred. See the improvements that have been made. I do not think any of us should find fault with his farm. I think it is more in the farmer than in the land.

Mr. W. T. Innis — I did not come here to speak. I came here to learn, and to enjoy this meeting of this association. I think a great deal of this association. I feel friendly toward all, but more especially toward our farmers. I like them because they seem to be just like myself. They want to "live and let live." We are

accused sometimes of pretty hard things. It is said that farmers are "bull-headed," and that they will not act when they have the opportunity. I think that the wide-awake farmers want to do all that they can. They want to be good citizens; they want to be respectable and respected; they want to live and let live; they want to be a part of the world, and an honorable part. I have been on the railroad through the different parts of the state. I have been in different states on the railroad, through from here to New York; back and forth to Michigan, Ohio and Indiana, and down through Illinois and Missouri; and as you look at the acres as you pass, you can form some estimate of the people who are around the depots, the people who come into the cars and go out. I am not boasting when I say that in all my travels, in all my observations, I never passed through a section of country where the people were more respectable and respected, more intelligent, or where they possessed more thrift and good judgment. We have a good country. Wisconsin is a good state. At Rosendale we go along like other folks. Some men are mortgaged. Some men have the mortgages in their possession. Some men are a little in debt. We are of all grades. The country is good. We have as good farms as anywhere in the country. We have poor farms. We have a Rosendale Farmers' Club. I have been connected with that organization for a good many years. I have been an officer some of the time. Being limited in my early education, I went into the association to learn, and I think I did learn. I think to-day, that I am a better farmer than I would have been if I had not been a member and attended that club. In any community if you can not get many, get a few men together, and agitate the subject of farming; compare notes. It is not so much *what* you learn, as it is *to use* what you know.

Mr. J. M. Smith — Isn't it a fact that the farmers who are called improving farmers, are better off financially, and are making money faster, than those who are moving along in the ruts where they were twenty years ago?

Mr. W. T. Innis — I think they are. The class of men who are improving and keeping up their farms, are reaping better returns from the farm than those who are draining everything out of their farms. The former class are growing rich in two ways. They get better crops and their farms are getting better.

Mr. R. D. Torrey—What effect in the community does your farmers' club have. How do those who are members compare in thrift with those who are not?

Mr. W. T. Innis—That is a very delicate question.

Mr. R. D. Torrey—We are here to discuss delicate questions.

Mr. W. T. Innis—We think there is a little more enthusiasm in our farmers' club, and the farmers of the club, than there is outside. We have as good farmers, I think, who have nothing to do with the farmers' club, as we have inside of the club.

Mr. R. D. Torrey—Isn't it a fact that the history of your society shows that a given number of farmers, members of the club, have been more successful in wheat raising, for instance, than the same number of those who are not members?

Mr. W. T. Innis—I couldn't say as to that. There is little done in the way of collecting statistics in the club; but it is my impression that the members of the club do the best. We have had the club for a good many years, and all has been harmonious and pleasant. We may disagree, but the disagreement is pleasant.

Mr. D. Huntley—I apprehend that the influence of the Rosendale Farmers' Club is not confined to its own members. By their printed discussions and statistics, they improve that whole county, and those outside of the county. They have been read in all parts of the state.

Mr. R. D. Torrey—I believe in organizations. I am not a farmer, but I am working for farmers in my connection with the society. The professional men have their organizations, and they are a vast benefit to them. The mercantile men have their organizations and boards of trade. In fact, go where you will and there is organization. For what? For mutual benefit; and if properly conducted, an organization of any profession, or calling, or trade in the universe, naturally results in benefit. I think it is a fact in which Mr. Hill will bear me out, that a given number of members of the Rosendale club will, on an average, raise five bushels of wheat per acre more than the same number of those who are not members of the club. It is a delicate question, of course, to discuss, but I thoroughly believe that there should not be a township in Wisconsin without its farmers' organization, and that organization should be conducted in the interest of the farmers; and if there is any organization that proposes to step upon the interest of the

farmer, I say that it is legitimate for the farmers to combat it. Hit it where you see it.

Mr. A. A. Winslow — This paper on bee culture to be read by me is certainly unexpected. I have no paper prepared, and am not a public speaker, but I am a bee keeper. I am a young man, an unexperienced bee keeper. I have only been in the business four years. It has been insinuated since I have been in this hall, that I was to step into Uncle Hart's shoes and fill his place as a bee keeper in this association. I am not capable of doing it. I was well acquainted with Mr. Hart. He lived in our neighborhood for six years. Our president has suggested that we should raise more amber sugar cane to make the sweets that we use every day. I would suggest that we keep ten swarms of bees on every farm. I am a bee keeper, but I am not afraid ten swarms of bees on a farm will ruin my market for honey. If every farmer in the state had ten swarms of bees on his farm, it would be so much better. Some of you will make a success of it. I like syrup very well, but I like honey a little better. I had six tons of honey this year.

Mr. D. Huntley — How many swarms of bees?

Mr. A. A. Winslow — In the spring I had sixty-six swarms, and they have averaged this season, right through, about one hundred and seventy-five pounds apiece.

Mr. D. Huntley — How much increase?

Mr. A. A. Winslow — They increased to a hundred and six. Then I bought some bees outside, and from them, I got about five hundred pounds.

Mr. T. W. Rhodes — How many swarms did you buy?

Mr. A. A. Winslow — Thirty-nine swarms. Sixty-six swarms made eleven thousand five hundred pounds. We bee keepers count the number of swarms we have in the spring as the summer's work.

Mr. D. Huntley — Have you made an estimate of what per cent. they paid you on the investment?

Mr. A. A. Winslow — I have not. I bought twenty-eight swarms of bees and they were in those sixty-six; and those sixty-six have averaged me one hundred and seventy-five pounds apiece, and the honey will average me something over ten cents a pound.

Mr. D. Huntley — Seventeen dollars and fifty cents a swarm for the honey. Now, how much was the increase?

Mr. A. A. Winslow — The increase was from sixty-six to one hundred and six.

Mr. T. W. Rhodes — What has it cost you to run the apiary?

Mr. A. A. Winslow — I cannot give you the exact figures. It has cost me the hardest summer's work I have ever had in my life. My wife, also, has helped me, and I have had part of the time one man, and part of the time two. I cannot give you the exact cost. It has also cost me one hundred and fifty dollars for comb foundations. You call me out here to speak about bees, and I don't know of any better way than for you to ask me questions.

Mr. D. Huntley — Would you recommend any one who keeps bees to use comb foundation?

Mr. A. A. Winslow — I would, most decidedly. I would recommend it strongly. I never will put another empty frame in a hive as long as I keep bees.

Mr. D. Huntley — Would you use comb foundation or full comb?

Mr. A. A. Winslow — Comb foundation.

Mr. D. Huntley — Ain't full comb better?

Mr. A. A. Winslow — Yes, sir, and you will have full comb just as soon as the bees can fill it out.

Mr. D. Huntley — How many years can you use comb foundation?

Mr. A. A. Winslow — I have only been in the business four years and I can't tell.

Mr. D. Huntley — Do you fill the frame full, or only partly full?

Mr. A. A. Winslow — I fill it to about three-fourths of an inch from the bottom. My frames are ten inches deep, and I put in nine inches of foundation, which sticks to the comb-guide, and leaves it about three-fourths of an inch from the bottom.

Mr. D. Huntley — The sagging will reach the bottom, probably?

Mr. A. A. Winslow — The sagging will nearly reach the bottom, and sometimes quite. I have combs by the hundred. You may take the comb and look carefully, and you cannot see that they sag at all.

Mr. T. W. Rhodes — What is your rule about swarming?

Mr. A. A. Winslow — I have practiced artificial swarming, and have practiced natural swarming. This last season I let them swarm naturally.

Mr. T. W. Rhodes — Did you let them swarm all they wanted to?

Mr. A. A. Winslow—No, sir. I had them swarm as little as I could. I would prefer that they should not swarm at all. I have kept them from it by using the foundation and getting extra large hives. I pile my hives two or three or four high.

Mr. T. W. Rhodes—Did you winter all your swarms last winter?

Mr. A. A. Winslow—I did not. My loss was eleven out of ninety-eight.

Mr. T. W. Rhodes—How did you winter them?

Mr. A. A. Winslow—I wintered them out of doors, in open boxes. Some of them flew yesterday.

Mr. T. W. Rhodes—Do you let them fly just when they wish?

Mr. A. A. Winslow—Yes, sir. The entrance is open all the time, with the exception of during extreme cold snow storms, when the snow blows right in the entrance.

Mr. T. W. Rhodes—They are in the hives?

Mr. A. A. Winslow—They are in boxes; there is a door in front of the box.

Mr. T. W. Rhodes—A box to each hive?

Mr. A. A. Winslow—There is a box to each hive. They are right on the summer stand, about two feet square inside, which gives me about six inches of chaff all around the hive, and six inches under and over, and about half of the front of the hive is a passage way for them to go out; the entrance is closed to about three-fourths of an inch.

Mr. S. Griswold—Would it pay to keep bees on sandy soil, where there is nothing but buckwheat and clover, and no timber?

Mr. A. A. Winslow—If there is a head of clover, there is honey in it; and if there is honey in it, bees will get it, if it is white clover. If it is red clover on sandy soil, it will be poor, but if it is a poor crop, dry, short crop, the bees will get it.

Mr. T. W. Rhodes—Would the black bees?

Mr. A. A. Winslow—Both black bees and Italian. The Italian bees would get the most, because they have a tongue which is quite perceptibly longer than that of the other bees, and they will reach quite a distance deeper in the clover pod than the black bee.

Mr. S. Griswold—I would ask if you would recommend sowing white clover with red clover for bee food?

Mr. A. A. Winslow—If I were to decide for the use of the farmer, I would sow Alsike clover. I would sow it more particu-

larly for bees. White clover is as good as red clover. I have got no farm; I simply rent three acres of ground. I put these sixty-six swarms of bees down there this spring, and they have gathered six tons of honey for me. They are free commoners. They don't build fences high enough to keep them out, and I don't believe the high fences up in Waushara county, to keep the sand away, would stop them.

Mr. S. Griswold — How many miles will bees go for honey?

Mr. A. A. Winslow — I have read they would go seven miles. I know that they have been lined right to the bee hive from over in Stockbridge, five miles. I presume they will work profitably at a distance of two or three miles, perhaps four; but when they go further than that, it takes too long to make the journey.

Mr. Frederick Brooks — How large a prospect did you have for your one hundred swarms of bees?

Mr. A. A. Winslow — There are no bee keepers nearer than four miles, to any extent. There is one man who has fifteen swarms, and one man who has ten, within a mile or two.

Mr. J. M. Smith — How far are you from Lake Winnebago?

Mr. A. A. Winslow — I am twelve miles from Lake Winnebago, right in the village of Calumet. If I had bees enough to start an apiary, I should not be afraid to set them down within three miles of mine; I think they would both have plenty of food. I don't think my bees went over two miles; and I don't think it was necessary for them to go over two miles, in my country, to get that six tons of honey.

Mr. J. M. Smith — Was there considerable basswood?

Mr. A. A. Winslow — Yes, sir. I think the bees made five thousand pounds of honey last year in ten days. I know that, because I took it out during the time, and the hives were as full at the end of ten days as before they commenced.

Mr. J. M. Smith — Last summer my daughter's bees made honey quite fast for a few days. They stopped about the first of July, and she could not tell what was the cause of it, and of course I could not. They never made any more during the season. They scarcely made enough after that to keep themselves.

Mr. A. A. Winslow — Have you no basswood?

Mr. J. M. Smith — There is considerable basswood within two or three miles.

Mr. A. A. Winslow—The first of July was about the time the clover dried up.

Mr. J. M. Smith—It was rather singular to all of us that they should stop so suddenly, and not make any more.

Mr. A. A. Winslow—I have seen bees doing tip-top, and you would think they were never going to stop gathering honey; and then the next two days they would be robbing everything in the whole country. If you set a plate of honey out, it would be covered with bees in two minutes.

Mr. Peter Meiklejohn—Do I understand you to say there were no bees within three or four miles of you?

Mr. A. A. Winslow—There are none with the exception of one man who has fifteen swarms, and another who has ten.

Mr. Peter Meiklejohn—I had some little experience in the bee business, about fifteen years ago. It was upon the sand. There were something like three hundred swarms scattered through the town of Weyauwega, and the result was that they all starved. I had fifty swarms, and they died out gradually, and so did the rest around town, and we attributed it to a want of pasture.

Mr. A. A. Winslow—I should not be at all afraid to take a thousand swarms of bees into my town of New Holstein; I think they would all do well.

Mr. Peter Meiklejohn—I gave up bee keeping at the time; that was my experience after I had followed it five years.

Mr. T. W. Rhodes—Is there any practical way to take out a small swarm in the autumn, so as to save the bees and the honey both?

Mr. A. A. Winslow—You can do it if you feed the bees, something else to live on.

Mr. T. W. Rhodes—How can you take the bees out from the comb in a box hive, without destroying them, and put them in another swarm?

Mr. A. A. Winslow—If it is a box hive you can drum them out. If I were doing it, I should simply take the hive right up, and take a chisel and pry one side of it right off, and they will commence coming out of the comb, and if you smoke them a little, the bees will go to the back side or top and will crawl out. I handle bees just the same as I handle flies. If I wanted to brush them off, I would brush them off. The way I take the bees out of the

comb, I take the comb up and take a little broom and brush them off.

Mr. Peter Meiklejohn — When I was a small boy there was a swarm of bees flying away. Finally I got among them and they commenced to light. My father says, "stand still," and I stood still; but mind you, after that I didn't get out of the house for three weeks. That was the result of my standing still.

Mr. A. A. Winslow — You were a pretty good boy to obey your father. I have stood still many a time, and held a bush in my hand for them to light on. I wouldn't want them to light on my head, but I have had them crawl all over my head this summer.

Mr. Peter Meiklejohn — At that time I made up my mind I never would obey my parents again.

Mr. Verity — What is your plan of artificial swarming?

Mr. A. A. Winslow — I would not recommend artificial swarming unless I had a queen to put in to furnish the new swarm. I don't believe in dividing swarms unless you have a queen. I believe that it puts them back rather more than natural swarming. In that case, I should divide the bees as soon as I could, and give each swarm a queen.

Mr. Verity — Is there no better way than by dividing?

Mr. A. A. Winslow — I think there is. I think the better way is to keep them in the same hive, and not let them swarm at all.

Mr. Verity — I understand you to say you wouldn't swarm at all; that you would increase by artificial swarming.

Mr. A. A. Winslow — I don't wish to be understood that I wish to increase. I can buy bees cheaper than I can raise them. I bought bees this last summer for two dollars a swarm, and that is cheaper than I or any other man can raise them.

Mr. T. W. Rhodes — Do you buy them with the hive or without the hive?

Mr. A. A. Winslow — I bought them without the hive. I can raise bees for two dollars a swarm. While I would be getting two dollars worth of bees, I could get four dollars worth of honey during the same time, if I could keep those bees at hard work.

Question — What kind of a hive do you use?

Mr. A. A. Winslow — I use the box hive with the loose bottom and loose top. Framed from the top with a rabbit for them to set in. The frame is ten by fourteen inches inside.

Mr. T. W. Rhodes — That is not the Langstroth frame?

Mr. A. A. Winslow — The frame is a little deeper and a little shorter than the Langstroth.

Mr. Verity — The Langstroth is eighteen by nine.

Mr. A. A. Winslow — This summer I had four or five different persons send me the size of the Langstroth frame. Some were eight and one-fourth deep, and some seven and three-fourths, and some nine, and some would want them eight and three-fourths long. My frame is virtually the Langstroth frame, because it is on the same principle. It does not make so much difference about the size of the frame as it does to have the frame full with the foundation.

Mr. T. W. Rhodes — Don't you think a deep frame is better for wintering?

Mr. A. A. Winslow — I should say as deep as ten inches; still it does not make so much difference.

Mr. Stone — Do you extract the honey from the comb?

Mr. A. A. Winslow — Yes, sir.

Mr. Stone — What is the difference in the price of extracted honey and honey from the comb?

Mr. A. A. Winslow — There is a difference of from two to four cents.

Mr. D. Huntley — Which do you prefer to eat yourself?

Mr. A. A. Winslow — I almost exclusively use the extracted. I think there is no particular use for the beeswax in my mouth or stomach.

Mr. D. Huntley — I ask this question because so many get the idea that extracted honey is poor stuff to eat, when, in fact, it is better than comb honey. We hear a great many complaints of honey.

Mr. Stone — Perhaps one reason that has brought around this state of affairs, is the adulteration of honey.

Mr. D. Huntley — No doubt of that; some persons get the idea that they have got pure honey because it does not candy, whereas the opposite is the fact. This honey does not candy. I would like to know if there is anything that it pays to adulterate honey with, when sugar is twelve cents a pound.

Mr. T. W. Rhodes — It is a fact that one-half of the extracted honey that is sent to the large cities for sale, is adulterated about one-half with glucose.

Mr. A. A. Winslow—I am perfectly well aware that there is honey in the market that is adulterated with something. There is one certain house in Chicago, and the man, I am sorry to say, is a bee keeper himself. I saw him at the national convention in Chicago; he adulterated honey, and adulterated it largely, and I presume he is doing so yet. It is one of the greatest drawbacks we have to contend with in selling honey to the grocers. One man in Fond du Lac has had that honey on his shelves for four years, and you cannot sell that man a pound of honey. It has got the same stamp on it. I also found it in Sheboygan. It doesn't candy; you can take it up in this jelly glass now, and it will pour out as clear as water, just the same as the day it was brought there. I will never adulterate honey as long as I can get fifty tons of honey, which is about all I can attend to. I have no extracted honey to send to any of the large cities for any man to sell.

Mr. T. W. Rhodes—You find a home market?

Mr. A. A. Winslow—I found a market right around my own home, which will hereafter use fifty thousand pounds of honey a year. This year I have sold some five thousand pounds, and now I have got eighteen hundred or two thousand pounds, and it is going off fast.

Mr. S. Griswold—Do you know of anyone who has comb honey to sell, either in one, two or ten pound boxes?

Mr. A. A. Winslow—I do not.

Mr. D. Huntley—You can find it in the market here.

Mr. S. Griswold—What price can it be bought for?

Mr. D. Huntley—I couldn't state, positively, in regard to the price. I know there was some brought in by a gentleman from the northern part of the county, a few days ago.

On motion, convention adjourned until seven o'clock P. M.

Convention met at seven o'clock P. M., and was called to order by President Hazen.

R. D. Torrey, Hon. J. E. Harriman and Hon. Hiram Smith were appointed a committee on toasts.

Geo. C. Hill, Joseph Matthews and T. W. Rhodes were appointed a committee on resolutions.

J. M. Smith, J. C. Plumb and D. Huntley were appointed a committee on nomenclature.

Mr. Chester Hazen — We will now listen to an address from Mr. O. W. Clark, mayor of the city of Appleton.

Mr. O. W. Clark then said: Mr. President and Members of this Association — It is with feelings of no ordinary pleasure that we acknowledge the very great compliment paid to our city in being selected as the place for your meetings, and in behalf of the city of Appleton, I would with the greatest pleasure extend to you a cordial welcome, and I hope, and feel, that I have good grounds to expect that the hospitalities and kind treatment that you may receive during your meetings, will give you no cause to regret that you have chosen this place to hold your convention. As this city is noted for its men of literary attainments, it would be expected that its mayor would be fully competent, and be fully prepared to deliver to you a very able and eloquent address; but this idea can only be entertained by strangers totally unacquainted with the present incumbent, for I am sorry to say that his early education was sadly neglected in this respect, and you can very well see that it is too late for me to repent and reform, and make a speech maker of myself. Now allow me, in conclusion, to hope and trust that you will have a pleasant and profitable meeting, and that you will go away fully impressed that you made a wise choice in selecting this place to hold your convention. Again I bid you welcome, to all which that word implies in our humble home.

R. D. Torrey, secretary, responded as follows:

Mr. Mayor: The pleasant duty devolves on me of accepting the welcome just given by you, as the chief executive of this beautiful, thriving city, to the members of this convention, as well as to thank you, as the representative of the citizens of Appleton and vicinity, for the sincerity with which you have extended the hospitalities of your homes to the delegates and visitors who will be present on this occasion.

The welcomes of life are of value only as they are sincere. One may be welcome to the cottage home of God's humble poor, with its bare floors, and pine tables, and wood bottomed chairs, in such a manner that in accepting we prove it to be an occasion of real pleasure. So also one may be welcomed to the palatial residences of the affluent, in manner and form of like sincerity, and yet ere we cross the threshold, or the word welcome is scarcely uttered, a feeling of icy chillness comes over us in spite of our

selves. But when, as now, there comes to us courtesy in so marked a degree, and hospitality so generously extended, it becomes one to appreciate as fully as possible this friendly greeting; and, sir, I assure you and your citizens that we already feel at home, and be also assured of the sincerity of our "Thank you."

In this connection, it may not be out of place to refer to the past. The first convention held under the auspices of the Northern Wisconsin Agricultural Society was held here in this city, in this hall, convening March 4, 1874, J. M. Smith, President. On this occasion we proved the welcome of Mayor Willey to your hospitalities more than true, so that we are not unprepared to say, we know you are sincere. On that occasion, Hon. M. P. Lindsley responded to the welcome of your citizens.

There was another address of welcome at the time, from H. D. Ryan. I presume most of your citizens are acquainted with him. He assured us that this was even then a beautiful city, with as much land to the acre as anywhere. That water was as wet here as at Oshkosh, and mud as deep as at Fond du Lac. Lunatics and fools no more plenty here than were, and are, feeding from the public crib at Madison. That your ladies were as willing to be courted and married as those of Neenah and Menasha. That your cemetery was as desirable for occupancy as any in the state. That your merchants and millers were as honest as they could be, or words to that effect. That your newspapers and politicians, like Washington, could not lie. That your gas works furnish as much gas as any body except Chicago. That everything, in fact, was in apple pie order, except your jail, which, hearing of our coming, had been put in shape for any contingency that might arise. All of which, I may add, that possibly some of us, at the time, Mr. Mayor, found true, and hope the same state of things exists now, especially the jail.

But seriously, these conventions are proving of almost incalculable benefit to all classes, more especially to the agricultural, of course, but we cannot be benefited without benefiting someone else. And right here let me say to you and your citizens, that while these conventions are supposed to be more directly in the interest of the farmer, yet all are invited to be here at each session, whether from the professions, or trade, or manufacturing circles of business.

We come here, not for a pastime, but for improvement, and while in the several sessions of each day, the social will be combined with the practical, yet the leading object is mutual improvement.

Wisconsin probably, or rather, in fact, does actually lead all other states in the matter of effort and interest taken in industrial conventions and meetings. It is scarcely a half score years since meetings of this character were inaugurated in this state by the Agricultural Society, and from this have they sprung up, until in almost every county, and in some counties almost every township, do we find farmers' meetings being held once in each month, where questions of vital interest are discussed, to the great advantage of all who attend. One of the leading societies of this kind is located right here, Mr. Mayor, viz: The Grand Chute Industrial Association, whose meetings are always largely attended and of great interest. All these associations are frequently aggregated, as in the present case, and men journey across the state to be present. Six like this have been held in the state since the winter months began, and every one of them have been eminently successful. These meetings mean something; they include in their benefits, influences here set to work, that shall aid the farmer in the road to success; influences that shall make better and happier homes in city as well as country; knowledge gained here that shall enable the producer, be he a general farmer, horticulturist, floriculturist, bee keeper, stock breeder or dairyman, to increase his products with less work and more certainty. In short, they are all important.

Again, Mr. Mayor, permit me to thank you in behalf of all your visitors, for your kind and hearty welcome, and to express the hope that our stay with you, though brief, will be of mutual pleasure and profit.

After music by the Misses Winnek, a paper was read by Prof. E. Barton Wood, entitled

THE INFLUENCE OF EDUCATION UPON THE FARMING COMMUNITY.

The influence of education upon a community may be direct or indirect. It is direct when all, or nearly all, actively share in the

training, and the bringing upon themselves of its benefit; it is indirect, when certain trained and cultured men or women shed an elevating, refining, and otherwise beneficial influence upon the community. Right education of any member of society always tends to elevate the whole number. By education is not necessarily meant a college education; but that the mental and moral powers have been brought to a complete and harmonious development. Then is the person capable of exerting vastly more force in any direction; he has control of his faculties, he has attained the capacity for logical thought, and for concentration of his mind on any given object. He is therefore self-possessed, conscious of his strength, and yet, as he has learned what vast results have been accomplished by others, he loses that self-conceit which is apt to be characteristic of the densely ignorant. He can form plans, and having formed, can clearly and skillfully execute them. He is able, from his extensive reading, to know what has been done, and what is being done, and can therefore better judge of the probability of success of new inventions, and of the truth of new theories, and can disseminate this information to a greater or less extent among those around him. Then, too, it is the men who have thoroughly mastered a comprehension of all that is known in literature, philosophy, and science in general, that discover new laws and principles, and new applications and combinations of the old laws and principles, and become discoverers and inventors of things that surely, at one time or another, inure to the comfort and benefit of the people of the whole community. It is not every cultured man, to be sure, who becomes a Watt, with his steam engine; a Morse, with his telegraph; a Newton, with his laws that govern the universe, or an Edison, with his multitudinous inventions; but these men, and all like them, have trained their perceptions and powers of thought by hard, patient and careful study. And think of the inestimable benefits that accrue to society at large from the discovery of these things, and of facts in chemistry, botany, etc., by which new and more economical ways of manufacturing, of saving where there had been waste, of producing new articles of taste and comfort, have been brought to light. And, as I have said, sooner or later, all these things become the property of universal man. These inventors and discoverers have not gained any large pecuniary or other worldly advantages,

but think what the world has gained. They have all had to know well what other men had learned. How many men there have been who have had a fine bent for invention, but who from ignorance have either spent their time on what had long ago been discovered, or failed to apply some well known laws of matter, and thus have secured no results.

Now such a man as I have described cannot fail to be of inestimable advantage to his community and a source of enlightenment and elevation. He is a beacon to the young, showing them what can be done with the human mind. To whatever he may bend his energies, he will produce something in thought, word or deed, that will be of value to others. He will inspire those who might have always been contented in ignorance, with a desire to train and cultivate their own minds.

I wish to refer you to a notable instance of an educated and cultured gentleman, who, though neither an inventor nor a specialist, has been, and is, of the greatest advantage to the community in which he dwells. I will say that he has twice been governor of the great state of New York, has once been the candidate of a great party for the presidency, and is to-day honored by thousands outside of his own political party. I speak of Horatio Seymour. He lives on and cultivates his farm, near Utica, New York, keeps informed of all improvements made in farming operations, better fertilizers, improved vegetables, machinery, etc., tries experiments with great care, and with the advantage of means and experience, and in farmers' meetings, or in their papers, communicates to them the results. They look upon him as the most useful and valuable man in all that section of country. And why? Because with his well trained mind, he can carry through with success, experiments that many would not dare to try, or in which they would fail.

Now, I ask whether the education of such a man is not worth vastly more to the community than it ever cost to provide that education? What could repay the state, if Washington, Adams, Jefferson and Hamilton, or if Grant, Sherman and Sheridan, or Fulton, Field and Agassiz had grown up in ignorance? Not, certainly, a thousand times the cost of their education.

For the state, then, to furnish not only good, but the best educational facilities for those who have the ability and the desire to avail themselves of them, is the best investment of money that can

be made. The benefits of the invention of improved machinery, fertilizers, methods of manufacturing butter, cheese, etc., and the host of advantages enjoyed by farmers now, were all made by studious, patient men, who had thoroughly studied the laws of physics or chemistry, and almost the entire benefit comes to the farming people.

But now, suppose that this culture and educational benefit came directly, instead of indirectly, to the farmer and the farmers' boys. I am far from advising every farmer to send his boys away from home to college or city schools; I think that is often the way to make them dissatisfied with the healthful, bone and muscle-building life on the farm, and cause a desire to go into some effeminate business, behind a counter, or to follow in the endless procession of briefless and penniless lawyers.

But, ladies and gentlemen, I am very glad to have the ears of our most intelligent farming population to-day, for I wish to urge upon you the pressing need of a vast and sweeping improvement in the most of farmers' homes, and in the country schools, in regard to giving your children a taste for good reading. I desire that all who hear me to-day may, by their words and their own personal example, encourage all their neighbors to get more of good and instructive books for the early life of the children. By good books, I do not mean solely the Bible and so-called religious books, nor do I mean that they shall be denied all amusing books. Far from it. The sooner children begin to read Mother Goose, Robinson Crusoe and Swiss Family Robinson, the earlier will they acquire a taste for reading. But as they begin to be able to appreciate the stronger books, get for them the masters of English literature, Goldsmith's Vicar of Wakefield, Gray's Elegy, and a few more, including entertaining histories, biographies and travels, and at a later age, the plays of Shakspeare. These should be not only read, but studied, with the help of the parent, until a strong desire and taste for good literature has been fostered. In these days, men or women do not work as many hours as formerly; the improved methods of doing almost everything give to all some leisure hours. There is nothing so likely to fill up these vacant hours as reading of some kind. And when we consider the vast amount of vile trash that is circulated under the name of literature, we can readily see that if the boys and girls do not very early acquire a

taste for good reading, they will get a taste for that which is bad and soul-destroying. And on the other hand, think how cheap and abundant are the best books now. Think of the plays of Shakspeare, edited by masters of English, with the most careful notes, on beautiful paper, elegantly illustrated, for from thirty to seventy cents, according to binding; Knight's complete History of England, in four good volumes, for five dollars; Chambers' Encyclopedia, well bound, for twenty dollars, etc. Now, who can say that they cannot afford to furnish their children with the best food for the mind, that has outlived ages, and thus keep them from the miserable stuff that is read so much by our young people. This taste for good reading, although it must be begun at home, in the earliest ages, should be encouraged and strengthened at school. But in how many of our country schools are teachers to be found who have themselves the most rudimentary knowledge of the vast stores of thought of all time?

Ladies and gentlemen, is it not amazing that intelligent men should consider that the boy or girl of sixteen, who has barely attained the capacity of passing a not very difficult examination in the rudimentary branches, who has not the least experience, or skill in reading character, or general information whatever, should be capable of taking the direction of the immortal minds of the dearest things to you on earth, your God-given children? If it does cost you a little more, I pray you resolve that from this time forth you will, if possible, furnish your children with an experienced teacher, who can lead them on to something better. If this could be done, if the farmers' children could be early started on the way to getting knowledge for themselves, by a taste for good reading, and then if they could be under the direction of a wise, careful teacher, who could open up to them a view of what it is possible for them to attain, how the pleasures, yes, and profits, too, of the farmer's avocation would be increased, and how the boys would love their home and their business. Train the next generation to habits of thought, of industry, of self-reliance, of self-improvement, and it will arise and call you blessed.

Mr. J. M. Smith — I would ask the Professor if he would recommend to children the reading of Shakespeare, Milton and kindred authors, until they become pretty well versed in history?

Prof. E. B. Wood — I said at a later age. I spoke of that after

the history, if you remember. I said entertaining histories, biographies and travels, and at a later age, the plays of Shakespeare. Of course in such a paper as this, brief as it is, a man cannot make out a regular course, but what I mean is this: commence with the little books that the children can appreciate, that will be entertaining to them, and as they get more strength, come up to the masters of English literature. I spoke of the Vicar of Wakefield. I think there is no story in the English language that is better adapted to children, after they get so that they can understand such a story, because the style is just as clear and limpid as English can be, and it is an entertaining story at the same time. By the way, I would say I know of no better English than Goldsmith. Those things that are also entertaining stories, I would put into their hands early. It makes all the difference in the world, as to when you begin with children.

The sooner you can give them these, the sooner they get so they can appreciate them. Of course you can begin too early. I don't mean you are to begin in infancy in such things as that. From the time my children have been able to creep around the floor, they have been given good nice picture books to look at.

Mr. J. M. Smith — How early would you put children to a course of study?

Prof. E. B. Wood — I would not put children in a regular course of study, or where they would be confined to any regular course, until they were seven years of age, unless I could attend to it myself; but I do want them to learn to read, and as soon as they do learn to read, then I would give them good books, books that will be entertaining, but, at the same time, books that will have no bad tendency.

Mr. J. M. Smith — I purchased a set of Chambers' Encyclopedia, I don't know how long ago. I paid fifty dollars for them, and got them at second hand at that. It is a work of such very great value that I have often wondered how I had done so many years without it. No man could induce me to part with it, if I could not get another one. There is scarcely a day in the year when we are not using that encyclopedia to find out something that we don't know. There is no subject that can be named, and no prominent man in the history of the world, but what you can learn something about; and it is a work of such manifest value, that I would strongly

recommend all our farmers everywhere to lay aside a little money and get that work. You cannot afford to do without it.

The secretary then read a paper, written by K. M. Hutchinson, entitled

WHY DO FARMERS' BOYS PREFER CITY TO FARM LIFE, AND WHAT CAN BE DONE TO INDUCE THEM TO REMAIN FARMERS.

The poet has said that

"The proper study of mankind is man,
The most perplexing one, no doubt, is woman;
The subtlest study that the mind can scan,
Of all deep problems— heavenly or human.

But of all studies in the round of learning,
From nature's marvels down to human toys,
To minds well fitted for acute discerning,
The very queerest one is that of boys."

Boys are indeed very queer animals, as all will testify who have had anything to do with them. They may be as brave and bold as a lion, and yet timid as a hare; as cruel as Nero, yet as tender and gushing as a girl; as visionary as the most impractical dreamer, and yet be as matter-of-fact as though reared on mathematics for daily food; as liberal of wealth as though the mint itself were at their disposal, yet so stingy that before spending a cent they will pinch the coin till the goddess yells murder, and calls for the police; who have thoughts that soar above the angels, yet impulses that grovel in the dust.

Boys are in the adolescent or transition state; at the half-way house between down on the lip and a full beard, between youth and manhood; youth with play and amusements, and manhood with its grand circle of activities and possibilities in the future.

A comparison might be made between boys and girls, and an antithetical argument built up to illustrate the peculiarities of one, and the idiosyncracies of the other; but girls are not an element needed in the discussion, and besides, the boy question is quite sufficient for our time and purpose.

Right here in the outset, let it be understood that when we speak of boys, we mean farmers' boys, not city-bred, walking, insipid,

pestilential gas-bags that we meet daily in large cities; sons of wealthy men, who, relying upon their fathers' shekels, have grown up in holy horror of honest work. With this class I have nothing to do. They help increase the census of cities, but beyond this, it don't at the moment occur to me of what particular use they are in the economy of nature. The orphan boy from the poor-house, who is compelled to dig and hew out his own future, is more likely to reach success and the dignity of true manhood than any of these.

Farmers' boys are brought up to work; they have something to do, and usually, I believe, are willing to do it. Employment, industry of mind or body, or both combined, is the great lever that moves the world. That it is much better to wear out than to rust out, is a common and true saying. Without labor nothing is produced. It is the basis of all progress—all civilization. It has been well said that labor makes the man. That a mass of bone and muscle don't constitute him any more than a block of marble, chiseled into his outward form, makes a man. Labor enlarges the capacity of the brain, strengthens and hardens the muscles, steadies the nerves, quickens and reddens the life current, makes the judgment sound and reliable, excites enterprise and ambition, and erects that full stature of true manhood, a sound mind in a sound body.

But boys are not alike by nature either physically or mentally, or endowed alike with the same capabilities or willingness to work. Take any family of them and bring them up together, dress and feed them the same, educate them alike, and bring about them all the home attractions you please, yet as sure as fate they will in time separate. They will be a "band of brothers" no longer than the first opportunity offers to go their several ways. One will have thoughts and aspirations of his own, will be looking to the future, and will be disposed to be the architect of his own fortune, and seeing no field on the farm from which, by well directed effort, he can reap wealth and honor for himself, is sure to leave it. Others being fully satisfied if their immediate physical wants are supplied, who care but little for worldly wealth or honor, will be the class most likely to remain, and, starting in where you leave off, may or may not advance things very much during their generation.

The fact should not be lost sight of, that boys nowadays develop much earlier into mental manhood than in olden time. We have large and better facilities for mental culture than at any previous period; better schools, better books, and better newspapers and periodicals of all kinds, and more of them, to which, at a slight cost, all can have access.

Those of us who have passed the meridian of life can well remember the time when one weekly paper for news, and Baxter's Call to the Unconverted, Fox's Book of Martyrs, Saint's Rest and Watts' Hymns, for books, were about all the mental pabulum we had at our command. It is no wonder we grew very slowly on such mental fodder, and some of us, I fear, have never recovered from the narrow and stunted condition, the result of being thus poorly provided for.

This is an age of progress, of rapid discovery and development. The horizon of the boy of to-day is world wide; that of fifty years ago was the boundary of his vision from his ancestral home, and what is worse, with no inducement or ambition to search the unknown beyond it.

When you know, as you well do, that a boy is only a man in miniature, and often at seventeen outranks you in knowledge and insight in business, who is ambitious to discover new and shorter pathways to grand results, whose mental activity is irrepressible, who is determined to be somebody, to know something, and above all, to have something he can call his own, it is absurd to ask the question, when these are denied him, when the profession is made a burthen instead of a pleasure to him, why he don't cling to the old homestead and remain a farmer.

Let us illustrate by a brief but true story.

Once upon a time there was a boy who was born and brought up on a farm. He did what he was told to do as well as he could. If he was set to hoeing corn or potatoes, the poorest hoe was of course given him, because, to use an expression which had its origin in the dark ages, "it was good enough for a boy," and if he did not keep up with others having better implements, was reminded that it was quite probable he would come to a bad end in due time. As yet, the prophecy has not been fulfilled.

This boy did not have, at this period of his life, a single thing he could call his own. The title to the old Barlo jack-knife he was

allowed to carry, was vested in the head of the family, and it could not be swopped or parted with, without consent. The ways of Providence did not, it is probable, engage his thoughts very much, but the ways of those in authority over him did. Once he owned a motherless lamb, or thought he did, because he had brought it up and taught it to follow him like a dog wherever he went, so that in time it came to be called his lamb. In course of time it was sheared with the other sheep, and the fleece sold with the rest. But where did the money go? Why, into the general fund of the family, of course, and not into the special pocket of this individual member of it. Now this boy, instead of being thankful that he had someone to keep his money for him, to care for him, give him good advice, etc., somehow got it into his head that he had been cheated. It was a preposterous idea, of course, but boys are very apt to have queer ideas, and being governed as much by impulse as reason, arrive often at wrong conclusions. To illustrate further. He once asked his father for twenty-five cents to go to a circus, but was told that a circus was a bad place for boys to go to, and besides he might get the cholera. Now as the cholera was not within a thousand miles of the place, it failed to convince him this was the true reason. In a short time after this event, there was found to be one farm hand missing. The circus business was the last feather. He went out at night-fall singing the Sweet bye-and-bye, with a bundle of what he supposed to be his own clothing, but in his nervous haste he had packed up his father's shirts. You can well imagine the cholera idea was prominent in his mind when a change became necessary, as the collars of the shirts reached far above his own ears. But the farm had been left behind, and the further he walked alone that solitary night, the wider became the chasm between them, and it has never been recrossed.

The moral to all this, and its bearing upon the question before us, can be easily understood if nothing further were said. Give the boys a chance. If one makes a trade of any kind and gets cheated or overreached, well and good; don't laugh at him, and above all, don't advise him too much. Let him alone. Failure in one case will be likely to insure success in another. The set-back is good for him; he has made a discovery; he has found out that there are others in the world as sharp and shrewd as he believed himself to be. The transaction will sharpen his wit, will cause

him to think, to reason concerning the why and wherefore of this untoward and unsatisfactory result; why it is he is left behind and his competitor has gone ahead, and got the better of him. The result of the investigation can't help but be of advantage to a mind naturally shrewd and circumspect.

But the main reason remains yet to be stated. The principal one among many is, that there is a law against it, or rather a principle universally recognized as superior to all statutory enactments, and known in political economy as the law of supply and demand. The demand in cities for clear heads, thinking brains, resolute wills, and high ambition, united with strong and healthy physical systems, and with full capacity for work and a willingness to do it, may not appear in the daily market quotations, but it exists just the same, and always will exist. The country is the only source from which the supply can come to fill this demand. Cities are like magnets that draw upon the whole land, and country bred men and boys are like the iron filings, which by a law of their nature gather about the two poles. You can't stop or divert this onward current.

Build a wall as high as you please about your farms, yet you will find your young men will scale it, or go through it, or batter it down before your eyes, if necessary, to gain their freedom. It is not because these ambitious young men are too lazy, to work and seek to get a living by easier methods than farm labor, that they leave, but it is because the field of labor is altogether too circumscribed, the routine having too much sameness about it, calling for plenty of manual, but scarcely any mental labor.

As they leave the homestead in search of fame and fortune, with the wide world before them, the timid will of course shrink from the contact and turn back; it is only the brave who press forward in the struggle, and in the end achieve victory. The field of labor upon which to enter is immense, and sufficiently diversified to suit all inclinations and capacities. The domain of the arts and sciences, the bar and pulpit, or the teacher's desk, the merchant's counter or the bench of the mechanic, and many others, though seemingly full to overflowing, yet for the capable and energetic a place will always be found.

Investigation will verify this fact: that at the present time nine-tenths of all the merchants and their employes, as clerks and salesmen, lawyers, doctors, and professional men of every class in our

large cities, are men reared on a farm, but who, for reasons already stated, have found their way to the great centers of wealth and population.

The reasons, then, why farmer boys prefer city to farm life, I have endeavored to give. But what can be done to induce them to remain farmers, I answer in one word, *nothing*.

Mr. J. M. Smith — There is one point upon which I do not concur with the author of that paper. He says one reason is, because there is an opportunity for too much manual labor, and not enough opportunity for mental labor. I don't believe there is any profession followed in this country to-day, that needs as thoroughly educated men as farming. It may be necessary for men to be better educated in some points. It may be, and it is, necessary that a man should be better educated in law, to be a lawyer. It is necessary that he should be better educated in some points to be a good teacher, and so throughout all the other branches; but to be a good farmer, what I call a first rate, good farmer, a man needs to be conversant with a great many branches. He needs to be a good chemist, or at least a fair chemist, and needs to have the whole science of manures so thoroughly at his command, that he can use his manures to the best possible advantage. I don't believe there are ten men in the state of Wisconsin that can go upon their farms and examine their soils and manures, and sow a given crop that is being cultivated as a general thing on our farms, and tell what kind of manure and fertilizers they need for those different crops, and upon the different kinds of soil of which their farms are composed. For instance, we use barn yard manure. Why? Simply because it contains everything necessary for a manure to contain. If I am sowing fall wheat, I use barn yard manure, because I know it contains everything the wheat needs. What I mean is this: the soil may need a particular kind of manure to give me a good crop of wheat, and it may need a different kind of manure to give me a good crop of potatoes. It may need a different kind of manure to give me a nice crop of corn or clover. And how many farmers are there that know that, and know how to apply manure, and know how to examine their soil, in the first place, to tell what it needs, and then know enough of the science of fertilizers to go to work and prepare such fertilizers, in such kinds and in such proportions as the

land needs? As I said before, I don't believe there are ten men in the state that know. That is one of the many points on which farmers need to be educated. It has been stated here this afternoon that we are improving, and so we are; and when I look back on what has been done, I am surprised to see how rapidly some of our farmers are improving; and yet when I think it over, and think what is necessary to be done before we shall be anywhere near what we ought to be, and what we might be, and what I believe we shall be in the future, I am almost ready to give up in despair, at the ignorance and the utter want of knowledge in almost every department pertaining to agriculture. I don't believe there is a profession that is followed on this whole continent where there is such an opening and such a necessity for brain work — solid, continuous brain work — as that of the farmer.

Mr. Stone — I think there is one cause generally overlooked, why our young men and boys leave the farm. It is a well known fact that farmers are very generous when they come to bestow public office. They seldom, if ever, look at home. They seldom place it on one of their own number. We all know that the farmers outnumber every other class in our country, and yet when you come to our halls of legislation, how do their numbers compare there with those of the lawyers, or the professional men, or bankers? We give to other professions all our best positions, and consequently the standard for our young men to aspire to is taken from them if they remain upon the farm. Now I claim that if we wish to keep our farmers' sons at home, let us give them a chance there. We don't want to work them from daylight in the morning until darkness overtakes them, and give them no chance to improve their minds, which you know is generally the case upon the farm. You may say it is absolutely necessary under the present condition of affairs, and it does seem almost necessary. Why is this so? Simply because you don't protect yourselves. The bankers protect themselves, the lawyers protect themselves, and the physicians protect themselves. They are all organized. Every class of men in our country is organized. They attend their meetings and they act in unison. When congress meets what do they do? They send their committees to labor with the committees of congress, and what is the result? Laws are passed for their benefit.

They control the newspapers of the country, and these news-

papers make the farmers think they are doing all right. Now I contend that farmers should send their own representatives, that will help them, and then you will see a change of affairs. It is not necessary at the present day that farmers should work more than ten hours, unless it is on rare occasions. We can produce more with our improved machinery in six hours than they could a hundred years ago in fourteen hours. It is not necessary to work our sons so long as not to give them any recreation, nor any chance to improve their minds; and you will see in the course of a few generations that some of our best men will remain on the farm, and then you will see a grand development in agriculture. As friend Smith says, there is no broader field under heaven than that of agriculture for the improvement and development of the mind. It covers almost every science. A farmer wants a knowledge of commercial affairs, and needs a certain knowledge of the law, but of the sciences he needs more than almost any other profession. He wants a general education. Let us go to the root of the evil. Let the farmers combine. What we want is a farmers' club in every school district, and they should meet every week that they may discuss every question, that they may discuss politics, and I claim it is the duty of every farmer to discuss politics. It is not necessary to form a separate party, but act. Go to the polls, not only to the polls at minor elections, but see to it that every farmer does his duty in the right direction. Organize! and see if there cannot be a combination effected to counteract these monopolies. That is what must be done eventually, or else you will eternally drag on, and work from daylight until dark to maintain yourselves.

Mr. J. M. Smith — In regard to what friend Stone has said about our farmers not being public men, the case is perhaps worse than he is aware of. In our last congress we had only twelve farmers out of the whole number. About three-fourths of them were lawyers, the other fourth was composed of bankers, physicians, teachers, and two or three insurance agents, I think. But among them there were ten farmers, and they included the planters of the south; I think from the north there were some six or eight. One in the senate and eleven in the house. The present house of congress contains fourteen, if I am not mistaken. Fourteen farmers in both houses. The proportion of lawyers is just about the same as it was in the last congress.

Mr. T. W. Rhodes — I wish to add my mite to what has been said. It is a subject that interests me. It is a question that interests everybody as well as the farmers. We hear the town people inquire how they shall keep their boys at home nights? I venture to say that the people of Appleton are making that inquiry to-day. All classes of society are interested in this one question, How shall we keep our boys at home? The city people are interested and oftentimes distressed by their boys being out at nights. I will take the farmer's side. How shall we farmers keep our boys at home? I answer first, by making home pleasant. The people are put to their wit's end for ways to amuse their boys in the evening. They think that if their boys are amused, that is enough; so they get them packs of cards and parlor billiards and things of that nature, and it fills their brains with nonsense, and keeps out everything that is good.

Why not get some illustrated works on the sciences adapted to young minds? I will illustrate, the *American Agriculturist*. If you have a boy five years old he will be interested in the illustrations. If he can read, he will find matter there adapted to his capacity. As he gets a little older, you can direct his attention to the growing crops, and ask him if he can tell why this piece of ground is doing better than that, or why this cow is doing better than that one; and you can early instill into his mind a wonderful amount of knowledge concerning live stock and the growing of crops, and matters of that nature. It will become ingrained into the very fiber of his nature. Young boys who are treated in this way will very soon become anxious to experiment with a piece of ground of their own. I have a little ten year old fellow at home, and he is going to have his little farm next summer. He is planning what he will raise, what he can make the most of. I see in that desire the germ of the farmer.

On motion, convention adjourned until nine o'clock Wednesday morning.

WEDNESDAY MORNING, 9:00 A. M.

Convention called to order by the president.

A paper was then read by Mr. J. Platten. I have prepared a paper on the question,

WHEN IS THE BEST TIME TO SELL FARM PRODUCE?

Sometimes farmers shoot past the market. It is all about how to get the greatest benefit out of farming, no matter whether it is in dairying or any other pursuit.

This is one of the most important questions for farmers to ask themselves. He who raises the greatest amount of produce at the least expense, is certainly the best farmer. But he who understands the art of selling his surplus at the proper time, that is, when he will get the best prices; makes the most money, is the best financier. He who can best determine the proper time to sell, then sells in a lot, gets his money together and puts it to good use, is the most successful farmer. Some say that question can never be correctly answered, as markets and market values are always so changeable. Grant that the markets are changeable, yet they are governed by certain rules. I claim to have discovered, by many years of careful observation, a rule that never fails, on the whole. And that is, that the best prices are generally paid shortly after harvest of any product, no matter whether its harvest comes in March or in December. To prove this let me illustrate by a few minor articles. Take for instance maple sugar and syrup. While these are so eagerly taken at almost any price in March and April, you can hardly find a taker as a gift after midsummer. Why so? Simply because it is out of season. Now take dressed pork, which nine seasons out of ten sells highest in December and early January. Bring the same quality in March, and it will not bring within one or two cents as much per pound, although it may have cost fully one cent per pound more to raise it; and here again we may have no other reason than that it is out of season. The same rule holds good in regard to almost any other kind of produce for various reasons, the principal one of which is, the newer and fresher the articles, the better the quality.

This is not only true of butter and eggs, and pork and beef, but also, in a measure, of the different grains; in fact, everything except

cord wood the farmer has will sell better when fresh. Even your wheat is not as sound and pure in the spring as it was in the fall. Did someone say that is not the case if it is properly taken care of? Let me ask how many farmers are provided with suitable arrangements for taking proper care of a considerable amount of wheat, or grain of any kind, to give it dusting and airing every month or two? Wheat has for years brought as much or more in the fall than in the spring. Barley almost invariably brings the highest price when fresh. Oats is the only grain that gains in value with age until the succeeding harvest. I have seen it stated that wheat shrinks twenty per cent. This seems to be rather a large shrinkage. If that is correct, then one dollar after harvest is equal to one dollar and twenty cents the next spring. Now take eight per cent. interest, and add the difference in the cost of hauling it to market. In the fall and winter a team is not worth over two dollars per day on the farm; in June and July few farmers would be willing to hire their teams out at less than four dollars per day; accordingly, add two dollars per load for marketing, and you will find that if you do not get from one dollar and twenty-five cents to one dollar and thirty cents for what you would have got one dollar for after harvest, you are not even.

Again, it is but reasonable to say that if farmers would sell their wheat when it usually brings the most money, that is, shortly after harvest, and then let the money get into circulation at home, for everything they can profitably apply it to, it would greatly enhance the value of all the produce he has to sell for home consumption, such as wood, hay, potatoes, in fact everything that has little or no transportation value. We should always remember that there is a vast difference, in making our country richer; hence increasing the purchasing power of our people for home consumption, between the money we take in for produce shipped abroad and that consumed at home; while the former increases the purchasing power at home, hence improves prices, the latter exhausts that purchasing power. Every dollar that we get into the country from outside helps to increase the demand for home produce; hence every farmer should make it a rule to use nothing, to buy nothing, to praise nothing that is brought from outside, whenever goods, articles, wares and machines, equally good and equally cheap and useful, can be had of home make. Many millions of dollars would

every year be saved to our farmers, and to the country as well, if the following wise rules were adopted:

1st. To sell their barley, wheat, and in fact everything, in the height of its season, as at that time, all things considered, the highest prices are obtained.

2d. To make use of all the money that can profitably be applied at home.

3d. To allow no money to go outside for goods, manufactured articles or machinery that can be procured at home of equally good quality.

4th. To buy nothing on credit, and sell nothing on credit. Keep our money at home; use it freely for good purposes. Create a home market by free and frequent interchange. A rolling stone gathers no moss, neither does a rolling dollar, nor do the dollars become less by using them. But if we let them out at the proper time and for a good purpose, they will return multiplied, as does the goose that is let out in the spring return in the fall with a ten-fold increase. That, gentlemen, seems to me the proper way to get money, and the proper way to use it. Concluding, let us remember one thing, and that is, that he who always looks for higher prices in selling and for better bargains in buying, never gets the best of the market whether in buying or selling.

Mr. J. M. Smith — This is a very important question, and I would like to hear my friend, Hiram Smith, say something about marketing produce.

Mr. Hiram Smith — Mr. Chairman and Gentlemen of the Convention: I don't know as I can say much about marketing produce. I don't know as anybody can establish a rule as to when it is the proper time to sell wheat, as was mainly the subject of this paper. I recollect hearing a wheat buyer say not long ago, and he was a man of very good judgment, and had been a very close, economical man in his early day, a farmer, then a merchant, and finally had floated in the market, and he was a well posted, intelligent man, and he summed up the results of his experience by saying that good judgment, economy and good sense wasn't worth a damn in handling wheat, and it has been the case with a great many men. It is a mere gambling operation in such places as Milwaukee and Chicago, but for the farmers' conduct, I think the paper was sound —

to sell when it is fresh and sound. A farmer has no business to speculate when he has not the capital to speculate with; to speculate and hold his grain for a rise, when the market is actually glutted. Before the rats and waste take up a large share, and what would have been the profit.

It is safer for farmers to sell, generally, on the market. It is not only so with grain, but with nearly all the produce that is raised. If there is a market when it is ready for it, it undoubtedly brings more money to sell as soon as it is prepared. I am only engaged in dairying, still I raise some wheat, and wish to give a little of my experience with the last crop. I had been a little disgusted with Fife wheat. The weevil got a good share of it; and I learned at an agricultural fair, I think at Calumet county, a year ago last fall, that there was a kind of wheat called Russian wheat, or Lost Nation, or some pretty name, that was sure to produce about forty bushels to the acre, or forty-five. I wanted to raise that amount, and I bought seed enough to sow ten acres, I think about eighteen bushels, at one dollar and twenty-five cents a bushel, and I sowed it on as good land as there was in Wisconsin. It had been cropped to corn the previous year, well cultivated, was in fine condition, plowed in the fall and ready as soon as the frost was out of the ground. It looked very promising the fore part of the summer. Just before harvest it commenced to show signs of chinch bugs. About one-third of it fell down, and come to examine the heads, they were badly filled with weevil. I think the crop was just about equally divided between the weevil, chinch bugs and myself. I got about eleven or twelve bushels of poor shrunken wheat. It didn't pay ten cents a day for the work I did on it, and I did as well as my neighbors generally.

How easily men are discouraged when they get their hearts set upon a certain thing. While dairying was on the boom, while butter was thirty or forty cents and cheese thirteen, everybody was well suited. Just as quick as cheese fell down to five cents, everybody got discouraged and went to selling their cows. A good many did sell their cows at twelve dollars a head last August. Their courage is not affected at all with nine bushels of wheat to the acre. They are just as plucky and have just as much sand in them as ever, but cows are of no account. They have been in the habit of taking what they could get in raising grain. It doesn't

pay the farmer. If he is confined to wheat and grain entirely, his farm would soon depreciate in value and the profits would be very small indeed, but now dairy products are commanding a good price. Wheat also commands a good price, but the fact is, we cannot afford to raise wheat alone, because we should lack in fertilizers and that would soon ruin us; but mixing the two together we can work along, and if one fails, the other may not. The seasons have so changed that winter wheat may be grown better than spring wheat. Those that raised winter wheat last winter did well. The seasons have so changed, we hardly ever saw such a winter. The mercury has been lower in Louisville than it was in Chicago last winter. We may take up raising winter wheat. As Prof. Daniells is here, from the State University, and has had charge of the experimental farm, perhaps he may give you some information in regard to winter wheat.

Mr. T. W. Rhodes — I wish to ask the gentleman a question. Did I understand him to say that he raised twelve bushels per acre?

Mr. Hiram Smith — I raised twelve bushels by measure, and it paid me about ten cents a day.

Mr. T. W. Rhodes — I think we have hit upon something important to all of us who undertake to raise wheat. If twelve bushels per acre will pay ten cents a day, twenty-four will pay twenty, and thirty-six will pay thirty, and you can expect to raise thirty-six bushels per acre.

Mr. Hiram Smith — Allow me to correct the gentleman's logic. Virtually the expenses of twelve bushels is nearly the same as thirty-six, so if I make ten cents a day at raising twelve bushels, you may make three dollars by raising thirty-six bushels.

Mr. D. Huntley — All over and above would be clear profit.

Mr. Hiram Smith — I think not. I understand that that wheat actually is very poor wheat for flour. The millers don't like it. It is a soft wheat, and therefore cannot be worked into patent flour, and brings the lowest price of any wheat I know of.

Mr. S. Griswold — For the first time last year I procured some Lost Nation wheat or White Russian. I sowed ten acres of it, and ten of Rio Grande. I didn't see much difference. My wheat didn't fall down; it was on sandy land.

Mr. Aspinwall — I have grown Lost Nation three years, and I be-

lieve it has generally averaged from two to five bushels more per acre than other wheat.

Mr. Chester Hazen — As this question is on marketing produce, and our next paper will be on wheat raising, we will discuss the two papers together.

Mr. J. M. Smith — I would suggest the propriety of having that paper on wheat raising, and then we can discuss the growing and marketing both together.

Mr. F. Weyerhorst read a paper entitled

WHEAT RAISING.

Raising wheat is such an easy manipulation that it is hardly possible for me to write an essay on that subject. Fill the hopper of the seeder with wheat, put a boy on top of it, and the old team finishes a good piece in a day; after this, nature takes it in hand and finishes the job. In the meantime the farmer can talk politics with his neighbors over the fence, and discuss who would make the best president, Grant or Tilden. It would be more pleasant to me if I could tell my brother farmers how to raise forty bushels of wheat on an average, per acre, without much labor and without manure, and make the non-producer pay one dollar and fifty cents for every bushel that is brought to market. But alas! this I cannot do. I hope the professor of chemistry from our university will enlighten us on this. All that I can do is to refer you to the farmers' laboratorium, the barnyard. This is the great storeroom where are hidden the gases to support the coming growth of our stock of life. The barnyard is the lubricator which hastens the growth, and gives the fine, thrifty appearance so much admired in the growing season to our fields. In the barnyard lies the hidden treasure for the farmer's welfare, and if he is active, and yearly accumulates a good store of it, and distributes it with good judgment, he can accomplish wonders. But if he goes and acts like Hercules in clearing the Augean stables, and lets the creek run through it, or lets the rain wash the best substance out of it, he makes a failure.

The farmer ought to stand for his manure heap, with a profound admiration, for the spirit of life goes forth out of this unshining

mass; he should shelter it from sunshine and rain, and the cold blast of winter should not change it to a rocky substance. The chief aim of the farmer ought to be, to accumulate all that is possible to enlarge this treasure.

He must keep a sufficient lot of cattle, which helps to convert the straw into good manure; even the leaves from the shady elm, from the sturdy oak and the rich foliage of the basswood, must pay the tribute which nature designs.

We cannot be satisfied with twelve to fourteen bushels of wheat to the acre, if, by good management, we can raise thirty bushels on the same land, and in the same season. To gain these results, we must have manure; even lime, salt or plaster will hasten to impoverish the soil.

In the old country, a Catholic priest went with a procession over the fields, for the purpose of blessing the growing crops, sprinkling the holy water over the luxurious growth. He came to a piece owned by a slovenly farmer, where the growth was very poor and backward. He turned to the deacon beside him and said, "Well, deacon, here is no manure; it's no use to bless this piece."

You see that even the priest recommends at first manure, and afterwards the holy blessing.

Another help to secure a good crop of wheat is, plowing the stubble right after harvest, from three to four inches deep, so that the sun can work in the soil and kill the foul weeds. This operation is a kind of summer fallow, and very beneficial to the soil, besides it helps to lighten the deep plowing in the fall, which ought to be, in our clay soil, a foot deep. In the spring, after thoroughly cultivating, one and a half bushels of seed to the acre is sufficient. Sow as early as possible, and after the drag has finished it, a good rolling is needed for different purposes; by harvesting, the reaper goes easier to crush the clods, to compress the soil, keeps the moisture, and prevents in a great measure the working of the chinch bugs.

In the February number, 1879, of the *American Agriculturist*, I saw a description of a home made roller. I made one after the same pattern. It consists of a common oak roller; to the surface are nailed three cornered strips of hard wood; a square strip four inches thick is sawed lengthwise and diagonally. This furnishes a number of cutting edges, which break up the clods and leave the

soil compact and in small ridges, which is far preferable to the flat surface left by the ordinary smooth roller, which by rain and sunshine will bake hard and injure the grain.

The kind of wheat that we should sow depends on the kind of soil. I sowed last year on clay soil three different kinds: Club, Canada Fife, and Maine or Lost Nation. The Canada Fife was a fine grain and brought the first premium at our fair; averaged twenty-two bushels per acre; weighing plumb sixty-two pounds per bushel, by the tester. The Maine wheat is a larger berry, a finer, golden color, and yields more bushels to the acre; weight, sixty pounds per bushel; makes excellent family flour, but not so much liked by the miller, because it is a soft wheat and not so good for patent flour, but will do better on poor land than any other kind of wheat.

There is hardly any difference in the price of the different kinds of wheat. Club wheat did not do as well. If the farmer would only be careful to bring his grain in the barn or stack perfectly dry, through this he secures a fine color, much harder and compact in taste, and the threshers can do better justice. By hauling the grain in a damp condition, it gets heated, and the grain gets a weather beaten color, injures the market and afterwards the flour. Some will say the dampness sweats away; yes, it will sweat more than it ought to, and it will be the dead sweat of the grain, and even the miller cannot doctor it away. Another important feature of preparing the soil is drainage. How many thousands of acres sown are yearly spoiled through water that accumulates in different parts of the field. The damage of one year would pay for a good drain, besides the hard work for horses that have to wade knee deep through such places in the spring, and I never saw the grain amount to anything on it. By drainage you double the value of the land, the soil gets warmer, more friable, the grain will stalk more, and consequently give better crops, with a half bushel less of seed to the acre. But after all, our present farming in raising wheat has to be abandoned. I am convinced that, in the near future, we will have to take a different course. The wheat must be sown in drills and cultivated between the rows, just like corn; the benefit will be immense, it needs only half as much seed, and will undoubtedly give a double crop of finer, plumper wheat than we raise now. Of course most farmers will object, on account of so much additional work in cultivating the wheat. But instead of

sowing a hundred acres, if he can procure as many bushels on forty acres, could he not put the rest in grass or clover to save labor, and feed this to his stock in winter, to get plenty of manure? I made up my mind to try and drill in on a small scale, say one or two acres, next season. I have no doubt that I can construct a cultivator that will go through rows one foot apart. It would give me great pleasure if I could make a favorable report in our next convention on this subject—if I could state that three pecks of seed in planting or drilling, would produce fully as many bushels as four bushels sown broadcast.

Mr. S. Griswold—I would ask what kind of wheat I understood Mr. Weyerhorst did the best with on poor land, sandy land.

Mr. F. Weyerhorst—We have no sandy land; we have clay land. I couldn't judge very well on sandy land. On sandy land, Maine wheat or Lost Nation would do better than any other wheat.

Mr. S. Griswold—Is that what they call the White Russian?

Mr. F. Weyerhorst—Yes, sir.

Mr. J. Orvis—I would like to enquire of the gentleman what his experience has been in regard to sowing salt on wheat.

Mr. F. Weyerhorst—I would say it was very beneficial to the wheat, but after all, salt is not manure.

Mr. J. Orvis—I know the experiment has been tried on a small scale in our vicinity, but not sufficiently as yet to be very satisfactory for the farmers there to know the result. I didn't know but the gentleman had tried it sufficiently to know.

Mr. F. Weyerhorst—I have not tried it, but I hear from farmers that have tried it, that it was beneficial to wheat; that it would bring probably two or three bushels more to the acre with salt on it. Two years ago they sowed it to prevent chinch bugs, but I hear it didn't amount to much.

Mr. J. M. Smith—I presume Prof. Daniells can give the audience the actual results of sowing salt, and its effect upon the land. I would ask that he state what would be the probable result on a good piece of land.

Prof. W. W. Daniells—I cannot give you the results of any experience directly that I have had in the matter, for I have never experimented at all in regard to the sowing of salt; but as Mr. Weyerhorst has said, salt is not in any way a feeder for the plant.

That is, salt does not contain anything that the plant wants or that it will take up, and yet salt does, in very many instances, increase the growth of the grain very largely. Of course it does this entirely by indirect means, not by direct means, and the only way of knowing when salt will be of any value, is to try it. That is pretty much the whole thing in regard to sowing salt. It contains no plant food, the plant does not want anything that exists in the salt, and yet salt will very frequently increase the growth of grain, and increases it to a considerable extent for a time. Of course it would not do to apply it with the expectation of getting an increased yield for any large number of years in succession, but occasionally applied in small quantities, from one hundred and fifty to three hundred pounds to the acre, very valuable results have been obtained. The subject of manures is to come up again, I see, in the reading of an essay put down for to-morrow morning at ten o'clock, and I consider it one of the most important subjects there is to discuss. Now I want to call your attention to the remark of the priest that wouldn't bless the grain that didn't have manure on it. I tell you Wisconsin farmers don't realize the providence there is in a load of manure.

Mr. W. T. Innis — Three years ago there was a fever running through our community about putting salt on wheat. Salt was brought in there by the car load. It was from the packing houses of Chicago and Milwaukee. It was five or six dollars a ton. Some men engaged a car load and used it largely themselves, and distributed it. A great many farmers tried it that year. It had been said that great results had been attained at the east with it, and among the rest, I thought I would try it. I got about a ton and scattered it on; I sowed it as I would sow plaster or anything else on my wheat. I sowed it on various pieces of wheat, and in no case on all of any piece, so that I could experiment. That was my object in buying it. Either on account of the season or the soil, or some other accountable reason, we saw no results. We put on about from one hundred to one hundred and fifty pounds to the acre. I examined closely but I could see no results.

Prof. W. W. Daniells — On what grain?

Mr. W. T. Innis — On wheat.

Prof. W. W. Daniells — Mr. Weyerhorst spoke in regard to the idea that some people have, that it is going to increase the moisture

of the soil. Suppose you put on three hundred pounds to the acre, which is a heavy dressing; that will be almost two pounds of salt to the square rod of land, mixed with the soil three inches deep on that square rod of land. About how much moisture do you expect that salt is going to bring to the land? You have got the whole subject there before you. Suppose the salt took enough moisture so it would dissolve entirely into brine, how would it affect the land? It wouldn't take a pint of water to dissolve the whole thing.

Mr. J. Orvis — Would the tendency of gypsum be to absorb moisture from the atmosphere?

Prof. W. W. Daniells — Will gypsum absorb moisture?

Mr. J. Orvis — I have always so understood.

Prof. W. W. Daniells — Did you ever keep any in your barn? Did one pint become two?

Mr. J. Orvis — I have got some in the barn now.

Prof. W. W. Daniells — You will find it to be a fact that gypsum does not absorb moisture. That it will absorb ammonia to a very small extent, I think will be true; but the extent to which it will absorb moisture, I think won't amount to that (snaps his fingers). You sow a hundred pounds, and that is a heavy dressing to one hundred and sixty square rods. That is about two-thirds of a pound to a square rod. A square rod contains two hundred and ninety-two square feet. You have got two-thirds of a pound upon two hundred and ninety-two square feet of soil. Get that well mixed with the soil, perhaps at least two or three inches deep. Now about what will be the amount of moisture that that will bring to the soil? Plaster is a wonderful fertilizer when it does prove of value, but it does not always prove of value, for reasons that we don't know. It is perhaps the cheapest fertilizer that farmers can use. Why it is a fertilizer, I don't know; I don't believe any man does know; but it is not for the same reason that salt is, because, to some extent, the plant wants what the plaster contains, but then the food that the plants get from plaster is by no means the measure of plaster as a fertilizer. It must depend largely for results upon indirect influences. I don't know what they are. I doubt if any man does. It is certainly not from the absorption of moisture.

Mr. J. M. Smith — I don't want to contradict Prof. Daniells but as

to where it does produce effects. But as Prof. Daniells says, in some places it has no effect whatever; but most of our clover growers who have used plaster where it does have effect, will admit on all hands, and I think we shall find it is an admitted fact, that there is more dew upon the part of the field where the plaster has been sown than where it has not been sown. That the dew remains longer upon the clover where it has been sown. I don't know that it absorbs moisture, but I think that is an admitted fact. Perhaps the Professor can account for it; I can't.

Mr. S. Griswold — What was it you stated to be a fact?

Mr. J. M. Smith — That there will be more dew where plaster has been sown, and it takes longer to dry off.

Mr. S. Griswold — That is if you sow the plaster after the clover is up?

Mr. J. M. Smith — Yes, sir; sow it early in the spring.

Prof. W. W. Daniells — The fact whether plaster is an absorbent of moisture or not, is one that you can, I think, test for yourselves. If you have balances tolerably delicate, I would advise you to take ten pounds of it, and spread it in a small apartment, a closet or a cupboard, and let it cover as large a space as possible. That is, spread it out as thinly as possible, so it will expose a large surface to the air. Put in there with it a vessel containing water. I would advise you to set the plaster in a small room, not on the stove, because it loses moisture in that case, moisture that is chemically combined with it. Spread the plaster out so that a large surface shall be exposed, put in this closed apartment the vessel containing water so that the atmosphere may become saturated with the water, and let that plaster remain there a couple of weeks, and weigh it when it comes out, having of course weighed it when you put it in, and see how much moisture it absorbs. You can see whether it absorbs moisture or not, and see whether I am right in saying it does not. I believe the power of plaster to absorb moisture is scarcely greater than the poorest sand you may find on the sea shore. In regard to its being an admitted fact that dew remains upon clover when plaster is sown, that possibly may be true. It is an admitted fact with a large number of men, that it depends somewhat on the moon with regard to the yield of your potatoes, or upon the time you kill your pork, whether it shrinks or swells in the tub and in the pan. Men who thoroughly believe that are per-

fectly honest in their belief, and I suppose they know it to be true. I have no quarrel with those men at all, but I don't believe it. While that is a thing that is a good deal harder to prove than this particular thing, you can prove this. I don't think that because a thing is an admitted fact it has anything to do with the matter, if the fact has not been proven by experience or by experiments.

Mr. D. Huntley—I am sorry that a couple of our farmers are not here, who have raised Lost Nation wheat and Fife wheat on the same land, or side by side, with the same treatment. I am sure that I understood them to say that they gave it the same treatment, but the land sowed with the Lost Nation wheat produced eight bushels more to the acre than the Fife wheat. That was this last season.

Mr. A. M. Jones—I will correct Mr. Huntley. It was eleven bushels more to the acre. The Fife wheat went eleven bushels to the acre, and the Lost Nation went twenty-two.

Mr. J. Orvis—I would like to just give my little experience with regard to sowing salt. I have sown salt two years in succession, on wheat. The first year it was on Lost Nation and Fife. I sowed a part of each field, and found a very perceptible difference in the yield of the Lost Nation where the salt was sown. When I came to reap, there was fully one-fourth difference in the crop. When I came to reap, the moment I got over the boundary where the salt was sown, I could see the difference in the heads; I could see the difference in the stubble after the wheat was cut, and that year there was something of a blight in the wheat in the head. Where the salt was sown, the berry was large and very much less blighted than it was in the same variety of wheat right beside it. You could tell the difference just as quick as you struck it with the reaper. I could tell the difference by looking over it with the eye. I sowed some the same year on a piece of Fife wheat. I sowed about ten acres in each field with salt. I could perceive no difference whatever on the Fife wheat, between where the salt was sown and where it wasn't sown, with the exception, I think, that where the salt was sown it ripened a few days earlier. Last season I sowed in the same manner again, and I could perceive no difference in the result where the salt was sown and where it was not. I brought this question up simply to see whether other people had the same success with the experiment that I had, and whether it was worth while to sow salt or not.

A paper was then read by J. M. Smith, President of the Horticultural Society, entitled

SHALL THE FARMER CONNECT HORTICULTURE WITH FARMING?

Mr. President, Ladies and Gentlemen :— If you will turn with me through the dim and misty history of past ages of our race, you will find that the cultivators of the soil have not, as a general thing, been the ruling class. Far otherwise; often the mere slaves of the soil, to be sold either with or without it, as the whims or caprice of the haughty lords and owners of it might choose to dictate.

The real owners of the land have always been held in respect by the rulers of nations, and in all ages. But it must be borne in mind that the owners and the cultivators of the soil have in the past, and, in fact, do at the present time, in most of even the civilized portions of the world, constitute two entirely distinct classes. Such is the case in Great Britain to-day. The British government is controlled by a rich land aristocracy. The same was true in France until the French revolution broke up the entire system of landed estates, and almost annihilated their then proud and haughty owners.

In Russia, Germany, Austria, Italy, Spain, and, in fact, nearly all other European States, the same state of affairs, or something very similar, exists, and prevents the real cultivators of the soil from becoming what they ought to be, and what in this country they certainly will be in the not distant future—the great power that will dictate and control our country's destiny. If this class are to control the future destinies of our country, and I think I need go into no argument to prove it, the question what manner of men shall they be, is a very pertinent one.

Never in the recorded history of the human race has there been such an opportunity offered to the cultivators of the soil as has been, and now is, offered to the farmers of this country; and this is particularly true of those in the west and northwest. They compose a large majority of the entire population. They, in almost all cases, own the soil they cultivate. For fertility of soil, healthfulness of climate, and general capabilities for supporting an immense population in comfort and happiness, it may well be doubted

whether there is another district of country, of equal size, on the globe that is equal to our great northwest. With the ballot in their hands to either make or unmake men at their will, to improve or ruin the government at their pleasure, the question again returns to us, what kind of men shall they be? Shall they be mere growers of wheat, oats, horses, cattle and pork? Shall they be of the class who go upon a piece of rich land and impoverish it in the shortest possible time, and then leave it to repeat the operation elsewhere, as by far too many have done in the past, and are doing at present? Shall they be of the class who build their homes upon the open prairie, and live there for years with neither tree, shrub, bush, flower, or even a little lawn of God's green grass to relieve the monotony of the scene about them? No, my friends, not these. You may have barns overflowing with grain and other produce of your fields; your horses may be of the most improved breeds for your circumstances; your cattle fat, and well cared for; your pork of the best; your house large, and perhaps your parlors well furnished, but be without a home. Homes, true homes, in the right sense of the term, are to-day one of the greatest wants of our western farmers.

The farmers own their lands; they own the buildings that stand upon them; yet it is an undisputed fact, that in hundreds and thousands of instances they will sell these so-called homes, gather together their household goods, and move away from them with about as little reluctance as the Bedouin of the desert, who camps where night overtakes him, and leaves in the morning without a thought or care as to whether he has before or ever shall again see the spot where he rested for the night. These things ought not so to be. Do you ask what shall be the remedy? I know of nothing that will be so likely to arrest this moving and changing from place to place, as to awaken an interest in horticulture upon every man's farm, no matter how large or how small it may be.

I do not propose it as a money-making scheme, the El Dorado where every man is to make his fortune; neither do I believe it will be a scheme whereby the farmers are to lose money. I shall advocate it at this time only as a means of making homes more pleasant, more comfortable, and very much happier, and in every respect much more desirable. I advocate it as a means of making better and more refined men, women and children.

Suppose that two young men, with their wives, purchase a piece of land near each other, and about equally good, with the intention of making homes for themselves and families. We will suppose them to be fairly educated, honest, industrious, full of energy, and both of them determined to have good farms and to be known as good and enterprising farmers. They are men of small means, as most of our new farmers are, and are obliged to run more or less in debt in making their necessary purchases. We will designate them as Mr. A. and Mr. B. Mr. A. says to his wife, "Limited as our means are, we must have a few plants and shrubs, a few fruit trees and vines, and you must have a few seeds for flowers and ornamental plants. I will go into the forest and get a few trees to set out for shade about our home in the future." Of course she agrees with him. A piece of land near the house is selected. It is laid out in such a manner that nearly all the cultivation may be done with a horse and plow or cultivator. Only a few of the most hardy varieties of apples are indulged in. The Tetofski and Red Astrachan for early, the Duchess of Oldenburg and Fall Orange for fall, the Fameuse and Golden Russet for a later supply. A few grape vines must be set, not less than eight feet apart each way, remembering, for the present, that land is cheaper than labor. Of these he needs a few Janesville, as they are very hardy, good bearers, and very early, ripening in the central portions of this state about the middle of August. Then come the delicious little Delaware, the Concord, the Massasoit and the Agawam, which, if properly cared for, will give our young friends a constant supply of this, the most noted and most ancient of all the fruits of recorded history, from the middle of August until New Years, and if carefully kept, much later than that. A little spot must, of course, be devoted to strawberries. To be sure of a crop, he gets a few of Wilson's Albany Seedling, a variety that rarely fails to give a good crop when it has fair cultivation, and they are set three feet apart each way. This will give plenty of room for horse and cultivator. A few Kentucky, to lengthen out the season, is all that he will risk until he has more of both time and money than he is likely to have for a few years to come at first. A few raspberries of the hardy varieties, like the Doolittle and the Miami, set six feet apart each way, and a few Kittatinny blackberries, set in the same manner, constitute his

stock in this line. A few bushes each of the old Red and White Dutch currant, set not less than six feet apart, will constitute his entire stock of currants.

Then comes the garden. This must be regularly laid out, and in such a manner that the greatest possible amount of cultivation can be done with the team. Still there are some things that must have hand cultivation. In this list, our young friend will find his early radishes, the French Breakfast and the Covent Garden, which will need to have a little sowing made of them as often as once every two weeks, as long as the family care for them. The Early Bassano beet for the first early, and the Blood turnip for a later and winter supply. The early peas may be sown in double rows, three to four feet apart, and cultivated with the horse and plow or cultivator. Parsnips may be sown in rows two feet apart, and cultivated in the same way, care being taken to put in a large supply, as no root crop is equal to it for milch cows in early spring.

A few of the Jersey Wakefield cabbage for early, and plenty of either the Fottler or the Premium Flat Dutch for a late supply. If there is no hot bed, and there probably is none, a few tomato and pepper plants must be started in a box by the window, with a second one containing a few nice Jersey Wakefield plants for the early cabbage just mentioned; a dozen Early York tomato plants, and as many as they choose of either the Trophy or the Acme, for a late supply. If there is an extra stock of them, they are worth all they cost for the cows that are giving milk. Some Early Rose potatoes must be planted as soon as the season will admit. For sweet corn, the Early Minnesota is for the first early, the Crosby or the Concord for the second, and the Stowell's Evergreen for the main crop. If all are planted at the same time, they will come on in such succession that there will be a constant supply the season through. All these they will plant in such a manner that the horse and cultivator will come again in play. The Early Cluster and the White Spine cucumber, the White Japan and the Hackensack, Nutmeg melons, and the Mountain Sweet watermelon planted six feet apart each way, are easily cultivated. An asparagus bed must not be omitted, as this is a crop which, if well prepared for in the first place, needs only reasonable care to make it a source of great pleasure to a family for many years. The place selected is

one where it will be permanent, as removal is an extremely difficult thing to accomplish. It is about twelve feet wide and twenty-five feet long. It is well drained, deeply plowed, heavily manured, and one year old roots of Conover's Colossal are set not nearer than two feet apart each way. They set them with the crown of the plant six inches beneath the surface, spreading the roots out in different directions, or in as near their natural position as is possible.

Their garden is all planned at last, but where are the flowers to come in? And how in the wide world is time to be found to plant and care for a bed of flowers, even if they are only the common varieties, and such as anyone can make grow? Well, I will reply in the words of a lady friend, the wife of a farmer of limited means and many cares, and confined much of the time for a number of years to her sick-bed: "Time must be found for a few flowers. We cannot get along without them." And while lying upon her sick-bed she selected the seeds and bulbs, and told her little sons how and where to plant them, and afterwards how to care for them. They grew, of course, and I never saw finer specimens of some varieties than grew about her house and home, although she was unable even to pick, much less to care for them. And so I will say here, our young friends must and will find time and a place for a few, a very few at first. A lilac bush, a snowball, a flowering almond, a few common roses, some tulips; also a little bed filled with pansies, portulaccas, verbenas and phlox drummondii must constitute about their entire list for the present.

But while all these things are being accomplished as best they can be, and not interfere with the good management of the farm, our friend Mr. B. comes along and looks over the ornamental part of the place, as he terms it. He then remarks: "Well, neither you nor I have money at present to spare for this kind of work. It is true it will make things look nicer about your place, and you will probably get some little fruit in time that will be pleasant to have; but you will make no money out of it. As for myself, I intend to put all my means and all my strength into the main business of the farm. I mean to have good crops of grain, good cattle good hogs, and, in short, I intend to make some money just as quickly as possible. After I get out of debt and get some money to spare, I shall build me a new and larger house, and then I will set out some fruit trees, and some shade and ornamental trees. I

will then have some small fruits and flowers, as you are preparing for now, though I will have them upon a larger scale than you have arranged for at present."

Such is their commencement upon their farms. The years roll by. Neither of them are exempt from the cares and toils or the ills and misfortunes that beset others in a like vocation, though both have worked hard, and are reasonably prosperous. But it soon becomes apparent to both, and more especially to the children of both families, that there are particular attractions about the home of our friend Mr. A. that do not exist upon the farm of Mr. B. This difference shows itself with great regularity about the commencement of the strawberry season, when they are sure to come with the word that "Mamma wants to buy a few nice strawberries, and will not Mrs. A. please to let her have a few roses for a bouquet, for mamma expects company to-day." These errands continue to be made at short intervals, until Mr. B. comes and says, "Neighbor A., I wish you would let my family have berries and fruit as they need them; and when the season is over, I will let you have something from the farm that you need, or pay you for them in some way. I ought to have had such things myself, and have always intended to have them, but when the season for setting plants, flowers, etc., comes around, I am always just as busy as I can be, and somehow I never find time to do it; but I must try and do it next spring."

The next spring comes and passes by as the preceding ones have done. He is again too busy to attend to fruits and flowers. As the years go by, sickness comes to their families, as well as misfortunes to their crops. The late spring frosts blast their tender plants. The summer droughts wither the wheat and the corn. It is hard times with our friends. We all know the meaning of the term. As their little ones suffer upon beds of pain, the supplies of fruits and flowers have a value that they have never before known.

To some, the idea of fruit in cases of sickness may seem strange, but it is now a well known fact that good ripe fruit is, in thousands of cases, much more desirable, as well as more beneficial, than the most skillfully prepared medicine can be. A few years since, after one of our own boys had been given back to us, as it seemed, from the very borders of the spirit land, he almost lived for weeks upon Delaware grapes. A year or two ago, while visiting a friend who

was dying with consumption, I asked him if I could do anything to make him more comfortable. He replied, "There is nothing in this wide world that would add so much to my comfort as a dish of strawberries fresh from your beds." I told him he should be remembered with the first dish of ripe berries that I could pick from them. Years ago a friend who was recovering from a long fit of sickness, said to me in early spring, "Will you not do without your first dish of asparagus yourselves, and let me have it? Charge me what you like, only let me have it fresh from your beds."

Such cases might be multiplied almost indefinitely, but it seems not to be necessary. Our friend Mr. B., during the sickness in his family, receives another lesson regarding the great value of the things that he has never yet had time to plant or cultivate. Again he resolves that he must and will have the comforts of fruits and flowers. But now come purchasers for their farms. The prices offered are very fair, and our friend Mr. B. concludes to sell his farm and purchase a new and larger one. The wife does not seriously object, but stipulates that there shall be more attention paid to the comforts and adornments of their new home than has been bestowed upon their present one. Still, tears of regret will come as she visits for the last time the place where some of her dear ones sleep in the silent city of the dead. She thinks of the brilliant hopes with which she first entered upon farm life, what a beautiful home she had hoped for, and how she had been disappointed. She resolves to make a renewed and vigorous effort to have their new home one that shall indeed be a place of rest and of beauty for both herself and the children that remain to her. Still she cannot help fearing for the result, for she, with her keen perceptions, has noticed that her husband is gradually becoming more and more devoted simply to making money, and as a result, more indifferent to the real comforts of his home.

To our friend Mr. A. and his family, the thought of leaving the home where they have toiled together for so many years, where they have shared each other's griefs and each other's joys, where the shade trees set by their own hands, where the fruits and the flowers, and the beautiful lawn, are all speaking to them in their silent but expressive language: "Do not turn us over to the hands of strangers," is indeed a serious question, and one not easy to decide. As they talk the matter over together, little Fred comes and says:

"Papa, will we have nice strawberries and things in our new home? 'Cause if we don't, Joe and me are going to stay here, and pick some nice berries and take them over to Mrs. Pierson's, and she will give us some biscuit and butter, and then we will have strawberry suppers along with her little Kate and Elsie, like we did last summer, and have lots of fun." Little Emma nestles close beside her mother, and says: "Mamma, if we go way off, who will take care of the white rose bushes over little Warren and little Mary's graves, and who will carry flowers and spread over them in the summer time?" Tears will come as they think of those sad days when they followed the little ones to their resting place.

They take another walk over their farm; they speak together of the improvements of one field after another, and then return to the beautiful lawn and the shrubbery that surrounds their home. No! they will refuse the offer for their farm, and remain upon it, and try to make it a home of beauty and comfort, not only for themselves, but for the children that are still spared to them. Such is their resolve, and as year after year passes by, new and better improvements are added to their already pleasant home. A new house, larger and more commodious, takes the place of the old. New and larger barns and outbuilding are built to accommodate the larger and constantly improving stock of cattle, horses, sheep and swine that are yearly adding not only to the value of his farm, but to his bank account as well. But no matter how much he may improve his general system of farming, you may be sure that he will by no means neglect to beautify and adorn his home with new and rare plants, shrubs and fruits. A much larger annual income from his constantly improving farm gives him the means of adding each year something not only new, but useful and ornamental as well, to the home to which they are yearly becoming more and more attached. Books, papers and magazines, treating upon these and kindred subjects, have become an absolute necessity. A modest library of useful books is found upon his shelves. In short, this addition of horticulture to the heavy and sometimes very exhausting labor of the farm, has not only elevated and refined the family in this one respect, but it has created a desire for refinements in other departments of life. They must study more and read more; they must become better farmers, more progressive, more ready to adopt any improvement that will add to the value of the farm or

to the comfort and happiness of their now beautiful home. It is sometimes said that the farmer can lead a life of independence; that he is not dependent upon any one for his bread; that the financial storms that convulse the commercial world, and shake the strongest firms from their foundations, and scatter their fortunes to the winds, need not trouble him. I do not believe this is true; neither do I believe it would be well if it were true. But this much is undoubtedly true, that of all the occupations followed, either in this or any other country, there are none that are so well calculated to make a man and his family truly elevated and refined, in the broad sense of the term, and none that will make him so near independent in the world as this. "But," said the owner of a large farm to me not long since, "see how you live in the city. We farmers cannot afford it. We should be bankrupt the first year if we attempted it." Let us see about this?

We must again refer to our friend Mr. A. He is surprised at an intimation that himself and family do not live well, and replies in the following language: "It is true that in the early days of our farming, we often felt that it was necessary for us to deny ourselves some things that we much desired. We occasionally sold some of our fruits and vegetables when it seemed to be an absolute necessity, for the purpose of obtaining other much needed articles, and in this manner we have realized many dollars, although we never followed this as a means of making money. But for many years past we have believed and acted upon the belief that nothing that can be made to grow upon the farm is too good for our own family. The best of the grain, beef and pork, the best of the milk, butter, poultry, eggs, etc., are reserved for our own use. In addition to these, there is not a day in the year that we do not have a full supply of both fruits and vegetables, each fresh in its season, and then preserved fresh, or otherwise, for use until another season brings with it another crop, and another year's supply. It is true that we have not a great many thousands drawing interest, but my farm, stock, orchards and fruits are all in splendid condition, our home is both beautiful and pleasant, and there is nothing that we need that we cannot have. In short, we have tried to take good care of our farm, and now we have no fears but that it will take good care of us in our old age." Such is the condition of Mr. A. and his family as old age overtakes him.

But how about our friend Mr. B.? After his removal upon his new farm, he finds no more time to add to the beauties or the comforts of his home than he did upon the first one. He condemns both himself and all about him to an unceasing round of hard work. The new farm is to be put in good condition for crops in the shortest possible time, and, as a result, the labor is hard, often disagreeable. The boys begin to think of other and different homes as soon as they get a little older. The wife is fast becoming discouraged, and is silently resigning herself to a life of unbroken and ceaseless toil, and a home the reverse of what she had once so fondly anticipated. The daughters, warned by the pale face and the premature old age of the mother, have ere this decided that they will never marry farmers.

The second farm is conducted in about the same manner as the first one was, and with the same result. A purchaser makes his appearance with the ready money, and the second farm is sold. The almost disheartened wife makes another and a last effort to have more of the comforts and luxuries of life, as they are now in good circumstances. She informs the husband that their children will surely leave their home, unless something more than the ceaseless round of hard labor is prepared for them, and that they will be left alone in their old age, if indeed they are permitted to reach it. A vague promise that these things shall be attended to in the future is all that can be obtained, and they move to another home. Of course no time is found for ornamental work until everything else has been well attended to, and such a time never comes. One by one the years pass by. Old age comes, and the weary wife lays down to die, with the sad feeling that though she was the wife of a man whom the world called a rich farmer, and one who had not intended to be either a bad citizen or a poor husband, he had been a success in neither. She had been his wife for many years, and had seen him grow more and more eager for money, and less disposed to use it for the comfort of his family or the adornment of his home, until she felt that she was dying without ever having had, in the true sense of the term, a home. Although a family of children had grown up about them, not one of them was present, either to care for her or to receive her parting blessing. The husband soon follows the wife, and they sleep side by side. The children, with sad hearts and unpleasant memories of days that are

past, return to the now dreary home. What shall they do? None of them want the farm. It is run down and out of repair. They say that father always let his farms run down on his hands, and that he lived a life of such intense and continued hard labor, that they do not like his example, and will sell the farm and try and make their living in other ways and places. The farm is sold and the children are scattered, with many unpleasant recollections of a home that needed only suitable horticultural surroundings to have made it a source of delight to the weary, pale-faced mother, as well as unmingled pleasure to themselves.

Once more for a moment let us turn to the home of our friend Mr. A. Old age finds him a grand and noble specimen of manhood. His many years of study of the good, the pure and the beautiful about his home, has made him a better farmer, a better husband and father, a better citizen, and in all respects a better example of that noble class of men upon which our government and our new world must depend for its support. It is true that he has never been a governor of his state, nor has he ever had a seat in congress. Still he was better fitted for either position than the great majority of those who obtain them.

But old age does its work, and kind friends bear his remains and lay them beside those of the wife who went before, and whom he loved so well. The children with their wives and little ones return to the home of their childhood, but they feel that there is nothing to mourn over. Two beautiful lives have passed away. They were full of years and happiness. The results of their life work is, partially at least, spread out all about them. Shall the beautiful home of their young and happy days be sold to strangers? No! is the response from one and all. Fred and Joe are both ready to buy out their brothers and sisters at its full value. Fred's wife, who is the little Kate for whom he threatened to leave both father and mother even in early childhood, joins in the request that Fred and herself shall have the farm, saying that although their parents were not the ones who gave her birth, yet she loves them, and their memory will be as sacred to her as if she had never known any others. "Let us have the farm, and we will care for and protect these noble elms that our father planted before any of us were born. We will keep the orchard that cost so many efforts and so many years to get one that was adapted to our soil, situation and

climate. The flowers that our mother tended shall be my care. The roses she loved so well, shall still bloom over the spot where her body rests. At least once in each year all the family shall gather at this dear old home, and we will recount our joys and our sorrows together, and you shall tell us whether or not we are worthy to have the beautiful home of such worthy parents." Joe's wife, the little Elsie of whom we have heard once before, says that she will consent to this arrangement only upon one condition, and that is that her husband shall have the liberty to come there every year and get strawberries for her, and they must be as good as those he used to bring her when she was a little girl, which, in her estimation, were much better than any she ever received from any one else, either before or since. All is amicably arranged, and Fred and Kate keep the old homestead. Originally it was only an ordinary farm, but the early and constant care of the horticultural department of it, in connection with the general farm management, has made it a truly beautiful, as well as a truly desirable home.

In this sketch of a home, I have endeavored to draw only such an one as the common farmer might and ought to have. Friends, which of them shall yours be most like in the future? If our northwest is to be truly prosperous for any considerable length of time in the future, it must be made so by having an almost countless number of moderate sized, well cultivated farms, with homes made beautiful by their surroundings, as well as comfortable by their home-like arrangements within; homes to which the owners will be attached, and from which they will not readily part. One of the greatest dangers that now threatens some portions of the northwest, is the immense tracts of twenty thousand, thirty thousand, fifty thousand or more acres of land swallowed up in single farms, and these being exhausted as fast as Yankee skill and ingenuity can invent ways and means of accomplishing the purpose. In such districts of country they can have neither good roads, good schools, good churches, good society, nor comfortable homes. The land, rich as it is, will be impoverished and left a comparative desert, and in the future, some good men must spend a large part of their lives in restoring to these places what has been unjustly taken from them. Gentlemen, is it right for a man thus to virtually destroy a township of land for the sake of enriching himself? I suppose there is no legal statute against it, but it

seems to me that there ought to be at least a moral one. I have no right to dictate to others, but I should be very unwilling to have it said of me when I am gone, that "he left his family rich, but he almost ruined a whole township of land to do it." Rather let it be said, "he had a pleasant home, a pleasant family, and pleasant surroundings. It was made more and more home-like to friends and neighbors, as time and means permitted, and we may truly say that there is at least one little spot on the earth that is better and more beautiful on account of his having lived upon it."

Mr. Chester Hazen — This paper is now before the convention for discussion.

Mr. D. Huntley — I would not do justice to my own feelings if I didn't say a word or two in regard to this paper. The best of it is that it is written, not from fancy, but the writer knows something about what he is saying. Many of the persons here in this room have visited and have been entertained at the house of the writer. I had the pleasure of meeting a good many friends of horticulture last summer at the writer's home, and of course we visited the garden, and we discussed these questions. We ate the fruit, and some gentlemanly horticulturists became excited over some new varieties. They even spoke of some varieties of strawberries there, that they could raise four or five times as much as they could of the Wilson, or of the old standard kind. That they could plant them four feet apart each way, and that they would kill out all the grass, and needed no cultivation, they were so strong and thrifty. That they could be picked at the rate of five bushels an hour, they grew so large and plentiful. These are facts I am stating. They stated that right there. Mr. Smith didn't even mention that berry at all, not but that he had lots of them in his yard (I picked them myself, and so did others), but it seems he is so conservative in his views, he don't go off half cocked on anything new of that kind. That paper will do to follow to set fruit by. We have had horticulturists among us who spoke of raising three or four hundred bushels of blackberries to the acre, and getting rich in one season. I presume Mr. Smith is cultivating them. He didn't mention them at all, and why? From the fact that it has not been tried, and it is not best to pitch in and expect we are going to get rich with something that we don't know anything about.

Then in regard to the homes that he mentioned. I have a son in Kansas; he has been there now three years. He went there to make a home. We frequently get letters from him, and he gave us a description of his home, or the place he lived the first season. The man had fifteen or twenty horses, fifteen hundred sheep, lots of cattle, and a great many hired hands; was running six or seven teams, and they lived on pork and bread. He said he never saw a strawberry from the time he went there until the Fourth of July. Never saw a potato on the table, I think. In fact, the man said you couldn't raise potatoes in Kansas; but my son knew that was a lie, because within a few miles was an eastern home that he visited. They had flowers; they had vegetables; they had fruits in their season. He was entertained there one Sabbath (that is the holiday in Kansas), and it gave the lie to all that this man said. One side of this other man's home was a place, a corral I believe they call it, or a yard where they kept their sheep. Just as friend Smith tells us, this man said that next spring he was going to set out some of these fruits. He had been there a great many years. My son said his family didn't believe it. He was after the dollar all the time, and he didn't care how they lived. They had nothing on the table at all that was inviting; nothing but poor stuff. He would get the most money with the least expense out of the help. That was the idea. The next season a home was started by my son, although he was alone. We have sent him a good many boxes of things. In them we have put plants and flowers and bulbs and strawberries. He reports in almost every letter how he is doing, and he is setting out trees, etc. He got there and commenced work with two shillings in money. After he got a job, he didn't have any money to do it with. A home can be made without the means, but of course it is better to have the means. I considered Mr. Smith's paper valuable in every point it has spoken of, because it is so true, and because we need such line upon line and precept upon precept as he gave us.

Mr. S. Griswold — I merely come forward to congratulate the officers upon the splendid paper that Mr. Smith has read here. We have got a certain amount to do here in a little time, and we have got to do it as they do at a Methodist love-feast. I think nine-tenths of the farmers will admit that this paper is all true. I have spoken of farmers' daughters marrying farmers. My wife

said to me that her daughter shan't marry a farmer, and I expect it is mainly for the reason that I have not fixed up my home in that shape, to make it more pleasant, as Mr. Smith speaks of. I am going to do it by and by. (Laughter.) I have been wanting to sell out and go west, but, gentlemen, the longer I remain in the state of Wisconsin the more I am convinced that we have one of the greatest, most glorious, and most prosperous states in the Union. Also the most intelligent men, men of enterprise and ability. Gentlemen, what do you come here for? Do you suppose you come here, eighty or a hundred miles, unless it is to benefit yourselves? and when you go home you tell them what you have seen, and benefit them, too. We don't hold these conventions here for the benefit of just those who are here; not at all. Now I intend to visit these conventions every year if I live. This is the third one that I have visited. I went to Madison and Aurora-ville. As for myself, I have been very highly entertained, and the pencil and book have been my implements of war. Next year when you come to these conventions, try to bring one man with you; then we will double this number. Next year I intend to bring one man with me that does not come now, from my county. I am afraid Waushara county is celebrated throughout the northwest for being the poorest county in the state of Wisconsin. I live there, and have lived there for eighteen or twenty years, and I intend to the rest of my life.

Mr. Randall—Now, perhaps there is not a thrifty farmer in Outagamie county but who has made an attempt to connect horticulture with farming; perhaps not a thrifty farmer upon the part of the Americans. But the facts are, that when he sets out an orchard, and while the trees are small and growing, he has a horse team, and they have whiffletrees, and he puts in other crops and they injure the trees. I have seen a plow run close to a tree. I have stopped my horse, when going through portions of this county and Winnebago county, to watch a man plow through his orchard. I have seen him throw a furrow from it so as not to leave a space of six inches, and when he would return he would throw it over again. Between here and Neenah was one of the most thrifty orchards, six years ago, that there was in the state of Wisconsin. Not a tree from the checker board stricken out. The man himself was an intelligent farmer, but he left the matter to his tenant.

Now there is but one tree standing in that orchard to-day. I visited it last week, and I took particular notice. Many farmers have attempted to do this, and by a species of selfishness, or from growing their wheat crop for pay, have actually destroyed the wheat crop. There are but few farmers who hold a plow and drive it through the orchard; they trust it to the hired man. There is a young boy on the farm, and if he keeps a horse smart and trim, he wants to plow. Just as sure as you let that boy plow, he will destroy your orchard. He will not bear down on the handles when he comes to the elevation or mound you made for the fruit trees. He is just as sure to let it run down beam deep. My orchard suffers to-day from unskillful work. On the road from Oshkosh to Ripon, the orchards were large; they were large, old trees; they were planted some ten or fifteen years ago; there are no new ones. I asked one farmer, and I consider him thrifty, I know he is intelligent in wheat raising and in stock raising, and he says raising fruit don't pay, and as fast as they die out, he plows them up. Three years ago, he says he had an abundant crop, and they all laid on the ground and rotted. This year I have none, consequently I realized nothing from my fruit. When I had an abundant crop, I realized nothing, and when I have no crop, it is entirely worthless. Mr. Smith speaks of procrastination, or putting this thing off. I will illustrate that. An old man has a new farm. He says: "Life is too short to plant an orchard." His son takes his place. He says: "Life is too short to plant an orchard." But a grandson comes on, and he plants an orchard. He lives to see not only fruits on the table, but he sees the old man *cider drunk*. Now I am not going to set out orchards simply to get grandfather drunk — I don't believe that is right, but for the fruits upon the table; and fruits from the orchard, when we have an abundance, saves to the farmer's household a great deal of expense. The years that we have none, we are subject to a heavy tax to keep up the luxury of fruit upon the table.

This year the crop is small, but we have a crop of four hundred bushels at the price of two shillings per bushel. That is far better than an orchard turned up by the plow, when you have to pay one-half of that amount for fruit for the table or do without. The money is realized with an abundant crop when we can find a good market, but with a limited crop it is impossible to realize much of

anything. For the last three years after the season of the Transcendent has passed, I have had orders for twelve barrels, to be shipped sometimes north and sometimes south. I could not fill the bill. Still, if the orders had come in earlier in the season I could have filled the bill, and I would have made a handsome profit on that variety of apples. If we had any in Outagamie county of those apples put on the market, we would have had a market for them. If you have an order for twelve barrels, and you can't fill it, you may rest assured that a year from that time no order will again come in for that fruit. We are experimenting. We know success is coming. If you have a large crop you may be sure to find a market.

Hiram Smith then read a paper, entitled

“A REPRESENTATIVE OF THE BOARD OF REGENTS
OF THE STATE UNIVERSITY.”

Mr. President and Members of the Convention :— For fear you may misunderstand a little and get a wrong conception of the topic that has been given to me to speak upon, and may run away with the notion that the board of regents have sent a representative here that might possibly give you some instructions, I will say that this is a wrong idea. A representative is not necessarily to give instructions; he may go out and pick up information. You know a representative in congress would not be so much expected to give instruction to the country, or at least not so certain to do it, as he would be to gather in his salary. Therefore I am here more for the purpose of picking up information by which the board of regents may more intelligently perform their several duties.

There is no subject deemed of greater importance in this country by all classes of its inhabitants than the subject of agriculture. More than twelve million laborers are directly engaged in its various branches; it not only feeds and clothes these twelve million people, but it feeds, to a large extent, the entire nation, and makes up the main bulk of exports abroad, and upon the prosperity and success of agriculture depends the success and prosperity of all other enterprises and institutions. These facts have been recognized by the passage of “homestead acts,” so that persons without capital might in time become owners of the soil, and thereby contribute to the aggregate wealth of the nation,

and to the revenues of the state. The vast responsibility resting upon the agricultural class would, if fully recognized, arouse them to increased vigilance to seize upon all available means for improvement. Education has been regarded by the best thinkers and writers, in the past and present generation, as of paramount interest to the individual, to the citizen, and to the nation. Statistics abundantly prove that the increase of education diminishes the commission of crime, and that it costs less to keep children in school than it does to keep them in prisons and houses of correction. It is a source of great gratification that the different administrations who have held possession of our state government in the past, have liberally provided for the education of the children. In addition to the resources of our own state to accomplish the above objects, the national government has, from time to time, granted liberal donations of land to establish institutions of learning, until the productive fund arising from the sale of these lands amounts, for the State University proper, to about fourteen thousand and four hundred dollars annually, with over four thousand acres of land yet unsold.

In addition to the above fund for general education, the arts and sciences, in law and language, and the more common branches of learning, the general government granted to this state, July 2, 1862, two hundred and forty thousand acres of land for the support of an institution of learning where should be taught the principles of agriculture and the mechanic arts. This fund is mostly productive, and annually produces about fifteen thousand dollars, with twenty-six thousand acres of unsold land. As you are aware, the State University and the agricultural college are at present conducted under one management, under the immediate control of the board of university regents, consisting of eleven members, appointed by the governor. This institution should properly be considered in its infancy. Much of its available means have had to be used in the construction of buildings, and the purchase of implements for the laboratory and machine shop, and other useful apparatus, and its full usefulness has not yet been reached. Our worthy Professor Daniells has experimented to the extent of his limited means, in the production of many kinds of grain, in the care and use of fertilizers, and the cultivation of fruits. The board of regents have determined, in addition to the above experiments, to introduce a

series of experiments, in the near future, with the different breeds of cows, to ascertain the amount of milk they give, and the amount of butter it will produce; also to test the different methods of raising cream, and of raising calves. There are two different systems now practiced in this state that deserve the attention of farmers. In an address delivered two weeks ago, by Col. Judy, at the agricultural convention in Madison, he advocated the raising of Short-Horn cattle for beef. His advice was to let the calf run with the cow the first year, or at least to have the milk the cow gave. Now every intelligent dairyman knows that the milk from a good cow, when made into butter or cheese, will net from forty dollars to sixty dollars; if it should be but fifty dollars, this then would be the proper amount the calf would cost at one year old. I need hardly tell the strongest advocate of Short-Horn cattle that no money could be made on a calf costing fifty dollars at one year old. Subsequent feeding would result in loss. Other advocates assert with much reason, that just as good calves can be raised on the skimmed milk, if fed before the milk has become sour, and oats and oat meal added to the amount of five dollars in expense; here then is a saving of forty-five dollars on each calf raised. The theory is, and it is substantiated by chemical analysis, that nearly all the nutritive properties of milk remain in the skimmed milk; the butter being the fat, it is better calculated to keep up the animal heat than to furnish nutrition; as calves are generally raised in summer, the caloric in the fat is not required, if these theories can be thoroughly tested and facts established.

The experimental farm may be of great benefit to farmers in the future. It is only by utilizing valuable discoveries that Wisconsin farmers can reasonably hope to prosper. It should not be expected that every little disputed question will be experimented upon, but only such experiments as require years to demonstrate, and expenses too large to be properly done by individual enterprise. The board of university regents should not be regarded as the pink of perfection, and able by their unaided wisdom to demonstrate all truth, but should only be regarded as the guardians of the funds arising from the sale of lands donated by the general government to advance the principles of agriculture and the mechanic arts, and this object can best be secured by the united wisdom of all classes of society, and such conventions as this

should not hesitate to suggest to the regents any change in their experiments that is deemed advisable.

The University of Wisconsin, with its possibilities for usefulness, should be the pride and pet of the people of the entire state, established as it is on an enduring basis, carefully guarded against sectarian influence, conducted on the democratic principle of equality, where the farmer student can stand side by side on equal terms with the student of the law, language or philosophy, where he will receive the same patient instruction on the experimental farm, in the composting of manures, the raising of grain, or the cultivation of fruit, as the pupil at the piano, the chemist in the laboratory, or the astronomer in the observatory; where farmers' and mechanics' sons and daughters can enter the same classes with the sons and daughters of lawyers and statesmen, on terms of perfect equality, in any branch of study they desire. With all these favorable conditions for success, this institution deserves our patronage and attention, knowing as we do, that knowledge and attainments hold the key to positions of honor, respectability and usefulness.

Mr. W. T. Innis— I am happy to see such a man as Mr. Smith on that board of regents. A year or two ago I read in the report of the State Agricultural Society, I think, of the question being asked, whether there was a farmer on that board. The answer came, I think from Prof. Daniells, that he didn't know that there was one. I am glad for the farmers that we have a farmer on the board of regents, and I would like to know if we have more than one.

Mr. Hiram Smith— Strictly speaking, I think there is no one else on the board that practices farming at the present time. Some of them, like most successful men, were born and raised on a farm; but I will say this, though many of them are lawyers, they are gentlemen, and men of good sense, and liberal in their views, and feel their responsibilities, and do all in their power to lay out to the best advantage the funds entrusted to their care; and I find no fault with them because they are not farmers. They are entirely disposed to do their entire duty, so far as I have been able to discover.

Mr. J. M. Smith— I would like to ask Mr. Smith a question. I

understand that they have in contemplation the election of a professor of agriculture, whose time is to be devoted entirely to agricultural purposes. Is that correct?

Mr. Hiram Smith — I would say that a resolution was passed at the last meeting, in June, to establish a chair of agriculture, and to employ a professor whose duty it shall be for two terms of the year to teach chemistry and botany, or branches of like nature, in the university, and during the winter term to visit the different localities throughout the state, wherever there is a little agricultural club or society in a county, to meet with that society and discuss the various questions which are agitating farmers throughout the state. This plan has been practiced with great advantage in the state of Michigan, and it has convinced the board of regents that, unless some such matter was gone into, the farmers of Wisconsin would fall behind in intelligence the farmers of the surrounding states; and therefore, it being urged by some of the prominent agriculturists, the board of regents thought it advisable in them to pass the resolution. We are now looking for some competent person as professor of agriculture, to perform the duties that I have alluded to. I wish to state also, that although farming has been prosperous in our state since its settlement, and most branches of agriculture have been in a prosperous condition — we could raise almost anything and could get returns — that that time is rapidly changing. We are menaced by a large area of cheap, rich lands on the west of us, and to some extent on the north of us. It has been demonstrated that in the wheat country out along the Northern Pacific railroad, they can produce wheat at a profit at forty-five cents per bushel; that they can raise wool at a profit at twenty cents per pound in Colorado; that they can produce four year old steers for twenty-five dollars in Texas and Kansas, while but little feed has to be prepared there. We are just now protected by what we are pleased to call railroad extortion. The high freights on produce from these rich countries is a protection to the crops we now raise, but let the tariff on railroad freight be adjusted in accordance with the present advantages, and we will find that we have got to examine closely what branch of business we will pursue. When these cheap products are brought into our markets at far below the cost at which we can produce them consistent with the present prices, as farmers,

we in Wisconsin will have to resort to more intelligent farming than raising eleven bushels of wheat to the acre. We shall have to produce something that will pay better than the present system of farming, and therefore we need all the intelligence we can possibly achieve, by the aid of scientific men, by the aid of our conventions, by the aid of all experiments which we are able to perform, in order to compete with the raising of these cheap products that are now floating upon the markets of the world. We see the effect of cheap products in Ireland, in England, with the land systems of those countries, that none but Patrick Henry could shake. Cheap food shipped into those countries is now making the system of land tenure in those countries totter to its fall, and no legerdemain of legislation, no clap-trap of statesmen, can stop it. We may soon be in the same condition; therefore I say we ought to feel the need and necessity of acquiring all the information we can obtain, in order to meet the coming event.

Mr. J. M. Smith — I would like to ask Mr. Smith what branch of farming he would recommend.

Mr. Hiram Smith — The successful market gardener ought to attend to his business, and the dairyman that had learned the business can properly pursue that course, and so on throughout the list. We can, by increased knowledge, increase the crop and increase the market. We may not increase the price, we may rest assured. You must be prepared to meet lower prices. But an intelligent dairyman can make more money now, with cheese at nine cents, than he could five years ago at eleven cents. Why? Because he has learned now to get an average of five thousand pounds of milk from a dairy, where five years ago it would hardly exceed thirty-five hundred; therefore he may reduce the cost of the product and increase the price by increased intelligence.

Mr. J. M. Smith — That was the point I was trying to meet. We must improve our farming. We must raise better crops, and more of them. Whatever branch of farming a man is engaged in, let him do it well. There is no doubt but that there is a chance for profit in almost any branch of farming, provided we do it well. If we don't do it well, there is no profit in it. I know my friend Smith is engaged in dairying, but if he made butter with his cows, and they only brought him twenty-five or thirty dollars apiece a year, he would find but very small profit; but he so manages his

farm and his cows, and the sale of his produce, that he gets from fifty to sixty dollars per cow; consequently he gets a surplus that he can spend in running around the country, in teaching us poor fellows who don't know as much as he does, what we shall do, and what we ought to do. And the same principle that rules in his case, rules in the case of the wheat grower and the beef grower.

I can't quite agree with my friend Smith. I believe there are some kinds of beef we can afford to raise. It is not every man who is so situated that he can go into dairying. There may be circumstances which make it almost impossible for him to go into dairying, but he can raise beef. It is a well known fact that Texas and Colorado beef is not the best beef, and it is not, as a general thing, fit for shipment to England until it is taken into some of the grain growing states and fed for a long time. The best beef we have may be grown in some of the western states, but it must be, as we term it, "finished off" in some of the grain growing states. It is well known there is a demand for a first class quality of beef—good, young beef. I received a letter from a friend not long since, stating that a two year old grade of Short-Horns may be grown, giving the calf to the cow the first summer, feeding them so as to keep them in good growing condition in the winter, and unless the pasture is good, feeding them a little during the summer, and feeding them heavily the second winter, and turning them off at about two years old. Some friends of mine have done this successfully, and they made them average twelve hundred pounds, and sold them at about five cents a pound, live weight. Now this is successful farming; and any man who is not so situated that he can go into dairying, and has a farm that is fit for it, can go into beef growing, and make a success of it. It is true there is a difference in the receipts, for the cows bring you fifty dollars a year, while for the steers you won't get sixty dollars at two years; but you must remember in the one case there is much more labor, and it costs a good deal more to take care of the milk, and make butter and cheese from a cow, than it does simply to let a calf run. It is very much the cheaper way. In one case it is a very expensive way, though I won't deny that the net profits may be larger in the case of the man who is so situated that he can go into dairying. My idea is that it is not absolutely necessary that a man should go into dairying. If he has a farm fit for it, he may make money off

of that. He may do it by making a good quality of beef. I don't believe you can do it by making a poor quality of beef or a poor quality of pork. If a man makes his land produce twenty-five or thirty bushels of wheat per acre, instead of ten or twelve, he can make money in wheat, but you can't make money raising twelve bushels of wheat per acre. The longer you try it the poorer you get. It has been demonstrated in ten thousand cases, and will be demonstrated in ten thousand more, I suppose, before they will give it up. Our farmers can't afford it. Mr. Smith is correct in his idea of doing our farming better. There is the principle, the whole thing in a nutshell.

Mr. Stone — I think in this idea of agricultural education and experiment, lies our greatest hope of progress in this country. I don't, of course, know anything about your state institutions here, for I am a new comer, but I am somewhat acquainted with those of some of the eastern states, especially Pennsylvania, and I know they are conducted on a very low scale. In fact, at the time I was there, they had no really thorough men at the head; no practical men, I mean — men who understood their business. They had for their president, a first class chemist. He was an agricultural chemist; he was in his proper place. They had a doctor of divinity for a vice president, and they had several professors there who would do well enough in an ordinary university to teach languages and the sciences, but they were totally unfit for the positions which they occupied. I believe there are but very few farmers in the country who are qualified for it, and the salaries they were paying wouldn't warrant their getting the very best men. For instance, the professor of agriculture was a farmer who was at least, at that time, twenty years behind good farmers. So of the state of New York. No young man could expect to learn anything of him, he would receive no benefit from him, and he was expected to direct all the affairs of the farm. They did have one horticulturist, but he was an uneducated man, except in his line, and of course the benefits resulting from that agricultural college were but very small indeed. If they could have had a proper faculty at the head of it, men in each department who understood their respective business, I believe it would be one of the greatest things for advancing agriculture that could possibly exist in any state, and I hope that the state of Wisconsin will take measures to put such men at the head

of each branch. You want one at the head of bee keeping, one in cattle raising, one in every department, one to raise chickens. In our little market here, for six months in the year it is almost impossible to get a chicken. You can't rely upon getting anything out of the season, because there is no systematic practice. You want men who understand their business in their departments, who are capable of instructing the scholars who go there, so that they will be spread throughout the state, and exert their influence upon all classes. They would be the educators of those who are not able to go there, and thus we could advance the interests of agriculture to a great extent.

Mr. S. Griswold — Mr. Smith has alluded to going into the dairy business. My advice is not for every farmer to go into the dairy business. If they do they wouldn't have a market for butter and cheese. Let those only go into it who have facilities for it, those who can pasture fifty head of cows on a neighbor's land, or land of people who live in New York, or Philadelphia, or Boston, or elsewhere. You must have running water where your cows can go and drink, within ten rods of the barnyard; with all these conveniences, go into the dairy business. I have just such conveniences, and I intend going into the dairy business.

Mr. Chester Hazen — If we have a few moments more to spare, I would like to hear from Dr. Barry.

Dr. A. C. Barry — I have been much interested during this forenoon in the several subjects that have been discussed, and the remarks that have been offered by the several members of the convention upon the subjects introduced. I quite agree with my friend Smith in the theory he holds in the paper that he has just read, with regard to the means of success in this great business of farming in Wisconsin. I suppose there can be no question in the minds of any of us who are present here to-day, that, in order to succeed in any kind of agriculture, he must abandon all loose and slipshod methods, and come right down to the legitimate business of farming. As Mr. Smith holds, we ought to put more intelligence, more common sense, or, as I stated in a lecture given two years ago, we must put more gumption, as the Scotchman calls it, into this business of agriculture; for after all, success in this department of business depends upon the wisdom and skill, or in other words, the intelligence which we put into our work, whatever that

work may be. I did not intend to say anything until the subject of manures came before the convention, and then I thought perhaps I might have something to say that might be of some little interest to those present.

Mr. A. H. Wheaton — Mr. President, Ladies and Gentlemen: I am not at present engaged in farming, although I have had some little experience in it. My young life was spent in farming. I was born and brought up on a farm, but I have not had the experience that some older men, such as Hiram Smith, have had in the pursuit of farming; but what little experience I have had, has convinced me that in order to be successful in the pursuit of farming, a man must put his whole energy and will into it. The more will and energy he has, the more success he will have, in my experience. In my observation, men are too slack, and too anxious to get rich and get a little money ahead, and then sell out and go into some other business that is more lucrative, where they can make money more easily and more readily. This is, I think, a mistake. There is no place where a man can make money more surely and more rapidly than on a good farm, if he puts that energy into that farm that he would have to put into some other business to make a success of it. Men will work upon a farm, and do what they see is positively necessary to be done. They will sow their grain; when the grain is matured, they will reap and harvest it, and sell it; and they think that is all there is to be done. It does not enter into their minds that they must put their whole mind into it, and study the nature of the soil, and the nature of the grain they are going to raise, and what is required to produce a certain crop of any kind. They think if the land is rich when they go on it, new land, and they get it cleared up, that they can raise almost everything, and they are raising anything and everything; and when it fails them, they will sell out and go into some other business, or go west where the land is richer, and will leave this farm for some one who has more brains. They use their muscle until their muscle is played out, and the soil too, and then they *go west*.

Mr. Joseph Mathews — I am too small a man to represent Waushara county. We have a man from Waushara that says it is the poorest county in the state. I am going to dispute that fact. I can do it, too. I live in Waushara county, and I am proud that I live in that county. I am glad of it. Mr. Griswold is not

a representative farmer of Waushara county, and when he says Waushara is the poorest county, and that it has the poorest reputation of any county in the state, he only talks about a very small part of it, where he lives — up where he has bought land at twenty-five cents an acre; but let him come into the eastern part of Waushara county. Mr. Torrey will tell you that he will find some of the very best soil that he can find in the state, and the nicest water privileges and fountains, the best blessings God has ever given man in the world. I live *there*; I have got some land there too. We have a little society there; I have the honor of being president of it. I was born on a farm; my father was a farmer; and so far back as I know, my ancestors were farmers and Presbyterian ministers. I am somewhat related to Stanley Mathews, but he does not happen to be a Presbyterian minister. I was very small and I was the youngest child; my father thought I was not fit for a farmer. He had just forty acres of land apiece to give to all the rest of the boys, and he thought Joseph was too small for a farmer. When I was fifteen years old I only weighed seventy-five pounds. He thought I would do for a tailor, to sit upon a board all day. He thought that would be the best thing he could do for Joseph; but that occupation didn't seem to suit Joseph very well, and he broke loose from home when he was thirteen years old. My father died and left me with my hands, and only one dollar in his will. But I guess it was because I was so small, he thought I wasn't good for anything; but the bigger boys, those that stood six feet in their stockings, he gave land, because they were able to till it. I went into a store. I thought I would try clerking, but I didn't exactly like that. It was too confining for me.

I thought it would be an awful nice thing to measure off cloth to the ladies. I thought I would really like that; but after I was there a year I didn't like it, and I thought I would try a mechanical pursuit, so I went into the furniture business. I followed that about fifteen years. It wasn't natural, and I didn't like it; I was always longing for a farm. I wanted some land. I don't know but that it was because of what an old negro woman told me. She came up from South Carolina. She examined the lines of my hands and said I would be a farmer and own considerable land. At that time I didn't have a dollar to buy it with. Anyhow, I

always had a love for a farm and wanted to get out of the city and breathe some of God's pure air. I wanted to handle cattle. I didn't care much about raising grain, because there was too much hard work about it. I wanted to handle cattle; I always loved stock. When I came west to this country, at twenty-one years of age, I managed to get hold of a piece of land of eighty acres in Wau-shara county. I have held on to that piece of land, and added a little to it occasionally, until I have got a farm. I have got some stock on it. I have got sixty head. I have got some from my friend Smith. I think I am going to have a good dairy after a while. I am furnishing milk to Mr. Wheaton's cheese factory. I don't profess to be a practical farmer. I spent fifteen of the best years of my life in the town and city, and three years have been spent since that in the army doing what little I could to save our nation. I am naturally a farmer. I believe my father made a mistake, and I believe that fathers are making mistakes all the time. I have just got one little boy and one little girl at home, and I believe if there is a man in this world who loves his children, it is Joe Mathews, and I believe those children love their pa, too. I am trying to teach them to love home, and I try to make things pleasant around those children at home. I don't coincide with that gentleman who said last night that you couldn't keep your boys on the farm. I believe my boy, when he grows up, will be willing to stay at home, and I will tell you why. I am going to give him the fleece off that lamb.

R. D. Torrey — In place of one boy, if you had seven, do you suppose they would all stay at home?

Mr. Joseph Mathews — Give every one a lamb and let him have the fleece. If that wouldn't keep them there I would give them more than one lamb. I calculated to let my boy have a chance at home, and I believe that is where fathers make a mistake. I believe the mistake is right here. You don't treat your children, in the first place, as your equals. I believe a father ought to treat his own boy as one of the family, at least, and make him feel that this is his home; that the home belongs to him, and when he gets through with it, it is going to be his. I know that the very best talent we have is drawn away from our profession to the cities. The very best lawyers, the very best doctors, perhaps, have been born on a farm. The most successful men we have in our cities, in every

business, in every profession, are men that were born on the farm. I tell you that boys born on a farm have got just as much brains as boys born in the city.

Mr. R. D. Torrey — The papers said last night they had more brains than those born in the city.

Mr. Joseph Mathews — I will tell you what I think about politics among farmers. I don't blame the lawyers and politicians for wanting offices. I don't blame the doctors for wanting to go to congress; but I blame myself and my brother farmers for sending them there. It is not because our farmers are not intelligent enough to vote right. I will tell you where the lack is. It is the lack of moral training on this question. My father taught me when I was a little boy to regard the ballot as something sacred, just as I would God's Word. He taught me that it was purchased for us by the blood of our forefathers; by the agonies and tears and sufferings of our mothers. That was the doctrine that was instilled in my heart. I never go to the polls to cast a vote but I think of the ballot as something sacred; but if I had a mind to, I could take a few dollars and pass around among the young men in every county in this state, and I could buy votes, just as Esau sold his birthright for a mess of pottage. This is wrong, and it is because our people are not educated properly on this question. It is the lack of moral training; it is not lack of intellect. God has given every man intellect enough to use some common sense. Common sense is philosophy; and every man ought to have common sense enough not to vote for a knave or rascal, or scoundrel, or a man he wouldn't trust in any place.

Mr. Davenport — Mr. President, and Gentlemen of the Convention: I want to reiterate Mr. Mathews' sentiments in regard to Waushara county. Waushara county has had a very poor showing before the convention. I live in Waushara county, and although I own no land, my father owns a farm and I am working it, and the farm land where we are is good. It is as good in quality as any land I have seen between our village and this city. We are dairying there. We have a fountain. Nearly every farm in the town has fountains where stock can run out and drink. We have a successful cheese factory and a successful cheese maker. We are furnishing milk to that factory. We have an agricultural society, as our president told you. We are interested in it, and it is growing,

and we are benefited by it. And we intend working up, in the town of Auroraville, a dairy district that shall be of some account to ourselves financially. We intend to work up a reputation that shall be of some account in the state and abroad. We want our cheese of such quality that it shall command a good price in the markets of the world. That is what we are doing.

Now, as far as potatoes are concerned, I for one don't have any time to engage in potatoes. I have all that I can do to attend to my farm duties. I believe, as friend Torrey says, that if a man has seven sons, perhaps the farm is not large enough to give them all a home. Again, our cities need men to engage in all pursuits and all the industries. I think it is natural that some of the farmers' sons will drift into the city; not only natural, but necessary. I think, therefore, it is well that some of the farmers' sons go to the city. They need some of them there. We should give all our sons a good education, so that if it is necessary, they may fill any post or any office. Some of them will want a better education than others, and they will get it if they have ambition and vim enough. They will be needed in the halls of congress or in the state legislature; they will be needed in the city; so that taking it all together, we expect to send some of the farmers' sons into the cities; some into the state legislature; some into the national legislature. I don't think we should strive to keep all our sons on the farm, because I think farmers are just as good as any other class of people, and we are happy to think them a little better. They are making politics better, they are making better laws, they are making our state better. I want some of the farmers' sons to drift into the city and into the halls of legislation.

Mr. J. M. Smith—I would like to ask Mr. Davenport how many towns there are in Waushara county that compare favorably with the land about Auroraville?

Mr. Davenport—We have in our county eighteen towns. I consider that Aurora is the best town in the county. We have three or four other towns that will compare quite favorably with the town of Aurora. We have four good townships and parts of other towns.

Mr. R. D. Torrey—It was my good fortune to be present at the Auroraville convention, and I can heartily agree with all that has been said by the last gentleman, as well as the sentiments ex-

pressed by Prof. Daniells, that in all his travels through the state of Wisconsin he had never seen so good a place, with so many natural resources for successful farming and dairying, as in the township of Aurora, Waushara county. Of its homes, of the hospitalities extended by its citizens to the members of that convention, too much cannot be said. The warm hearts, the energetic, thrifty farmers' homes, their wives and daughters made them feel that they were very near the Garden of Eden.

Mr. A. H. Wheaton — I want to say one word before we adjourn, in reference to pasturing cattle on neighbors' land or some one else's land, in order to make dairying successful. If our friend in the western part of our county intends to go into dairying and make a success on that basis, and can't make a success of it on any other, I wish to warn him in that respect. When we commenced the cheese factory in our town, they had lots of cattle running at large on men's land that didn't own the cattle. To-day there are no cattle running at large. Every man wants every foot of land he has got to pasture his own cattle. There is no room for outsiders. If they have not got land enough of their own, it is a certain failure. They will have to sell off their stock, because they can find no place to pasture on other people's land. If any man thinks he cannot make a success of it on his own land, let him come to our town and see how we do it there. I think he cannot make a success of it in any other way than by pasturing on his own land.

The following paper was then read by Mr. Dane, of Appleton:

I always respect farmers because they work for us so faithfully; and I also pity them because they are always called clod-hoppers and mud-sills. That stigma was first cast upon them in the Garden of Eden, where farming originated, but I suppose it was part of the scheme of Providence. I have always been astonished at that choice of an offering, and think the Genesis man got that matter mixed, theologians to the contrary notwithstanding; that the meat offering was rejected instead of the other. I think if I was a God, I should infinitely prefer the aroma from lovely flowers, beautiful fruits, and even potatoes, onions and pumpkins, to the smell of burnt fat and the entrails of animals.

I feel a great good will towards farmers. They supply nearly the whole food for the human race. That is the reason they are generally round shouldered; they literally carry the world on their backs.

I suppose Atlas was a farmer. I think it requires a great deal more courage to become a farmer than to be a general of an army; particularly if the general keeps in the rear and don't fight, and is not afraid to sacrifice all his wife's relations. But I know a great deal about farming. I have turned the grindstone, hoed potatoes, genuine Blue Noses, too (I came from New Jersey), and raked hay, and weeded out cabbage plants. I never could get over the disgust of dirt under my finger nails. Yes, and I have suckled calves. You know how it is done, bringing them up by hand. You just put your hand in a pail containing one pint of milk, the rest hay juice, turn your fingers up just so, and the little fools think it is all right, and go ahead. I had been a good boy at home; did all the chores, held the pitchfork before the hind legs of the kicking cow while the maid milked; didn't often drop it and run when the cow kicked; so father, to encourage me and prevent me from running away to the city and becoming a millionaire, a lawyer or a minister, one spring gave me a little bull calf. That little bull became the pride and joy of my life. When he was a yearling he could lick the old oxen. I always thought that he took his spunk from me, because I suckled him. They say courage sometimes oozes out at the finger ends.

By the way, I have got a cattle ranche out west. Some time you may read a scientific essay on the best method of raising oxen by hand.

At your next social gathering, I wish some farmer would propose me as a fit and proper object to become a granger. I am an excellent judge of cream. If the ladies will put me on that committee and supply me with a piece of nice cake, I will tell them to a dot which pan has the nicest and freshest cream, and of just exactly the right thickness. Experience is an excellent teacher. Being of an inventive turn of mind, I might invent a gate roller or a length of fence; might discover a way of keeping pigs out of the potato patch, without a fence at all; or I might discover a process of extracting the oleomargarine and caseine out of potato bugs, thus creating a new farm industry, and thereby assisting in developing our unrivaled water power. I will repeat, I have an unbounded respect for farmers, and admiration for the female portion particularly, for their courage, temperance and intelligence. But for the life of me, I can't understand how a farmer can consistently be

a greenbacker. Every one such is a traitor to his class, and ought to be expelled from the business and relegated to congress. They produce nearly all the wealth, and still clamor for clothing; an unprincipled set of rascals (as they assert), with the privileges and power to make money, as an offset, out of bits of paper. Can human folly proceed further. This reminds me that I am touching debatable ground; that I had better stop right here. Well, allow me to say I am glad to have met you, and give you a cordial invitation to join our club, and assist in electing to the presidency a man whom all alike admire for his patriotism, wisdom and unsurpassed ability. Then we will enjoy the full fruition of all our labors. The farmer, abundant crops; the mechanic and laborer, rest and plenty; the money lender his three per cent.; the government, stability and honor; the nation peace; and last, but not least, the office seeker his place and perquisites.

Prof. W. W. Daniells then gave a lecture on

THE RESULTS OF EXPERIMENTS ON THE UNIVERSITY FARM.

I have been before you so frequently, that I think you know, generally, in regard to the method which has been pursued in the University in regard to experiments. We have a farm there that is essentially conducted as an experimental farm. We have been conducting experiments for several years to as great an extent as our means will allow. Up to the present time, our experiments have been confined almost entirely to experiments with different varieties of grain, for the purpose of seeing what varieties were the most productive, and which varieties of grain were flourishing best under the peculiar conditions of climate which we have here. We have been raising the Fultz winter wheat, the first variety that is spoken of on page thirty-nine of the reports distributed to the audience. The yields are given opposite the year; the weight per bushel and yield per acre. You will see that in 1876, this variety killed entirely, so that we were obliged to plow the ground up and use it for other purposes. The average for the eight years is thirty-two and four-tenths bushels per acre. That is the average of eight years, including the year in which there was an entire failure of it. This wheat has grown upon ground which has

been cropped continuously since 1869 with cereals. We have used, generally, twelve loads of stable manure per acre each year upon the ground. You will see that there has been, upon the whole, a pretty decided increase in the yield. During the last three years the average yield has been more than fifty bushels per acre. This shows to me two things: first, that upon the whole this variety of wheat, if the last eight years may be taken as the average of any period of this length of time, and I suppose perhaps it may, it is a sufficiently long period, so that we may expect that any one eight years will be, on the whole, the same as any other eight years; it shows that this variety of winter wheat can be raised, and raised with profit, upon any land that is situated as that upon which this was grown, which is tolerably poor land, that is, land only of medium fertility, but which has had good cultivation. It shows to me, also, that there is no necessity that continuous cropping to a particular series of grains shall reduce the yield. Our land is in a better state of fertility now, on the whole, than it was when these experiments began. As you will see, the yield for the last few years has been better than during the earlier period. At the same time, with this variety of winter wheat, during the same years, we have raised a variety of spring wheat, which we know as the Red Mammoth, which is the only name I ever knew the wheat grown under. I don't know whether the same variety is grown under other names or not. During the same years, beginning with 1872, the average yield of this Red Mammoth spring wheat, which has yielded the most of any variety of spring wheat we have had, has been nineteen and four-tenths bushels per acre, while that of the Fultz winter wheat has been thirty-two and four-tenths bushels per acre, a difference in yield for the eight years of thirteen bushels per acre. That is more than the average yield of wheat in Wisconsin. The average weight of this Fultz wheat per bushel has been sixty-two and one-half pounds. The measured bushel of spring wheat during the same years has been fifty-six and two-tenths pounds. Here is a difference of five and three-tenths pounds, a little over five pounds per measured bushel increase in the weight of the winter wheat over the spring wheat. This, of course, indicates an increased value per bushel in the winter wheat over the spring, so that we have obtained, during those eight years, an increased yield of

the variety of winter wheat that we sowed, of five pounds more per measured bushel than the spring wheat, and consequently have had an increased value. We have raised during four years the Clawson wheat, that has been introduced, as you probably all know, and has been so largely grown in Michigan for the last few years. It is a wheat that has replaced the old Diehl wheat. It is not so white, but on account of its increased yield it has almost entirely replaced the Diehl wheat. The average yield for the last four years has been forty-one and eight-tenths bushels. I have not the yield down for each separate year, but during the four years the average yield has been forty-one and eight-tenths bushels. During the last year it yielded fifty bushels per acre, each measured bushel weighing fifty-nine pounds. This wheat, with us, has not yielded quite as well as the Fultz wheat. It is a little whiter wheat than the Fultz wheat, but it did not kill, however, in the winter in which the Fultz wheat did kill. Whether or not it will prove a more hardy variety, it would be hardly safe to say. We have had just this experience, that during the winter that the Fultz wheat killed, the Clawson wheat, growing right by the side of it, did not kill. It does not weigh quite so much per bushel as the Fultz wheat, but you see it gives a fair yield, forty-one and eight-tenths bushels — nearly forty-two bushels — taking the last four years. This, I think, is very much more than any spring wheat has yielded during the same time.

Both of these varieties of wheat have been sown in the southern portion of the state. The Fultz more largely, probably, in the vicinity of Madison during the past year. These experiments indicate to the farmers that if they are going to raise wheat they may better raise winter wheat than spring wheat, and they have very largely begun to sow winter wheat.

I presume that in the southern portion of the state, at any rate in the region about Madison, with which I am more familiar, there have been ten acres of winter wheat sown this year where there has been one acre sown in the years before since I have lived in Wisconsin, and it is largely the result of the success of these experiments. It has been somewhat of a trying winter, as you farmers know, for wheat. Whether or not the wheat will succeed this year or not, is not by any means certain; if the winter wheat fails, you will still have the ground upon which

to produce another crop. Those who have sown the wheat will lose the seed, and partially the labor which has been put upon the land, but not entirely, by any means, because you will have the increased fertility of the soil produced by your tillage. According to our experiments with the Fultz wheat, it is liable to fail once out of eight years, so far as our present experience goes; but if it does fail, you still have the use of the land for the year, because it will fail early enough so that you can put spring wheat in the ground where the winter wheat has been killed.

One word in regard to these two varieties. These varieties are not liked by the millers.

Very many of you probably may know that in Michigan about a year ago, I think during the last spring, the millers got together and resolved to advise the farmers not to sow the Clawson wheat, because it was a soft wheat and they did not like it, and they would not buy it if they did sow it. The farmers have sown very much more of it this year than ever before. The wheat has a value in the market, and I do not suppose it makes a particle of difference to the farmers whether the millers of Michigan will buy their wheat or not. If it brings the money in the market, it has the value in it to the farmer.

I have heard within a day or two, that the largest miller in the United States, probably the largest miller in the world — ex-Governor Washburn — has said of this Fultz wheat, that it was not good for anything, and while it yielded well, as shown by our experiments, and weighed heavily, yet the material of which it is made up is not of any value. Now, I admire Gov. Washburn for the very great ability which he has shown in business, but he is greatly mistaken when he attempts to put forth such doctrines as that. In the first place, all wheat has about the same composition, as far as that is concerned; and whenever you can get the market price for your wheat, you need not be alarmed in regard to its chemical composition. The wheat has a market value, and it does not make any difference what miller objects to it, or how he objects to it, if it brings you the money.

I admit that if you could as well grow that wheat which is hard, and which can be so easily ground, and which does not clog up the stones, it would be better to do it. Such wheat, as compared with softer wheat, has a greater value because the flour is better. The

Fultz wheat, however, has a value. It has the value of any ordinary wheat in the market, and do not fear in Gov. Washburn or any other miller, or anybody of millers, resolving that they will reject it, or that they will prove that it is of no value.

Mr. J. M. Smith—How does it compare in chemical analysis? What does that show as compared with some of the hard wheats?

Prof. W. W. Daniells—I don't know that it has ever been chemically analyzed. Whenever it is analyzed, it will show this: that while there may be a slight difference between this and hard varieties of wheat, the difference will be exceedingly slight. All wheat is made up of essentially the same ingredients, in essentially the same proportions. Now the proportions may vary a little. The Clawson wheat was analyzed by two different chemists in Michigan. One of them stated it possessed a larger proportion of nutritive value than the Diehl wheat, and the other one that it produced a little less, but the difference was not enough to amount to anything.

Mr. Hiram Smith—I want to inquire of the Professor if this Clawson wheat especially, and the Fultz wheat to some extent, cannot be worked into patent flour. Patent flour is all the rage now among all classes, who pay a good price for flour. When winter wheat has depreciated in value, from being fifteen cents above spring wheat to down below the price of spring wheat, how far can it be worked into patent flour?

Prof. W. W. Daniells—I suppose that, without doubt, it is true that hard wheat is the most valuable to the miller. Yet in Michigan, where the amount of winter wheat raised is immense (I think over twenty-five millions of bushels in 1878), there has been no difficulty in finding a market for soft wheat. The difficulty has been so little that the farmers have even sown more largely of this Clawson winter wheat than ever before. I suppose the Fultz wheat stands upon the market about the same as the Clawson in regard to hardness. If patent flour cannot be made from either of them, they will not bring as large a price in the market as they would if it could be made of them. That must necessarily be true. Demand and supply will regulate that, and the demand will not be as great as if patent flour could be made from them. In regard to making patent flour from either of these varieties, I know nothing at all. I only know this: that there is no trouble in marketing either variety at the present time.

I don't anticipate any trouble in the future. About three years ago, I think, I learned from a gentleman living in Madison, who was buying wheat largely over the country, that the millers of Maryland and Virginia, where the Fultz wheat was raised to some extent, objected to the wheat on the same ground; yet wherever the wheat has been raised, there has been no difficulty in finding a ready market for it at good figures. In regard to the relative prices between it and harder varieties, I don't know. I don't know that there are sufficient statistics so that knowledge can be obtained in regard to it at the present time. I want to say these words because it is so easy to get up a cry of this kind — that “the millers won't buy it.” It has been raised in large quantities, and so far the millers have bought it. No one need say that any variety of wheat which has a plump, full berry, varies materially in chemical composition from any other variety of wheat. Of the varieties of winter wheat we have raised, these two seem to me very much the most promising. Indeed, I consider them very promising varieties; while in regard to the others, I should never advise a farmer to sow them until I know very much more of them than I do at the present time. As you will see by looking at the book, we have had under experiment three other varieties. The first is the Prussian, the seed of which we obtained in this state, which does not seem to be a profitable variety as compared with the Clawson or the Fultz, its yield being very much less — thirty-eight bushels per acre for the last year. We have two other varieties which are new in this locality, that we obtained from the United States Agricultural Department at Washington — the Golden Straw and the Silver Chaff. The Golden Straw is a variety from Tennessee. The Silver Chaff is a variety from Canada. One of them is southern and the other a northern variety. The northern variety seems to be tender. We have raised it two years. Both of those years it killed to some extent. The southern variety seems to stand the winter very well. There is a good deal said in regard to raising wheat; a good deal against wheat raising and in favor of turning wheat farming into other channels; and a good deal of what is said in regard to this change I agree with most heartily; yet to a large extent, this growing of wheat as a means of ruining the farms of the state ought to be qualified. There is no reason why continuous growing of wheat, with the proper system of cul-

ture, should produce this barrenness of the soil which is so much being talked of, and which indeed it will produce if care is not taken; and the way out of that difficulty, in my opinion, is to seek the blessing which Mr. Weyerhorst spoke of this morning — the blessing of manure.

I say this, feeling considerably certain in regard to it. I think our experiments with regard to fall wheat-growing upon soil where cereals have been grown year after year, with a continuous increase of yield, has shown this. If the farmers of Wisconsin are going to continue to grow wheat, I hope, and I think that our experiments there at the University furnish a sufficient basis for the rational hope, that they will turn their attention more to growing winter wheat, and less to growing spring wheat. It seems to me to have a double advantage in that, if it succeeds, it will out yield spring wheat; if it does not succeed, you still have your land on which you can grow another crop. If you lose the crop of wheat, you do not lose the use of your soil for the year as you do in the case of spring wheat. The experiments in regard to spring wheat I do not consider of sufficient importance to bring before you, for the reason that I do not think, with the experience of twelve years before me which I have passed in Wisconsin, that you can afford to raise spring wheat any longer.

The variety that we found, as I said before, the most profitable is the Red Mammoth spring, which has yielded with us for eight years nineteen and four-tenths bushels per acre, which is considerably above the average yield in the state. It is about one-half more than the average yield of wheat in the state, I think, and yet I do not think it is sufficient to pay. It has not been sufficient to pay relatively, I mean. There are other crops that can be made to pay so much better than this, farmers can no longer afford to raise it.

Wisconsin is not a very great barley growing state, although it is something of a beer producing state; but we have been experimenting with barley for several years and we find the Manshury barley, which you will find noticed first among these varieties on page 42, a wonderfully productive variety. This variety has yielded, as you will see by the table upon the forty-third page, beginning with 1872, for eight years, forty-nine and three-tenths bushels per acre. These bushels are bushels by weight, forty-eight pounds. You will see the yields for each year there. You will see

also, that, upon the whole, the later years have yielded very much more largely than the earlier years.

We took the University Farm before it had ever been cultivated at all. It has not been cultivated, except as we have cultivated it, since 1869. I have the yield of this variety since 1872, after the land had been cropped three years before the yield of this barley; yet you see while we had a virgin soil to begin with, the yield has gradually increased. The cultivation has been only ordinary cultivation, except in the sense of its having been well fertilized.

We have each year put on a coating of manure, usually twelve loads to the acre. This is the whole secret of the matter. It is plowed, harrowed, hoed and cultivated in every way as an ordinary farmer cultivates his soil. You see by the yield that we have increased the fertility, if the yield of crops is any index to the fertility of the land. I think every farmer may do this if he uses the same means. You will see in the table upon the 43d page, the relative production of four different varieties of barley for the years we have raised Manshury barley. Chevalier barley is well known in the state. The barley we call Common Scotch is a variety imported from Scotland directly for us, and it is barley that went there under the name of Common barley; it was imported by a Scotchman. We raised it first in 1872, and have raised it ever since. The Saxonian barley I think all of you are familiar with, and possibly the Probstier. The Probstier has been the most valuable of all the varieties with us except the Manshury; the Scotch the least valuable. The Manshury I consider to be a very unusually productive variety of barley, and if any one is going to raise barley, in my opinion they cannot afford not to try this variety.

In passing on to oats, I will say that we have raised a large number of varieties of oats, but have discarded the most of them. The White Schonen oats we have raised continuously for a large number of years. I have here a table for a larger number of years than I find in this report referred to here, which is the report of the previous year. The average yield up to 1878 for eight years, was 58 8-10 bushels per acre; that is a longer time than we had raised any other variety which we raised last year; 58 8-10 bushels per acre, beginning with 1871 and stopping with

1878. In 1879 it yielded, as you see here by the table, 96 2-10 bushels per acre. For the last five years its average has been 80½ bushels per acre. Of the other varieties we have raised for some years, beginning with 1875, the Somerset oats have yielded 56½ bushels on the average; the Canada oats, 68 1-10 bushels, with 80 bushels for the White Schonen; showing a large increase of yield in favor of the White Schonen. It is *the* oat, it seems to me, of all the varieties we have tried during the past eleven years, which promises to be of the greatest value to the farmer. While speaking about oats, I want to call your attention to the Hulless oats. I do not know whether you had the Hulless oat mania among you or not. We raised that variety for four years, closing our experiments in 1875 or 1876, and it proved to be with us utterly worthless. We never had a yield of more than twenty-five bushels to the acre during the time. We discarded them.

We published our experiments every year, and published in 1875 or 1876, I do not remember which, the result of the experiment for the whole number of years we had them, and that we should discard them, because they were valueless; and yet thousands of dollars have been taken out of the farmers of this state within the last two years by paying ten dollars a bushel for these oats. I understand that agents are now selling them down in the region of Cincinnati. They have taken the principal part of the harvest that they expect they can reap in Wisconsin, and have left. I speak of this particularly for this reason: not so much because I expect you are going to be duped now, but it shows to me another thing. Two thousand of these reports are distributed throughout the state to the farmers; that is as many as the legislature pays for the printing. The State Agricultural Society prints two thousand copies of the report of their proceedings, and these experiments are reprinted in them, and thus four thousand reports of these experiments get abroad among the farmers of the state; and yet I suppose four thousand is not one-tenth part of the number of dollars that have been taken from the Wisconsin farmers by this Hulless oat. This fact indicates to me, that farmers do not always get all the information they might, where the information would be of great value to them.

If there are any persons who have kept the run of our experiments with corn for a series of years, they may know we have

raised the White Australian corn for nine or ten years, and a variety of corn that we know as Yellow Dent, and another variety which is known as the Cherokee, for a large number of years. We have discarded all other varieties that we have raised.

We think them, as compared with these three varieties, unworthy of cultivation. We cannot afford to cultivate them because we can only afford to cultivate those which yield the most. The White Australian yielded last year eighty bushels per acre; this was eighty bushels of ears weighing seventy-five pounds; Cherokee eighty-three and two-tenths; and the Yellow Dent eighty-four and five-tenths. We have been raising with these particular varieties for the last three years, another variety which was raised by a large farmer of Green county, and which he thought to be an unusually productive variety, larger than either of these varieties; the name of the farmer is Lysaght, and we called the corn after him. During the three years we have had this variety in cultivation, the average yield has been:

White Australian	89 4-10 bushels
Cherokee	86 1-10 bushels
Yellow Dent	89 7-10 bushels
Lysaght's	77 8-10 bushels

We have had these varieties in experiment now for three years with precisely the same cultivation, with a little over ten bushels per acre in favor of the poorest of our three varieties. In my opinion for the ordinary farmer, this Yellow Dent is an exceedingly valuable variety. I cannot tell, of course, how it will yield as compared with the varieties you are now raising, but as compared with all the varieties of Dent corn we have — and we have raised quite a number of them during the series of years that we have been experimenting — it is the most valuable. During the entire series of years that we have been experimenting with it, including 1871 to 1878, the White Australian has yielded seventy-one bushels per acre. That was for the eight years ending with 1878. We raised the Cherokee during the same years, and it yielded sixty-five and nine-tenths bushels; that is, the White Australian yielded five bushels per acre more than the Cherokee. The Yellow Dent we only began raising in 1873. During the years beginning with 1873 down to 1878, it yielded seventy bushels per acre, not so large a yield as the White Australian.

Mr. W. T. Innis—Is the White Australian a flint or a dent corn?

Prof. W. W. Daniells—The White Australian is a flint variety, eight rowed.

Mr. W. T. Innis—What is the time of ripening?

Prof. W. W. Daniells—About a week earlier than the Yellow Dent. We have always planted the White Australian three and one-half feet one way by four feet the other, while we plant dent corns, all of them, four feet each way, so we plant a larger number of hills per acre. Indeed, I think the White Australian can be just as well grown three and one-half feet apart each way, as the Dent corn can be grown four feet apart each way. Of course this increases the cost of cultivation.

Mr. W. T. Innis—The Cherokee I understand to be a new variety. How does that variety compare in time of ripening with the White Australian and the Dent?

Prof. W. W. Daniells—It is a little later than the White Australian, and a very little later than the Dent, but I cannot tell precisely. Let us look at the last year. I have not put it down in 1879. I usually put down all those experiments in detail, but I see I did not this year. In 1878, Yellow Dent ripened September 20th, White Australian September 14th, and Cherokee September 20th. If any of you have the reports of the secretary of the State Agricultural Society, even though you may not have these reports of the experiments entire, you will probably see the relative time of ripening of the two varieties. There is very little difference between the Yellow Dent and the Cherokee, I should say, upon the whole. This is an impression merely, that Yellow Dent is a little earlier. The White Australian is in the vicinity of a week earlier than the Yellow Dent. All of these varieties are valuable, the Cherokee and Yellow Dent as dent varieties, and the White Australian as a flint variety.

Mr. W. T. Innis—Please state the time of planting?

Prof. W. W. Daniells—The time of planting varies. Last year the time of planting was May 16th. My own idea of planting corn in this climate is to get it in as near May 15th as possible. I should not care at all to have it in the ground before May 10th, taking the average season, and I should not want it to go in later than the 18th or 20th of May, I think, upon the whole. In 1878

we planted May 18th; last year we planted May 16th. I think through a long series of years corn will do fully as well planted May 15th as earlier; certainly it ought to be planted by the 20th, if not before.

Mr. A. F. Cronkhite — There is a good deal of corn called the White Dent?

Prof. W. W. Daniells — We had a variety a few years ago that was called White Dent, an exceedingly large variety, large stalk and large ears. It was altogether too late for our locality. It did not ripen. You will see on page forty-five that we tried last year four varieties of flint corn. Mr. Wood, of Baraboo, raised the Waushakum corn, a variety comparatively new, and thought it was the most valuable variety; that not only was it earlier, but that it yielded more than the other flint varieties. We tried the experiment last year to test these characteristics. You will see the result on page forty-five. The experiment was only on a small scale, twenty-five rods for each variety, but each variety had the same treatment. The yield per acre was: Compton's Early, sixty-three and one-half bushels; White Australian, seventy-five and one-half bushels, which was not so much by five bushels as the field yield for the year of the same variety; the New England, that is the Yankee, eight rowed yellow corn, 61 8-10 bushels; the Waushakum, 48 8-10 bushels; that is, the poorest variety we had raised before, yielded nearly fourteen bushels more per acre than this new variety, the Waushakum.

In regard to potatoes, if you have kept track of our experiments during the last eight years, you know that we have discarded a very large number of varieties of potatoes. It is our custom, when new varieties come out, to get the seed as soon as we can. We usually buy the seed when it is very costly, and raise them upon a small scale at first and afterwards upon a larger scale. We use the new varieties to test their worth or worthlessness. These, you see, are comparatively new varieties that we have now in cultivation — not all of them, but the most of them.

The Ruby, which has come into very general repute in the Eastern states, you will see during the last year did not prove to be a valuable variety. Last year was the first year that we raised it on a sufficiently large scale to test it. It yielded about 97 bushels per acre. The quality was not good. It was fair, but not good.

The Improved Peach Blow yielded 67 bushels per acre.

The Superior, one of the varieties which was brought out, I think, during the Centennial year, was next to worthless, being but 10 6-10 bushels per acre.

The Early Rose variety, the value of which you all know, yielded 77 bushels per acre.

The Snowflake, 134 bushels.

The Manhattan, which is again a new variety, of very poor quality, yielded 161 bushels.

Bliss's Triumph, another new variety, of good quality, yielded 142 bushels per acre.

The Trophy yielded 96 8-10 bushels per acre. This is a very fair potato.

The Centennial, which was of poor quality this year, which was the first year we had it in sufficient quantity to test it, yielded 205 bushels per acre. That yield, you see, was very much larger than any other variety, although the quality was poor.

Mr. J. M. Smith — I see you place the Snowflake higher than the Early Rose. Has it generally yielded better than the Early Rose with you?

Prof. W. W. Daniells — Yes, sir; it has.

Mr. J. M. Smith — With the same cultivation?

Prof. W. W. Daniells — All these varieties get the same cultivation precisely. In 1878, the Snowflake yielded with us at the rate of 252 bushels per acre, and the Early Rose 167 bushels per acre.

Mr. D. Huntley — How was the quality of the Snowflake?

Prof. W. W. Daniells — It is the best potato grown, so far as I know. I don't think there is much difference between it and the Early Rose. Possibly no one could tell the difference. I consider the Early Rose a first class potato. It may be fancy, but we prefer the Snowflake, and it is generally preferred in the market at Madison. The Snowflake will sell for five to ten cents more per bushel than the Early Rose. I have often thought that with myself it was fancy, and yet sometimes I have thought I could tell the difference between them. I don't know that I can. They are each of them a most excellent potato.

Mr. T. W. Rhodes — What kind of a soil were your potatoes raised in?

Prof. W. W. Daniells — The soil is clay loam.

Mr. T. W. Rhodes— Is there any of it sandy?

Prof. W. W. Daniells— No. We have not any sand. We have three other new varieties which we had last year only in very small quantities. They are the Dunmore, Beauty of Hebron and the Late Snowflake.

The Dunmore, as far as quality is concerned, seems to be fully equal to the Snowflake. It is an excellent potato. We have enough seed this year so that next year we shall be able to give it a field trial, so as to know in regard to its yield. We do not know that at present.

While at Auroraville this winter, I came across a variety of potato, which is a fair table potato, as I ate it there, and which, if the yield which they spoke of there can be taken as an indication of the average yield, promises to be a very prolific variety. It is called Jordan's Prolific. I speak of it now simply because, if it is of any value, you may have the experience of the people in the vicinity of Auroraville. They spoke very highly of it, indeed. The quality is good, I should say, not excellent, but the yield they claim to be half more or even double that of the ordinary varieties of potato. I have bought some and have taken them home, and we shall try them this year.

Question— What colored potato is it?

Prof. W. W. Daniells— They are white when pared and cooked.

Mr. J. M. Smith— They are a white potato.

Prof. W. W. Daniells— They are a very nice looking potato when cooked.

Mr. Devenport— I would like to ask the professor in regard to the experiments with winter wheat. I would like to know the yield of the Clawson winter wheat during the year that the Fultz failed entirely.

Prof. W. W. Daniells— I think I have it here. They are nearly all of them in the report for 1878. The year that the Fultz failed the Clawson yielded seventeen and six-tenths bushels per acre. That was in 1876. In 1877 it yielded forty-two and six-tenths bushels per acre, and in 1878, fifty-five bushels per acre, and this year fifty.

Mr. J. M. Smith— I would like to enquire of the professor, if the Snowflake, as a general thing, as far as he knows, yields in Madison and vicinity as well as the Early Rose.

Prof. W. W. Daniells—It yields very much better, as I told you the yield for 1878.

Mr. J. M. Smith—Then you were speaking of your own grounds; but I mean in general cultivation about Madison.

Prof. W. W. Daniells—I don't know. It is in very great repute with the farmers there. They raise it very largely, and like it very much. My opinion is that it will outyield the Early Rose; yet that is only an inference.

Mr. J. M. Smith—I have had it for a number of years upon my grounds. I have not been able to get a fair yield from it, except last year. Last year it yielded about as well as the Early Rose, where they were grown side by side, with cultivation the same in all respects. As to the quality, I think that the Early Rose must be better with Prof. Daniells than it is with us, or else the Snowflake is not as good with him as it is with us, for there is certainly a great difference in quality. I am entirely in favor of the Snowflake.

Prof. W. W. Daniells—The Snowflake yielded nearly a hundred bushels more in 1878, with us, than the Early Rose.

Mr. J. M. Smith—I never have got half as much until last season, when the yield was about the same.

Mr. D. Huntley—I think the Snowflake in this locality yields more than the Early Rose. I know they do with me. There is quite a number raising them. Their quality is very superior.

Mr. Joseph Mathews—I may be mistaken in regard to the Snowflake. My experience and my neighbors' experience is with that of Mr. Smith. I have tried the Snowflake; I have tried the Early Rose; I have raised Jordan's Prolific; and I cannot raise over 60 bushels of the Snowflake, and I can raise 150 bushels of the Early Rose. Is not it in the soil? Is not there something in the soil?

Prof. W. W. Daniells—Are you certain you have the genuine variety?

Mr. Joseph Mathews—It is a good potato. My father-in-law, I think, is one of the best cultivators of the potato that I know of in the country, and his yield was just about the same as mine. My brother-in-law has tried it with the same result. Now, the question to my mind is, is there not something in the soil? Is not that potato better adapted to the soil of Madison than it is to our soil?

Mr. J. M. Smith — What is your soil where these were grown?

Mr. Joseph Mathews — Mine was a sandy loam where I have raised them every year. It is not wet, but it is a sandy loam, rich, and perhaps a little clayey, but on the whole, rather a sandy loam.

Mr. J. M. Smith — Where mine are grown it is a sandy loam, with a sandy subsoil. You will get down to pure sand if you go far enough, and you do not have to go very far either. It may be that the soil upon which the professor grows his potatoes is of a different quality.

Mr. Dane — I wish to say something in regard to the matter of Governor Washburn's experience in manufacturing a certain kind of wheat. It was admitted that Governor Washburn was a very extensive miller, and consequently he ought to be a practical man, and his experience should be of some value in the matter. I want to illustrate. I was once a spoke manufacturer in this town, and, being an honest man, I was very particular and wanted to manufacture an honest spoke. I used to buy the spokes in the rough. Most of them were hauled in by Germans. I am a good friend to the Germans, and I think they are an excellent class of people; still they were anxious that I should make use of inferior stock in making my spokes.

I had a competitor about half a mile away, who was manufacturing spokes at the same time. One day a farmer came along with a load of very inferior wood. I rejected it, and of course he did not like it very well. "Why can't you make spokes out of it just as well as Chris? He is a smarter man than you."

"Well," says I, "I can't help it; take them off." So he went around to Chris, and after a while he came back smiling. "Well," says I, "how did you manage?" "Oh," says he, "he took them, knots and all?"

Now here is the point: I succeeded in my business, and made a little money. My competitor that used an inferior article had to subside. He lost his business; went out of it and lost money. You see I made a little by using the right kind of material.

Mr. J. Mayhew — I want to ask one question in regard to this Hullless oat, whether it is what they called the Bohemian oats?

Prof. W. W. Daniells — We call them the Bohemian or Hullless.

Mr. Mayhew — They had the Bohemian oat fever in Sheboygan county last year, and they got pretty badly bitten too.

Mr. Merrill — I would like to have the Professor describe the Snowflake potato, as I have seen two or three varieties coming under that name. I have raised one variety. My experience has been very much like his. I have seen my neighbors have two other varieties that they claimed were Snowflakes, which were very different from mine. They may be different varieties under the same name.

Prof. W. W. Daniells — No, sir; I cannot describe the Snowflake potato. I don't know as it has any peculiar characteristics. The only characteristic that I know of is that I had to pay fifty cents a bushel for them when I could get the Early Rose for forty. It is a medium sized potato, smooth.

Mr. Johnson — I was not in time to hear the Professor's remarks. I would ask if he has ever experimented with the White Russian spring wheat.

Prof. W. W. Daniells — We have a variety that we call the Russian; it is not a white wheat, it is a red wheat.

Mr. Johnson — A white wheat. The Lost Nation some call it.

Prof. Daniells — No, sir; we have never had it. I do not know whether we have it under another name or not.

Mr. Johnson — Have you ever experimented with salt as a fertilizer?

Prof. W. W. Daniells — No, sir.

Mr. Johnson — Last year we sowed three acres of White Russian in a field adjoining a field of Fife. There is no doubt but that the White Russian is the better wheat to yield. We sowed salt on the White Russian at the rate of a barrel on the three acres. Whether that had much to do with the difference in the yield, I do not know, but the Fife yielded but eleven bushels per acre, while the White Russian yielded $22\frac{1}{2}$ bushels on the same soil. All the difference there was in the cultivation, was the sowing of the salt.

Prof. W. W. Daniells — I wish to say just one word here. I regret that this gentleman did not sow the salt upon half of that White Russian wheat, and also sow salt upon half of the Fife wheat; then he would have known whether the increased yield was on account of the salt or on account of the variety of wheat. You are

responsible for that experiment to all these men. They were inquiring for you this morning.

Mr. Johnson — This year I intend to sow salt on all of my wheat.

Prof. W. W. Daniells — Next year you will not know whether the salt increased your yield at all or not. Why will you do such things! You are not responsible for yourself only, but you are your neighbors' keeper. Let us have something that will help the world onward. Let me say this to all. A man cannot afford to try experiments of this kind in such a manner that he is not able, when he gets through, to say: "Here is one experiment that teaches you this."

An experiment don't teach you anything unless you compare it. We have had experiments in regard to fertilizers on the University farm, in which plats that never have received any fertilizers yield one year twice as much as they do another, although there never had been a fertilizer upon the land. If we had not had plats that were fertilized to compare with them we would know nothing of the cause.

If a man does not manure a field one year, and does the next, and gets an increased yield with the manure, he says: "Why, I manured my field and doubled my yield;" but he does not know anything about it unless he compares this with a field not manured.

Here is an experiment on the forty-sixth and forty-seventh pages, which we began three years ago on a purely virgin soil, for the purpose of seeing which one of the three inorganic constituents, nitrogen, potash, or phosphoric acid, was the most valuable, or, if they were all valuable, in what proportions.

In order to carry on this experiment, we have had to leave four plats out of seventeen without any fertilizer, simply as a basis of comparison. The four plats never had any fertilizer on from one year to another. Without those, we would have no means at all of knowing the results of the experiment.

So with all of you. You not only want to learn yourselves, but you want to be teachers to those about you. This can only be done by having two plats, two different localities in which the conditions shall vary, inasmuch as with only one condition you can have no basis of comparison whatever. You need to think wisely before you begin. It is not an easy matter to conduct an experiment on the farm, and have it worth anything when you get through.

I have known in regard to experiments of this kind for twenty years.

I have been connected directly or indirectly with experimenting, and I am impressed more and more each year with the fact that an experiment in agriculture that is of any value is a thing which it is very difficult to conduct, and can only be of value when carefully conducted over a long period of time. So I beg of every one of you, that, if you are going to sow wheat, and sow salt upon it, you will not sow the salt upon all of the wheat, because if you do, when you get through you will not know whether you get any value from that salt or not. Sow salt upon a portion of it. Put barn yard manure on all of your land because you know that it has value. Salt sometimes is good and sometimes is not, and you can only prove it by trying, but you will not know when you have tried it one year whether you can afford to try it the next year, unless you vary the conditions under which two plats of ground have been grown. Excuse me for my warmth, but I feel earnest in this matter. I have been at it so long, and know so well that good results can only be obtained by this careful, thoughtful and intelligent method of experimenting. I want to see every man who puts forth an effort, put it forth in the right direction, so there shall not be a stepping backward one iota from the advanced position he takes each year; each year should witness going forward with certainty; and in that way only can agriculture be advanced, and the intelligence of the farming community be increased.

Miss Kittie Griswold entertained the convention with a piano solo, in excellent style.

Mrs. D. C. Ayres, of Green Bay, read a paper on the topic of

HOUSES AND HOMES.

Every home may be in a house, but every house is not a home. A building may be very magnificent or very lowly, but it must have a certain capacity not always realized. Wendell Holmes says: "All the elegance in the world will not make a home," and we well know that poverty is not a good assistant in the matter. That all houses are not homes requires no argument; the fact proves itself. If there are not those who having houses are still

homeless, why are so many ever wandering in search of pleasure, which a true home should afford?

A house is a building of wood or brick, stone or marble. It may be lived in, slept in, eaten in; but unless it is a temple of the heart, unless the best and holiest affections of our being are there developed and brought into the highest perfection of soul life, if any outside interest can with success rival its importance, if any pleasure can equal its attraction, it is not the true home. Its memories will not spur on to noble lives, or its happiness be lived over in aged minds.

A touching reminiscence of the late civil war is that of the rival armies encamped on opposite sides of the Rappahanock.

When the Union band played Yankee Doodle, the Boys in Blue shouted defiance to the rebels! When they played Dixie, cheers arose from the Confederate troops; but Home, Sweet Home, was greeted with tears from the eyes of strong men. Thoughts of loved ones rushed in to smother defiance and jealousy. Homes in the north, homes in the south, desolate; wives and mothers anxious; children and sisters lonely. Homes which many of them should see no more.

Let us look into some of the homes of our beautiful Wisconsin, which seems to have garnered so much of the earth into its borders; our forests grand with the growth of ages, our land fertile and rich, climate pure and healthful, and our scenery so beautiful as to excite the wonder of tourists. Our people enlightened, refined and intellectual; the best elements of eastern society mingling with the free independence which seems to be in the very air we breathe. Women in Wisconsin have freer scope given to them. They may speak, and meet with cordial, respectful hearing; they may plead for their homes and their children, and their right to do so is unquestioned; and so to-day I would ask you to look into your houses, and see if they are homes.

As agricultural and horticultural societies, our object is to improve and press forward the claims of agriculture and horticulture upon the minds of the people; to prove their importance and develop their advantages; to increase interest in the work of the farmer and gardener, and to learn how best to do it. While farming attracts more and more attention, and as an occupation is steadily developing its resources, shall the farm house remain stationary?

Shall it still be merely a place in which to refresh and rest the tired body? Shall the barns be large and the houses small, the ground well cultivated, the stock well cared for, and the home dreary, comfortless, unsatisfying?

I know there are many houses worthy of being called homes, but are there enough in proportion to the farmers of our state; are their children growing up so that Home, Sweet Home, will bring them pleasant memories? They will soon be the farmers themselves, and farming is fast growing to demand intelligent heads and educated minds.

The time will come when agriculturists, having been taught by experience, will learn that a good newspaper is a great economist; and reading the signs of the times, may have little corners of their own into which speculators cannot creep, and by means of which the hard earnings of their honest labor shall in good sound money find a resting place in their own pockets, and make happy and beautiful their own homes.

And shall beauty find no welcome in a farmer's home, with God-given intelligences all around him, breathing out the very essence of the beautiful, the glorious sunrise; the lovely sunset; the trees, music galleries for birds of the air with songs of praise tuned by the notes of innocence; the soft sighing of the pines, and the whisperings of the oaks; the murmuring of rivulets and rushing of waters; the green fields and mossy rocks; the fruits and berries, each in their season; and the sweet flowerets of the forest, gentle, fragrant and beautiful, ever bidding us remember, though we sleep, we shall wake again. Surely they crown the independence of the farmer's life with a reward of nature's own bestowing.

Allow me to suggest a few of the means which may be used to change the poorest, plainest house into a healthful, pleasant, happy home.

Neatness and order, outside as well as inside; the children interested in adorning the house with little things of their own manufacture; a place for all things, amusements as well as duties, games and bracket-saws, as well as hoes and rakes and wood-saws; the one must be, the other can be. The little orchard, where budding and grafting, pruning and fertilizing may be as well carried on as in a large sphere; the garden where lettuce and spinach, radishes and strawberries, currants and grapes may cheer the ey

and improve the health; and far better medicine than can be purchased at a druggist's.

Regularity is a requisite of a pleasant home, because the want of it is a great provocative of ill-humor; so much of comfort depends on it, so much of enjoyment is lost by its neglect, that no home can afford to be without it.

Gentleness, patience, good-nature, long suffering, forbearing one another in love, these are Christian graces which indeed make a sweet home. There is a fund of happiness in keeping birthdays, remembering anniversaries, making the day of labor an easy path to an evening of social intercourse, each one with some new thought or fact, no matter how trivial, it will serve to rouse to greater effort.

The farmer will learn in time to feel newspapers and books as necessary as food and clothes. Ignorance must vanish when thrift begins. The press to-day educates the American people, and it is of no use to go back to the dark ages, unless we watch the present one; while the history of the past is necessary, that of the present is imperative. Ignorance may dwell in a house, but not in a home.

There is no house, however poor, that the sun does not seem to find the easier, if there is a flower at the window; there is nothing which tends more to refinement in the family than the cultivation of plants. It is a perpetual source of enjoyment and interest; a fresh leaf, a bud, daily improvement in some petted variety; setting out in the spring, taking up and repotting in the fall; protecting from the frosts, shielding from too intense heat. One hardly has time to be selfish, unless selfishness takes that form. The flower garden is an endless enjoyment, and a thing of perpetual beauty; there are so many vines which will hide an unpainted wall; so many wild flowers which will improve under careful cultivation, that no home, however poor, need be without flowers.

Our Wisconsin woods hold the purest wild flowers of America in their keeping. Let us gather them in, and make a garden of beauty around us. Loneliness will depart when nature sends her messengers of pure love. They alone will turn a house into a home.

In these conventions, we do not reach the poorer class of farmers, except as the influence of them goes out from your homes. Most

of them are foreigners, clinging with tenacity to the customs of their fatherland, eager to enjoy the privilege of American citizens at the polls, but entrenching themselves behind the old-world ideas of enough to eat and drink being life. While these men hold so much of our land, agriculture must suffer, unless they are brought a little into the light. Their hope is in their children, and their chance for improvement in the destinies of the future in the district schools. They have an advantage over foreigners in cities, in the fact that all children attend together, while the schools of the Roman Catholic and Lutheran churches teach much in foreign languages, instead of our own, keeping them in the old run of exclusiveness, and thus perpetuating difference of nationality, instead of merging all native born Americans into one nation.

In passing through one of the streets of a large city, I had my attention attracted by a sign, "The Farmer's Home." Ah! how well had its owner known how to choose a name for his place of business! Yet the farmer who deliberately accepts its invitation, gives up his house as a home; robs it of happiness and cheerfulness; his money clothes another person's family while his own needs raiment; his hard labor supplies other children with food, while his own are hungry. Home is not sweet to his little ones now, nor will its memories be in the future.

From our houses are to come the future homes of this country, and its homes are its strongholds. Every child trained for a good citizen is a boon to the state. In their hands they are to bear the welfare of the nation. In the homes of a people lies its strength. If these words may rouse one mind to consider whether they live in a house or a home, I shall be deeply grateful for the privilege of speaking them.

Mrs. Ophelia Forward, of Appleton, read a paper entitled

CULTURE AND FARM LIFE.

Mrs. Ophelia Forward — I ought to say that it seems as if almost all of the ground that my paper covers, has been previously gone over by the papers and various speeches and discussions that have been had; but what is written is written, and it is too late to change it.

During the reading of the paper Mrs. Forward said: I want to add, in giving the climax to my hero, as it is a true story, that

although he is an Ohio man, a born Buckeye, living in the nineteenth congressional district, he has never run for congress.

CULTURE AND FARM LIFE.

The terms *rusticus* and *urbanus* were used in the old Roman days to express the antipodes of culture; and although Apollo might sometimes be found cultivating husbandry in the fields of Arcadia, the music and poetry which he taught its inhabitants in his leisure hours, were thought sadly out of place by the sterner gods, as it unfitted those rude tillers of the soil for their labors, by giving them glimpses of an Olympus which they must ever thereafter long for, but might never attain. If a Cincinnatus came from the plow with courage and wisdom to command the defenders and subdue the enemies of the commonwealth, the *urbani* wondered no less at his learning and genius than at the taste by which he sought his plow again after proving himself the savior of the republic.

Rusticus meant all that was rude, untutored and boorish; *urbanus* all that was tutored, graceful and elegant. One borrowed his name from *rus*, the country, but carried in it no hint of glorious fields, or graceful foliage, or blooming flower, or pleasant stream; only the rough, hard side of country life was suggested. The other took his appellation from *urbs*, the city, and couched in its pleasant flow of vowels and consonants, all the culture and refinement of the Roman age.

The Greek Helots were tillers of the soil, and had as little in common with the learned Greeks of the days of Pericles and Phidias as if they had been of a wholly different species. Compelled to wear the dog-skin cap, in token of low estate and origin, it is even recorded by some historians that those among them who, by reason of stature or beauty or genius, rose above the condition of slave, were put to death, lest they should attempt to usurp the position of the dominant race.

The idea is probably as old as the first cities of the plain, that he who would leave the plow for the forum must first cast off the exuvia of the fields, as the serpent casts his skin. It is not our province to show that the world has made a mistake in all its past ages. The verdict of the world is usually just; and it must be that the tillers of the soil have been the least educated, and therefore the least powerful and the least influential, since patriarchal days.

That this state of things is not necessarily so, the enlightened progress of the present century is fast proving; and we think it will not be difficult to show that culture may not only consist with farm life, but that to those who bring to it hearts capable of appreciating the blessed revelations of beauty and truth written by the Divine Hand upon every page of nature, hearts holding the insight "that interprets the tender and loving as well as the grand and sublime lessons of the universe, it is a life full of joy and beauty and inspiration," a life to which the student may bring his research, the scientist his analytical reasoning, the philosopher his second-sight, and find place and material for the exercise of all.

"O, yes!" says one, "that sounds well enough for impractical talk, and may be possible to the privileged few who can commence farm life with the advantage of an education, and the further advantage of wealth, commanding plenty of help and plenty of leisure. Almost any life may be made ideal, and almost any occupation may take on the air of high breeding under such happy circumstances; but what of the vast majority of farmers throughout our country who can hardly support their families from the produce of the farm; whose wives and daughters must do their own work, adding to all the drudgery of the household, the family sewing, and perhaps the care of a small dairy; whose sons must turn to farm labor as soon as they are old enough, with no time for schooling except, perhaps, one term in the year at the country school; whose leisure must be given to rest and recruiting the powers of an over-taxed physical system rather than to the cultivation of the mind. Moreover, after the bare necessities of life are supplied, there is little margin for the purchase of books and papers and other means of culture and improvement." This is a case quite as common as it seems hopeless. But is it really hopeless? Is there no remedy? Is it not possible that out of this chaos of work and worry there may be evolved some system of co-operative labor and helpfulness that may leave room for at least the beginnings of better things? An old legend says that if one has once tasted of the Pierian Spring, the immortal fountain of knowledge, he is ever thereafter thirsty for it; and the old legend is true. Let an individual or a family once get a real taste of improvement, and there is begotten thereby the longing that makes all things possible. The question which these hard-pressed households should ask

themselves is: "Do we make use of the little time and opportunity that we *have* for culture?" and in nine cases out of ten the conscientious answer must be in the negative. The littles are wasted, and thus the greater possibilities are lost.

In too many farmers' families, home education is wanting, or, what is worse, wholly bad. Even in the families of well-to-do farmers, boys and girls grow up without proper books and periodicals, surrounded with only the bare necessities and common-place appliances of living. Hands that would be skillful in forming the thousand and one ornamental and graceful things that idealize hard, bare walls, are too busy for what the utilitarian father deems nonsense and waste of time. There is no time to cultivate the flower garden, to train the graceful vine over the porch, to plant shade trees that grow year by year into form and curve and gothic outline "of which the 'Seven Lamps of Architecture' give but a faint idea." The good man has money in the bank but cannot afford to buy suitable books for his family to read, cannot afford to take an agricultural or horticultural journal, or Scribner, or St. Nicholas. He must save a little more every year against the time of need — as if there ever could be a time of need like the present, when the minds of his children are hungry for something better than his utilitarian regime supplies. As a consequence, the brightest of such farmers' children contrast their own homes with those of others in the trades and professions. They grow tired of the hard and sordid life, and no sooner are they old enough to reason and choose for themselves than they bid good-bye to farm life, many of them to seek an education which they turn into far different directions from the calling of their fathers. If farm life were made attractive to such, they would appreciate the value and honor of the farmer's calling, would devote their talent to it and elevate their class. In two or three generations this elevation would be thorough and permanent.

Says a popular writer on this subject: "We are not ignorant of the influence of woman in any question of social and home education. To the women of the rural districts, the more intelligent and sensible of the farmers' wives and daughters, we appeal for a better understanding and a more correct appreciation of their true position. If they will but study to raise the character of the farmer's social life, the whole matter is accomplished. But this must be

done truthfully and earnestly, and with a profound faith in the nobility and dignity of the farmer's calling. It cannot be done by taking for social growth the finery and gloss of mere city observances. It must come from a true conviction of the honesty and dignity of rural life, a conviction that, as agriculture embraces the sphere of God's most natural and beautiful operations, it is best calculated, when rightly understood, to elevate and engage man's faculties; that as it feeds the nation, it is the basis of all material wealth, and that as it supports all professions and callings, it is intrinsically the parent and superior of them all. Let the farmer's wife teach her sons and daughters that though other callings may be more lucrative, other positions more fascinating and brilliant, there is no life that has in it so much intrinsic satisfaction as that of a really intelligent proprietor of the soil. Let us have a few earnest apostles of this kind, and the condition of the agricultural class, intellectually and socially, will soon change."

Right here, for the better illustration of our point, and because example is always superior to precept, we will tell a story; and, as our story is a true one, we will be particular about the date and locality, though we will omit names.

In the year 1860, March 11th, in a little country church that stands near the state line of Pennsylvania and Ohio, there was a rustic marriage, performed by a rustic minister. The bridegroom was a great, burly, good-natured country fellow, with red hair and a red face; with no education except that which is acquired in the country schools, and no refinement except that which is inherent in a great, generous, tender heart. The bride, a poor girl, the daughter of a ne'er-do-well farmer, had been a country school-teacher, but, of course, had little knowledge of books or the world; but she had that which is the earnest of all high attainment, the royal love of knowledge. The father of the young man gave him a horse, and one acre of land upon which was a poor log house and an equally poor log barn. The young man bought another horse to complete his team, and with the little furnishing that the young wife could procure with the remnant of her wages as school-teacher, the two set to work. Both were industrious and careful; the young farmer, after cultivating every available inch of his narrow acre, employed his spare time in teaming for his neighbors, and at the end of two years, his acre had been multiplied by eight, and indeed it was a "little farm well tilled."

In the mean time the old log cottage had changed its look almost as much as the little farm, for the artistic eye and skillful hand of the young housekeeper had transformed its rude interior into something at least suggestive of comfort and refinement. On the outside, pretty vines clambered over the irregular corners of the old pile, and fringed its low eaves with foliage and blossom. A miniature lawn was kept clean and close-shaven in front, and the mound of bright flowers on either side of the narrow path was fit to adorn the pleasure grounds of aristocratic wealth. While the little farm grew larger year by year, to give room for the teeming life that seems to spring up spontaneously about house and farm, the master and mistress grew more and more in love with their calling, and felt more and more the necessity of a deeper knowledge and a keener insight into the economy and philosophy of things. Agricultural journals and books upon different branches of farm science were read and discussed at the fireside. The two studied botany together, and learned the names and habits of the plants in their vicinity. The husband became known in his locality as an intelligent and progressive farmer, and the head and inspiration of a farmers' society for obtaining agricultural knowledge and general information. His thirst for knowledge in one direction gave zest for other useful information, and he studied the English language, reading its models, until he could express himself tersely and well, and is now one of the best writers on farm topics on the far-famed "Western Reserve." Ten years after moving into the log house, he was able to buy a large and handsome farm in a better situation, though in his native town, where he still lives, with his noble and intelligent wife, the happy possessor of an ideal country home.

Music and flowers lend their charm to this lovely abode, and on its library shelves are found the rarest books of science, philosophy and poetry (for the true farmer is a poet either developed or undeveloped). The finest fruits of the orchard, the garden and the field are there in their season, and what is better than all these, children are growing up here with that blessed and sweet understanding of nature, that innate love of the beautiful and that inherited thirst for knowledge that cannot fail to make them good and useful men and women.

We believe that such a state of things as this, or some

approach thereto, is possible to every farmer's family in which are the genuine love of nature and the beautiful, and an earnest desire for improvement. Let the farmer's family life be elevated, and the bare farmhouse will surround itself with the softening effect of the tree and vine. Thistles, dock and other unsightly weeds will disappear from the yard and garden, and in their places the farmer's daughters will cultivate flowers, and their womanly hearts no less, while his stalwart sons will apply the knowledge gained from the horticulturist in raising succulent vegetables and fruits which refresh the eye with their beauty, and the palate with their delicate flavor.

Approach the house of an evening, and you will not, as formerly, find the the front rooms all dark and the whole family living in the big back kitchen, where the men sit with their hats on and their coats off, and the hired man jokes with the girls, while the little ones take in coarse manners and rude speech as their heritage. This change is wrought in unexpected ways; perhaps a son goes away to college or agricultural school, or a daughter takes a few terms at the academy in the next village; and he is a young man, or she a young women of fine good sense, who, instead of being puffed up by superior advantages, comes back, bringing into that home, gentle and sweeter manners. An unobtrusive sense of something higher and nobler gradually transforms the household. The brightest room in the house becomes the family living-room. There everybody is properly and neatly attired and nobody wears his hat. There the children discuss their studies and the elder ones are interested in useful books and papers or improving topics of conversation. The father and mother have a new zest in life, and indeed a new life has opened to them out of their old; and they look with pride upon their intelligent sons and daughters. Ah! they are growing, as well as their children, and their awakened minds take hold, with them, on the interesting topics of the day. In the mean time, taste, which seemed at first so costly, has returned a thousand fold, even in the financial value of this home, to say nothing of the higher riches and food for the soul which have been brought forth. This is no sketch of the imagination. Some of us have witnessed just such transformations.

The old mythologies say that when the giant Antaeus touched the earth, his mother, he drew such life and strength therefrom that

not even Hercules could put him to death until he had lifted him so high that his feet could not touch the soil; so the true farmer who really touches nature, not only with feet but with heart and soul, shall draw from her that strong and glad existence that no Hercules of artificial life can smother.

Miss Kate Pepper, of Waukesha, then read a paper as follows:

The secretary of your society wrote me some time ago, stating the time of the convention, and asking me to prepare a paper, but I failed to receive the letter in season to write anything very interesting, and for want of a better topic, take what he suggested as my subject,

MY METHOD OF FLOWER CULTURE.

To begin with, I don't believe I have any method, but treat each variety as suits them best.

I presume nearly all present have seen my flowers on exhibition at different times, so it will be hardly necessary to say I do not have house plants or anything very hard of cultivation; nothing but what everybody can have that has room to grow them.

My flower garden where I grow nearly all the flowers for exhibition, is between an arbor vitæ hedge on the south, and the nursery rows on the north, so is quite sheltered from wind, and the flowers do not break over as easy, or the soil dry out so quickly.

This plot of ground is heavily manured every spring, and plowed quite deep, so I always have a deep rich soil. Some people claim that certain varieties of flowers require a poor soil, but my experience is, I have the best satisfaction from the good ground.

At the horticultural convention, in reply to the question how to get good dahlia bloom in autumn, Mr. Plumb said the soil should be rather poor, but a little rich earth should be put in with the tuber when planted, then the plant should be well trimmed, staked and watered. I usually have good dahlias, and grow them on rich soil; I cultivate them more like a hill of potatoes than like flowers, except the staking; that is quite necessary in nearly all varieties, though, as a general thing, mine do not grow very tall. Have never trimmed the plants any, but have plenty of bloom by growing them their own natural way. I never start my plants till quite late, so they do not begin blooming till the hottest weather is over.

The year 1878 I planted them out the middle of May, but they were frozen down and had to start fresh. Last year I did not put them out till the first of June. I find those I sprout do not blossom but a few days sooner than those planted right out of the cellar. I never leave but one stock in a place; think they grow stronger and bloom better.

There is a little fly or bug, I hardly know which to call it, that troubles my dahlias very much, stinging the buds; have used Paris green with good effect, prepared the same as for potato bugs, and that is the only remedy I know of except catching them.

Last fall the grasshoppers destroyed more blossoms for me than I had perfect ones left. Of some varieties I had to gather the buds and have them open in the house, for the fall exhibition. The different shades of purple and lilac, also the white, they destroyed, but the yellow and red shades they did not like; they were either not partial to those colors, or the color made a difference in the taste. I tried Paris green on them, but they grew fat on it. The only help I found was in training an old hen and chickens to stay in the garden, and with their help succeeded in growing quite a show.

The pansy is, next to the rose, my favorite flower, so I naturally take more pains with that, as it well pays any extra care. I start the plants in the house and have them quite large and stocky before transplanting.

They do the best for me on the north side of the arbor vitæ hedge. I have a trench several inches deep dug or plowed, and fill that nearly to the top with fresh earth from the woods, leaf mold, decayed wood, etc., as the pansies grow better and larger in that than other manure. Cover an inch or two of soil over that to prevent its drying out too easily; put out the plants about a foot apart; always pick off the seed buds, as the flowers grow smaller the more seed the plant ripens. I have thought sometimes it was so much trouble, I would not bother to pick them, but after a while I would have scarcely any blossoms, and concluded, if I wanted plenty and good flowers, I must take care of them. The King of the Blacks ripens but little seed, and is always covered with bloom; some years I can scarcely save any seed from them. I do not, as a general thing, save my own seed; after two or three years the flowers grow inferior in size and color.

Several persons have complained to me that they could not grow nice verbenas; that the plants mildew or don't bloom; that from the same lot of plants they have no flowers, while mine are always covered. I have grown them for years in the same spot, as they do much better there than anywhere else. A professional gardener once told me they would not do well grown in the same place two or three years in succession, "the flowers would be small and not as bright colors," but I cannot see any difference. My verberna bed slants toward the west and has the sun all day. They certainly like heat and can bear drouth better than most flowers.

I never water them, thinking it does more harm than good. I grow a great many seedlings. They are usually sweet scented, but for bright colors always buy new plants. They are more trouble to winter than any other flower. Verbenas, the same as pansies, are much better for not ripening seed.

I often wonder if everybody has as much trouble growing stocks as I do. A little black bug or flea, the same as destroys radish and turnip plants, I think, always kills mine unless they are very strong plants when set out, and to be that, I transplant them twice before planting out doors. Three years ago, I had a splendid variety of stocks, all shades and colors growing together, and from them saved a quantity of seed, but for the last two years I have tried it, I have had nothing but purple flowers. Can anybody tell me the reason?

Flowering geraniums do very well for me; usually have quantities of flowers all through the season. I prefer old plants; they do not grow as fast as the young ones and bloom better. The ground for these I dig very deep, and put a good shovelful of earth from the chip yard, or some other rich soil, under each plant as I put it out. Am abundantly paid for all the feeding I give them. I have not found watering to help them much; the foliage turns yellow and drops off; perhaps soft water would not have that effect, but the water from our well is very hard, and for that reason is not as good.

I always plant out all my fuchsias every spring; the bed is on the north and west sides of the house and shaded with large evergreens, so they have scarcely any sun and are protected from the winds, which I think injures them as much as the sun. In dry weather I water them every evening, as they like it quite moist. Have an abundance of flowers all summer. In taking them up in

the fall, cut them back nearly to the ground. The old plants, same as geraniums, bloom best.

Balsams are so easy of cultivation I will say nothing about growing them, only I prefer old seed; the flowers are much more double. There are numerous other varieties I have not time to speak of now, but with all have the same rule, plant them far enough apart to hoe between and keep the soil well loosened; they grow better for the room and are much less care to keep the weeds down. People that have not the space, of course have to plant closer and *pull* the weeds when they appear, but I think weeding is too hard work.

Mr. J. M. Smith — As we pay these ladies nothing for their time and the work they do for us, we can do no less than say “thank you,” and I move a vote of thanks.

Prof. W. W. Daniells — Mr. President: In supporting that motion, I want to say one word. I do not think a vote of thanks amounts to much; but I do think that these papers amount to a great deal, and I rejoice that we have them. I rejoice that these ladies, who can tell us so many things that I think we need to know and need to take to our hearts, have done so, and I wish to second this motion, not feeling by any means, Mr. President, that a vote of thanks is at all paying the debt we owe them.

Mr. Hiram Smith — I have been highly interested in the reading of these three papers. They are a valuable addition to the topics we have before discussed. I was much interested in the hero of the story in the second paper, showing the possibilities of how a person may rise from the very lowest beginnings to an honorable position in life; but when it was stated that he never ran for congress, I thought it was a scathing commentary upon the want of discernment of his fellow citizens.

Rev. A. C. Barry — I wish to say a few words, not because I have anything to say that will be of special interest, only I would like to add to the thanks which the others have expressed in the way of words, my own word of thanks to the ladies who have read the papers which have been of so much interest this afternoon. A vote of thanks is, perhaps, all we can do in the way of return for the services, and the expression of our thanks will go a little in the way of remuneration for that which, to us, has so much

value, and we shall do a better thing than all if we will only carry the words that have been spoken; and better than that, if we shall carry the sentiments that have been so eloquently and earnestly and touchingly expressed in these papers; if we shall carry the sentiments and spirit of those papers from here when we go; carry them in our hearts, carry them to our homes, and there impart their sunshine and their gladness; and so to teach us continually from day to day, and so help and elevate, not only the profession in which we are engaged, but elevate us as individual men and women, making us stronger, making us to be taller in our manhood and our womanhood, and equipping us for the service of this life; and this life lived well is preparation for a better life beyond.

Mrs. Ophelia Forward — I would reply to the Hon. Mr. Smith that there was a reason why this man never ran for congress. His fellow citizens are only Ohio men. If they had been Wisconsin men, he certainly would have run for congress before this time.

Mr. Hiram Smith — I want to say that I have no doubt that when the Ohio men have become educated sufficiently to realize their true condition, they will hereafter run that gentleman for congress.

Mr. J. M. Smith — Prof. Daniells was in such a hurry to second my motion that he did not let me say what I wanted to, but as all the rest have virtually taken the words out of my mouth, I simply say that I want to indorse every word that has been said here in recommendation of these papers. I believe that Wisconsin is the only state in the Union that has, for some years past, made a practice of inviting and having ladies read papers in these conventions. I do not know why it is, but I think that such is the fact.

Prof. W. W. Daniells — Because Wisconsin women can do it.

Mr. R. D. Torrey — I want to say a word on this point. Wisconsin women can do it, and every time they try they prove that they can do it; but with ten years' experience as secretary of an agricultural society, I wish to say to the ladies present that it is almost impossible to get them to consent to write and read a paper in this convention. Few consent, and we get really valuable papers from them every time. I do heartily wish that we had more ladies willing to take upon themselves this duty, for the good they are accomplishing in this direction is untold. And I hope that any lady who is invited to write a paper for any agricultural

convention next year will accept, and I hope that if she is not invited, instead of feeling affronted, she will volunteer.

Prof. W. W. Daniells — If I were a dog I would not bay at the moon; at least after I had practiced it for a long time and the moon had not come down, I would stop; and I don't know but were I a woman, and had written these things that touch upon man's higher life in his home, and the men would not come into that higher life, I don't know but that I would do as the women do. If I were a man, I should stop preaching to them, at least I should stop preaching to those who had not a special interest in it, and I should have them part their hair wider in the middle.

The motion of a vote of thanks to the ladies was carried.

Mr. Huntley gave three cheers for the ladies.

Mr. Stone, of Appleton, said: I come before you under embarrassing circumstances. After listening to the very able and interesting articles from the other sex, I think I can claim your greatest sympathy. I am well aware of my utter inability to cope with them, but still what I have written I will try and read to you.

Mr. Stone then read a paper entitled "Floriculture," as follows:

FLORICULTURE.

The cultivation of flowers is gradually claiming the care and attention, from the intelligent and refined, that its importance deserves. The industries of the people might be divided into two classes. The one is for the production of the necessaries of life, and the other the luxuries. The one furnishes food for the body, and the other for the mind. And the one is just as necessary for the higher development of man as the other. Take away from man all luxuries, and confine all his labors to the production of those things that are absolutely essential for the sustenance of our physical being, and you would soon reduce him to barbarism. But the more you encourage and cultivate the taste for the beautiful, the more you exalt him. Hence we feel, if we can say a word that will encourage the cultivation of flowers, we have done something towards man's elevation and happiness. Blooming plants stand at the head or are the highest stage of development of the vegetable kingdom, and man holds the same position in regard to the animal kingdom; and as the material of the vegetable king-

dom furnishes food for the animal, so the flower, the embodiment of loveliness and grace, nourishes the *mind*, which is the distinguishing feature of man's superiority over other animate creation.

Where you find a refined, intelligent community, you will also find beautiful gardens and conservatories filled with choice flowers. We not only have an influence upon our surroundings, but our surroundings have an influence upon us. Every flower is a meek and silent educator; and as we gaze upon their beautiful tints and graceful forms, our conceptions of beauty are enlarged and our happiness increased. Every home should be furnished with a few shrubs and blooming plants. Poverty, or the want of time, is but a poor excuse for their neglect, for it will be observed that those persons whose homes are devoid of them, generally have the most time for loafing and attending to other people's affairs. Not only ought our homes to be adorned with flowers, but our public schools, which do more for developing the minds of the masses of the rising generation, and for sustaining our present form of government, than any other agency, should be ornamented with trees, shrubs and flowers, so that they might exert their influence upon all, especially those children who are deprived of them at home. It may not be practical to attempt this plan with all our schools; but a beginning might be made in some of the more enlightened districts, by first putting out and protecting a few shade trees, and gradually adding shrubs and flowers.

This subject should be brought up at all the agricultural and horticultural meetings in the state, until the people become interested in it and willing to do something to further the cause.

Nearly all of the state institutions of the different states have done something in this direction, and many of them look more like a paradise than an asylum. If we can afford to make such grand displays for the insane, deaf and dumb, and even the blind, to whom these beauties are a blank, why not make a little effort to do something for the bright-eyed, susceptible little urchins of our common schools?

Those who would oppose the measure would be brought to see, in the course of time, how much more powerful beautiful surroundings for a school house are, in subduing the vandalism of the untutored, than the whipping post.

What shall we plant in our flower garden? is a subject requiring

more space than can be allotted to it in this paper; but a word to the wise is sufficient. First select those plants which are adapted to this climate. With our short summers, many of the plants which succeed in the latitude of Chicago are very unsatisfactory here. Our financial condition will have much to do with our selection.

Where it can be afforded, a fine tropical appearance can be made by a judicious arrangement of some of the more hardy tropical plants grown in large pots or tubs, and plunged in nicely arranged beds during the summer, and upon the approach of frost, taken into the conservatory for winter decoration. But for the masses, something less expensive must be found. And with our long lists of inexpensive seeds, bulbs and shrubs, a selection may be made which will make a home look cheerful and pleasant, with but a small drain upon the purse. The size of the plants and of the beds should be proportionate with the grounds, and above all things, avoid a *promiscuous cramming*, as if you were trying to see how many different varieties the garden will hold.

If you expect much benefit from annuals, the seeds of some should be started in the house or hot-bed, or young plants should be procured from some grower and transplanted to the open ground as soon as the season will permit. Such as remain in bloom but a short time might be started at intervals of a few weeks. But with a judicious selection of varieties, a continuous supply of bloom may be secured.

The natural condition of the soil is not so important as its preparation. It should be well manured with thoroughly decomposed manure which should be thoroughly incorporated with the soil. It should be well drained and worked to a good depth, thus securing the plants, in a great measure, both against excessive moisture and severe drouth, and giving the air a chance to act upon the soil and fit it for plant food. Although over ninety per cent. of plant food is taken from the air, yet a very large amount is received through the medium of the roots, and this only in the form of a liquid. Hence the necessity of keeping the roots in a healthy condition; and this can only be obtained most completely in a fine porous soil. Where the soil is saturated with water for a great length of time, it excludes the air and the heat of the sun and prevents chemical action, and the roots soon become diseased and unable to perform

their functions. But in a deep, well-drained, porous soil, there is generally sufficient moisture brought up from a lower strata by capillary attraction to hold in solution all the elements needed for a strong, healthy growth of plants.

Watering is one of the most particular operations connected with floriculture. Do not water a plant unless the condition of the soil indicates that it is necessary, and when you do water, don't be content with a homeopathic dose, but thoroughly saturate the soil to the depth of the roots, trusting to proper drainage to carry off all excess. Thousands of plants are killed by keeping them constantly saturated, and others are dwarfed by mere surface watering. Occasionally remove plants from their pots after watering, to see if it is well done. In transplanting, when the soil is moderately dry, firming the soil about the roots is often of more importance than watering. Plants in vigorous growth need more water than when feeble or dormant.

The foliage acts as the lungs of the plant, in elaborating the sap and fitting it for plant food. By day they absorb carbonic acid gas and liberate oxygen, and by night this process is in a measure reversed. Hence the necessity of keeping the foliage clean and of avoiding too much clipping of the leaves, unless there has been a corresponding destruction of the roots.

To sum it all up, to grow plants successfully, study the nature of the different kinds, and strive to give them the proper amount of *light, heat and moisture*, and suitable food, and fight the fungi parasites with eternal vigilance. And as a little practical experience is worth more to you all than anything I can say, I will close.

During the reading of the paper, Mr. Stone said:

In traveling through this state, suppose you saw every school house with flowers and trees growing around it, what would you say? Why, you would say that the people must be an enlightened people in Wisconsin. It would give every traveler that came through the state a very high estimate of the people, of their tastes and cultivation.

It is very much like the subject of dress. That young lady is not dressed the best who puts on the most or the richest clothes, but it is the one who uses the most taste in their arrangement. It is so in flower gardens. We do not want any standard of taste.

We want everybody to use their best judgment and best taste in the arrangement, and then we shall have a fine display.

I would also say that plants in pots, where they are pot-bound or the pot full of roots, require a good deal more water than where they have recently been transplanted.

Mr. Fred Brooks — There is nothing, perhaps, looks more attractive around the school house when you pass, than to see the windows ornamented with house plants. In order to have that effectually carried out, why would it not be a good plan for the little girls and boys to preserve a pot or two of plants on purpose to put in the school house next summer? You cannot carry them in there and keep them through the winter very well, because Jack Frost is a little too severe. Let them be trained up so that every window will have its shelf of flowers before it. It would not take but a little time, but how much it would add to beauty, if every school house in the state of Wisconsin was thus ornamented. It would cost but little; it would take but little time; but how much more elevating and how much prettier at the same time. I cannot express my views on the subject, but I want to have you guess at what I can't say, and practice accordingly.

Mr. J. M. Smith — I want to say a word in regard to the last paper read, in regard to watering plants. I have had a great deal of experience in that line, and I want to indorse what my friend Stone has said in regard to watering thoroughly when you do it. It is better that the ground should be a little too dry than a little too wet. Of the two I prefer the former. When you find plants need watering, I believe this rule will hold good — it will with all plants with which I have had any experience; and that is, to give them a thorough watering, soaking the ground thoroughly and completely, and not water every day or every other day. I would much rather give plants a thorough watering, and one that will last, so that the ground will not need it again for a week or ten days, than to have the water put on every other day. You will about ruin your plants by watering them a little every day. You will dwarf them. As a general thing, I would rather run the risk of drought.

Prof. W. W. Daniells — Suppose the water were warmed to about the temperature, fully up to the temperature of the soil, then would there be still so much to be said in favor of drenching?

Mr. J. M. Smith—In watering plants, my rule is to have the water as near the temperature of rain water in the summer as I can get it. In the spring when we are watering hot-beds, we make the water as near the temperature of rain water in the summer as we can. In watering the grounds in the summer, where we water acres, the water is drawn from a pond that lies out in the open sun. Of course it is at least as warm as rain water. I never experimented with heating the water, but I knew a friend of mine, years ago, to ruin his vines by watering them with cold water, spring water. He kept putting it on constantly. He thought he was going to have an extra crop and he ruined them, and in my opinion, simply by putting on so much cold spring water.

Mr. Dane—I would ask Mr. Stone if he finds the climate and soil well adapted to floriculture here in Appleton.

Mr. Stone—The soil is well enough adapted to it. The season is rather short, as I have said, for a great many varieties. We have got to choose those varieties that are adapted to this climate. Those who have lived here the longest ought to be the best judges. I am a new comer, and have not experimented much with the different varieties here, and I probably know less about it than those who have lived here longer.

There is one point about watering that is quite essential. Watering constantly and only a little at a time has a tendency to bring the roots to the surface, and if it is a hot, dry day, those roots are liable to be killed unless you are very prompt in watering. I believe a little water is more injurious to a bed of plants out of doors than no water at all, because if you don't water thoroughly, it does not get down to the roots where it is needed. It merely bakes the soil, preventing it from absorbing moisture from the atmosphere, and is a real detriment instead of a benefit. Well tilled, porous soil, kept pulverized, seldom ever needs watering.

Mr. D. Huntley—I feel very thankful, and wish to express my gratitude to the author of the last paper for touching upon the subject of ornamenting school-yards with trees or shrubs or flowers; and speaking of them as educators, I know something about this from observation. While I was a small boy in the state of Vermont, we had a school district that was noted for being a hard district. It was not the district that I lived in [laughter], but that

district was noted for having a lot of boys that were rough and difficult to manage. They hired a female teacher one summer. She was young. It was the first school she had ever tried to teach, and a good many remarks were made, not only in that district, but in the adjoining districts, as to the length of time she would stay there, and what success she would have. School had been in progress some two or three weeks when it was noticed that in nearly every window there were plants and flowers. The people were astonished. They did not know what to make of it. They passed the school house again to take another look. That teacher taught there several years in succession, with an increased salary each year. She never had any trouble with the big boys nor the little boys. They had so completely changed their whole nature, they seemed to be of a different nature. It not only affected the scholars, but the parents also. I recollect of one of the parents speaking very highly of the teacher, and I expressed the opinion that she was not so much better than other teachers; I was teaching in those days, and I never came nearer getting into a row than I did in controverting the idea that they had the best teacher there was in the country.

On motion, the convention adjourned until seven o'clock P. M.

7 O'CLOCK P. M.

Convention called to order by President Hazen.

Piano solo by Miss Millie Lyon, finely executed.

After being introduced by the president, Mr. Henry Ryan, of Appleton, spoke as follows:

I sent word some little time ago that circumstances entirely beyond my control had prevented me from making any preparation whatever, to address this meeting. When the organization met here some two or three years ago, I had the pleasure of addressing you, and I thought, on that occasion, that I made a pretty good speech. I was well satisfied with it, because one of the most critical men then in the audience, and I see he is here now, said it was the poorest speech that he ever heard. [Laughter.] I am sorry, under the circumstances, that I cannot do something on this occasion. I might say a word, however, to you all on honesty, for that is a subject that would not be considered out of place even in

an association of farmers. The old German, you remember, preached quite a sermon from the text: "Honesty is the best policy," and he said: "'Honesty is the best policy,' but it keeps a man *tam* poor all de time." It would be all right if I could induce some of you farmers to bring in wood to the city and sell it, and not say you have a full cord when you only have about six or seven-eighths of a cord, and want three dollars and fifty cents a cord for it; or if I could induce some of you who sell milk in this city, not to put any chalk in it; I do not know but it would be a good idea to suggest something of that kind. If there are any ministers here, and I could induce them not to look over and beyond God's poor when they filled out the pews, I do not know but I might say a good word in that direction. If I could induce some of you doctors to forget the old saying that "dead men tell no tales," I don't know but it would be a good thing to suggest something to you. We lawyers do not need any talking to, because if any men on the face of the earth are honest, I must say from personal experience, without being too individual, that lawyers are pretty tolerably honest, considering their opportunities. To illustrate to you how honest they are, I will say that I never knew a lawyer, in all my life, to refuse a case. Doctors will, sometimes. I never knew a lawyer to refuse to take up a case for some miserable sinner, and I *have* heard that the churches have hesitated a little, sometimes, about taking into the synagogue some particular individual, on account of his being such an almighty sinner that they doubted whether he could be baptized all through without anchoring him out all night.

I agreed not to make you a speech, so I will read you a poem in the place of it; but before I do that, I want to say just a few words, and I hope the person will not take it as personal. This association is wonderfully indebted to the "one man power." We hear a great deal about the "one man power" nowadays. You know I am a democrat, but sometimes when our republican friends talk of nominating Grant, they say, "you are going to have a one man power." I am in favor of a strong government, and without touching on politics, I do not know but it would do us good if we had a little stronger man at the head of the government than we have sometimes had in the past, and I fear possibly we may have in the future. You are indebted to the "one man

power." Your association commenced years ago with a few individuals up at Oshkosh, and that one man to whom you are indebted for the prestige that this society to-day has, is your worthy secretary. [Applause.] I will read you the poem entitled the "Farm Yard Song."

FARM YARD SONG.

BY J. T. TROWBRIDGE.

Over the hills the farm boy goes,
 His shadow lengthens along the land,
 A giant staff in a giant hand;
 In the poplar tree, above the spring,
 The katydid begins to sing;
 The early dews are falling.
 Into the stone heap darts the mink;
 The swallows skim the river's brink;
 And home to the woodland fly the crows,
 When over the hill the farm boy goes,
 Cheerily calling,
 Co', boss! co'! co', boss! co'! co'! co'!
 Farther, farther over the hill,
 Faintly calling, calling still,
 Co', boss! co', boss! co'! co'!

Into the yard the farmer goes,
 With grateful heart, at the close of day;
 Harness and chain are hung away;
 In the wagon-shed stand yoke and plow;
 The straw 's in the stack, the hay in the mow,
 The cooling dews are falling;
 The friendly sheep his welcome bleat,
 The pigs come grunting to his feet,
 The whimpering mare her master knows,
 When in the yard the farmer goes,
 His cattle calling,
 Co', boss! co', boss! co'! co'! co'!
 While still the cowboy far away
 Goes seeking those that have gone astray,—
 Co', boss! co', boss! co'! co'! co'!

Now to her task the milkmaid goes;
 The cattle come crowding through the gate,
 Lowing, pushing, little and great;
 About the trough, by the farmyard pump,

The frolicsome yearlings frisk and jump,
 While the pleasant dews are falling.
 The new milch heifer is quick and shy,
 But the old cow waits with tranquil eye;
 And the white stream into the bright pail flows,
 When to her task the milkmaid goes,
 Soothingly calling,—
 So', boss! so', boss! so'! so'! so'!

To supper at last the farmer goes,
 The apples are pared, the paper read,
 The stories are told, then all to bed.
 Without, the crickets' ceaseless song
 Makes shrill the silence all night long;
 The heavy dews are falling.
 The housewife's hand has turned the lock;
 Drowsily ticks the kitchen clock;
 The household sinks to deep repose;
 But still in sleep the farm boy goes
 Singing, calling,—
 Co', boss! co', boss! co'! co'! co'!
 And oft the milkmaid, in her dreams,
 Drums in the pail with flashing streams,
 Murmuring, So', boss! so'!

Rev. A. C. Barry read a paper entitled

CONNECTING LINKS.

Mr. President:—I hardly need say that the title of this lecture has been chosen more as a thread on which to string a few beads of fact and fancy, maybe of thought, than as indicating a special theme or line of remark. You see, therefore, that it stands at the head of my discourse, like as a text often stands at the head of a sermon, not as furnishing the subject of the sermon so much as giving the preacher a start; it makes a point of departure, but is no indication as to the direction that shall be taken, nor as to whether the steps shall be rambling or straight forward. You will see how true this is as I proceed.

A few years ago I was called upon to give an address on the occasion of a Sunday school celebration in a rural district. If I were to say that the place was Kellogg's Corners, brother Torrey could tell you all about it, and all about the people. In the course

of my remarks, I spoke of the many lessons of wisdom God had written all around us in even the minutest things, and which were lost to us because we did not observe them, or had not learned to read them. They are so common, or so small and apparently insignificant, that we pass them by without notice or consideration. And I said to the men and women present, as well as to the children, that I seriously questioned whether there was a half-dozen among them all who could tell how many legs a house fly had. It turned out, on a show of hands, that I was right in my expression of doubt, for there was barely one — a little girl seven or eight years of age — out of three hundred persons or more, who could tell. Flies had been all about them ever since they were born — in their eyes and ears and nose; in their butter and tea and coffee; had interrupted and spoiled many a noon-time nap — but they knew nothing of them other than that they were great nuisances and pests. But the main point of the story is this: the good people went away shaking their heads and saying that they could not see, for the life of them, what a fly's legs had to do with religion! They were right, they could not see, because their vision as yet was unsealed. Neither could they see what the flowers and the grass, or the robin that built her nest in the orchard, or the brook that sang through the meadow, or the summer rain that pattered on the roof, or the lightning that played upon the clouds, or the rustling corn that talked all night to the stars — they could not see what these had to do with religion. And yet they were not any more blind than thousands of others who have eyes and see not. It is common to think that all of religion is contained in the words of the Bible, and that God reveals Himself through these words alone. It is forgotten, or never thought of, that day unto day utters speech, and night unto night shows knowledge; that every object the sunlight reveals — the minutest as well as the grandest; that the stars which all night teach as well as shine, — that all these are eloquent with the praise and glory of God.

Objects and the places they fill are mutually adapted to each other. Man has his sphere, and an organization and powers fitting him expressly for it. So, too, there is a corresponding adaptation in the surrounding circumstances and conditions of our being. In other and plainer words, man was made for the world he inhabits, and the world was made for man. The same may be said respect-

ing all the tribes of animate being below man. All were created to fill the places they occupy, and are furnished the means with which to accomplish their destiny.

Not only is our world filled with an infinite variety of objects, but there is nothing that lives, not the most insignificant thing, not the smallest atom, not the tiniest insect, but bears the proofs of amazing skill and of beneficent design. It is common enough to appeal to man in proof of how skillfully and benevolently the Creator has wrought; but there is life below him — life under his feet, in the atmosphere, in the drop of water — so curious, so wonderfully organized and endowed, that it challenges our profoundest admiration.

I think we miss one-half of life's enjoyment, and keep locked to ourselves some of the divinest sources of culture and discipline, by shutting ourselves up in offices, in stores, in shops, in drawing-rooms, and in churches, and only rarely or never going out into the fields and woodlands, there, with eye and ear and heart and soul open, to converse with nature instinct with life and beauty, receiving refreshment and rest and wisest instruction at her hands. The pebble, the blade of grass, the creeping insect, the crawling worm, the singing bird, the many-tinted flowers, as well as the brave old oak that has withstood the storms of an hundred winters,— each and all have a story of wonderful interest to tell us, and would unfold amazing mysteries, were we to question them.

Is not that indeed a wonderful process by which is elaborated from the same handful of earth, and from wind and sun and rain, the elements of vegetable life, and so combines them as to produce all the varied forms and colors of the floral kingdom? We sometimes scout at the idea of miracle, but here is a perpetual miracle. If we say that it is through the operation of a law of nature that from the same soil is produced the blade of grass, and the violet, and the pansy, and the daffodil, and the crocus, and the rose, with their diversity of form and color and habit, the miracle still remains, for after all, what know we of the law which operates to produce results so marvelous? Connected with commonest things are amazing secrets which we can never explore; and deep below the causes which we see at work, and which we can explain, are hidden forces which forever elude the most searching investigation. We are shut in all round by a curtain of mystery. And how know we but

that miracle may have its law?—that mighty forces may slumber in secret, only waiting for God to call, to come like swift lightning and say, Here we are!

The drop of rain that falls from a passing cloud, and revives the drooping blade or leaf upon which it falls, that, too, is a wonder. How came it up there? How came it down here? What is that system which sends down the crystal drops from the skies to refresh the thirsty earth, to repair the waste of evaporation, and to make parched places green again? All the water-power in the world, the Niagara, the Mississippi, the Amazon, the Nile, the Ganges; every mountain torrent, every cascade, every valuable or invaluable water-privilege that floats Badger logs, or chokes with Badger sawdust,— each and all, including the great lakes on whose borders we live, are but the *residue* of the steam power which waters the earth. That tiny drop, perhaps, once sparkled in the crest of some ocean wave, or was exhaled from the dewy moisture of some tropical flower. It was taken up by a cloud, borne away on a long aerial voyage over land and sea, condensed by the atmosphere, and let fall on some sultry day to make glad the parched and thirsty earth, or on a winter's day to execute an equally benevolent mission. We are pleased and grateful when it descends with a cooling and refreshing influence on heated and dusty paths, and makes all nature look up and rejoice; but we never think, perhaps, of what a wonder it is — of what complicated and interesting processes it is the result — or what are the mighty and ever active forces of which it is the production. It is such an unassuming and gentle expression of the divine benevolence, it is so common, so modest, glittering for a moment and then gone, that we forget to inquire whence it came, where it has been, and what is the full measure of its beneficent ministry.

They all have their separate and peculiar offices, to which they are fitted by their corresponding peculiarities of organization, and in which they are sustained by peculiar external arrangements. Even the tiny inhabitants which find their world in a drop of water are all organized with reference to the place they occupy and the purpose they were designed to subserve. In that minute globule they find ample room for all the purposes of existence, and the requisite supply for all their wants. How many thousands of exquisitely formed beings we swallow at a single draught, together

with the worlds in which they sported! And very likely that, in the process of breathing, every inspiration carries down other worlds floating in the atmosphere, together with their invisible inhabitants.

Walking the earth or winging the air, or inhabiting the waters, are an almost infinite variety of living creatures. Of the extent and number of their species we can form no adequate idea. We classify into families and sub-families, orders and sub-orders, genera and sub-genera, and give names to individuals; and year by year we add to our catalogues under this classification, as the work of exploration and discovery goes on; but the unknown is still far greater than the known, and new and most interesting objects and facts are yet to be gleaned from the most familiar spots of inquiry and observation. Untraversed and unexplored fields within the domain of animal life stretch away broadly beyond, inviting an Audubon, or a Cuvier, or an Agassiz, or a Baird, or a Le Conte, or a Maury, that they may add to their revelations of the sea and the dry land, and bear to us fresh intelligence from the dark, old woods, and from arctic climes, and from tropical deserts, and from the paths of the ocean.

If ever I long to be young again, it is when my thoughts are upon this subject, and upon the sublime achievements yet to be wrought on the field of discovery. To go out from the busy world, from the dusty and weary paths of our drudging life, and to commune with nature face to face; babbling with the brook, shouting with the mountain stream, mounting up on strong pinions with the eagle, gathering with the flower a dewy freshness to our soul, learning lessons of profoundest wisdom from the insects which crawl at our feet or fill the air with the music of their busy life,—this is the nectar of existence—this is to be drunken, but not with wine! And he who, far from the abodes of men, threading the paths of the wilderness, wraps himself in his blanket, and lies down at night in some fragrant spot, with his face to the stars, and nature's lullaby soothing him to peaceful slumber and inviting to pleasant dreams, will, like the patriarch, see from his Bethel fair angelic forms coming and going along the shining pathway of the skies; and will arise in the morning with the exclamation in his heart: "This is none other than the house of God, and this is the gate of heaven!"

I was speaking of the almost innumerable forms of animal life which crowd the earth, the ocean and the air; creatures diverse in organization, in size, in color, in habit, in employment, in all their modes of being, and in the purposes they fulfill. Some are bipedal, others quadri-pedal, others still poly-pedal, and yet others cento-pedal. Some walk, some fly, some crawl, some swim. Some are carnivorous, others herbivorous, others insectivorous, others granivorous. But diverse as they are in their organization and habits, each has his place, each performs his allotted part, each has his habitation and supply.

At the head of all stands man, with his superior physical organization and his reasoning soul. But of him it must be said that he is obliged to learn how to live, how to clothe and feed himself, how to supply any of his wants. To this end capacities have been given him, but he must learn to produce, out of the crude material around him, a provision for his necessities, and to fashion the requisites for his earthly happiness. Of all other beings that inhabit the earth, it may be said that they enter upon their existence already taught; not only with a supply furnished for their wants, but with the requisite knowledge how to appropriate it—where to find it.

The bee is born a mathematician and a cunning architect. The hornet emerges from its cell a full-grown and perfectly developed paper-marker, and sets about its business with all the tact and skill of an experienced workman. The beaver comes into the world with a full knowledge of all the principles of his craft, and he at once proceeds to apply them in all the details of his art, as though he had served a long apprenticeship under a cunning master. The oriole, without any previous experience in nest-making, gathers the flaxen fibers, as every oriole has done before, weaves them together into a long pocket lined with soft material, and hangs it pensile from the extremity of some drooping branch, but at the same time in a position to be shaded from the sun and rain.

The intelligence which guides these brute creatures, and all others, in their diverse employments, and adapts them to their several spheres of activity, is said to be that of instinct. But what instinct is we do not get a very clear idea. If it is said to be some mysterious power or impulse by which they are blindly

and unconsciously impelled, I do not think that the definition is a good one. That animals think, that they calculate, and weigh probabilities, and are affected by the memory of the past, and are susceptible of cultivation, will be made plain to the commonest observer. What, then, is instinct but a form of reason? Or do they possess some of the elements of reason in connection with this secret force which moves and guides them? No two theories harmonize in all respects on this point; and certainly no man has ever determined, with any tolerable degree of certainty, what instinct is; whether a something developed in the inner life of the animal, and if so, what? or a law that presses upon the springs of being from without—the motive power of a machine.

I shall not attempt a definition. Terms and their definitions are small matters compared with facts.

Animals reason; they compare; they adapt themselves to changes in surrounding circumstances; they improve in knowledge and mechanical skill; they learn from the teachings of experience; they may be educated in much that is foreign to their native habits; their shrewdness and sagacity increase with the increase of years, so that it is indeed very difficult to catch an old bird with chaff, or to bring the foot of an old fox into a trap, however carefully concealed. If what is called instinct may be thus developed and educated, if it is capable of these varied exercises and employments, then I accept the term.

It is to be confessed that there are dull, stupid fellows, and fellows who live by their wits, shirking labor and responsibility, among animals; as there are such among men. There are those that sleep through the day and mouse around all the night. You cannot teach them anything beyond what they already know, and you cannot inspire within them anything like attachment or regard. The opossum is thought to be a very cunning animal; but he is indebted to his small brain and wonderfully thick skull for any art or inventive genius he is thought to possess. A series of heavy blows on the head may stun but not kill him; and because he revives and runs away, it is said that he "shammed" death in order to save his life. The fact is, he is incapable of feigning anything. To "play 'possum," therefore, is simply to play the blockhead.

There is among the feathered race a bird, familiarly called the

cow blackbird, or cow troopial (*emberiza pecoris*), which never constructs a nest of its own, but by stealth invades the sanctuary of some neighbor, and there deposits its eggs, leaving the hatching and rearing of its young to others. I have often been an eyewitness of this transaction, and have had not a doubt that, had it been possible, the bird would have shirked the entire job, and surrendered the whole business of maternity to other hands. It probably will never be cured of its peculiar habit of putting out its children to nurse, nor be taught to assume the care and responsibilities of parentage.

It is very evident that there are certain general resemblances between man and the animal creation below him. Of course brute creatures make only few and faint approaches to the intellectual altitude of man. With respect of mind, the varied and independent processes of thought, the discriminating judgment, to say nothing of the moral sentiments and the religious affections peculiar to man, animal life by no means borders on the human. And yet there are points of veritable contact and connection—points not only of general resemblance, but of mergence—as though God tied family to family, group to group, kingdom to kingdom, world to world, and all to man, and man to all; thus binding together all parts of His universe, and all the works of His hand, with one common cord of union. So that we may say of systems, and suns, and worlds, including our own, and man, and all the tribes of animate being below him, and the entire floral kingdom,—

“All are but parts of one stupendous whole,
Whose body nature is, and God the soul.”

From the minutest atom up to the grandest orb that burns amid the awful depths of the central universe—from the tiniest organism, the merest speck on the outermost verge of animal life, to the mightiest arch angel,—all are linked together, and subserve one all-embracing purpose.

What a beautiful and happy thought it is, that one day we shall be enabled to trace this purpose in its length and breadth, and height and depth; that with anointed sight we shall read all the sublime and solemn secrets of the past; translate from the unknown into the known the history of the creation from its conception, and of all life, embracing the ways of Providence, now light,

now dark, and see how that an infinite benevolence has planned, and wrought, and consummated, and caused all things to blend harmoniously together in one great design, and to work together for a supreme good!

It is undoubtedly true that the various classes of men, with their characteristic distinctions, find their typical representatives in the subordinate realms of animate nature. But whether they are to be regarded as "connecting links," in any proper sense, may perhaps be set down as debatable. In any event, the analogies that could be furnished would not always be of the most flattering description, and would, therefore, most likely be objected to in individual cases, as "connecting links." To tell a man that he is a human buzzard, or that he resembles a certain odorous animal, or that he is typified by things that crawl, or that he is represented in the tinselled butterfly, or that he is a veritable humbug, or is nearly related to a creature with long ears, he very likely would be offended; and the more striking the likeness, the more indignant he would be.

But I would not seek in this direction for "connecting links," even though in some other directions they may be less apparent. For a few moments I will call your attention to illustrations from among the mammals, the birds and the insects, of the points of general resemblance which approximate them to man. These points are furnished in the varied and wonderful intelligence displayed by certain animals, and in the loves to which they give expression. You may, if you please, call these the intelligence and the loves of instinct. Many times, however, they would seem to be connected with something higher; and yet not higher if we accept Addison's definition of instinct, which makes it an immediate and perpetual impulse from the Deity. How, or through what medium, this impulse or inspiration is communicated, no one has ever yet told us — no one ever will tell us, and unravel the entire web of this mystery, until he shall have taken up his abode in the cranium of the animal, and there witnessed the operations that are going on.

But so far as my present purpose is concerned, the difference between instinct and reason is of but little account; only I must be allowed to say that animals do reason after all. They think; they profit by memory and experience; they adapt themselves to new circumstances; they increase in sagacity.

I have spoken of the oriole, or Baltimore bird, that is so cunning in the art of nest making. It may be called a weaver of nests. In this business of weaving some orioles excel others. An old bird builds a better house, or weaves a better nest, than a young one. Its work is more elaborate, and in every way superior. This shows a profiting by experience, an increase in knowledge and artistic skill.

So with the orchard oriole, another of our summer visitants. Like his first cousin he is a very ingenious builder, and he makes such changes in the general arrangement and construction of his house as circumstances demand. The material and the method of construction are usually the same. Blades of long, tough, flexible grass are selected, and braided or interlaced after a most complex fashion; suggesting the inquiry, as Prof. Wilson says, whether so cunning a craftsman might not be taught to mend stockings. But this is not all. "When they choose the long, pendant branches of the weeping willow to build in, as they frequently do, the nest, though formed of the same materials, is made much deeper than usual, and of slighter texture.

"The circumference is marked out by a number of these pensile twigs, that descend on each side like ribs, supporting the whole, their thick foliage at the same time concealing the nest from view. The depth in this case is increased to four or five inches, and the whole is made much slighter. These long, drooping branches, being sometimes twelve and even fifteen feet in length, have a large sweep in the wind, and render the first of these precautions necessary to prevent the eggs and young from being thrown out; and the close shelter afforded by the remarkable thickness of the foliage, is, no doubt, the cause of the latter." This is not the result of accident, but of design. It does not come of mere instinct, for that would impel the bird to build always of the same material and after the same fashion, without regard to surrounding circumstances. But here we see a change in the mode of construction, to meet certain conditions—a change in form and weight adapting the nest to a particular place, and in providing for the safety of its inmates. To my mind it is clear that the bird sat in his shady retirement and *thought it all out*—that having chosen the location, he planned his house with reference to the place it was to occupy.

When the pointer dog ranges the field in quest of game, and having found it, drops suddenly into a motionless position, every muscle tense and rigid, his nose indicating the whereabouts of the quarry, he has but obeyed the laws of instinct,—so much was born within him. But when he has done this, and staunchly held his point for a full half-hour, awaiting the coming of his master, and his master does not come, he turns carefully away and goes in pursuit of him, and having found him, leads him to the game, and then takes up his point again,—that is not instinct; it is something else. Frequent instances of this kind have come under my own observation, and I have been puzzled to know how to account for them save on the ground that the dog was endowed with reason, or that for the time being he was miraculously inspired.

In view of what I have just said, it may be asked whether I believe that dogs have souls? I do, indeed; *i. e.*, I believe they have dog souls, not human souls. They are many of them wonderfully intelligent; they think, they reason, and in the strength, fervency and durability of their attachment, they shame the great mass of mankind. I have thought, sometimes, that I would rather have the soul of a dog than the souls of some men. It is not at all strange that the “poor Indian” should think that, “admitted to an equal sky, his faithful dog shall bear him company.”

It is not to be supposed, however, that “the animal mind is one of pure rationality.” And yet facts forbid the idea that it is one of instinct alone. You cannot account for the devoted love of the dog for his master, which survives ill treatment, and forgets injuries, and is true to the end, on the ground of instinct alone, unless you accept Addison’s definition of instinct—that it is an immediate and constant impulse of the Deity. But even this impulse must have a medium through which, or upon which, it may act, and influence to the various traits and dispositions which the animal exhibits. And what can this medium be but a *soul*, which receives the imparted inspiration, and communicates it to the movements and expressions which follow?

If not a soul, it is at least some “mental mechanism of wondrous adaptation of which the springs would seem hidden from all save their great Artificer, or possibly some inquiring spirits permitted to see farther than ourselves into the secrets of creation.”

I approach now the insect world, and I do it reverently, because

of the astonishing wonders it contains. What myriads of curious beings people it! Nowhere else, scarcely, are there such marvelous exhibitions of the wisdom of God. And yet, how few think of looking there for them! How few bestow a thought or an inquiry upon insect life! Not one in a thousand can tell how many legs a fly has; and not one in ten thousand, how the katydid produces his songs of the night. And of the genius and mechanical skill and ingenuity exhibited by those ugly creatures called bugs and worms, how few know anything! To say that they are impelled and directed in their labors by anything more than a low form of instinct, would provoke a smile on almost every face. To go further and say that these insignificant beings possess a form of reason, that they are intelligent, *that they even think*, would be set down as ridiculously absurd. You will allow me to venture upon this perilous ground, and to assert on the behalf of my favorites, that they are not the mere senseless and disgusting things you take them to be. They are capable, many of them, of superior mental achievements, of intellectual processes. Sharon Turner, in his sacred history of the world, gives a remarkable instance of this in the case of an ant which he saw pulling with his mouth a piece of wood. His companions "were busy in their own way; but when he came to an ascent, and the load became too much for him, three others came immediately behind, pushed it up to level ground, and then left him." So much as this, perhaps, might be ascribed to instinct; but when in the process of drawing his load still further on, having hold of the small end of the stick, he got it wedged, and after several fruitless efforts to extricate it, he went behind, pulled it back and turned it around, that indicates reason, and shows that even the smallest creatures may do things, and exercise sensibilities, and combine for purposes, and achieve ends, that bring them nearer to mankind than any other class of animate nature.

You shudder with disgust at the sight of the great green, ugly-looking worm which you find feeding upon some plant in your garden, and you wonder that any one could ever dream, in the wildest flight of fancy, that you sustained even the most remote relation to such a creature. But after a few days or weeks the worm has passed through a series of transformations, and comes out a butterfly, arrayed in purple velvet and cloth of gold, and

wings the air a thing of transcendent beauty. As you look and admire, you forget the worm and your disgust. From the egg to the worm, and the worm to the chrysalis, and the chrysalis to the brilliant insect — such were the transformations, or the several stages of its development, well calculated to suggest to the mind unenlightened by revelation the idea of the immortality of the human soul, or an emblematic foreshadowing of a higher and better life.

I have made these remarks not because I would trace any likeness or resemblance or revelation between the garden worm and ourselves, so much as because I would not have any of us think meanly of anything. Even objects most unattractive and repulsive to the eye contain within them the elements of beauty, as the pulpy worm enshrines within its folds the principles of a wonderful life. And I cannot forbear the additional remark in this connection, that if more attention were paid to the habits of insects, and their curious skill, there would be opened up to us a vast field of wonder and admiration, and we would see in these minute and often uncouth forms the development of powers of intellect in many cases fit to stand, in constructive skill and mathematical precision and wonderful contrivance, alongside of human reason.

It has been noticed of the humble-bee that, when unable because of its size to enter the deep tubular flowers for the purpose of extracting their honey, it has recourse to a very ingenious remedy for the difficulty. In such a case, it sets itself to work to drill a hole at the base of the flower, and thus reaches the very fountain of its honied supply, illustrating by this act that there are more ways than one of getting at a secret. Instinct bids it creep into the open cavity of the flower — the bean blossom, for instance — as all humble-bees have done before, and as the smaller ones do still; but its size prevents obedience to the command, — and what shall be done? Instinct is here at fault — it has no remedy, no provision for such a contingency. But the bee knows where the treasure is, and as he cannot go in at the door and secure it, something suggests to him that there is another way by which it may be obtained, and that way he adopts and is successful.

Dr. Darwin relates an anecdote of a wasp that undertook to transport a fly it had captured, without first removing the wings, contrary to its usual practice. This negligence was the source of

difficulty; its flight was obstructed; what should it do? The cause of the difficulty seems to have been at once comprehended, for it alighted with its prey, proceeded deliberately to cut off the impeding wings, and then soared away without embarrassment. In this case we clearly see the action of memory, and a profiting by experience. Perhaps in every other instance, obeying the instinctive impulse, it had prepared its prey for easy transportation by first divesting it of its wings; but now its flight was impeded; the difficulty of transportation led to an investigation of the cause; it remembered that a wingless fly had always been easily carried — this had been its invariable experience; and so it applied the remedy which memory and experience at once suggested,— it alighted and removed the impeding cause.

We certainly cannot fail to discover in these instances a resemblance between the intelligence of the insect and that of man, so far, at least, as the outward expression is concerned. Not that the insect has a thinking, reasoning soul like that of man — a mind constructed like the human mind, with its intellectual capacity, and its elements of eternal progress — I would not say this. I would only say that in manifestation, the intelligence of insects, whether of instinct or reason, is like that of man. And this constitutes a point of resemblance between them.

Do not laugh, now, when I speak of the loves of insects, by which the most intimate relations subsist between them, and they are drawn into societies and into familiar and affectionate intercourse with one another. And there would seem to be as little selfishness in their attachments and regards as in those of human kind. Undoubtedly there is less false profession and hollow-heartedness mingled with them. The friendships of the inhabitants of Insect Land are of the most substantial kind, and their fellowships of the most intimate and genial nature. Among the social tribes there appears to be a prevailing sentiment that they have a common interest, and that in all things they are to be united for the common weal. If there is an exception to the kindly feelings they entertain, it is that they will not tolerate drones or loafers for any great length of time; it being an established principle among them, that he who will not work has no right to live, and so they turn him out. Whether we would be justifiable in resorting to the same summary process for the removal of a like class, may admit

of a doubt; but the doubt by no means invalidates the soundness of the principle.

I need not take up more of your time in citing examples from the worlds below us of approximation in intelligence, and social qualities, and strong attachments, and unselfish devotion, to the human world. We find them in the elephant, the horse, the dog; in the oriole, the swallow, the mocking-bird, the partridge; in the spider, the wasp, the bee, and the ant. Even among the fishes shall we find these examples, and undoubtedly they may be found among the reptiles also.

Thus far I have directed attention only to a few points of general resemblance connecting man with the inferior creations around and below him. To show what are the natural links which connect genera to genera, order to order, family to family, kingdom to kingdom, both of animate and inanimate nature, and farther on to link this world with all it contains with all other worlds, and enclose the universe thus linked part to part by the infinite purpose of God, — this is a work impossible of accomplishment within the space of time that is left me. Still, I will not pass it by without at least brief notice.

There are animals which seem to hold a rank mid-way between races or great classes, so connecting them; and which bear so close a resemblance in the peculiarity of their organization and habits to the lowest species in each division, as that it is difficult to decide where to place them in the general classification. But this resemblance is, after all, more apparent than real. The bat, which has been supposed to be half quadruped and half bird, and to form a connecting link between quadrupeds and birds, is simply a winged mammal. Still, it seems to occupy an intermediate position between these two divisions, and to touch the proximate points on either side, as though there was a shading off into either race.

In like manner the whale is a connecting link between mammals and fishes, possessing peculiarities of organization allying it to both divisions. It unites the creations of the sea with those of the dry land. But, although its home is in the great waters, and there the supply for its wants, its organization preponderates in favor of the mammals, and with them it is classed.

There, too, is the polyp, a sort of half vegetable, half animal creation; an intermediate existence between two great kingdoms,

or occupying the immediate confines of two worlds. From this lowest form of animal life — and of vegetable life also, strictly speaking — there is an ascent, link after link, in the scale of being, through all the kingdoms of nature, until man is reached. And of him it is sometimes said that he is only a superior development of the ape, as the ape is of the kangaroo or of the opossum; and that by this his primitive progenitor, he is connected to the various tribes of animate being below him. I said all that I care to say of this theory in my lecture one year ago. To me the mere statement of it is its refutation. Without stopping, therefore, to argue with those who hold this view respecting their parentage, I go on to state that in which all are agreed: That above all, superior to all, and in certain respects independent of all, stands man; connected with the earth and its inferior inhabitants; connected with nature in all her departments, by the relation which he sustains to all as the appointed head and ruler. Yet even he holds an intermediate rank. Below him are the brute creation, above him are the angels. In his two-fold life he takes hold on two worlds, and within his complicated nature are mingled the elements of the human and the divine. This, then, is the summing up of the whole matter. All beings from the highest to the lowest, and all worlds from the greatest to the smallest, sustain certain mutual relations to each other; and these relations, founded in natural law, constitute the true “connecting links” by which orders and kingdoms, and worlds and systems of worlds are united together. Thus these links combine to form that mighty chain — the infinite purpose of God — which runs through all, encircles all, and binds all parts into one grand and glorious universe, pervaded by an infinite harmony, and radiant with the smiles of an infinite love. There is no chance work here. Everything is the expression of a mind; everything gives evidence of a presiding intelligence; “everything in heaven and on earth is significant of something beyond itself; every movement has a meaning, not a rolling world nor a falling leaf excepted, and the whole nation thus bodies forth an idea,” and is only the visible expression of an infinite thought. And this thought, what intellect can fathom it in all the eternal years! Or who can comprehend its developments in the ages to come! There are yet other links in the great plan, reaching away upward and taking hold upon grander results, upon sublimer achievements and events,

upon destinies that tower and shine beyond all that prophet ever told, or than apostle caught up to some third heaven ever saw!

But I must not overlook, in my rambling talk, a most important fact in the economy of things—important in a practical point of view, and ought to be central and absorbing in the deliberations and discussions of a convention like this—which is, that by the law of fitness or adaptation every man is chosen, elected, linked if you please, to some certain work or employment, to some calling, trade or profession, whether it be that of farmer, mechanic, manufacturer, or of merchant, banker, teacher, lawyer, editor, physician, or preacher. Not of the poet alone must it be said that he “is born, not made;” and not of our industrial callings must it be said that one is high and another is low. The farmer or the mechanic is just as much elected of God as the minister; and to stand between the handles of a plow and make the land bright with yellow harvests, is as divine as the creation of a poem or a picture, or the preaching of a sermon. This also is to be considered; there is almost always one thing, and only one thing, that a man can do well. We ought never to sneer at people with one idea. A good solid idea is about as much as any man can well take care of; and if he who is so fortunate as to have one, persistently carries it out, it may become a reputation, or a fortune, or an institution. But if he goes on speculating and experimenting in a hundred different ways, we shall probably see a hundred fizzles, for the crown of all faculties—I had almost said the crown of all virtues—is common sense, and common sense holds everything to close execution. “Let the shoemaker stick to his last.”

Very likely there is no good work without thought. And yet there is a world of labor, we know, professional and other labor, that is merely automatic; it is a routine of the muscles, a treadmill of the mind, into which there break no inspirations, and by which no crown is won. In almost all pursuits we will find a class of men who call themselves “practical people,” but who are the most impracticable people on the face of the globe. Carrying to excess the principle of sticking well to one thing, they distrust all experiments, and scout at the idea of improvement. “There they stand,” as Chapin says, “screwed into the forked end of old prejudices and old customs, seeing just what they always have seen, and doing just what they always have done, and so opposed to

stepping forward, that were it not for the law of gravitation, the earth, as it moves through its orbit, would be whirled from under their feet, and leave them sticking fast in blank space."

And now I want to say that all good work, whatever the avocation or profession, is linked by the law of recompense to success. When I speak of good work, I mean that which is wrought for the work's sake, in which fame and fortune are only secondary motives—not mere bread and butter work, not mere perfunctory work—but work of the fruitful brain and skillful hand, following the dictates of the whole soul and of the heart. This work of just measure, of prime quality, that has honesty and conscience in it, done in loyalty to duty, even though it be only the commonest kind of work, never fails of its reward. It adds to human well-being and progress. It stands in solid results, or circulates as moral force. It spreads in the widening ring of influences. It helps to make men better, and it makes better those by whom it is wrought.

But dishonesty, quackery, in any trade or profession, is sure of its reward also. We know that the whole political, financial and moral world swarms with pills and extracts, and all sorts of nostrums, bearing that infallible stamp of quackery,—one remedy warranted to cure all sorts of diseases, ring-worm and leprosy, vice and poverty, chronic lying and the national debt. The inventors and vendors of these panaceas may possibly succeed by means of them in a worldly way—we know that many do; but measured by the best standard they fail. Of this we may be sure, that rickety work of any kind will not stand—the veneering cracks, and the whitewash peels off, and the flaw comes out in the unsound timber, and the bad needles break at the point and “cut in the eye.” Besides, all shammy, tricky work, all quackery, is wrought into the man himself, so that he becomes a trick and a sham, with not enough of soul about him to make a neck-tie for a grasshopper! Somehow, I could never be brought to the point of liking the old maxim, written in ever so many books, and which is in the mouth of everybody, “Honesty is the best policy.” No—say that “honesty is the best,” and let policy go to the devil, where it belongs.

There are cases in which defeat may not be so dreadful as victory. Here, we will say, is a man who has been working for politi-

cal eminence. He has truckled for it; he has tossed principle to the winds; he has slid into the habit of the snake and crawled for it; and he has attained it; but is it to be reckoned as a success? Rather, has not the man gone down instead of going up? Or, here is a man in his office counting his bits of currency, and every bit seems to be spotted with the tears of the afflicted; or it looks like a crumb snatched from the mouths of the poor, and he knows that he is a selfish, hard, mean man. Does he feel that *that* is a success? If it be so, then there are many successful men in the world. Again, all lies are failures — political, financial, ecclesiastical and professional lies; and the man who is little else than a living lie is a failure also, be he king or subject, senator or private citizen, judge on the bench or prisoner at the bar.

You will bear with me a few moments longer while I go on to say that all trades, professions, industries, are linked together by a common bond, or by the law of kindred. All you farmers, dairymen, gardeners, nurserymen, mechanics, manufacturers and professional men, including the better half of creation, constitute a brotherhood of workers, all your interests and fortunes bound up in one common bundle. I mention this fact, not because it is denied and therefore needs proof, but because it is so often out of mind; and for the reason also, that one is apt to become so absorbed in his own chosen pursuit, or absorbed by it, as to be made selfishly indifferent to the claims of others. Still the law holds good that whatever wrongs and injures one, wrongs and injures all the members of the brotherhood. If the farmer smites the mechanic, or the manufacturer or trader the farmer, he smites himself; and suffer from whatever cause one may, all the others partake of his sufferings.

So in the larger circle, we are so linked together by the ties of natural relationship, and these ties are so woven into the very fiber of our being, that the wrongs of one become the wrongs of all, and the pain inflicted upon the remotest member sends its thrill throughout the entire body. And we may be sure of this, that in every instance in which labor seeks employment in vain and languishes in want, or in which it is deprived of a just share of its earnings, and defrauded of any of its rights, there is somewhere, as cause, an evil to be corrected, a wrong to be righted. Just how to reach and correct the evil, or how to right the wrong, may

be a problem not easily solved. It has always been the puzzle of social philosophers, and over it to-day they are racking their brains as ever. And yet one thing is plain — the relations between labor and capital are not impossible of adjustment; the oppressions of monopolies are not impossible of removal; the robbery of the working classes is not impossible of prevention. And I may just add in this place with reference to certain movements and agitations, that it is legitimate and right that men under any ban, social or otherwise — that oppressed men, men suffering from wrong of any kind, the subjects of tyrannical monopolies — should combine for purposes of relief, of emancipation, of protection. And without doubt one of the most potent agencies at work for the removal of oppression and wrong, and the evils growing out of poverty and unequal and unrequited toil, is found in organized association. Through or by means of this, oppressed people are breaking the yokes of those who oppress them, re-establishing their right to life in such a form as to make it a blessing, and their right to liberty, to a fair proportion of the proceeds of their labor, and to the pursuit of happiness in every lawful way.

Now a word to the young people before me, and I will tax your patience no longer. I have spoken of the conditions of success in any chosen pursuit, one of which is hard, persevering work. And I may say to you, young ladies and gentlemen, that you are to show your right to high station by earning it. When the boy cut his way with his pocket knife up the almost perpendicular wall of the natural bridge, and left his companions gazing in wonder and astonishment as he ascended, as by miracle, toward the top of that dark and deep defile, he did it, not by virtue of any superior strength or capacity, but by dint of persevering labor and unflinching determination. Hole after hole he cut in the face of the rock, step by step he steadily ascended. His look all the while was upward, and slowly notching his way, on he went, and at last stood where he could carve his name, GEORGE WASHINGTON, high above all other names. Learn from this that the secret of success in any calling, in any department of life, lies in work diligently and faithfully performed — in cutting your way up the rocks — in climbing upward step by step, maybe in a slow and toilsome way, to the top and the everlasting sunshine. And never forget that as you climb by means of what you are and what you do to higher places, you

shall take the world, so to speak, along with you, and bring nigher the new heavens and the new earth of the coming millennial day.

After a recitation by R. D. Torrey, the convention adjourned.

THURSDAY MORNING, February 19, 1880.

Convention called to order by President Hazen.

A paper was read by George C. Hill, entitled

EXPERIENCE IN PRODUCING BEEF ANIMALS AT TWO YEARS OLD.

In presenting this subject, I do not presume to teach the intelligent farmers attending this convention, all of whom probably know more, and can tell it better, than myself. But as it has gone abroad that some farmers in the vicinity of Rosendale were following the plan of fitting beef animals for market at two years of age, it was suggested that our experience might be beneficial to others. At the same time I am aware that the plan is not new, and while we may be following it with satisfaction, others may have seen its defects and discarded it. In thinking about this topic, I have doubted whether after all we were pursuing the best course, from the fact that so many farmers sell their young cattle to the drover without feeding, to be taken to some distant state to be fed. There have been hundreds of these young cattle, one, two and three years old, bought of the farmers of Fond du Lac county this winter, at from \$15 to \$25 per head, or about two and a half cents per pound. Now, with the large crop of corn, if it was better to sell those cattle than to feed them, then those farmers who feed and sell for \$40 to \$60 are on the wrong track.

A correspondent of the *Country Gentleman*, writing from Fond du Lac county, says: "Stock raising is being overdone, for the farmers of the northwest cannot compete with the ranchmen of the southwest, where there is no capital invested in land or fencing, no expense for cutting hay and wintering stock, and little for looking after the herd. Where we reckon the interest on the capital invested in real estate, the high taxes we are required to pay, and the constant decay of buildings and fences, together with the long and

severe winters through which we have to carry our stock, we cannot raise a good fair steer to three years old for less than thirty dollars, and it is seldom we can get that price."

Now where is the fallacy of this statement? It is not that it costs thirty dollars to raise a good steer to three years old. It costs more rather than less. It is not that we seldom get that price, as we have before stated the price paid for stock cattle. It is in the fact that the stock grower does not finish the product, and at an earlier age. The animal should be worth as much at twenty months as he is said to be at three years. It would appear that stock raising is overdone, if we compare the cost of production with the prices obtained.

But the production of good, fat beef is not overdone, nor will our markets be overstocked, so long as the European markets take our surplus. There has been a demand in our home markets for several years for good, young beef at four or five cents per pound. If we cannot raise cattle on as large a scale or as cheaply as the ranchmen of the southwest, yet we have the advantage of being nearer to market; and besides, when we are feeding our stock, we are feeding our farms. The business of sheep raising and wool-growing is as extensively carried on, out on the western plains, as cattle raising, and yet farmers in the northwest find wool-growing profitable, even at the expense of buildings and long winters. True, the cattle growers here cannot compete with the stock growers of the plains in producing a long horned, long legged, five or six year old ox, weighing in the market, after his two thousand mile transportation; 1,200 or 1,400 pounds. But the cattle we should raise should be in the market when twenty-four or twenty-six months old, and at the end of a few hours' drive. About twenty-five years ago, I commenced to raise cattle by purchasing two bull calves. They were raised in the old-fashioned way until they were past four years of age, when they were sold to an Oshkosh butcher for forty dollars apiece, which was bad enough, but the rascal made it still worse by giving me bad money.

After that, I began to pay more attention to feeding, and have always sold at two years, or the summer following, for from forty to fifty dollars per head, without weighing, the buyer taking them at the farm in every case.

The cows from which we raise our stock are mostly Short-Horn

grades. Some grade Devon cows have produced some nice animals. A thoroughbred Short-Horn bull is, or should be, used. The calves are born in March or April, and should be fed with new milk six or eight weeks, and in the meantime be learned to eat hay and oats, or other suitable food. This is our plan when we commence to take milk to the factory, about the first of May. Better calves are raised by those who make butter at home and feed the calves skim milk three or four months, after being fed new milk a few weeks. As long as the calf is fed with milk, either whole or skimmed, it should be kept in the stable and fed with good hay. They may be turned into good pasture when the milk is stopped, say about the first of August. Some think it best to keep them in the stable the entire season the first year. Whatever plan is pursued, the young animal should be kept in a thriving condition from the first. Care must be taken that the calves do not become infested with vermin. They will need daily from one to two quarts of oats or other feed, each, in addition to good hay, the first winter. Those who have tried the experiment of feeding new milk, or letting the calf suck the cow the entire season, have concluded that it does not pay, and besides, they claim to raise better animals at a year old by other methods. At the end of the first year the animals should weigh 500 to 700 pounds.

The second summer they are pastured. About the first of October, or whenever the pasture begins to fail, they should begin to have rations of feed, commencing with two quarts per day. In November, increase to four quarts. In December to six. In January to eight, the meal to be fed with cut hay. We have not fed any linseed meal. Toward spring the feed may be increased as the animal will bear it; experience only will show how much. With this treatment, our two year olds weigh, in May, if heifers, one thousand to eleven hundred pounds; if steers, eleven hundred to twelve hundred pounds. These animals are usually engaged by the butchers or drovers several months before they are slaughtered.

"Well," some will say, "that is good for a two year old; but why not keep the same animal until he is four years old? If at two years he weighs twelve hundred, feed him until four and get twenty-four hundred. Why sell the animal before he has got his growth?"

For several reasons: First, because the animal grows faster the

first two years than in any other period of his life of equal length. In the *American Agriculturist* for January is a table from Wolff, in the German Farmers' Almanac, showing the nutritive ingredients in feeding stuffs which different animals, in different stages of growth, need. One class of animals are designated as growing cattle. In this class the animal is supposed to weigh 150 pounds at three months; 300 pounds at six months; 500 pounds at twelve months; 700 pounds at eighteen months; 850 pounds at twenty-four months.

Here it will be seen that the animal grows one and two-thirds pounds per day the first six months.

From six to twelve months, he gains one and one-ninth pounds per day.

From twelve to eighteen months, the same.

From eighteen to twenty-four months, he gains only five-sixths of a pound per day.

This table was made with reference to feeding growing cattle, not fattening stock, and consequently the weight is not put down larger at twenty-four months.

Now, from a great many experiments that have been made in feeding stock, it is found that a growing animal requires daily three per cent. of its weight in the best quality of hay. The animal whose weights are given above, supposing it to weigh one hundred pounds at birth, averaged during the first year of its life three hundred pounds. It would consume 3,285 pounds of hay, and made four hundred pounds of growth, or about one pound to eight and a quarter pounds of hay. The second year, the animal averaged 675 pounds and would consume 739 pounds of hay, and gained 350 pounds, or one pound of growth to twenty-one pounds of hay.

The ratio of feed to gain would be still greater the third year, and so on, until the animal attained its growth at five or six years, when it would still consume a considerable amount of food merely to exist.

Hon. George Geddes, in a late number of the *Country Gentleman*, says on this subject: "Animals not only pay best for the food consumed in early life, but they gain more pounds within a given time. This great law is shown even in children. The babe that weighed nine pounds at birth, at four months weighed nineteen pounds. The brother of ten years, who had ciphered to the

rule of three, worked out a sum thus: If my little brother has gained ten pounds in four months, what will he weigh at my age? When he saw the answer, he exclaimed, 'What a whopper!'

"The most authentic case illustrating this law, that has come to my knowledge, I will give here, though I am aware that it has been before made public.

"Uncle Abe was the name given to a steer that was born on the 15th day of October, 1864, in Orange county, N. Y. At birth he weighed 134 pounds. At ninety days old he weighed 385 pounds, having gained 251 pounds. At 180 days old he weighed 670 pounds, gaining 285 pounds. At one year old he weighed 1,036 pounds, having gained 366 pounds; the whole gain in the year being 902 pounds — the first six months giving 536 pounds against 336 pounds the last half of the year. At eighteen months he weighed 1,354 pounds. At two years old he weighed 1,616 pounds. At three years old he weighed 2,070 pounds. At four years old, 2,360 pounds. The increase of food given was very great as the animal increased in age, and his rate of growth constantly fell off until it was only 290 pounds for the last year of his life; only five pounds more than he gained in ninety days before he was six months old."

Another reason why we think it best to sell at two years, or soon after, is, that it takes less stable room and shelter as well as less feed to produce a given amount of beef at that age than it would at twice that age. As an illustration, I will give a description of my own stable. My cattle barn has a basement, containing a feeding floor, stalls for eighteen heads of cattle, and a loose box for six or eight calves. Ten of these stalls are occupied with cows and eight with yearlings.

Eight of the best calves are raised, six males and two females. If the sex does not average as we wish, we sometimes trade with, or buy of, a neighbor.

The second winter we will have ten cows, six yearling steers being fed, two yearling heifers to calve in the spring, and eight calves.

In the spring the two heifers are sold as cows, or take the place of two of the old cows, which from some cause may have failed, and are fattened.

The six steers are sold some time in May or June. The ten cows and eight calves, or yearlings now, are turned out to pasture;

1,000 pounds each for the six steers would be a moderate estimate, and the same for the two cows, if fattened, would make 8,000 pounds of beef. Now suppose we thought best to keep the steers until three years old; we should then save only five calves, three males and two females. We should then have in our stables the third winter, ten cows, three two year old steers, three yearling steers, two yearling heifers and five calves. Here we have three less calves to feed than in the first plan, and three steers that are a year older, which would consume nearly as much more food as that saved by the less number of calves. In the spring the two young cows are disposed of as before. The three steers that are three years old are sold, and should weigh 1,350 pounds each, or 4,050 pounds, instead of the 6,000 pounds of the six animals (steers) of the first plan. In the summer there is a difference of pasturing three two year old steers, in the place of the three less yearlings of the first plan. Besides the extra amount of pasturage the older steers would require, they are more troublesome, especially with a herd of cows. The yearlings in pasture are quiet, do not drive the cows nor jump into the neighbor's corn lot; in fact, have hardly yet learned that they are not calves still; while the two and three year old steers are always looking about for mischief or fun. There is this in favor of the second plan: that more of the growth is made on cheaper food, grass and hay, as they would be pastured one more season, and would not be fed as much meal the second winter. Now some will question whether this is all theory, or is it verified by practice.

This is our plan, and we aim to come as near to it as circumstances will permit. There are things that will happen which we can neither foresee nor prevent. However, perseverance will give success in stock raising as surely as in anything.

One of my neighbors sold on the first day of May, 1879, three head of young cattle — one heifer two years old, one two-year old steer, and one three years old. At the beginning of the winter, when he commenced to feed, the oldest steer was estimated to weigh one hundred pounds more than the yearling. When they were sold, the heifer weighed 1,100 pounds; the two-year old steer 1,180 pounds, and the three-year old 1,200 pounds. The animals were weighed after being driven eleven miles to market. In this case, if the weights of the two steers were correctly esti-

mated, the youngest animal gained eighty pounds more than the older one, while both were fed just alike.

Another man sold four head—three steers and one heifer. After being driven ten miles to market, the heifer weighed 1,100 pounds, and the three steers 1,230, 1,240 and 1,260 pounds, and were sold for five cents per pound. These cattle were twenty-six months of age. The farmer told me that when they were calves they were fed with new milk only three days; afterwards with skim milk for three months.

There were others that had nice cattle, but we have not ascertained the particulars about them. These men are good feeders, and are confident that they can do still better.

We are never too old to learn, neither have we reached perfection in any branch of farming, and in no branch, possibly, is there so much room for improvement as in growing better stock, and making it more profitable, by getting as much out of a two-year old as we have been accustomed to get from a three-year old animal.

Mr. J. Orvis—I would like to ask Mr. Hill what he feeds calves after he begins to take the milk to the factory, after they are six or eight weeks old?

Mr. G. C. Hill—As I lived near the factory, I used to feed them sweet whey, but I have concluded that it is of no benefit, and have not fed it for two or three years. I think it is a damage to feed it, not but there is some value in the whey, but the calf, after gorging himself with it, would not eat anything for the rest of the day. That has been my experience. I fed calves sweet whey for a good many years. I think the great drawback with cheese making is that the calves have to be taken right off from that which they ought to have. If they can have skim milk, that would answer every purpose with an addition of some other food; but I have not done anything better than to turn them on to grass, or keep them in the stable and feed them with hay or oats or some good food in the summer, but they miss the milk. The best calves that I have raised were some that I let have new milk until they were eight or nine weeks old, and then I kept them shut up until they were thoroughly weaned, and then turned them out. They did not stop growing at all.

Mr. J. M. Smith—Did you feed them milk after you turned them out?

Mr. G. C. Hill—No, sir. They had learned to eat well, and did not fall off. They kept growing, but usually a calf will feel it after being weaned from the milk.

Mr. J. M. Smith—What breed of cattle do you consider best for feeding for beef?

Mr. G. C. Hill—I have not had any experience, except with grade Short-Horns and a few grade Devons. I have not had any experience with feeding Ayrshires. There are some gentlemen here who have had experience in feeding grade Ayrshires.

Mr. J. M. Smith—So far as you have had experience, what would be the difference between feeding ten good native cattle and ten good grade Short-Horns, starting them when they are calves, giving them each the same kind of feed and feeding them until they were two years old, or thirty months old?

Mr. G. C. Hill—I cannot speak from experience, for the only two natives that I ever grew were the two that I first raised until they were four years old, and they were not raised as we raise cattle now.

Mr. J. M. Smith—Are those the ones you sold to the Oshkosh Dutchman?

Mr. G. C. Hill—Yes, sir.

Mr. Buckman—I noticed that Mr. Hill spoke of some stock that his neighbors raised, and I propose to enquire if he can inform us whether those were grade Short-Horns or some other breed, so that we can judge something from the kind of stock.

Mr. G. C. Hill—They were all grade Short-Horns I am certain of, except one animal; that older steer that was spoken of that the younger one overrun by eighty pounds. I am not certain but that was a native, though I think it had some Short-Horn blood in it.

Mr. Buckman—I would like to ask if you have been in the habit of feeding middlings, ground feed or any other kind of feed, except the oats, to calves after weaning; and if so, what your rule is in regard to that.

Mr. G. C. Hill—I have tried feeding middlings and different foods, and I do not know but the plan is a good one, but I have not made it a success. So far, I find nothing better than the oats, either whole or ground. They will eat whole oats a little better at first, but I presume there are other men who know more about

giving other feed to calves than I do. I do not pretend to know why, but I have not been successful in feeding Short-Horns in that way.

Mr. Buckman — We are in the habit of raising about that number of calves each year, and our method is to feed them skim milk after perhaps two weeks feeding with new milk. We then feed skim milk and middlings until the calves are about four months old. Then they are turned away to good pasture, and then when they are taken into the stable, we commence feeding middlings; but my success has not been what I wish. If a change of grain feed is better, I would like to know, if there is anybody that has had experience with it.

Mr. G. C. Hill — If I had skim milk for the calves, I think I could fix up something that would make them grow. I don't think it answers very well to feed middlings alone.

Mr. T. W. Rhodes — I have occasion to raise a good many heifer calves for the dairy, and my course has been, to not allow the calf to suck more than once, unless the teats and udder of the cow need bunting. In such cases, I have sometimes allowed the calf to suck for perhaps three or four days. Usually the calf gets but one full meal from the mother. After that he is brought up by hand, and learned to drink. He gets his mother's milk only until the milk is fit for cream; then he gets skim milk warmed. Our calves never get any sour milk. It is always sweet, summer and winter. My last spring calves through the summer had the best of blue grass pasture with plenty of shade, and they were fed their milk twice a day, when they were in stanchions. They were fed all they wanted to drink. They had all the blue grass they chose to eat. After they were eight weeks old, the milk was gradually taken off, and they were put out to grass, and had nothing but grass until along in December. My hogs took the milk when the calves left it; and when I killed my hogs, I put the calves back onto the milk, and they soon became extremely fond of it. They had to learn over again to drink the milk, and it seemed to agree with them remarkably well. In November, I began shutting them up in stanchions. The calves were shut up when we were threatened with cold rain storms or cold nights this spring. Through the winter they had simply eight quarts of skim milk twice a day apiece, warmed so as to make it agreeable, and what good Timothy

hay they would eat up clean, and their growth has been astonishing. Everybody that sees the calves thinks they are extra large. To give you an idea of how much they have grown, I would say that in the beginning of November I put up some stanchions for them. I made a floor three and a half feet, and it was too long. They soiled the floor so much, that two or three times I was on the point of taking my tools and shortening the floor to three feet, which would have been just right at the time they were shut up; but by New Years, at any rate by the middle of January, the floor was just right, so I think they have grown in length about six inches. The girth I have not measured. They have had nothing but hay and skim milk.

Prof. W. W. Daniells — It seems to me that as the milk containing fat is the natural food for the calf, that the addition of some fat might be well put in, and I should suppose that the use of a small quantity of oil cake meal would be most excellent. It is a very nutritious food. It is probably known that pretty much all the oil cake is taken from this country to Europe to be fed to cattle. I should suppose it might be very profitably fed here. I suppose that in the case of feeding calves skim milk from which the fat has been taken off, the fat could be restored to them by this means. This is the meal of the oil cake after the oil has been pressed from it, flaxseed meal. I should suppose this would be a method that would be introduced by butter makers.

Mr. T. W. Rhodes — I left my remarks somewhat incomplete. I had a spring calf two or three years ago. I think it was half Jersey. That calf had simply skim milk and grass, and I commenced with a small handful of oat meal put in with the milk. It was common oats, ground. After it was perhaps two months old, it received a good pint of meal twice a day. At five months old, I killed the calf and the veal weighed, I think, an even two hundred pounds. A beef buyer came along one day and looked at these heifer calves of mine, which I feed on skim milk and hay, and he said they were all fat enough for the butcher. Where does the fat come from? We get all the cream from our milk. Our milk sets in water that has ice on it about all the time. Sometimes the water is frozen over entirely, and we think we get every bit of cream that is worth having. These six calves do not eat any more hay than an ordinary three or four year old steer would eat. I

was satisfied and so also was my hired men, that the six heifers ate just about as much hay as a good average sized cow.

Mr. D. Huntley — I know it is the generally received opinion that the Short-Horns exceed every other breed for fattening qualities. It is also claimed sometimes that they are superior milkers, but that fact is not so often argued as formerly. I see quite a number of gentlemen present who have fed grade Ayrshires, and I would call upon them for some facts in regard to feeding. First, Mr. Smith, to my left.

Mr. Smith — I had a grade Ayrshire. She had her first calf when she was twenty-two months old. She was in good order, but her teats were so short I couldn't milk her. When the calf was three weeks old she bothered me so I sold the cow to the butcher. I forgot the exact weight she dressed; but it was either a little over, or a little under, five hundred pounds.

Mr. Babcock — I had a half-bred Ayrshire heifer which I intended to keep as a cow, but in consequence of her getting so much flesh I concluded not to do so. I do not recollect the weight. I sold her to a butcher in the city of Appleton.

Mr. D. Huntley — She was fed on grass alone.

Mr. Babcock — She was so fleshy that I did not consider it worth while to keep her as a milch cow.

Mr. D. Huntley — She dressed an even five hundred pounds, not varying over three or four pounds either way.

Mr. Babcock — I know it was a great deal more than I expected, by some seventy-five or eighty pounds. She had nothing but grass. She was half Ayrshire and half native. There might have been a little strain of Durham in her. She was very large. There were quite a number looked at her and they took her to be a Short-Horn. I took her to our county fair, and they rather doubted about there being any Ayrshire blood in her. She was certainly a half breed Ayrshire and the most of the other blood was native. She was a two year old heifer.

Mr. D. Huntley — I will not occupy but a moment, but I want to state a fact that came under my observation. Grade Ayrshires usually run to milk; but where one does not prove to be a good milker, we have always found both steers and heifers superior feeders, and found them to take on flesh equal to the Short-Horns, in proportion to the fodder consumed. Of course they are not as

large. A gentleman, whom I expected to be present, has a heifer, and she was so fat that he expected to make beef of her, and when she came in, she made two pounds of butter a day, and she was only two years old.

Mr. Hiram Smith—I think the plan described by Mr. Hill, of Rosendale, is the most feasible plan that I have heard of for raising beef at two years old. My present views in regard to beef are, that if a man would reduce the time to one year old, it would be a great blessing, and if it could be reduced still again to six weeks old, it would be still better.

I think the younger they are sold the better for real profit. The examples given here as a test are altogether too small to form any correct view of what the receipts would be to the farmer. Five or six calves upon an ordinary farm get a good deal of extra picking, whereas, if the entire farm was devoted to raising beef, they would fare less favorably. The article that was read in regard to moving west to raise beef was a sound one. There is the proper place to raise beef, because land is cheap. I do not know of any process by which a farmer in the state of Wisconsin could make his land worth forty dollars an acre, if it is entirely devoted to the raising of beef or wool. There are better places that can be used at very little cost, and the beef brings as much as though raised on high priced land. If our land is properly devoted, as it should be, to a business which is natural to this soil and climate and market, and all things contributing to its success; if it is devoted to dairy purposes intelligently, the land is worth seventy-five or eighty dollars an acre. A growing steer will eat as much as an ordinary cow. The dairy man has not learned his trade who cannot make his receipts equal fifty or sixty dollars per cow, which by no process can be done in raising beef. This is my view of the subject.

Mr. N. D. Fratt, President of the State Agricultural Society, read a paper:

Ladies and Gentlemen of the Industrial Convention:—In accepting the invitation of the management to be present and participate in your deliberations and discussions, I desire to express thanks for the liberty given me, in that I am not assigned any definite topic, that I am not tied down to a discussion of the meth-

ods of teaching reading, writing and ciphering, neither fenced in with the dairy, the sheep, or the colts, but am left fancy free to canter over the whole wide field of education and agriculture. I am also helped by the thought that on such hackneyed themes, I shall not be expected to say anything new. Education is a very important word. It covers a field as wide as human life; and some very good people seem really to believe that its effects are not bounded by this life; that what we are, what we make of ourselves here, will have something to do with our hereafter. But I must go no farther in this direction lest I trespass upon the fields that belong to others. Being as I am a farmer, you might naturally expect me to confine myself somewhat to the agricultural aspects of education; but I shall consider also the educational aspects of agriculture. I shall claim the liberty of looking at each of these large words through the lens of the other. It has sometimes seemed to me that the very ancient record, which reads "Cursed be the ground for thy sake," must be in some way a mistranslation; that it should read, "Blessed be the ground for thy sake." Agriculture as a means of education may be reckoned among the most important. The farm homes of our land have educated for us the noblest men and women, have produced the very highest type of character. It was the "embattled farmer" at Lexington and Concord who fired the shot heard round the world. All along the line of the ages, farmers' sons have not only been first in war, but first in peace, first in the learned professions. Every man who has won substantial success in any pursuit,

"Has learned to tread the narrow way,
That leads through labor to the light of day."

And it seems to me that there is no better place than a well regulated farm home in which to learn the primal lesson of obedience to the law of labor. It is a lesson a little difficult to learn, and some people never seem to master it; but it is the only path to freedom; the only road to high honor and true manhood. The ancient idea of agriculture was nomadic. Abraham, Isaac and some of the other old settlers hunted the green fields, pastured them short, and then sought other pastures new. But we have moved away from the idea of changing farms with as great facility as we change our clothes. We are learning to regard the farm as a piece of the solid

earth, that is ours to beautify, improve, cultivate and make productive; ours not only for an abiding place for ourselves, but the future home of our children.

It is a remarkable fact that nearly all men who are not farmers, expect to be, or at least hope to be some day. Probably nine men out of ten hope to go to their final rest from their own broad acres, amidst the peace of plenty, and the power of such peace as comes to one amid rural sights and sounds. It is a pursuit that tends to excellence in the formation of character; that tends to industry, economy, temperance and honesty; and we are not surprised at the enthusiasm of the poet Whittier, when he says:

“ Give fools their gold and knaves their power;
 Let fortune's bubbles rise and fall;
 Who sows a field, or trains a flower,
 Or plants a tree, is more than all.
 For he who blesses most is blest;
 And God and man shall own his worth,
 Who toils to leave as his bequest,
 An added beauty to the earth.”

The time is not far back in the past when the distance between intellectual and business pursuits was very great. When to have a college education was to be under bonds to some one of what used to be considered the learned professions; but of late years the practical side of life has been in the ascendant. A thorough knowledge of chemistry is good for the farmer as well as the physician, and some pretty good scholars and thinkers are dividing their time between philosophy and patent rights. The inventive and practical spirit of the age has wrought manifold blessings. It has so ornamented and elevated manual labor, that it is no longer the exclusive pursuit of a lower or lowest class.

Muscle has gone into partnership with *educated mind*, and the results thus far have been good. It is by means of this partnership that man has so utilized the might of the elements as to get a good many of his chores done by machinery and the gods, that he sets up his little wind-mill and makes old Boreas pump the water for his stock. It is by means of this partnership that he stretches a little wire and makes the fiery signal of the storm cloud a nimble ariel than is dreamed of in fairy tale or demonology, a tricky spirit that carries messages quicker than lightning, and for a quar-

ter will tell the farmer the secrets of surpluses and shortages across continents and over the seas, so that the farmer may know what to sow and when to sell. That the farmer of to-day is given his choice to ride or walk while plowing, is because somebody has given earnest thought to the improvement of the plow. That a lad of twelve years can cut and put into neatly bound bundles or sheaves ten to fifteen acres of grain in a day, when within the memory of some of us it was the work of two strong men to cradle and bind two or three acres in a day, is because many minds have given their best thought to the improvement of the reaping machine. We have not gone from the old hand sickle of early days to the latest improved self-binding reaper, without severely cudgeling the brains of some excellent, practical, thoughtful mechanics. It is a cheering reflection that this partnership between muscle and mind is to be perpetual; that cunning thought and skillful hands are still busy devising improvements in every department of the wide field of winning bread from the culture of the field, or agriculture. On the strictly educational branch of the theme, I advance the new proposition that education is the grand route to perfection. Many men are more or less perfect in some one thing. There are men who are pretty nearly perfect of head, hand or heart, but rare the instances where head, hand and heart are throned in a consummate trinity of the faculty in one person. We see men with plenty of mental *acumen*, but scarce anything of emotive force. There are people who strike us as having all run to head, and others as having all run to heart. There are perfect mechanics, perfect mathematicians, perfect artists, perfect scientists, and perhaps perfect moralists, but no perfect *men*. Some people who know one thing pretty well, are well satisfied they know everything, or doing one thing with facility, fancy they can do anything. Of course education involves the making the most of the particular faculty of a man, but in its fullest and best significance, it covers the whole man in the sum total of his capacity. Education, properly understood, stops not short of the *educing*, the *drawing out* of the man entire. Many the men possessed of special abilities and intent upon single purposes, who have fallen into the most awkward predicaments in the world, simply because they had no thorough, expansive education to sustain them. Narrow gauge effort has its advantages, but large, generous culture com-

mands margin for any and all exigencies. Sometimes the merchant says it is enough for his boy to become a good business man, and the farmer that his boy shall have only sufficient education for the farm. This is not fair toward the man that is in the child. Education ought to aim to equip every soul with wide margin for contingencies.

Farmers should be educated — not to look upon the world as a large farm, nor yet only a great yield of grain; and so of all the other callings. One thing we should all do well to bear constantly in mind, and that is, education is worth more than dollars and cents. Education is the key to the emancipation of man. It confides to him his birthright to be the pupil of nature, the peer of men, the child of immortal ranges. Education alone brings the world up to an equality of circumstances. The theory upon which our government is founded, is that of universal education; a system of common schools and high schools that shall meet the wants of all classes. Schools good enough for the wealthiest, and at the same time not too good for the poorest. They must be good enough for the wealthiest in order to be good enough for the poorest.

This is a grand theory, no doubt about it; but in practice how stands the matter? What is the price per annum, any wise parent of moderate means is willing to pay for the education of his son or daughter?

How many would name a sum less than twenty-five dollars? What is the price the state of Wisconsin is seeking to do all this important work for? It varies from *four* to ten dollars per head; say an average of perhaps seven dollars. It is a paltry, mean, stingy sum. If you will take the trouble to analyze the taxes paid by any county in this state, and see the sum we pay for ignorance and crime, growing indirectly out of stinginess in school appropriations, you may come to the conclusion that the oft-repeated laudation of our system of common schools, is the *cant* of *liberty*. If there is any principle which the civilization of the age has settled, it is the intimate relation existing between intelligence and good citizenship, and ignorance and crime. Our theory is the best in the world; our practice in many respects needs to be reformed altogether. We need to spend more money on our *common schools*, for it is chiefly by means of these that we are enabled to

educate our children, and keep around them at the same time the influence of home.

If the broad proposition be true, that the education of the masses is the foundation upon which we are building a government and a nation, let our master builders look well to the foundation before we proceed too far with the superstructure. It is the height of folly to quarrel over the ornamentation to a cornice of a building whose foundation is insecure.

If it be true that crime increases in the ratio of ignorance — that an entirely uneducated man is nine times as likely to be a criminal as the man who has been taught, and more than one hundred times as likely to become a criminal as he who has been thoroughly educated — then it is not only lawful for the state to levy taxes to build school houses and hire teachers, but it is next to criminal neglect of the state not to compel the attendance of the children. If those who constitute our ignorant and criminal classes will not educate their children, the state must do it on the broad principle of justice and self defense. Every child, whether well born or not, inherits the right to be well taught. Man is rather a formidable animal, both from his passions and his reason.

To train this animal to a proper sense of justice and virtue by the restraint of fear, by the encouragement of hope and duty, is the grand work of education. The state should look upon it as tragedy, that one man should die in ignorance and crime who had capacity for knowledge and virtue.

Years ago, Horace Mann, Massachusetts' eminent educator, delivered an address at the opening of a reformatory institution for boys, during which he remarked that if only one boy was saved from ruin it would pay for all the cost and care and labor of its establishment.

After the exercises were over, a gentleman rallied Mr. Mann upon his statement, and said to him, "Did you not color that a little when you said all the expenses and labor would be saved if this institution saved only one boy?" "*Not if it was my boy,*" was the solemn and convincing reply.

Mr. Hiram Smith took the chair as president *pro tem*.

Mr. J. M. Smith — I would like to ask Mr. Fratt how far he would go in the matter of compulsory education.

Mr. N. D. Fratt — I would say that these are simply suggestions thrown out. This is a mooted question.

Mr. J. M. Smith — I did not know but you had some theory in regard to it.

Mr. S. Griswold — I indorse every word of that paper. It is a very important paper; just such a paper as we need. I deny that farmers are not qualified to fill the highest offices in the nation. There are gentlemen now in this hall that I say are capable of filling any office in the land. Farmers, do not be discouraged and think that you are beneath others, the lawyer, the doctor or the minister. You are just as good as they are if you know as much. [Laughter and applause.] Sometimes we think we are a little smarter than we are. I don't want to do so; I want you to take me for just what I am worth and no more. I say to you that you can do almost anything that you say you can, if you put your whole energy and nerve into that work. There is no doubt of it at all. All you need is ambition and nerve to do it. I say, gentlemen, try and do the best you can, and what you don't know, and want to know, learn. [Laughter and applause.]

Mr. J. Orvis — There is one thing in connection with this paper which has just been read that I think is of eminent importance, and should be put in practice, and that is the education of children, and particularly farmers' children. I hold these agricultural conventions to be the educators of the people, educators of the farmer. [Applause.] Any one that has been conversant with them for the past few years, knows the great improvement that has been made in the various departments of agriculture induced by these gatherings, by the discussions and ideas brought out; and the point I wish to make is, we should bring our children, our boys and girls, to these conventions. It has been almost universally the case that the parents come and their boys are left at home. Bring your sons and your daughters to these conventions, for they can receive more education here than they can by reading all the agricultural papers for a twelvemonth.

Prof. W. W. Daniells — Mr. President, Mr. Orvis has spoken. Dr. Barry spoke last evening, doubting whether the children present at that Sunday School knew how many feet a horse fly had. I thought that he touched upon a question that comes very near the education, not only of farmers' children, but of all the children in

the land. I presume there are a great many grown people present who cannot tell how many feet a house fly has, and they are more accustomed to them than they are to horse flies.

What all children need, and what children upon the farm, especially, can be taught, is the use of their powers of daily observation as a means of education.

I doubt if half of the grown people present can tell how the butterfly eats. I have some cousin farmers in Michigan. They are very much more than ordinary intelligent people in ordinary farm life, and yet I was at the house of this cousin a few years ago, and his little boy, who was an interesting and curious lad, had hung up in the kitchen something that he called my attention to, but he called it a butterfly's egg. He told me a butterfly would hatch out of it. The tendency of that child was right. It was natural for him to suppose that this cocoon in which the butterfly existed in the period of the transformation from the caterpillar, was the egg of the butterfly, and bye and bye the butterfly would come out of that egg as the chicken comes out of an egg. His parents ought to have known, and ought to have told him, that the butterfly's egg was a thing not as large as the head of a pin, and that it was through another series of transformations, complete in themselves, but peculiar and different from those which the boy had ordinarily seen, that the butterfly came.

There are things going on about us all the time that our children need to know, and that they will be the better for knowing, not because they know the fact after being told, but because the telling them of the fact will lead them on to getting more knowledge, and to observing things about them, to know things transpire, and learning to know and to use the powers of observation which they have.

Now no one is more fortunately situated for these means of education than the farmer, and it is a means of perpetual education. It does not stop at four o'clock in the afternoon. It does not stop when the term of school stops, but it is going on continuously, and it is bringing up the child to use his powers, that bye and bye, when he is a man, he has to use.

Mr. Arnold — Perhaps by silence I might be doing an injustice to the farmers of our industrial association. They have spoken of the Brown County Horticultural Society; they have spoken of

the Auroraville Society; but our society has two stories, and it is these children that Prof. Daniells refers to that occupy the upper story. The children go into session just as soon as we meet. They have a room of their own. They have their president and they have their secretary, and they have their recitations. They keep just as good order as the larger people of the Grand Chute Industrial Association.

Rev. A. C. Barry—I would like to say just a word, and what I have to say is in the way of an indorsement, and a most hearty indorsement, of most of the suggestions that were offered in the paper read by my friend Fratt, of Racine; and I call him my friend because he has proved himself, during the more than thirty years that are past, my friend.

The views set forth in that paper, especially with reference to the subject of education, and that seemed to be the central and absorbing theme of the paper—I say the views set forth are undoubtedly sound ones. They are somewhat radical, it is true, but all in the right direction. Now, we have not reached the termination of this grand march upon which we have set out, so far as the matter of education is concerned. We are just about in the chrysalis state, as it were. We have only taken a few steps in the right direction, and I am very sure that our faces are in the right direction, and that we shall walk steadily forward in the path that is before us, always accomplishing that which needs to be accomplished. We all know that progress is a step by step movement, so that we gradually attain that for which we are continually reaching and aspiring. I am glad to be able to stand here and look in the faces of these men and women who occupy the farms, and who are employed in that grand and noblest of all employments, which I hold to have been the primary employment of man, for Adam was born a farmer, and we are the descendants of Adam, the children of farmers, no matter what our occupation or our profession. I am glad to look into your faces and to know that you are appreciating all the advantages of which you are possessed, and that you are growing, not only in this occupation yourselves, but growing in your manhood and your womanhood into something nobler, better, diviner, year by year, and so this profession of farming is elevated, and that you are not what you sometimes have been thought to be, the lower crust. We have the upper crust and

what has been called the under crust. Now, I would like to ask these ladies especially, what a pie would be that had not the under crust. I would like to ask what a building would be worth that had not a foundation. Now, I hold that the whole superstructure of society and of the state rests upon you men and women who occupy the farms. It has been so everywhere from the beginning to this day. God be thanked that it is so. Therein lies the hope of society and of this country. I wanted to say to you so much as this, and to express my approbation of the views and thoughts presented in the paper read by Mr. Fratt.

Prof. W. W. Daniells — I would like you, when you go home, to explain to your boys why you use a wagon in the summer rather than a sled, and I think that will set an influence at work which will be perpetually increasing in your minds and in your children's minds. If you continue until you solve this, then you will be solving more. I hope you will explain that to your children the first opportunity you get. It will set them to work and will do them good, and it will do you good.

Mr. S. Griswold — Let every farmer that attends these conventions bring another farmer, and bring his son with him.

Mr. Hiram Smith — This is a very important topic. I think a good many farmers waste a good deal of time in mourning over farmers being slighted and not being put in the positions they ought to occupy. I think that we should devote our energies to the object of making ourselves capable of filling the places. There is no lack of the discernment of the public. When a person has become perfectly capable of filling a place, he will be pretty sure to be appointed to fill the place.

The next topic is an essay by J. R. Loper on the subject of manures, and I was glad to hear the expression from Prof. Daniells yesterday that "there is a good deal of Providence in a load of manure." It is a very important question.

Mr. J. R. Loper, of Oshkosh, then read a paper entitled

FERTILIZERS.

Whatever affects the farming interest of a state favorably, must affect favorably, in a greater or less degree, every other interest in the state, as well as every citizen of it.

If I know my motive in coming before you at this time, the selfishness of it extends little if any further than a strong desire for a greater general prosperity of my state. And in order to get it completely out of your minds that I am here to advertise my business as a manufacturer of bone and meat fertilizers, I will say that I have a market in the east for all I make, and a demand for more than I can supply, and only keep back some when shipping in order to supply those farmers who seem inclined to feel their way by trying experiments with these concentrated fertilizers. I do it to accommodate them and not myself, as I much prefer to sell a car load rather than a wagon load or a few bags full.

I have noticed a lack of interest in regard to the matter now before us—that of feeding the land. Farmers have seemed to be asleep, dead almost, it has seemed to me, in regard to the importance of keeping their land up to a *full state of fertility*.

Should any manufacturer be present, and detect anything in what follows which may seem like a blow in the face of his business, so to speak, let him bear in mind that I am, at this time, speaking in the interest of the farmer.

WOOD ASHES AS A FERTILIZER.

[Scientific American, Vol. 32, page 200.]

How can I best utilize that big heap of ashes out by the wood pile? This is a question which we have no doubt that hundreds of the some odd thousands of farmers who read this paper have suggested to themselves, now that the milder weather renders drafts on the wood pile less frequent. In nine cases out of ten we suppose that the speaker's excellent spouse immediately remarks that she is about to sell them to the soap maker; and the money? well, that is her perquisite, and it would be very ungentlemanly on our part to venture a suspicion as to its outlay. Still, we dislike to see those ashes go to the soap boiler, and perhaps a word as to their value to our farmer friend may cause him to think as we do; so

with a word of apology to both madam and the soap man for our unwarrantable interference with their little traffic, we venture to suggest that those ashes are very much more valuable as a fertilizer than for lye. We suppose that every agriculturist, now-a-days, has some general idea of the principle of restitution; that is to say, the elements necessary to the growth of vegetables must be replaced; and if they are not, the crop either fails utterly, or at best is deficient in health and growth. The amount of these elements, phosphorus, lime, potash and several others, to be replaced, varies according to the vegetables cultivated. Thus, a potato crop from seven and a half acres of land takes away the seed constituents of four wheat crops, besides about six hundred pounds of potash. The average turnip produce of the same area, removes the seed constituents of four wheat crops and about one thousand pounds of potash. Similarly, also, grapes, clover, peas, beans, lucerne, and nearly all leguminous vegetables, remove potash in immense quantities. It is evident that in such cases, potash is the material which the land most requires to produce a new crop. To buy potash and add it to the soil would be expensive; true, it may be procured in combination with other substances in various fertilizers, but there is a much simpler source for it, and that source is the ash heap, which otherwise the soap man purchases.

Professor Storer, whose recent paper on the fertilizing properties of wood ashes we find in the Bulletin of the Bussey Institution, gives the latest information on the value of this most useful material. He says that the analysis of thirteen samples of house ashes shows a range of from 6 to 10.8 per cent. of potash, and from 0.4 to 4.6 per cent. of phosphoric acid. The lowest percentage of potash, 6 to 6.5, were from ashes of a mixture of maple, oak and white pine wood, collected by a soap boiler in a country village. The highest percentage, 10 to 10.8, were in ashes of mixed beech, birch and maple, in one case, and in those of pitch pine in the other. Eight of the samples ranged, as to potash, from 7.4 to 9.5, the average of them, as well as that of all the thirteen samples, being about $8\frac{1}{2}$ per cent. This, it must be borne in mind, is the proportion of the chemist's potash, or oxide of potassium, and corresponds to about $10\frac{1}{2}$ per cent. of the potash of commerce, which is an impure carbonate and hydrate of potassium. The average of phosphoric acid, in dry commercial wood ashes, whether unleached

or leached, is about two per cent., a much less quantity than would be inferred from the composition of the "pure ash" of many woods. This phosphoric acid is also a valuable fertilizing material in the majority of soils.

The balance of the elements contained in the ash, namely, silica, alumina, iron and manganic oxide, lime, soda, etc., are of little or no account; so that on what the potash first, and the phosphoric acid second, contained, mainly depends the value of wood ashes as a fertilizer. The material is, besides, a useful dressing for the ground about orchard trees, as it not only improves the soil, but prevents in a considerable degree the inroads of insects in the roots and bark. It only remains for us to show that there is not merely a loss to the land effected, but that a direct expenditure of money is the result of using ashes in a manner otherwise than we have pointed out.

In order to thrive, the farmer must keep his land in producing condition, and as we have already remarked, to soils which require potash, potash must be returned. Potash is worth about six cents a pound, and phosphoric acid is sold in the New York markets for about twelve and one-half cents for the same quantity. A barrel of wood ashes is bought by the soap maker for say twenty-two cents, and it weighs 125 pounds. These ashes contain on an average, as we have already shown, eight per cent., or ten pounds, of potash, and besides include two per cent., or two and one-half pounds, of phosphoric acid. According to the above prices, the total value of these substances is ninety-one cents, and therefore a barrel of ashes is intrinsically worth, as a fertilizer, nearly five times the amount for which it can be sold to the soap manufacturer.

"Ashes," says the *Rural New Yorker*, "contain the essential component of all crops. They should not be mixed with compost (there is no gain in so mixing them), but applied broadcast directly to the soil, whether it is grass or arable land. We never knew a farmer who could get more ashes than it was profitable to apply to his land. One hundred bushels per acre is not too much to apply to old cultivated lands."

Especially are ashes excellent for orchards. They should not be heaped right about the bodies of the trees, but spread over the roots, which extend as far from the bodies of trees as the branches do. Ashes are especially valuable as top dressing on old grass

lands, or on lands cropped with grain. For root crops they are equally important; indeed, as we say above, there is no crop grown, and no land cultivated, that is not benefited in a greater or less degree by the application of leached or unleached ashes, the latter being the most valuable.

Most farmers sell wood in the cities and villages, and rather than go home empty, they should carry back ashes, or other fertilizers, to replace the potash, lime, and phosphoric acid that have been carried off in the crops and animals sold. Ashes show immediate effect from their application, and at the same time last long in the soil.

Last year I presented a paper on this topic before the Northern Wisconsin Agricultural and Mechanical Association, at the convention held at Oshkosh, February, 1879 (page 193 in published report). That paper was mainly a bringing together of better authorities than my own, and contains valuable information and reliable tables in reference, partly, to bone and meat fertilizers. At this time I speak more particularly of other materials, but would like to say something right here, which may make the paper referred to of greater practical value to the farmer.

Probably the cheapest and easiest way to prepare bone and meat for effective use on land, is to lay them down in ashes, in a large barrel or hogshead, not in layers, as you would do if salting down pork, but, after making the pieces as small as convenient, the smaller the better, endeavor to have each piece thoroughly covered on all sides with ashes. Keep the ashes damp, but not wet enough to leach, and in a year's time, hardly a bone will be left that cannot be pulverized by a blow with the flat of a shovel or spade. Any hard bone remaining may be transferred to a second hogshead being made up.

Treated in this way, any animal dying on the farm need not necessarily be a total loss. If a horse or cow dies, the hide should be taken off, as it can be sold for more than it would be worth for a fertilizer, a horse hide being worth from \$1 to \$1.50, and a cow or ox hide, from \$2 to \$4; the tallow, \$1 to \$2, and the grease from a fat horse considerably more, as there is nothing superior to horse oil for lubricating machinery. Next, the carcass should be cut into small pieces, and put in ashes as before directed, taking care to have plenty of ashes next to the staves.

To pack away a horse properly, two large hogsheads should be used, as it is important to use plenty of ashes, so as to avoid all smell, and insure complete work. Managed in this way, a horse or cow dying on the farm may be made worth from fifteen to twenty-five dollars to the land.

A farmer might carry this matter still further, and leave word at the livery stables and police headquarters that he would allow dead horses or cows to be taken to his farm; or better still, that he would come after them with his own team, for doing which he could readily get from one to two dollars, and sometimes three dollars each.

Bones might be gathered from slaughter house yards and other places, and used to advantage by farmers in the manner above described.

It was quite amusing, to me at least, to hear a man on the streets of Oshkosh last summer who was selling small bits of soap for fabulous prices, claiming for it miraculous qualities, warning the people against buying soap made at the soap-works, explaining to them that it was made of dead horses, etc. I took no pains to set him right; but the fact is I do not take dead horses at my factory in town, and if I did, I could not afford to use horse oil in the manufacture of soap; it is too valuable, being worth about fifteen cents per pound, or something more than one dollar per gallon, for use on machinery. I have known bearings to be kept cool with it, which could not be prevented from heating with the best lard oil. I consider it worth much more than the best lard oil, for this purpose. I would not advise a farmer to kill his best and fattest horse in order to get a few gallons of this valuable article with which to oil up his reaper or other farm machinery, but would advise him to save every particle of it, should he be so unfortunate as to lose a horse.

SCAVENGER.

It would doubtless pay some thorough-going farmer to engage in the business of scavenger for the town near which he may be living. There is a large amount of valuable land dressing yearly lost to the farmers of the state, and worse than lost; for the present mode of dealing with the material to which I allude, night-soil, is very damaging to health. Usually the privy and the well are in close proximity to each other on the back end of a lot, sometimes

no more than thirty to fifty feet apart. Water in seeking its level is ever tending towards the lowest place it can find. The privy vault, therefore, becomes the receptacle for all it can hold. This water, after being contaminated, seeks a still lower place, and finds it at the well. This poisoned water will affect the health of those using it. Now who would not rather pay a scavenger's bill than a doctor's bill?

The word scavenger is usually associated with the lowest specimen of humanity a town is cumbered with — a person whom you would not speak with ordinarily. But the business of scavenger can and should be made respectable, and the right kind of a man could make the business very profitable. The right person to engage in this business is a *respectable, responsible, thorough-going business man*. Respectable so that people would be glad to do business with him; responsible so that they could feel sure contracts would be fulfilled; thorough-going and systematic so that everything about the business would be conducted in a prompt, cleanly finished and agreeable manner. It would seem best that a farmer should do this business because he would be getting the material at first cost, and once hauling would be saved. It is important that this business be done well if done at all, and for the benefit of any one who may take hold of it, I will give briefly what I had thought would be a good way to do it: Seek to have the board of health advise the removal of all night-soil several times a year, into the country. Get the city authorities to grant the exclusive privilege of the business for a term of years; of course bonds would have to be given for the faithful performance of the duties of the office, and a law made limiting the charges. This would protect all parties concerned. The citizen would still have the right to do the work himself if he chose to. The scavenger would require protection, because he would aim to make the business respectable, and when considered so by others he would soon have plenty of competition, and I think it would be right to protect the man in his profits who would inaugurate a reform in this matter. Then close a bargain with as many citizens as possible for the whole term. Then remove the privy to a new place, and have everything above ground; knock off the bottom board behind, and place under the seats two water-tight tubs made by sawing in halves a kerosene or other tight barrel; tack on the board again, and place

in the room of the privy a box of dry ashes or earth, the latter is preferable; also a small shovel, stove shovel for instance, and instruct that a shovelful or two of this dry ashes or earth be thrown in after using. This would stop all offensive odor, especially if earth be used, and make the work of removing the tubs less unpleasant, as the dry material thrown into the tubs would absorb the moisture in them. Instead of emptying these tubs into a wagon on the premises, it would be better to set them in the wagon and leave the other two tubs in their places. When at the dumping ground, clean the tubs out well, washing them thoroughly with lime water, using a broom; then throw them into a large vat of strong lime-water and leave them there for days, or until wanted for use again, or what might do as well, bury them in the ground, the object being to thoroughly cleanse them before returning them to the privy.

Employ only steady, clean, quiet men, and use only good horses and wagons; in short, study to do the whole thing in a cleanly, systematic business way, and you would soon find that the visits of the scavenger were considered by the citizens to be as respectable and as important for their health and comfort as the visits of the wood man.

VALUE AND AMOUNT.

One of the Messrs. Brainerd Bros., gardeners, of Oshkosh, informs me that from experiments made with night-soil he considers it equal to guano or hen manure.

In regard to quantity, he cited a case where a box four feet long, two feet high, fifteen inches wide at bottom, twenty inches wide at top, measuring fourteen square feet or about half a yard, required to be emptied twice a year. A family of four persons used this privy. Other cases could be cited to show that this is about a fair average. I would again recommend water tight tubs in preference to a box, because everything is then saved, and besides, the tubs could be more easily handled than the box. Of course they would have to be attended to oftener. Never do any of this work in the night; go about it as you would any other work, openly and frankly; *make it respectable.*

PROFIT OF IT.

When I was looking up this part of it I was surprised at the figures. Oshkosh has 16,000 inhabitants, say. It will hardly be

denied that eight is a good sized family for these times; this would give us 2,000 families. No family could think of giving less than three dollars; a very large majority would give five dollars; some of the larger and better houses, ten to fifteen dollars; some public buildings, such as schools, hotels, etc., from twenty-five to one hundred dollars. For instance, the city of Oshkosh is now paying one hundred dollars a year for having the high school privy vaults kept clean. Probably five dollars a year would not be too high for the average price, and you have \$10,000 for Oshkosh alone. The plan might embrace the six towns of Oshkosh, Fond du Lac, Ripon, Appleton, Menasha and Neenah. Place them at the following figures: Oshkosh, \$7,000; Fond du Lac, \$6,000; Ripon, \$3,000; Appleton, \$2,000; Menasha, \$1,000; Neenah, \$1,000; and you have \$20,000. These figures are probably not above what could be realized, but half the amount, \$10,000, would be a fair profit for a self-sustaining business — self sustaining, because the material obtained would surely be worth the hauling to any farmer who would engage in the business. The work probably could all be done, for these six towns, with six teams and not to exceed twenty men — possibly half this number. Where does a large proportion of this \$10,000 go now? Some to the nurse, some to the doctor, some to the druggist, and some to the grave-digger. I move we trade some of these off for a *good scavenger!*

Certain towns have been mentioned simply for convenience in making estimates. The same fact stands against nearly, if not every town in the state — the fact that its sewerage and filth is not properly attended to. This is not to the credit of a board of health, a city council, or a farming community.

Should this matter ever come to be properly attended to, the lands of the state will be much enriched and the health of the people greatly improved.

Mr. Stone — I have had a little experience in saving manures while engaged in farming and fruit growing. I think one of the faults in most every community is in allowing about one-half of the manures that are made on the farm to be lost, or worse than lost. The liquid manure on nearly all the farms in the country is allowed to go to waste. I think that is the case here. I know it was in the east. It is an acknowledged fact that the liquid manure, if properly

saved and applied, is worth about as much as the solid, and it can be saved and applied just about as cheaply by making the proper arrangements. Where you have stall-fed cattle, and in this latitude that is the proper way of wintering your cattle, it is a very easy matter to save the liquid manures, by having a drip behind the cattle with a gutter to carry the liquid manure to the tanks or cisterns, and then it can be applied by having the tank fitted for a wagon or by various means, according to the amount, and you will be surprised to see the results from its application. I have used it frequently for gardening, and have found it just as easy of application as the solid, and I contend that it is worth about as much. I have nothing to say against buying fertilizers, but I think before farmers buy fertilizers they should try and save what is made upon the farm and not have it wasted. I believe it is better to buy fertilizers than not to have them, but in the first place save what is made. In the city of Appleton there are hundreds of loads of leached ashes right on the bank of the river ready to be washed away, yet the farmers do not seem to appreciate their value, and they leave them there. There was a farm adjoining mine, and it was very poor, and there was a pot-ashery on it, and hundreds of loads of leached ashes lay there for years. At last it came into the possession of an old gentleman, a good practical farmer, and it was surprising to see the change that was wrought in that farm in a very short time by spreading upon the land those leached ashes. They had lain there, probably, for fifteen or twenty years. That farm to-day is one of the best farms in that section of the country. He brought his farm up without buying fertilizers, by merely applying those leached ashes, and properly saving and applying the manures which were made upon the farm. That thing can be done here by getting those leached ashes for nothing and applying them. There are enough there to supply fifteen or twenty farmers for this summer.

Mr. S. Griswold — To me this is a very important question. I have seen the waste on my own farm. I have been farming for years through tenants, and with all my efforts I cannot get them to draw out the manure. They agree to do so, and will draw out four or five loads. I have thought of that waste of manure that Mr. Loper spoke of in the city of Oshkosh.

Mr. A. H. Wheaton — I have just found out why the gentleman

from Waushara county remarked yesterday, that it was the poorest county in the state. (Laughter.)

Mr. J. M. Smith—I would like to ask friend Stone how many ashes there are on the bank of the river, and how much you have to pay to get them? How many are there that you could get for nothing?

Mr. Stone—I think you could load a steamboat with them, but you will find the farmers of Appleton will have them in a few weeks.

Mr. J. M. Smith— This is an exceedingly important question. I have used ashes very largely. I presume I have used 10,000 or 12,000 bushels within the last three years, and I want to indorse every word that our friend Loper has said in regard to the use of them. I regard them as exceedingly valuable.

Mr. S. Griswold— How many bushels a year?

Mr. J. M. Smith— Some 2,000 or 3,000 bushels a year. I have teams at work now, gathering up ashes in the city.

Prof. W. W. Daniells— I consider this a very important question, and as many people will want to go to dinner, I move that the discussion of this subject be postponed, and taken up immediately after dinner.

Motion carried.

On motion, the convention adjourned.

1:30 O'CLOCK P. M.

Convention called to order by Hon. Hiram Smith, president *pro tem*.

Rev. A. C. Barry said: Mr. President, and gentlemen of the convention, it will be remembered by those who were present at the convention in Oshkosh, two years ago, that in a lecture I gave on that occasion, I touched upon the subject of manures or fertilizers, in connection with the soils of Wisconsin, and their analyses, showing the treatment, so far as I could, that the several descriptions of soils should receive, in order to grow to the largest extent and in their perfection, the several crops that are grown by the farmers of Wisconsin; and I had occasion to refer to the subject of what are known as artificial fertilizers, or prepared fertilizers, and made an allusion to an instance that occurred under my own ob-

ervation in Cleveland, Ohio, with reference to the value of certain fertilizers when applied to the pear tree. The fertilizer was simply bone dust. I was stopping with Prof. Kirtland (and I am only calling attention to this now for the purpose of getting a sort of stepping-stone for something beyond). Taking me into the garden, he showed me a pear tree, the foliage of which had begun to fade, and was turning yellow. Evidently the tree was in a decline, not in a healthy condition, and the professor said: "I know what this pear tree wants; it is sick, and it wants medicine." And he sent for his man, and said to him: "Take a peck of bone dust and put about this tree." Then he turned to me and said: "You will be here long enough, perhaps, to see what the result of this treatment will be." I was with him about ten days, and within that time the character of the foliage had changed entirely. The yellow color had disappeared, and the foliage had taken on a bright, fresh green, and evidently the tree had been cured.

Mr. J. M. Smith — May I ask how the bone dust was put on?

Rev. A. C. Barry — Put upon the surface.

Mr. Stone — Was there any rain during that time?

Rev. A. C. Barry — I don't think there was. I think the tree was helped by this treatment simply by absorption. There was sufficient moisture. In any event the cure seemed to be radical, and then the professor said to me, that that was his usual treatment, and so kept his pear trees in a good, thrifty, bearing condition, and you fruit growers perhaps know that the professor has been somewhat famous as a fruit grower. I want to say a word about the treatment of soils by ashes, leached or otherwise. I have tried both, and I am not certain but that there is about as much virtue in leached ashes as there is in unleached. I have tried them both upon the potato crop, and so far as the results are concerned, I think that the leached ashes proved to be quite as beneficial as the unleached. Last year I treated a piece of ground in my garden with leached ashes, the balance of the land receiving only a treatment of common stable manure. The patch was planted to potatoes. I had a glorious yield, and of a good quality, upon that portion of the ground to which the leached ashes had been applied. I had but a small crop upon the same kind of soil with the same treatment in all other respects, as carefully looked after and cultivated. Upon the other portion of the ground the crop was

small and the quality quite inferior, so that the potatoes seemed to have received from the leached ashes that which was required to produce a large crop of fine quality. I think that is easily accounted for. It was caused by the potash, particularly, contained in the leached ashes, for we all know that there is quite a large per cent. of potash in leached ashes.

In the growth of the strawberry, also, I think the treatment with leached ashes will work admirably. I have not tried it myself, but others have experimented. Our friend Smith, of Green Bay, I presume, can tell more about that than I am able to tell you. There are one or two points, perhaps, that I may touch upon hereafter, in the discussion of this subject, if there should be time and opportunity. Although I was born a farmer and brought up on a farm, and until within a little time have been the owner of a farm, yet I do not come here thinking that I am able to instruct you farmers in methods of agriculture, or with reference to manures or the proper treatment of soils.

I have given the subject of soils more attention perhaps than I have given any other subject connected with agriculture, having made a collection of all the soils in Wisconsin, and have analyzed them all, so that I can furnish an analysis of all the soils of this state.

Mr. J. M. Smith—I was very anxious to have Prof. Daniells here before we took up this subject. He is an authority upon the chemical analysis of manures, and I wanted to ask him a few questions; but in his absence I suppose we can go on as best we can. There are a few points here that may be valuable to us all that we can speak upon during his absence. There is one fact that will hold good, I think, with all farmers with regard to the use of manures.

Let two or more farmers go to work upon land equally good. Let them be ever so good farmers. The man who uses the most manure, and who uses it to the best advantage, will make the most money. It does not follow that the man who uses the most manure will get the biggest crops. A man may fool away the manure just as effectually as he can fool away any other source of money or profits. Manure is money, and worth more than money. I would a great deal sooner do without my bank account than I would do without my manure pile, for if my manure pile gave out, I would be very certain not to have any bank account long.

Some years ago, I knew a farmer who had a heap of manure that became so large that he had to move his manure or his barn. He concluded to sow a piece of fall wheat, and hauled out the manure at the time it was dry. It was packed down, and he dug it up in great clods. He had to cut it down with a grub hoe, as some of the clods were as large as a peck measure, and some as large as a half-bushel. He carted the manure out and spread it on a clay soil. It was naturally good wheat land, but the manure was spread out in great clods and lumps. The manure was partially turned in these heaps and the land broken up. He sowed his wheat, and I recollect saying at the time that the man was fooling away a valuable pile of manure, and was throwing away his time and labor. I do not know whether that was valuable or not; but he was fooling away both the manure and his seed. The result was that he had no wheat of any amount. As is usual with that class of men, he had hard times.

If that manure had been put upon the land as it ought to have been; if it had been plowed at the proper time, when the manure was in the right condition, and the manure had been broken up finely, and spread over the top of the soil and harrowed in, the chances would have been nineteen to one in favor of his having a good big crop of wheat from the application of the same manure. In putting it on so foolishly and so carelessly, in such a way, he threw it entirely away. I mention this to show how a very valuable manure pile may be thrown away, and made comparatively of little value. A single experiment is not always reliable. An experiment that is useful on one soil is useless, or perhaps worse than useless, on another soil. We cannot lay down any rule except the general rule that manure is valuable, and so valuable that we cannot get along without it.

A few years ago a gentleman came to me and said, "You agriculturists say dry straw is worthless for manure." I replied to him that dry straw was of very little value as manure, and contained but very little fertilizing properties of itself. Says he, "I had a straw stack and I put it in the bottom of the furrows and turned it all under, covering it all up, and the crops have been better ever since, and I can see the effects of it yet." That was four or five years ago. I happened to know the field and the circumstances. It was a very heavy black loam, with a clay subsoil that

would hold water like a stone jug. I said to him, "Your soil has become very loose and mellow?" He says, "Yes; previous to this straw being plowed under, the soil always packed." Says I, "Precisely. The action of the straw was simply mechanical. Your land had plenty of fertilizers to produce large crops, and your straw simply put it in a condition so that the crops could grow." Now suppose I had said, "Here is a cheap way of manuring lands. Simply put in some straw and plow it under and your land will raise abundant crops in four or five years." Suppose I had done so with some of my light, sandy soil, and then a dry season had followed. The result would have been that my crop would have been ruined entirely; I would not get anything at all. No rule will apply in all cases. We need common sense in using manures, the same as in everything else. No man can conduct the business of farming successfully, I care not how well posted he is in the books, unless he uses common sense in his business, and especially in regard to manures. Manures are very scarce, and become more and more scarce every year, and we do not get enough of them. The question is, where are they to come from; and when we get them the question is, how to use them so as to get the greatest possible good in the shortest possible time. You do not want to put manures on this year and wait four or five years to get the benefit of them. You must use it in such a way as to get the greatest possible good from it in the shortest possible time, and to do that requires a good deal of common sense. You cannot learn it all from the books. You can learn a great many things from books; you can learn a great many things from these conventions; but you cannot learn all. Ashes are very good. I don't know where you can hardly put them amiss. I have used them for the last fifteen years in large quantities. I think that in some years I have used as high as 3,000 bushels on twelve or fifteen acres. I put them on at the rate of about one hundred bushels of unleached ashes per acre. When I use leached ashes I put on about half the amount that I do of unleached ashes.

I had an interesting experiment with ashes last season. I was planting six or seven acres of potatoes. The land had ashes on it the year previous at the rate of about seventy-five bushels per acre. Last spring I concluded to give it another coat of ashes of about fifty to sixty bushels per acre. The potatoes were planted and

then I put the ashes on, and spread them on top of the ground just as the potatoes were coming through; but before I got finished my ashes gave out, and I told my sons to go to the compost heap and haul enough from that to give a coat of good fine manure over the balance of the land, which was about three quarters of an acre. We watched the result. The potatoes were all planted just the same. They were cultivated precisely alike; the land was alike. There was only a difference of three feet between the piece where the ashes were put on and the piece where the manure was used. It has long been known to me that land that is manured with fine manure will resist a drought much better than land that is not manured. The crops will stand the drought better. We had a severe drought. I expect to see the land where the fine manure was used get along nicely, and where the ashes were, I expected to see the potatoes dwindle and kill from the drought, but the fact was just the reverse. Where the ashes were put on I had a nice growth of potatoes, and where the manure was used the potatoes resisted the drought for a time; but the final result was, that in digging the crop I only had seventy-five bushels to the acre of very moderate sized potatoes, and a great many small ones, from the land where the manure was put on; but where the ashes were used, we had about one hundred and fifty bushels per acre of a very nice quality of potatoes. I expected to raise three hundred bushels to the acre, and I think I should have got it with an ordinary season, but the drought cut down both crops.

Mr. Tompkins — Would a man better fool away manure than to fool away the crop too?

Mr. J. M. Smith — There is no need of fooling away the manure.

Mr. Tompkins — He may lose his crop and all, if he does not deal with the right sort of a man.

Mr. J. M. Smith — I hold that you can make the failure of a crop the exception.

Mr. S. Griswold — Last year I drew out some fine pulverized manure on to my land. I spread it and plowed the land middling deep. By the middle of June that field of potatoes was the best that I ever raised. It was a dry season, and most all the potatoes in that vicinity failed. I had the best crop. It may have been because, as Mr. Smith says, the manure was well pulverized. I

believe in deep plowing. Mr. Greeley said that one half of an acre was enough to plow in a day. I plowed more than that, and with a yoke of cattle, too.

Mr. W. Masters — Mr. Griswold pretends to represent Waushara county. It puts me in mind of a story I heard not long since, of a man living in the western part of the county who traded forty acres of land there for a horse, and in making out the deed there were two forties put in instead of one. The result was that the man who obtained the land sued the other one for damages. Now I would ask Mr. Griswold how much damages he has sustained, for I think he must be the man. (Loud laughter.)

Mr. S. Griswold — I have no such land that I wish to throw away, but I will give a warranty deed of forty acres of land to any gentleman who does not own any land, if he will settle and break up ten acres next spring. You can raise two hundred bushels of potatoes to the acre there, too.

Mr. W. Masters — He must be the man, for his land is so poor that he is willing to give it away.

Mr. S. Griswold — I will give it away to enhance the value of 600 or 700 acres of land I own there.

Mr. T. W. Rhodes — I wish to ask Mr. Smith what he considers the best method of applying manure; upon the surface, or to plow it in deep, or shallow?

Mr. J. M. Smith — If I were planting corn, I think I should plow under my manure. If I were going to sow wheat, I should put it on top of the ground, and harrow it in. If I were going to manure grass land, I should certainly put it on the top of the ground. Within the last half year I have come to the conclusion that I made a great many mistakes in plowing it under too deep. I was early taught to cover up manure deep in the ground; to plow it under; the deeper the better. I am satisfied it is a mistake. I am satisfied that I made a great many mistakes myself in that way. My attention was called to the subject a number of years ago, accidentally at first, but since then I have been experimenting, and now I am using the manure on the top of the ground, as far as I can. As I said when I was on the floor before, there is no one rule that can be given and applied in all cases.

Mr. Stone — Mr. Chairman: I remember seeing in the *Country Gentlemen* a number of years ago, some experiments by John

Johnson and one or two others in regard to surface manuring. They commenced manuring right after the hay crop was taken off and manured a plot every month — I believe until the next spring or until in the winter — and then in the spring they plowed it under for corn; and the result of those experiments was, that the plots that were first manured were the best, and so in the same order. The rains had carried into the soil the ingredients of the manures, and when it was plowed and worked, it was worked into the soil, and they received the most benefit where it had been the longest applied. Of course there is no rule that will work in regard to the application of manures. Some manure is coarse and some fine and well rotted. Coarse manure on wet land would probably be the better plowed under, as it would act mechanically to lighten the soil, making it dry and porous. But if the manure is so it can be applied at the surface, and perhaps worked in a little with the harrow and cultivator, I contend it is far better, and you will receive better results the first year, than if it was plowed under to a great depth where the roots get very little benefit from it. The subject of plaster came up here yesterday and has not had much comment. There are a great many farmers that rely on plaster as a manure. I look upon plaster as a mere stimulant. We would not expect a farmer to rely upon whisky as a food. It might do in certain contingencies as a stimulant, but he could not stand it to work long if he used just simply liquor as a food. I contend that plaster should be used in about the same way as we would use a stimulant as food. I have noticed one thing in the section that I came from. There were two or three large plaster mills in operation at one time, and they were doing an extensive business. Now there is but very little plaster sold in that section. From the experiments that I made, I could see no particular benefit on grass crops, some corn crops, and some others, from the use of plaster. I have tried it by putting it on some rows and leaving it off from others, and in various ways; but I must confess I could not see a sufficient result to induce me to apply it, and I gave it up. I believe, if it is applied, that it should be applied about the same as lime; not so much as a manure as a stimulant. Lime without manure will make the land and the farmer poor, and I believe the same can be said of plaster.

Prof. W. W. Daniells — What do you mean by a stimulant?

Mr. Stone — It does not furnish plant food. Lime does, to a cer-

tain extent. Still, the benefits of using lime are not altogether in proportion to the amount that the land takes up. It acts, partly, chemically. There is one question I would like to ask Prof. Daniells, and that is, why is it that lime seems to be more of a benefit on limestone land? I don't know whether that is the case here, but I know it is the result of experiments in Pennsylvania. It is more of a benefit to limestone land than it is to sandstone.

Prof. W. W. Daniells — Lime acts in two ways upon the soil. It either hastens the decomposition of the organic matter in the soil, or takes the place of something in the soil among the silicates, for instance, silicate of potash, and sets the potash free. So lime will make a soil poor by hastening the decomposition of the organic matter, and the organic matter of the soil will soon disappear. A man wants a pile of rubbish to rot down quickly; he puts lime on it and keeps it moist, old weeds, corn stalks and things of that nature. Lime put in the soil hastens the decomposition of the organic matter in that way. It may also replace potash in the silicates of which the soil is made up, setting the potash free. In carrying on this action for a time the soil may be made poor by the potash having been too largely set free, or the larger portion of the potash having been set free, and either taken up or washed away. That, however, would seldom occur. Now I do not look upon plaster at all, in any sense, and I think it cannot be looked upon in any way as affecting plant growth as lime affects it. I confess I do not know how to explain the action of plaster. Plaster has a most wonderful effect upon many soils, upon many crops; but I cannot explain it. That there is danger of making a soil poor by using plaster, I believe, just as I believe there is danger of making a soil poor by putting on manure. I do not think there is any more danger in using plaster.

Mr. J. M. Smith — Can you tell why plaster will act upon crops on some soils and have no effect whatever upon other soils; upon clover for instance?

Prof. W. W. Daniells — I can. Plaster is sulphate of lime. The lime and the sulphuric acids the plants want. Plaster seems to act most readily upon the plants known botanically as leguminous plants. Pulse belongs to that family, clover belongs to it, while the grasses are not usually greatly benefited by the use of plaster. Clover is usually benefited, and these leguminous plants are those

plants that contain a larger proportion of sulphur in their composition than the grasses. I do not think by any means that the beneficial effects of plaster can be explained by the quantity of plant food it furnishes, but I do not believe that there is any danger of injuring the fertility of the soil by the use of plaster; nor do I believe there is an example which can be furnished. I have heard that story for many years, that if you begin to plaster you are obliged to continue it. That is true. If you begin to feed an animal you must continue it. It is better to do it, but it is not any more essential to feed it well after you begin than it was at first.

Mr. J. M. Smith — Does a chemical analysis show that ashes lack nitrogen as a manure? Now, suppose I wish to manure a piece of land and furnish it with a complete manure, if I manure it with ashes heavily, how can I get the nitrogen so as to make it a perfect manure?

Prof. W. W. Daniells — If it is simply nitrogen that you are in search of, I should suppose that you would get the most benefit either through the application of crude ammonia salts or from the application of what they call Chili saltpetre. It is nitrate of soda. There is a mine of it in the rainless region of Chili, in South America. It is sold largely in New York under the name of cubical saltpetre, or Chili saltpetre. Ammonia salts, so valuable for nitrogen, are contained in this nitrate of soda. It is also true that the guanoes are rich in ammonia, and in nitrogen that is not in the form of ammonia. It is rich in nitrogen.

Mr. J. M. Smith — They are so expensive that we cannot afford to purchase them.

Prof. W. W. Daniells — These not only contain nitrogen, but they also contain, to some extent, potash, and to a larger extent, phosphoric acid. While there is a considerable portion of phosphoric acid in your ashes, there is not a sufficient amount of it. Besides that, the phosphoric acid that is present in ashes, is present, not as a soluble phosphate, but as an insoluble phosphate.

Mr. J. M. Smith — Does that do any good?

Prof. W. W. Daniells — It does good the same as bone meal does good. It slowly decomposes and gets into the soil. It is in the form of phosphate of lime, but not in the soluble form. You put bone meal upon your land. It does not produce immediate effects, because it slowly decomposes; but put superphosphates, as

they are called, upon the land, and you get the immediate effects from them as well as the effects which are more remote. The superphosphate is simply a phosphate of lime contained in the same soluble phosphate, that is, it contains a larger proportion of acid than lime. In the case of the phosphates in your ashes, they are insoluble, and their effects, so far as the phosphates themselves are concerned, would be somewhat remote.

Mr. W. Masters — I would like to ask Prof. Daniells what soil is best adapted for the use of plaster?

Prof. W. W. Daniells — There is no known way of telling that, in my opinion, but by trying it. It is precisely like the use of salt. Sometimes salt will seem to have a very beneficial effect upon the land. At other times it will not. I think more generally plaster has been used beneficially upon the lighter soils, but its effects are not by any means confined to them, and the only way of telling is by trying it.

Mr. S. Griswold — Would you sow plaster the same as you would sow grain?

Prof. W. W. Daniells — I would sow the plaster early in the spring if I was sowing it upon grass land, that is, land that has been sowed. I should want to sow it as soon as the vegetation begins growing.

Mr. S. Griswold — Would you sow it in the spring on your wheat land?

Prof. W. W. Daniells — I would sow it in the spring anyway. It is partially soluble. I would not sow it in the fall when the melting snows would dissolve it to some extent and carry it away.

Mr. S. Griswold — I want to know whether you would sow it when you sow your wheat?

Prof. W. W. Daniells — I don't think it makes a particle of difference. You wouldn't get any effect from it until the rain comes. It wouldn't be any better by being harrowed in. I don't know but it would be just as well.

Mr. T. W. Rhodes — I wish to suggest a theory for the action of the sulphate of lime, and that is that its action is similar to that of quick lime. Quick lime, as has already been said, acts to dissolve the organic matter in the soil, and thereby the soil becomes the quicker impoverished. My theory is that sulphate of lime, through some chemical modification, I know not what or how, does eventu-

ally decompose the insoluble organic matter so that the soil becomes poor the sooner. I happened, some years ago, to be in the town of —, in Saratoga county, New York, where they have extensive tracts of sandy soil like Waushara county. I noticed the buildings and everything else were going down hill. The farmers were complaining that they couldn't raise any crops. Says I: "Why don't you use plaster? Their reply was: "Plaster has ruined us. We used to have rich farms and raised fine crops, but by using plaster we have ruined our soil."

Prof. W. W. Daniells—I would say that if plaster acted the same as lime, it would be a very easy matter to prove by experiment. So far, experiments that have been tried in the most thorough manner do not show any such results.

Mr. Hiram Smith—While this discussion has been very interesting and useful, yet I think it has run a little in the wrong direction. We have passed over the weightier matter of the waste of manure that almost every farmer throughout the country is suffering from in his manure pile. You may take any road in almost any county in the state, and you will see farmers throwing their manure out of their windows and leaving it under the eaves of the barn to drench and waste its substance. In the fall, when it is almost worthless, it will be hauled upon the land, and some experiments made with it, and it will be pronounced almost worthless as manure. They will go on in the old beaten track, constantly wasting the manure, as they have done, thinking less and less of its real value. Here is an important point that we can all take advantage of. Save the manure. Almost any farmer, especially the stock farmer, with proper treatment, can make nearly all the manure that his land requires. It is much better to haul it upon the land while it has its full value, than to throw it out to be drenched under the eaves until it has become nearly worthless, only the shucks left, and you have lost the kernel.

Mr. T. W. Rhodes—Would it be in order to introduce a resolution? The dairymen of Wisconsin are very much interested in having a hook put in the nose of that monster called oleomargarine. I offer the following resolution:

"Resolved, That a committee of three be appointed to memorialize the legislature of Wisconsin to solicit legislative acts against all adulteration of any article used as food or drink, and especially

that all dealers in oleomargarine be required to brand conspicuously all packages containing the same, and also to post conspicuously at the entrance of their stores, without and within, these words: 'Oleomargarine sold here.'"

Mr. T. W. Rhodes — I appeal to the judgment of all of you, if any dealer should post those words at the entrance of his store, without and within, so that every customer could see it, he would entirely lose his butter trade, for nobody wants to buy oleomargarine. I don't think that any respectable groceryman could sell a pound of oleomargarine.

Prof. W. W. Daniells — I am a consumer of butter, not a producer. Now, I want to know whether I have not the same right to buy oleomargarine that I have to buy butter; and why any restriction should be put upon the production of oleomargarine that is not placed upon the production of butter, I do not see. This is not a matter that has anything to do with health, as I look at it. At the International Dairy Fair at New York this winter, there came up among some of the experts in the dairy business, the question as to whether the butter upon the table in the New York hotel was oleomargarine or butter, and both sides had advocates. Neither of them could tell. There was not any reason why those who thought it was oleomargarine, could give why they thought so. They agreed to leave it to X. A. Willard, the great dairy authority of the country. Mr. Willard decided it to be oleomargarine, only because he thought that, if it was as good a quality of butter as it appeared, that it should have a little more taste. As oleomargarine is of rather neutral taste, he judged it to be oleomargarine. Those were the only grounds for his belief. It proved to be oleomargarine, yet the dairy experts, and I believe some of them from Wisconsin, considered it to be butter. Now, if men want to eat this, I do not see why they should not be allowed to do so. If you will put a restriction on the making of a poor quality of butter, then I should say that there might be some reason in it.

Mr. Hiram Smith — I think we will be better able to decide this question after the subject of the dairy is more fully opened; therefore, with the permission of the gentlemen, I will lay this aside and take it up afterwards in the discussion of dairy matters.

Chester Hazen, of Ladoga, then read a paper entitled

DAIRY FARMING IN WISCONSIN.

Mr. President, Ladies and Gentlemen:—The topic assigned me on this occasion, "Dairy Farming in Wisconsin," covers a good deal of ground. It is to be remembered that Wisconsin is a large state. But a small portion of it has been, however, used for dairy farming; still, the dairy interests of the state are being very well represented in our dairy fairs, agricultural fairs and industrial conventions. The products of the dairy, including milk and its various products, exceed in importance and in money value any single agricultural industry in America, and Wisconsin, comparatively a new dairy state, has made great improvements in dairy products, both in quantity and quality, in the last decade. Ten years ago Wisconsin butter and cheese were unknown in the great dairy market of the world. To-day, New York, the great commercial center of the continent, honors our state by quoting Wisconsin cheese as an individual state, and equal to New York state in value, while she quotes western creamery butter from one to two cents per pound higher than York state butter.

But some one might ask, what all this has to do with dairy farming in Wisconsin? This is what I am going to try to tell you. In the first place, in natural adaptation, such as a healthy climate, pure water, and her rich, fertile soils, capable of producing in unlimited quantities the richest grasses for the dairy cows, of any country in the world. With all these natural advantages, the Wisconsin dairyman has no excuse, short of carelessness, shiftlessness, laziness or old fogyism, if he does not produce at least a good article of butter or cheese, such as will take and maintain a standard in the general dairy markets equal to the best.

But there are some qualifications necessary to make a successful dairyman, such as a natural adaptation, a man who prefers dairy farming to any other occupation. How many of this class of dairy-men have we in our state? I think but a small proportion of the whole number now engaged in this industry; but what there are will be very sure to make it a grand success.

Dairy farming, like most all other agricultural pursuits, has its advantages and disadvantages. These questions all have two sides to them. While dairy farming might be considered more confining,

that is, it requires especial attention, that it must be attended to morning and evening three hundred and sixty-five days in a year, more, perhaps, than any other branch of agriculture; the cows must be milked, fed and cared for, in preference to any other work, which is a serious objection with many well-to-do farmers who have very fine farms, well adapted to raising grain, keeping sheep, fattening beef and pork, raising horses, etc.; they claiming there is too much work about dairy farming for them, which is true judging from their standpoint.

I will state a case of this kind. We have a farmer in Green Lake county by the name of William Miller (familiarily known as Bill Miller), who has 3,600 acres of as good farming land as can be found in the state, nearly all of it improved. This amount of land is nearly all under his personal supervision, and his farming consists of raising grain, raising and fattening beef and pork, raising sheep and horses, and each branch of industry is well cared for, and the products marketed at better advantage than the products of most of our small farms are. Last fall, when timothy seed advanced to two dollars per bushel and over, it was reported that Mr. Miller sold over 3,000 bushels. As some portion of Mr. Miller's land is in the vicinity of a farm and cheese factory I am running in the town of Green Lake, I ventured to suggest the propriety of stocking it with cows for the dairy. The reply was, "There is too much work about it; I could not get help enough to do the milking." In Mr. Miller's case I think he was right, where land is of little account and labor the main thing. There are other branches of agriculture that may pay better than the dairy, but on ordinary sized farms, say from 40 to 200 acres, or perhaps more, I believe that for a term of five to ten years, more money can be made from a dairy of first class cows, well fed and cared for, than any other branch of agriculture that I am acquainted with. I will try and give you some idea of what I consider a good, well conducted dairy farm.

The first thing I would look after would be a good rich soil of land, sufficiently rolling for good grain land; would rather not have any sloughs or low wet lands for pastures. The best grain land I have on my farm, is the best for pasture. Many farmers in my neighborhood labor under a serious mistake in regard to pasture lands, thinking that the low land, coarse, rank grasses, and

the native grasses that grow among the grubs and openings, is just as good pasture for cows as the dry, rolling, cultivated lands will produce.

This pasture question is a very important one, both as regards quantity and quality of milk. The upland that has been cultivated and stocked down to timothy, clover and blue or June grasses, will produce much the richest milk, and more of it. I believe it has been stated in some of our agricultural conventions, that a noted chemist had experimented with the different kinds or varieties of feed for milch cows, and as regards the quality of the milk produced, and has decided that the feed made no difference with the quality of the milk; that was controlled entirely by the cow. I beg leave to differ with Mr. Scientist on this point.

Every factoryman ought to have the latest improved instruments for testing milk. Such instruments, intelligently used, will decide the quality of milk; and in my experience for sixteen years past, during which time I have received milk from fifty to one hundred and twenty-five patrons annually, I believe I can tell by testing the milk of the different dairies, whether the cows are pastured on dry, rolling lands, stocked down with cultivated grasses, or whether the cows run in openings, grubby and slough pastures, by the quality of the milk.

While I am talking about pastures, I wish to say something in regard to a substitute for pastures, or rather something to assist, in case of a drouth, which is of common occurrence in our state, to insure a good supply of green feed and keep up a good flow of milk during the dry seasons. Every dairyman should plant or sow some kind of a crop to cut and feed green. For this purpose I plant corn. I sow my corn in drills three feet apart, and thick enough in the rows so it will make a good vigorous growth; that is, grow good sized stalks and retain a dark green color, and will have some small ears on it. I sow about sixteen to twenty quarts to the acre. This corn can be sowed on the richest land on the farm. If the land is too rich for a crop of small grain it will be all the better for the corn. Plow and cultivate the land well before planting, and when the young corn begins to come up, drag it thoroughly with a light, fine-tooth drag, which will check the growth of weeds and give the corn a chance to get the start of them. After this the corn may need cultivation once, or perhaps twice, if the land

should be very weedy. Corn planted in this way soon shades the ground so as to kill out all the weeds. Usually this corn will do to cut for fodder about the 15th of July, before dry weather, as it usually affects the pastures seriously in this country. When this corn is fed to the cows, it should be cut one day before feeding, giving it a chance to wilt. This softens the shell or outside of the stalks. The cows will eat it better and the hard part of the stalks won't make their mouths sore, and I think the juice of the stalk is sweeter after it is wilted than when it is first cut up. I consider a crop of corn, managed in this way, the cheapest feed I can raise for my cows; ten or fifteen tons of this green fodder to the acre is not an unusual crop, and no dairyman in Wisconsin can afford to do without it.

My practice is to feed my stock a good wagon load of these stalks every day, and feed the same hour in the day every time. If I have any more of this fodder than I wish to feed green, I cut it and put it in shock, and continue to feed it as long as my cows give milk. I believe, if cut in good season and well cared for, this corn fodder is worth as much or more per ton than the best of hay, and is much cheaper. Of course, it is expected that a successful dairyman will provide some ground feed, or some other substitute, for his cows when they are giving milk, as the best of cows can't be expected to pay unless they are well fed and cared for.

Of course, a practical dairyman will keep none but first-class cows, and on this point there may be a wide difference of opinion. A good dairy cow ought to give not less than 6,000 pounds of milk in a season, that is if she is cared for as she should be; 6,000 pounds is a good average for a dairy of say 30 to 60 cows. We have frequently individual cows that will give 8,000, and some as high as 10,000 pounds in a season; but the common dairyman cannot expect to bring an entire dairy much above an average of 6,000 pounds to the cow. In order to get the best results from milch cows, they should be well fed on good, wholesome, milk-producing food, fed regularly at the same hour every day, with plenty of good, pure water; and in the winter season, they must be protected from the storms and cold weather that we always have in this climate; good, warm and well ventilated stables are indispensable, and careful treatment in handling, particularly in milking. Good milkers are not very plenty in this country, that is, I am bothered more

about finding good competent men to do the milking than I am for any other work on the farm, and, as a rule, the proprietor of a dairy will treat his cows better than hired help will, and in milking his cows will get more milk from the same cows, everything else being equal. It is hardly necessary to say that the milk, after drawn from the cows, must be cooled and cared for in the best possible way. If taken to a cheese or butter factory, it should be cooled or reduced to a temperature of 60 to 65 degrees Fahrenheit as soon as possible, and delivered at the factory in this condition.

When patrons of creameries and cheese factories deliver their milk at the factories in conditions as above stated, there will be no use of having any trouble with the manufacturer; and they will have a right to demand of the manufacturer a first class article of butter or cheese, as the case may be. Butter and cheese factories are so common at the present time that it would be hardly necessary, even if I had the time, to enter into a detailed statement of the various processes of manufacturing butter and cheese on the factory system. But we have many farmers in our state that are not located within a reasonable distance of a factory, that make their own butter, and a few that make their cheese, besides some larger dairies that prefer making up their milk at home. The last mentioned class need no advice from me, as many of them are the best informed dairymen we have in the state. But to those smaller dairymen, who have been in the practice of making their butter at home, and selling it at the country store, sometimes making it in rolls, and carrying it to town in pails and selling it for one-half, and many times for less than one-half, of what good creamery butter is selling for, I would say that I can see no way that such dairying can be made to pay, short of becoming well informed in the improved methods of manufacturing butter, and adopting some process by which you can make a gilt edged article, the details of which I cannot enter into in this paper, as this subject could not be thoroughly discussed in half a dozen papers the length of the one I have prepared.

If I were going to make butter from my dairy through the summer season, I believe I would prefer the Cooley system of raising cream to any one I have yet seen, unless it is the vacuum process, and I believe I have witnessed the operations of nearly if not every system of raising cream that has been invented up to the present time.

The Cooley process of raising cream is by setting the milk in deep, small cans, eight inches in diameter, twenty inches deep, and submerging them in a tank of ice water, reducing the milk to a temperature of forty-five degrees Fahrenheit, or below, as soon as possible. The results of this treatment are that the cream will all separate from the milk in from six to ten hours, or between milkings, so that cans enough to hold one milking is all that is required; and if the cream is carefully handled by a skillful butter maker, a very uniform quality of gilt edged butter will be produced. This submerging milk immediately places it out of the influence of all bad odors in the surrounding atmosphere, of which milk is a powerful absorbent, which must necessarily result in a uniform quality of butter.

When butter is made, pack it in good, clean white ash tubs, and market as soon as possible. The time is past when there is a demand for old, or anything but the finest fresh butter, at remunerative prices. Oleomargarine has taken the place of all old or common dairy butter in all the large cities, and is, to all appearances, preferable to it, and can be produced at a less price than dairy butter. I would advise dairymen to keep their stock of cows up by raising a few heifer calves every season from some of the best cows in the dairy. It has been argued by some that they can't afford to raise their cows — can buy them cheaper. It is possible that may be the case in some instances. But can Wisconsin dairymen afford to slaughter their best stock, and by so doing reduce the quality of our cows? We have several breeds of dairy cattle. Each one appears to be adapted to certain purposes. For general dairy purposes, I believe the Ayrshire has no superior. They are tough, hardy cattle, good feeders, and as a breed have not been excelled for milk, taking size of cows, amount of feed consumed, quantity and quality of milk, and they make an excellent quality of beef, well marbled, sweet and juicy. They seem to be admirably adapted to our northern climate, it being similar to their native country, county of Ayr, in Scotland. Many of our best dairymen are introducing the Ayrshire grades in their dairies, and they uniformly give good satisfaction. The Jersey cow is well adapted for dairies where butter making is the principal object; more particular in quality than quantity. The Jersey is not as hardy a cow as the Ayrshire or native; but Jersey grades make

very desirable dairy cows, especially for butter dairies. The Jersey cow is much sought after by village and city gentlemen when a family cow is wanted, and the quality more than the quantity of milk is the principal object.

The Short-horns are bred more especially for beef than milk, and excel in their particular line any other breed that has been thoroughly tested. Short-horn grade steers take the preference in the beef markets of our country. We find some very good milch cows among the Short-horns, but they are the exception as far as my observation goes. Still Wisconsin has some good dairies composed mostly of Short-horn grades. The Holsteins are much talked of by the breeders and importers of that stock, and some very large yields of milk have been reported from single animals. They are a very large, coarse, bony cow, and if specimens that have been exhibited at our agricultural and dairy fairs are fair representatives of the breed, I should judge they were very good milkers, but not so hardy and well adapted to our northern climate as our native cows. Their prevailing color is black and white. They have not been introduced in this country long enough to give the grades a fair trial. The Devons are a very tough, hardy stock, for work oxen superior to any other breed; but they are not sought after by the dairymen in the northwest.

While dairy farming has many objectionable features, it has many favorable ones. The labor on a dairy farm is very confining, but it has some advantages over all other branches of agriculture. It gives steady employment to laborers the entire year; more so than grain raising. It keeps a farm in much better condition. If a dairy farm is well managed it will continue to improve in fertility, instead of degenerate. Its products are available nearly every month in the year, instead of being put on the market all at once. Its products can be shipped to any market in the world at fair rates compared with their cash value, thus saving hard feelings and wars with transportation companies and railroads. This freight question is one of great importance to our Wisconsin farmers. About the first thing I looked after when I commenced farming in Wisconsin was, what can I produce on my farm here in Wisconsin, one thousand miles from the seaboard, that the freights won't eat up all the profits. Wheat would not do, and corn and oats were out of the question. But corn and oats and hay and grass con-

verted into butter and cheese, pork and beef, and wool, would do.

Some kind of stock raising seemed best. I was brought up on a farm until I was fifteen years old. My father kept a small dairy, and my early life was spent in taking care of cattle and milking the cows; and as our family were all boys, nine of them, we had to work in the house part of the time. There is where I received my first instructions in making cheese. When eleven years old, I used to help my mother make cheese, the old fashioned way. For some reason or other, I took a fancy to dairy farming here in Wisconsin. I put a dairy of twenty cows on my farm in 1850, and have continued in the business up to the present time.

From 1850 to 1864, I carried on a mixed system of farming; raised considerable wheat, and some stock, etc. Since that time, dairy farming and manufacturing cheese has been my principal business, and during the thirty years, I don't recollect that any other branch of my farming has paid me any better than the dairy, and there has not been more than four or five seasons but that dairying has paid the best. From the results of thirty years experience in dairying in Wisconsin, I have come to the conclusion that I shall keep a dairy for some time yet, certainly until I can find some occupation that suits me better.

Dairy farming seems to me to be progressive and educational in its nature. I believe dairy farming, and the manufacture of dairy goods, has made greater progress in the last decade than any other branch of agriculture has in thirty years, and there are still opportunities for improvement.

It is customary, at our annual dairymen's conventions, to prepare a programme of the subjects that dairymen are most interested in, and papers are prepared for each subject by men of experience; and one object of such papers is to draw out discussions on them, which are usually thoroughly debated, bringing out all the experience of the entire audience. So thoroughly has this practice been pursued, that there is very little hope of my being able to present any new ideas on the topic assigned me; but if what I have said should draw out a thorough discussion of any or all of the points I have attempted to present, I shall think my labor has not been spent in vain. I am aware of the keen, sharp criticism such papers are subjected to, especially by the dairymen of our state.

I believe the people of the northwest are a step in advance of our eastern neighbors in the interest they take in such meetings as this, and especially in their discussions, which may be the cause of some anxiety our eastern neighbors have expressed of late. I will state one of them. In the *Utica Weekly Herald*, one of the leading dairy papers of New York, I noticed at one of their dairy meetings the question proposed for discussion at their next meeting was, "How shall we successfully compete with the west in our dairy products?" Thus acknowledging our advantage over them; and this advantage has been gained, mainly, by the untiring efforts and determined spirits of our western dairymen to excel in whatever they undertake. This is also true of every successful dairyman in Wisconsin.

What is true in regard to our dairymen, is also true of many of our Wisconsin agricultural and industrial pursuits.

In summing up the whole matter, I believe a thorough knowledge of the business, and close application to it, will be very sure of success.

Mr. J. M. Smith took the chair as president *pro tem*.

Mr. Hiram Smith said: I accepted an invitation to go out at four o'clock, and if you will allow me, I will make a few remarks on this subject. I heartily indorse the position taken by Mr. Hazen in this paper. It is mainly sound and correct. The question of oleomargarine was under discussion, and I wish to speak a little upon that question. It has become a fact that the oleomargarine butter is better than the ordinary dairy butter, and that is the reason that it is being used in nearly all the restaurants in the cities and in many of the hotels, and among the laboring classes, who are in the habit of buying low priced butter. The oleomargarine butter gives better satisfaction than common dairy butter, and sells for from one to three or four cents higher than ordinary dairy butter.

Mr. J. M. Smith — You say common dairy butter. What priced butter do you mean?

Mr. Hiram Smith — Common dairy butter in the markets will fetch now about eighteen cents in New York, and in Chicago sixteen to eighteen cents. Oleomargarine sells for twenty and twenty-one cents. It looks better than this poor dairy butter. Now it

comes with an ill grace from the dairymen that cannot make as good butter as the business men can out of tallow, to demand that they shall stop making this butter out of tallow. There is no danger that oleomargarine will compete or stand in the way of good creamery butter. Those that have an educated taste for good, sweet butter, a good deal better butter, I mean, than is commonly used throughout the country, who have an educated taste for good butter, with the fresh aroma about it, will not be deceived with ordinary butter or oleomargarine. I admit it is a fraud. There is no butter about it. It is a fraud as much as it would be to sell a very poor quality of kerosene oil and call it headlight oil, and still more so, for kerosene oil partakes of the nature of oil. This has no butter about it. It is simply tallow. Efforts have been made to suppress it in New York and other states, but they have utterly failed. The only method to suppress it is by making it unlawful to call it butter, and that method is perfectly proper. It should not be called butter. It should be branded "oleomargarine," what it is. It is branded in the city of New York, and I saw some of the brands. They make the oleomargarine into pound and half pound and quarter pound rolls, wrap it up with a piece of white muslin with a small stamp on it about the size of a twenty-five cent piece, with some curious shaped letters that look like the margin around the stamp, for the word oleomargarine, and the word "butter" is plainly printed across it. It is printed according to the law, "oleomargarine butter;" but not one person in a thousand would notice that the word "oleomargarine" was anything but the trimming on the stamp. They think it is butter. They buy it as butter and use it as butter. It is a hard question to reach, not being particularly unwholesome, though when it is made of old horses it is not a very pleasant reflection to think of the kind of butter you have been treated to.

The butter called oleomargarine butter is perhaps not very unwholesome. We have these questions to meet: Shall we continue to pursue the old route, setting the milk in pans and making butter, and selling that butter at the stores for fourteen or sixteen cents, while the best butter that is made with one-half of the work and less expense can be shipped any reasonable distance to houses in New York or Chicago, and will command from thirty to thirty-two cents? The only question for the farmer is, will they continue to

pursue the old course or embrace the new and better way. It is supposed by some that there is some necromancy or some secret method of making creamery butter, whilst it is just as simple a process as it would be for a master mason to mix up good mortar out of good lime and good sand and good water. The rules are all plain; one person can teach another in two weeks to make as good creamery butter as milk will make, simply because there are rules to go by. The milk must be taken from the cow and immediately submerged in water and ice sufficient to reduce the milk to forty-five degrees. Here is a plain matter. The thermometer is in the front of the tank, and any novice can see when this point has been reached. If it is reached, it is positively certain that the cream will all be off in from six to eight hours.

In churning, in the proper method, there is no risk to run. It is warmed up to sixty-two degrees, after the cream has taken on a little acid, and churned. It is the most simple process in farm life. No greater mistakes have been made than in the process of making butter. Why? Simply because we have all been educated wrong in the matter of raising the cream. We have supposed, from the earliest times, that the milk should be placed in a room of about sixty-two degrees, in pans, and let the cream raise in that way. It is all wrong. It is contrary to nature, inconsistent, and absurd. Submerge your milk in water. Ice water is the best place in the world to raise all the cream from the milk. These Cooley cans that were spoken of are made to contain about thirty-six or thirty-seven pans of milk. You set them in the tank, and just before you commence milking, you lift them out and turn the faucet, and the milk runs out from under the cream. It gently settles at the bottom, and is put in the jar or can. This can needs no washing. It is just as clean as any ingredient. You can't get any cloth that is any cleaner than sweet milk at forty-five degrees temperature. It is perfectly sweet, if constantly used, and therefore they are filled right up. You get rid of skimming the milk, washing the pans, keeping any fire, or paying attention to the temperature of the room. More than half of the work is saved, and positively good results obtained, if you observe the rules governing the case. I would like to talk longer, but I have accepted an invitation to go away this afternoon.

Mr. C. L. Rich — What sort of packages do you use in shipping butter?

Mr. Hiram Smith — Fifty or sixty pound packages, white oak, or ash if it goes to Chicago or New York. They have a notion in Boston, and they hardly ever change their notions, that spruce is better; therefore, if you ship to Boston, conform to the prejudices of the market to your advantage.

Mr. J. N. Loper — I feel called upon to stand up in defense of that poor old horse spoken of by our friend Smith. A man who understands the business of making tallow into the best quality of butter would be very likely to know the value of horse oil, and as long as he could get tallow for six cents a pound, he would not be likely to use that which he could dispose of for twenty cents, namely, horse oil, and of the balance of the old horse you certainly could not make butter. I think there is a great deal of unnecessary prejudice against the old dead horse, which five minutes before he became so was considered a passably decent article.

Mr. T. W. Rhodes — I think that the most of you would naturally infer from Prof. Daniells' remarks on my resolution, that the aim was to suppress oleomargarine. We do not expect to suppress it, or any other article which can be proved to be wholesome, but we have a right, all of us, as consumers of any article, to be guarded against imposition. When we buy an article as butter, we want to know what we are getting. We don't want to be put off with an imitation.

If we buy broadcloth we do not want to be put off with shoddy. I think many people in our country are trembling in their shoes for fear this stuff shall be put off upon them; I offer my resolution more for their benefit than for the farmers, for I have very little sympathy for the farmer who is so far behind the times as to make old fashioned butter in the old fashioned way.

Mr. James Orvis — It would not be expected that a man would go into any pursuit where he would be obliged to publish his business by being compelled to post up notices of what he proposed to do inside of his building. I believe the gentleman's resolution asks this convention to have a law passed to that effect — that he shall be compelled to post up notices over his doors, inside and outside, of what he proposes to do. It looks to me as though that would be asking a good deal of a man. I have no objection to oleomargarine or any other commodity being sold for what it is. I would approve of a law prohibiting men from selling it as butter, but I don't think

it necessary that they should post up notices where they manufacture it, stating what they are making. If they put a stamp upon the package of the commodity, it seems to me that is all that is necessary. I indorse the sentiments of friend Smith, that if the farmers of Wisconsin are not competent to make butter that is worth more on the market than this article made from suet, and the people prefer to buy that article instead of the general quality of butter, they certainly should have the privilege of doing so; and I hope that oleomargarine butter will be sold until every dairyman in the state of Wisconsin is compelled to make a butter that is worthy to supplant it in the markets of the world.

Mr. Randall — Two years ago, when Mr. Smith was speaking about his Sheboygan cheese factory, I said to him that experience had proved to me that a cheese factory and a creamery can be connected. I had some cheese on exhibition at Oshkosh two years ago. It was taken there by my friend Huntley, at his own suggestion. A gentleman from New York who was purchasing cheese, said that he would give one and a half cents a pound more for that cheese than for any of the rest, if I would load a car with it. I am speaking of cheese made from skim milk. I made a contract to supply a certain restaurant in this town with soft cream, for the purpose of making ice cream, and hearing of this Cooley process and having in my possession a tank which was air tight, made for keeping things in a grocery store, I used it. I had some cans made. By accident I put the covers over them instead of into them, from the fact that I wanted to turn on water and ice that was not perfectly pure, and these covers setting over the cans would not allow anything to get into the can. I found I could turn the water over them and submerge them as deep as I chose. I set it in the morning and I had the cream off at night. I had a small dairy, and consequently only half of the milk was submerged. Half of the milk was put in right from the cow. One cheese, perhaps, would not be as perfect as another in one sense. That cheese was sold in this market for as high a price as any other cheese. Ninety per cent. can be added to your profits. Every one of you can make up your cheese, under this process, every other day if you are not in close proximity to the factory. If I should carry it every day I should set the night's milk and skim it in the morning, setting it in pans, exposing it to the air. Then I should take the morning's milk just after

dinner, and run up my curd about one o'clock. That would be the better plan. I will tell you why I would let the cream be exposed to the air for twelve hours. This gilt edge butter is made from pure cream, just as pure and soft as cream can be. It will not keep as long as butter that is set and made in the common manner. It is perfectly sweet and smooth and nice if it is used in forty-eight hours, but it will change more rapidly than any other butter that is made. All gilt edge butter is made to put immediately upon the market.

You put it upon the table just as pure as can be. There is no dead horse in it. There is no odor in it from the room or the slops, or anything of that kind. It is perfectly pure. With a little store of ice and with a good healthy dairymaid or wife, you can handle it. I had a vat, the bottom of iron, with a flange nailed up all around the side. Then these cans were made, round of course. You can't get any dirt into these cans. You submerge them, and keep them down any way you choose. The water will go over them, but you can't get any water in the cans. Those covers must be perfectly air tight. They must not be leaky.

Mr. A. H. Wheaton — I would say that Mr. Smith does not make gilt edged butter now from sweet cream, but he takes his cream and mixes it all together and allows it to become acid before it is churned. All the managers of creameries that I have seen follow that rule. They do not churn their cream sweet, but allow it to become acid first. That butter will keep, but butter made from sweet cream will not keep any more than cheese made from sweet curd will keep. The same rule will apply to both butter and cheese.

Mr. T. W. Rhodes — I wish to inquire if any person here has seen the vacuum mode of raising cream tested?

Mr. A. H. Wheaton — We have tested it pretty thoroughly. A man came down last summer from Portage and left some cans in my factory, and I distributed them among my patrons. They tried them and I tried them. I have a fountain where the water is forty-eight degrees, and I found by setting the can in cold water about two-thirds or three-fourths of its depth, and allowing the fountain stream to run on it all night, keeping it at just about forty-eight degrees temperature, that we could get all the cream off in about six hours. I found you could take any other can, and, with the same

treatment, you could get the same amount of cream in the same time. I found by setting it in water in an open can and the vacuum can, that you obtain the same results in each case. The vacuum cans are no better and no worse. I do not consider them worth anything.

Mr. T. W. Rhodes — Has any one here seen the centrifugal mode tested anywhere?

Mr. Chester Hazen — I have seen it, but not enough to satisfy me that it would be practicable for dairy use. If I was going to make butter in my dairy, I would prefer the Cooley system or the vacuum system. It is a can that forms a vacuum over the milk. Whether it is convenient, taking everything into consideration, I am not well enough posted to decide. The centrifugal process of separating the cream from the milk will have to be improved upon, I think, before it will be practicable. In the first place, it requires considerable power to separate the cream from the milk.

Mr. T. W. Rhodes — How much power?

Mr. Chester Hazen — I couldn't tell how much. I should think somewhere in the neighborhood of a horse-power to do any amount of business.

Mr. T. W. Rhodes — I feel it due to the dairymen to give them a little of my experience in raising cream. We all have heard a great deal said about the Cooley plan. I have no doubt but that it is an excellent plan, but my mode is not patented. It is very expensive. I can work my dairy with less expense than to get the old-fashioned apparatus. I think I secure all the advantages of the Cooley system; and if I do not secure all of them, I have some positive advantages over that system which will compensate for every point where I may fall behind. I use simply a plain tin can eight inches in diameter and twenty inches deep. I set them in a tank of water, so that the water comes perhaps within one inch of the top of the can. We have tight tin covers. We do not submerge them. I can't say, from my own experience, the advantages of submerging the can. I think all you gain by submerging is being able to control the temperature and exclude the air; and I think my plan secures both of these points perfectly, because we have tight covers. Odors have no possible access to it. I am inclined to think the exclusion of light might be some advantage so far as the color of butter is concerned; but so long as we color our

butter, I do not know that we lose anything in that respect. We have a well of water that has a temperature of about forty-three degrees at all seasons of the year, and that water is pumped on sufficiently to keep the tank at the same temperature. We try to keep it about fifty-five degrees in the hottest weather, and as much lower as possible. In the winter it is hardly necessary to pump more than once a month, unless the water in the tank becomes impure. During the winter season we have had ice on top of the tank a great deal of the time. The ice was not allowed to become thick, and during the severe weather we poured in a kettle of boiling water often enough to prevent the ice becoming too thick.

We have had to break the ice to get the cans in and out. In no case does the cream come in contact with any portion of the can that is in contact with the ice, so the cream has not been frozen. We have sent our butter to a commission firm in New York that does not know us. We put the butter on the market on its merits. We get one cent a pound above the highest quotations for creamery butter. We get thirty-eight cents a pound, and the highest quotation for creamery butter was thirty-seven. I said we got thirty-eight cents. It is sold for thirty-eight cents, and they take out commission and freight. It costs a little over a cent a pound more for us in Waupaca county to ship butter to New York than to Chicago. It costs about three-fourths of a cent a pound for freight, and the commission is five per cent., and you can figure the amount of the proceeds.

Mr. W. Masters—I would offer an amendment to the resolution that it be made to include butter, and that butter be marked "butter," and buther, "buther." There certainly is a great deal of butter in the market that should not be there, even under the name of grease. We ought to be protected from buying this worthless stuff.

Mr. A. H. Wheaton—I will second the motion. Instead of having oleomargarine excluded by law from the markets of this state, I would rather have it come into the market as a stimulus to the farmers to become better butter makers, and in that way drive the oleomargarine out of the market.

Mr. Louis Perrot—I do not see any impropriety in having the article branded, in large letters, what it is, instead of having it marked in small letters that cannot be detected, as Mr. Smith men-

tioned. If such were the case, the people would know what they were buying.

On motion, the resolution offered by Mr. Rhodes was laid on the table.

Mr. Dane — It appears to be almost impossible to preserve apple trees in this country. It has occurred to me that the looseness of the soil may have something to do with it, the roots of the trees not being properly anchored. The atmosphere may have something to do with it. I am from Nova Scotia. Nova Scotia is about the same parallel of latitude as this state; about forty-three or forty-five, longitude sixty-three; consequently its climate is very similar to Wisconsin. In Nova Scotia the apple trees never die. I have seen trees that were planted by the first white inhabitants of this country. I saw one two hundred years old. The original stock was an old French apple. On the graft was a beautiful Bishop's Pippin. Fruit growing is rapidly developing in that country. The last few years, apples from Nova Scotia have taken the premium in Liverpool and London. Last fall there were three bark loads shipped to Liverpool and London. They keep longer than any other apple in this country. There is not so fruity a taste to them, I must say, but some of the varieties are very excellent, but none of them equal to the apples of the state of New York. It occurred to me that you may do something in the way of anchoring your trees. The soil in Nova Scotia is a very thin soil, a gravelly loam, not more than six inches deep. The soil does not contain the principal ingredient for wheat raising, lime, consequently they don't raise much wheat. Some seasons are too short for corn. There are vast deposits of gypsum in Nova Scotia; millions of tons are taken from them and brought to the various ports of the United States and ground up, and sent all over the country. They never have utilized it. The soil is very thin — a great deal of gravel, principally stones. There is where the trees are planted. Hasn't that something to do with it? The atmosphere is impregnated with salt. May not that have something to do with it? Cannot you apply salt in some method? Cannot you apply bones and gravel and stones around the roots of your trees, to give them a chance to anchor themselves? I am inclined to think that anchoring the roots and keeping them firm, and applying bone dust and salt, might have something to do with preserving the life of the tree.

Mr. W. T. Innis — I am not much of a fruit grower; I am a common farmer, but I have an orchard. I have never been within a thousand miles of Nova Scotia, but my geography tells me that on one side is the Bay of Fundy, and on one or two sides is the Gulf of St. Lawrence and the ocean, and the moisture has something to do with the climate that it does not do here. Here we are in a comparatively dry climate. It has been my observation and experience for twenty years, and I believe it is correct, that the difficulty in raising fruits is the dryness more than any other one thing, a dry atmosphere and a dry soil, especially in the winter. We have plenty of soil and the trees will anchor. There is no trouble about that. The first year or two the tree may be loose, but as soon as it establishes itself, it will anchor in our soil.

Mr. Randall — We are laying out, I believe, a successful plan of fruit growing in the northwest. My orchard is seeded down heavily with turf. In the summer time, the trees that are highly cultivated are sure to succumb to climatic influence. The hardiest apple in the winter time will, when the soil is porous, freeze so deep as to destroy the roots of the tree. Guard against that. These Russian apples that are adapted to a high latitude are far better than even the Talman Sweets, unless they can be protected. On sandy soil trees are liable to freeze out. When a tree is in a dry soil and no moisture, and the frost is severe, it is just as sure death to that tree as though it was taken out and laid by the fire. You take a Talman Sweet that has been frozen, and the roots are literally dead. You cannot revive them by any process whatever.

The committee on resolutions presented the following:

“*Resolved*, That we hereby return our grateful acknowledgments to the mayor and common council of the city of Appleton for their generosity in providing, free of charge, this excellent and commodious hall for our sessions.

“*Resolved*, That our worthy secretary, R. D. Torrey, merits our sincere thanks for his efficient services in organizing and conducting this convention, and also for the delightful musical entertainment by himself and his daughter Gertie.

“*Resolved*, That the Misses Winnek are entitled to our sincere thanks for their kindness in furnishing us with such excellent vocal music, thus contributing to the success of the convention, and es-

pecially to Miss Emma M. Winnek, for such rare piano forte solos as have been furnished by her.

Resolved, That we shall carry to our homes fragrant memories of the genial and hearty hospitalities of the citizens of Appleton, and especially their noble wives and daughters.

Resolved, That our sincere thanks are tendered to the officers of the various railroads, who have shown their good will to the agricultural interest by granting a reduction of fare to delegates and others attending this convention."

Mr. D. Huntley — Being a citizen of Appleton, I present the following resolution as a citizen of this place:

Resolved, That the citizens of Appleton tender their thanks to the people from abroad who have so kindly lent their presence to this convention, and have taught us so many beautiful lessons."

The following resolution was passed:

WHEREAS, Some of the members of this convention have learned with sincere regret that Secretary Torrey, of the Northwestern Agricultural and Mechanical Association, contemplates resigning his position as secretary of said association; and

WHEREAS, We believe that to obtain any one to conduct his department of the association with the same ability, industry and care, that he has exhibited during the many years that he has been connected with it, would at this time be nearly or quite impossible; therefore

Resolved, That the Board of Control of the Northwestern Agricultural and Mechanical Association be and are hereby requested to retain the services of Secretary Torrey in his present position, for the reason that he retains the confidence of the friends of the said association to a much greater degree than any new man could possibly do, until he had demonstrated his ability and honesty by a long course of practice."

On motion, convention adjourned.

THURSDAY EVENING.

The members of the convention attended a banquet gotten up by the ladies of the M. E. Church of the city of Appleton.

Mr. J. E. Harriman, of Appleton, said: "The exercises will com-

mence now by the people of Appleton taking their seats; and then, if there is any room, the outsiders can take seats.”

Prayer by Rev. A. C. Barry.

After the banquet, Mr. J. E. Harriman said: “The ladies of this society expected to have some food left to send to the poor. You have about eaten it all up. We would like to hear from the toast master.”

The first toast for the evening was “The Home Circle,” responded to by J. M. Smith, of Green Bay, as follows:

THE HOME CIRCLE.

Mr. President, Ladies and Gentlemen:—Although I have no hope of doing justice to the subject that you in your kindness have assigned to me, yet with your permission I will ask the attention of this happy audience for a very short time, while I give briefly my idea of what home might be, and what it should be.

Homes, true homes! Where shall they be found? What constitutes a home? Not the marble palaces of kings, or the gilded halls of aristocratic lords and princes. Not the brown stone fronts of our Fifth avenue millionaires, or the more moderate sized residences of either the farmer or the mechanic. Not the rude log cabin of the forest, or the sod houses on the prairies of the far west. Yet true homes may be found in any or in all of these varied conditions and circumstances. What, then, are its necessities?

First of all, there must be two loving hearts that love and cling to each other through prosperity and through adversity alike. That love must be based upon and have its whole fabric reared upon characters that are true to themselves and true to each other. Sad, indeed, is the prospect of that home where either the husband or the wife will coolly and deliberately betray and deceive the other. It will surely return to them a yield of more than a hundred fold of misery and anguish, and if it does not reach the children after them in its sorrow, they may indeed be thankful. But with truth, chastity, a strict integrity in all our acts, the most perfect trust and confidence with and toward each other, accompanied by a pure and devoted love for each other, there may be such a happiness in the home as is known in no other place upon our wide, wide world. Prosperity may add somewhat to its outward enjoy-

ment, but adversity cannot destroy either the love or the trust that reigns within that home.

Many years since a young couple were married, and were very happy together, and for a short time very prosperous. After some years the tide turned, and in spite of every effort that the husband could make, one loss followed another until he found himself just as poor as when he and his wife started in life together. When he found out his true situation he went to his home and asked his wife to go and take a walk with him. He had kept her informed of his financial condition as well as he knew himself, but now he knew the worst and told her plainly and without delay. A few tears would come, but she said that their loss was but very small as compared with what they had left. "We have our honor, our honesty and our industrious habits untouched and unimpaired. We have our trust, our faith and confidence in each other, our pure devoted love for each other, undimmed by shadow or shade, and with all these left, we shall still be very happy, even though we have not the money that until lately we supposed was ours."

I need not say that theirs was a happy home. A lady said to her friend: "Your husband is the happiest looking man that I ever saw. He does not look as if he had a sorrow or care of any kind. Did you ever have any trouble?" The wife replied: "My husband is indeed a very happy man, although we have had our full share of trials. We have lost all of our property, and much of it through the dishonesty of those whom we trusted. We have had a great deal of sickness, and we have followed two of our little ones to the grave. Indeed, there have been times when the world seemed dark, and clouds were all about us, but they never came between us. It was sunshine there. We never for a moment lost our trust, our faith, or our love for each other."

I do not believe that a home, as happy as should exist in our free country, can be maintained without some effort and conciliation upon both sides. When I am traveling, in the cars or otherwise, if I see a man who is inattentive to his wife, I cannot help thinking that all is not quite as it should be at his home. If he neglect or is in any way rude to her, I set him down at once as an unmannerly boor, and unworthy the love of a refined and true lady. His home is such a one as he deserves, unless his wife is far above him in refinement, and, if so, she may improve, but cannot make his

home what she really desires. It may be said that the wife is sometimes more to blame than the husband for unhappiness of the home circle. This is doubtless true. There is many a wife who has lost her power and her influence for good over her husband by not extending a kind word to him at the proper time.

In the great crash of 1857, a man who had been in comfortable circumstances met with reverses, until bread for his wife and a large family of small children became a matter of the utmost importance. He made every effort in his power to do something that would bring food and clothing to those about him, but for a long time every effort seemed in vain.

One evening about sundown as he was returning home utterly discouraged and disheartened, thinking that it would be useless for him to try any further, and he might as well give up in despair, his wife met him at the gate. She needed no words to tell her of the weary struggle that had almost conquered her husband. She kissed him, and they walked into the house together. For some little time not a word was spoken, and then those gentle, loving words, "I can trust and love you just the same as ever." He resolved, then and there, that no matter how long or how hard the contest for success might be, he would never give it up until life itself should end. It did take years of hard work, but success came by degrees, and came to stay. He is still living, has a very happy home, but has not forgotten what seemed to be the turning point in his battle of life.

Our home circles, if built upon such foundations as I have thus briefly attempted to describe, will not fade away. The years will begin and end in such an one, the same as in others. Time will tell its tale upon its inmates, not as fast as where bitter words and angry passions reign, but tell it will; still the whitening hairs upon the head of the wife are dearer to the husband than the golden ringlets of her early days. Each furrow upon the husband's brow awakens a new and still more tender care and affection from the devoted wife. As the years roll by, and the wild passions of their younger days, or the temptations of the world's busy life no longer attract them, their love and their affection for each other becomes something so pure, so holy, that it seems to belong more to heaven than to earth. When at last one of them is called to pass on to the bright beyond, there is, indeed, a vacancy in that home that

can never be refilled. After such a home is indeed broken, the remaining one can only wait. But it will not be long. The great Reaper will soon come, and the lonely one will gladly follow to renew a home in some far away, we know not where, but some happier clime where trials and temptations come not; where homes are never broken; but where loves lives on as ceaseless and unchanging as God's eternal years.

The next toast was —

THE AGRICULTURAL CONVENTION.

Mr. A. D. De Land responded as follows:

Ladies and Gentlemen:—Coming in at the close of the convention, I hardly expected to be called upon to respond to a toast. I will say, any organization or enterprise that has for its object the education of mankind, cannot help but meet with the approval of every intelligent person. Our Northwestern Agricultural Association, the State Agricultural Association, the Wisconsin Dairymen's Association and the dairy boards of trade have been instrumental, through their fairs and conventions, in disseminating much practical information. The farmers of the whole state are benefited by the facts and information gained at those conventions. To illustrate the benefits the farmers derive I will mention some instances. A few years ago, before the dairymen's and agricultural meetings were held, a farmer who should go out to the yard and find a cow off her feed, the horns cold, etc., at once concluded that it was the "hollow horn," and the poor animal must submit to have her horns bored and a quantity of turpentine poured in. Now the same case will be treated more intelligently. The cold horns are only a symptom of the disease. Instead of using a square harrow called a drag, and very properly so, we now cultivate with a harrow that pulverizes the soil and makes it like a garden. At the recent International Dairy Fair, Wisconsin ranked first in the United States in the quality of her butter and cheese, which may be attributed to the progress made by attending conventions and learning the best methods of conducting our farms and our dairies.

Mr. R. D. Torrey — It will be claimed by the gentleman, who will next be called upon, that he was the "little one" of the family; that he didn't amount to much; the estimate placed upon himself was one dollar.

The next toast was —

THE "TITMAN" OF THE FAMILY, ALWAYS ON THE FLOOR.

Mr. Joseph Matthews responded as follows:

Mr. Chairman, Ladies and Gentlemen: — I am not ashamed to come before you to-night as a true representative of a small minority of the human family. I made my advent into this world at the latter end of nine children, and if it had been necessary in the economy of nature for the number to have been nineteen instead of nine, I should certainly have contended for the same position that I now occupy in that family as the "titman." I have always thought it was an honorable position. I know a great many people think that the "runt" never amounts to anything in the world. I didn't prove so in our family. I never saw the time when I didn't feel about as big as any other man that weighed two or three hundred pounds. I commenced business in a regular business way, and I have tried to keep up maintaining myself ever since, and I expect to succeed, gentlemen, so long as I. "walk in de middle of de road."

The toast, entitled

THE DIVINITY OF FERTILIZERS,

was responded to by the Rev. A. C. Barry as follows:

Mr. President, Ladies and Gentlemen: — I am in a very bad shape to respond to a sentiment or toast of any kind to-night, for after partaking of the bountiful repast that has been set before us, I am really "too full for utterance." That is one difficulty in the way of my saying very much at any rate, and there is the strangeness of the toast. I hardly know how to get at it; on which side to attack it exactly; just what, in the right words, I should say. I suppose that after all there may be something divine about fertilizers. I know what my friend Mr. Weyerhorst, and our mutual friend Prof. Daniells said with regard to fertilizers. He said there was a great deal of providence in a load of manure; but before that we had the little story of the French priest who was accustomed to go over the farms of his parishioners, blessing them that they might produce abundant crops; but coming upon the farm of a man, the acres of which were very poor, all of the fertilizing con-

stituents pretty much exhausted, he said as a man of intelligence naturally would say, "prayers are of no use here, this wants manure;" and certainly in that case he was very clear. There was something divine, perhaps, in fertilizers, and as much divinity, and a little more than there would be in prayers. I suppose that fertilizers may be denominated divine in this sense, that they perform and execute a benevolent purpose. They are like sunshine and rain and dew, in that regard. They are gifts from the Divine Father, and accomplish in his economy, or in the economy of nature, a benevolent purpose, so that without them, our broad and rich acres to-day, after a little while, would produce nothing or next to nothing; and I would say to the farmers, that if fertilizers be divine in this regard, how great is the sin of you men who neglect these means so divine in the divine economy and purpose.

Now, I am a believer in works, in good works, and I might just say here that I was born a Methodist and educated a Methodist. The hymns of John Wesley were sung over my cradle; and educated as I was, of course even to-day, though I may have changed my opinion somewhat in regard to certain matters, still I am a believer in works, and I believe every man or woman must work out his or her salvation. There is no other way to get along. You must "keep in the middle of the road" in this regard. If we would accomplish anything in this profession of agriculture, in growing grain or stock, or producing anything, we must make use of the divine means which have been provided. In no other way can we be successful, not only in this occupation of farming, but in any other occupation in which we may be engaged, and having said this, I perhaps have said all that I need to say in response to the toast that has been read. I do believe that fertilizers are divine, just as I believe that the sunshine and the dew and the rain are divine, because they accomplish a benevolent purpose.

The next toast was "Milking in the summer and dairying in the winter prevents falling into bad habits."

This toast was to have been responded to by Chester Hazen, but Mr. Hazen was absent on account of illness.

The toast,

FROM THE THREE SQUARE DRAG TO THE PROFESSOR'S CHAIR,

was responded to by Prof. W. W. Daniells, of Madison, as follows:

Ladies and Gentlemen:—To those of you who were not at the convention yesterday afternoon, I would like to say that the original of this was, and I would sing it if my voice was in tune, "Don't you turn to the right, don't you turn to the left, when you follow a three square drag."

Mr. Torrey sung it for us yesterday. Evidently he was brought up on a farm as well as myself, and has followed a three square drag, which I suppose he did just as other boys have done before and since. When they got a three square drag stuck between two stumps, they unhitched the oxen, hitched them to the other end and drew the other way. There are a great many pleasant associations for those who have had experience with a three square drag. I remember with much more pleasure to-night than I should have felt twenty years ago, the impression that the roots which this three square drag used to catch up and carry along for a piece, and then unhitch from them and come back and strike me on what we used to call then the shins. Following a three square drag under those conditions was hard on the boys, but good for wheat. I suppose this toast means, rose from a small beginning to success. I don't take it as a personal matter in that regard, I trust you will believe me; but I want to take it in that way, that men may follow a three square drag in their boyhood; they may begin low down when they are young, but faithfulness and earnestness and integrity of purpose, determination to take hold and carry forward with their full strength, will surely bring success. This is trite, but it cannot be too often said; it cannot be too firmly impressed upon the attention of the young of both sexes. It is pleasant to look at the brown stone fronts and glossy carriages, fine horses and shining silver upon the harness, but I heard, not many years ago, a president of a college who had spent his life in the education of the young, say that he always pitied the boy who had money, but that he never yet had occasion to pity the boy who was poor but who had pluck; and I tell you I thoroughly believe it is true.

Washington Gladden, within a very short time, has been collecting statistics in regard to some of the successful men of Massachu-

setts. The result of the statistics is this: that he finds that among the successful business men, I can't tell exactly the per cent., but very much the larger per cent. of the business men are the sons of farmers; began life as farmers. The minority of them are men who have been reared in the towns.

Now the moral that this points to me is this: that the man who, as a boy, has some business pursuit, as farmers' boys usually have, often too much of it, I think that a man who is brought up to daily industry, to do with his own hands whatsoever there may be found to do, and not to have it done for him; who comes up with the idea that if he wins success, he wins it by his own effort, is the man who in the end succeeds. I think there is no truth which we need to remember more than the one which our Savior said in these words: "Behold, ye have your reward." If we turn our attention to anything faithfully and earnestly, we reap the fruits of it. It makes no difference whether it is turning a toper, or going in the other direction. The way in which our energies are faithfully put; the way in which we put our strength and move forward, is the way in which we shall win success. And I often think of this when I see a boy behind a cigar, or see a boy in bad company, or see a boy steadily and earnestly and faithfully doing the best he can. They shall have their reward. The laws of God in the universe are so fixed that we cannot avoid the result.

Now I would say to you, as farmers, that it is not worth while to mourn, as some were doing not a few days since, at the convention at Madison; but the thing for us all to do who have the charge of those who shall follow us in the end is, that we shall see that they are guided in the path of integrity; that they are taught habits of industry; that they know what truthfulness is in its highest meaning; and if we give to our young sons these things, we shall leave them an inheritance that, whether they be farmers or mechanics or professional men, they will be an honor to us and an honor to the race to which we all belong. [Applause.]

Music by the Phoenix Glee Club.

Mr. Torrey said: It was suggested by a member of the Smith family that we change the order, and have a new departure in the matter of toasts.

Mr. Hiram Smith suggested that we have some lady respond to a

toast. Two of the ladies have consented to respond. The first toast was assigned to Mrs. D. C. Ayres, of Green Bay, but she has left the city. Mrs. Wheeler, of your city, has kindly consented to respond to this toast, by way of a recitation. The toast is "The Women of Wisconsin."

Mrs. Wheeler said: I am not prepared to respond to the toast of "The Women of Wisconsin," but I will tell you about a woman who has a counterpart I think you may find in Wisconsin. I will tell you of

THE WIDOW'S CHOICE.

A dame more buxom, blithe and free
 Than Mrs. Plump, you'll rarely see;
 So smart her dress, so trim her shape,
 Ne'er hostess offering juice of grape,
 Could for her trade wish better sign;
 Her looks gave flavor to the wine.
 A smile for all, a welcome glad,
 A jovial, coaxing way she had;
 And what was more her fate than blame,
 A nine months widow was our dame.
 But toil was hard, for trade was good,
 And gallants sometimes will be rude.
 "And what can a poor, lone woman do?
 The nights are long and dreary too.
 John Flagon there's a likely man,
 None better draws or taps a can;
 He's just the man, I think, to suit,
 If I could bring my courage to't."
 With thoughts like these her mind is crossed.
 The dame, they say, who doubts is lost.
 "But then the risk! I'll beg a slice
 Of our good parish priest's advice."
 Pranked in her best, with looks demure,
 She seeks his reverence, to be sure;
 Asks if he thinks she ought to wed.
 "With such a business on my head,
 I'm worried off my feet with care,
 And need some help to keep things square.
 I've thought of John, sir, truth to tell;
 He's steady, knows his business well.
 What do you think?" When thus he met her:
 "Oh, take him, ma'am, you can't do better."

"But then the danger, my good pastor,
 If of the man I make the master;
 There is no trusting to these men."
 "Well, well, my dear, don't have him then."
 "But help I must have, there's the curse;
 I may go farther and fare worse."
 "Why, take him then!" "But if he should
 Turn out a thankless ne'er-do-good,
 In drink and riot waste my all,
 And turn me out of house and hall?"
 "Don't have him then! But I've a plan
 To clear your doubts, if any can.
 The bells a peal are ringing,—hark!
 Go now, and what they tell you mark.
 If they say *yes*, wed and be blest—
 If *no*, why—do as you think best."
 The bells rang out a triple-bob;
 Oh, how the widow's heart did throb
 To hear them bang their burden on—
 "*Marry John, marry John, marry John, dear John.*"
 The bells were not long hanging idle;
 A week and they rang for her bridal.
 But, woe the while, they might as well
 Have rung the poor dame's parting knell.
 The rosy dimples left her cheek,
 She lost her beauties plump and sleek;
 John Flagon oftener kicked than kissed,
 And backed his orders with his fist.
 She seeks the priest, her ire to wreak,
 And speaks as angry woman speaks,
 With tiger looks and bosom swelling,
 Storming that e're she took his telling.
 To all, his calm reply was this—
 "You must have read the bells amiss;
 If they have led you wrong in aught,
 Your wish I fear inspired the thought;
 Go mark you well now what they say,"
 And off she trudged upon her way.
 Now sure enough their chime went on—
 "*Don't have John, don't have John, knave John.*"
 "Too true, alas! there's not a doubt!
 What could my ears have been about?"
 She had forgot that as we think,
 The bell is ever sure to clink.
 Be you more wise, and ponder well,
 Nor be misled by beau or bell(e).

The next toast,

OHIO, THE WESTERN RESERVE; THE CRADLE OF REFORM,

was responded to by Mrs. Olivia Forward as follows:

You will understand that that is quite a weighty toast for me to respond to. I never responded to a toast before in all my life, and I would like to do justice to this subject; for if there are any two things of which I am proud, the first is that I was born and reared on the old Ohio, or, as we used to call it, the old "Connecticut Western Reserve;" and second, that I now live in the grand state of Wisconsin, which is equal to it in many respects, and that is saying a great deal. I think it is claiming a great deal for the Western Reserve to call it the cradle of reform, and yet it certainly has been the nurse, if not the cradle, of a good many useful reforms. I cannot enumerate them all to-night, but you who know the history of farm life in the west know that a great many useful reforms have started in the Western Reserve — reforms in farm life; reforms in butter and cheese making. Everybody who is old enough to eat knows something about Western Reserve butter and cheese, and you could hardly convince an Ohioan that there are any better agricultural implements made anywhere than at Acklin, Ohio, and Springfield, Ohio. There are some reforms in the school system. We think that we have about the best public school system in Cleveland, Ohio, that there is anywhere in the west. You know what the politics of the Western Reserve are and have been for a great many years. We are mostly republicans there, although we are liberal enough to believe, although our fathers were abolitionists, that a white man is just as good as a negro if he behaves himself. Then again, a democrat is just as good as a republican — that is, almost as good [laughter and applause], if he is just as conscientious.

I can remember in my childhood days, of anti-slavery ideas running high in our part. I can remember when my father knew where the stations of the Underground Railroad were, and knew sometimes in what direction the train went. I remember, on one or two occasions, that my mother and I sat anxiously at home, for fear the slave holders would catch him.

I can remember, also, when a runaway negro slept in our garret. I can remember, too, when we had a strong anti-slavery society in

our town, and when that senator of whom they said "he has *ben wade* and not found" wanting, used to come down and address us, and Joshua R. Gidding used to come down and stir us up. We didn't need much to stir us up on that question. Of course, that question is past.

This reform of liberty is a reform that the Western Reserve took a good strong part in. My early teachers were from Oberlin, and I imbibed those principles, and I have kept them to this day. I might tell you of a good many other reforms of the Western Reserve, but I will not tell you any more to-night.

CHANGED CONDITIONS

was the next toast, and in response, Mr. Hiram Smith said:

Mr. President, Ladies and Gentlemen:—I thought best to take this position, behind the reporter, so he couldn't see what I said, and I could see what he wrote. I didn't expect to be one of the regular speakers to-night, and only consented to be a sort of a reserve; but by some inscrutable method known only to our strategic secretary, I find myself, when the action comes on, like the colored troops, pressed to the front. We are all proud to note the rapid march of improvements; the swift conveyances of travel, and almost the annihilation of distance by the telegraph. We are familiar with these things every day, and we perhaps do not have a correct conception of their real utility. If we look back and see how things were a few years ago, fifty years ago; if we read up a little, and remember the history of the times, remembering the toil and drudgery that age had to endure, we might, perhaps, have a clearer conception of the advantages we now possess. It is within the memory of persons now living, when all the wearing apparel of the family, and the household linen, was spun and woven in the families of those who possessed it, and an opinion largely prevailed that a young lady must first spin and weave her chest of linen before she entertained any very serious matrimonial aspirations. This chest of linen was an evidence of her industry and capacity, and I suppose the young ladies of that time held about the same relation to the marriageable young men of the day, that the girl of the period now does, with her \$3,000 or \$5,000 in bonds; that is, she had the choice of the whole lot. But I would suggest a little better evidence of capacity in this enlightened day, and that would

be, that she understand how to make good bread and good butter. Good bread is a thing of beauty, and good butter is a joy forever.

Contrasting these past conditions, we may see a little of the rapid strides that have been made, not only in the commercial transactions of the country, in all the labor saving machinery that has been invented, but in all the improvements which we notice around us. There have also been improvements in the fashions, and for fear that my friend Torrey may monopolize all the poetry of this convention, I will venture to give you a little myself:

“Fashions have changed in the last fifty years.
We must now drive fine horses or else meet with sneers.
Then we rode out with two year old steers.

We thought it took money to make the mare go.
The science of banking no one seemed to know,
Of issuing bills on the debts that we owe.

Into banks they put money which they could draw out;
Lives were insured without fearing a doubt.
Now banks and insurance go up the spout.

The ladies wore bonnets or what were called such;
Now it's the next thing to nothing and that isn't much;
And looks like some frost work that crumbles at touch.

The hair that was worn was on the heads that it grew on,
And it is clear was such as nature bestowed on.
Now we have to add the switch or Catholicon.

Our wives tramp the brush with sap yoke and pail;
Now 'tis gored dresses with dust sweeping trail,
Which seems to continue as long as a rail.

[Laughter and applause.]

But look again at the changed condition of things; look at the great difference between the actual manual labor of the present day and of forty years ago, when all agricultural products had to be handled, put in and reaped, by hand. The most heavy labor of farm life was then nearly all performed by hand. I see heads before me as white as my own, that will remember some of the heavy labor and toil of pioneer life. Looking back to that day, when the people of the northwest settled up this country and commenced the

mighty effort of subduing the land, they will remember the excessive labor that was laid out at that time. They will remember what it cost to clear the forest, drain the swamps, erect buildings, build roads and bridges, and every member of the household labored with a will to perform it. We heard, at that time, of no eight hour laws. No financial quacks were talking us to death about the wild hallucination of making something out of nothing, but in our ignorance we knew no way of getting money but by the honest process of earning it. We knew no way of subduing the land but by the honest application of hard labor, and every man and woman and child put forth efforts to accomplish it.

I have in memory to-night, ladies that now, with native grace, preside in well furnished drawing rooms, who, thirty years ago, were building fires in log heaps preparatory to planting potatoes, and lent a helping hand in doors and out of doors, submitting to forced economy unknown to the grumblers of to-day; submitting, too, with a cheerful devotion that nerved the arm and strengthened the courage, and oftentimes saved from failure the sublime effort of creating a home. True, they did not all succeed; sickness and ill health laid its heavy hand on some; intemperance and gambling habits were in the first place the ruin of others. Death, the common lot of all, seizes in its inexorable grasp the robust, the aspiring, the feeble and the incompetent with a ruthless impartiality.

Wise would it be if the teachers of to-day would set an example so that their lives would be a continual sermon, not made up of dictatorial, repulsive words, but a living example that would demonstrate to the youth of to-day, that success in life can only be pursued over the rugged road of industry, economy and intelligence. [Applause.]

Music by the Glee Club.

The toast,

THE CITY OF APPLETON,

was responded to by W. W. Hutchinson, as follows:

I do not know what Mr. Torrey has against me, I am sure, but I thank him for one thing, though I do not for calling me out, and that is, that he didn't ask me to respond to this toast until I had had my supper, so I enjoyed a part of the evening, at any rate. Again, he was very hard on me in giving me such a subject, and

asking a citizen of Appleton to respond to such a toast. We are a modest people, and we do not like to talk about our town. We never speak of it unless we are spoken to. We are quiet sort of fellows, and keep within ourselves, and we do not like to have it known that we have got any town; but, as I have been requested, I will say a word about it. When I was called out in geography class, we used to have to bound a country, so I have been thinking this would be part of my duty here, after Mr. Torrey told me that he wished I would respond to the toast.

First, you want to know where Appleton is. I have been conjuring and thinking, and losing the witticisms and bright things that were said, and that I know were said by the applause that I heard. As near as I can find out, the city of Appleton is bounded on the north by Little Chute; on the east by Menasha; on the west by the poor house, and on the south by the Northwestern Agricultural Association, and Mr. Torrey, the secretary.

If I am wrong in my geographical points, I wish some one would correct me. In thinking of the city of Appleton as it was, and as it is, and as we fervently and sincerely hope it is going to be, my mind goes back to twenty-two years ago when we arrived in this city. We left Green Bay sometime very early in the morning, a little earlier than I should want to start now, and we left it on board the steamer Brooklyn. We went up along the river, and I think, after passing through some sixteen locks, along towards evening when the shadows were growing low and pointing to the eastward, we found we had arrived at this city. We saw nothing to tell us so. We surely were in here pretty fast, being locked in some sixteen times. We got off the boat and were led by some of the citizens across the stringers of the first bridge on the Fox river, into what seemed a dense forest, by a winding path that bore the imprints of more moccasins than of Burt's shoes. We arrived at what was called Main street, that was bounded on the north, east, south and west, by saloons. I think there were only two dry goods stores, and possibly a drug store, squeezed in between them. We followed along and saw the city was composed of a few unpretentious hamlets, numbering somewhere in the neighborhood of fifteen hundred. I have enjoyed watching the growth of this city. That you might see in your minds something of what has occurred in the twenty-two years of my residence

here, I would like to have you, in imagination, stand on the bank of the river in the fourth ward this evening, and under the bright moonlight and clear starlight look upon what it was when I first located in the semicircle of the forest. You will see the water of the Fox river falling and carrying on its almost unlimited power. Instead of an occasional sawmill and the ruins of some ancient monarch of the forest, as I saw it at that time, you will see, lifting itself up high and gilded in the moonlight to-night, the smoke and steam from many a factory where many hundreds and hundreds of hands are employed. You will see, if you look further, a semicircle of lights interspersed with the green trees, and you will see, if your minds are in the right mood, many a bright home, quite as bright as the ideal home portrayed here to-night.

Gentlemen and ladies, the city of Appleton has a sure foundation. It is founded on the honesty, honor, energy and enterprise of the citizens of Appleton. It has its foundation in the homes of Appleton. It has its foundation in our college, where our children are being educated, growing up to take into their hands the business of such untold importance that is growing up here in our midst. Quite as important as all of this, the city of Appleton is circled by green fields that are growing more and more improved as the years go by, tilled by honest men, who are taking from our soil wealth and bringing it here to us of the city. As long as our city is so surrounded by this belt of honest, earnest industry; as long as it is divided by the silver stream that floats to-night under the clouds and under the stars and gloom; as long as it is dotted all over with bright homes filled with loving hearts, we need not fear but what the culmination of the second city of the west, both in size and in purity, and honor, and strength, and finance, and intellectual importance, will ultimately be called Appleton. [Applause.]

The toast,

THE LADIES OF THE METHODIST CHURCH AT APPLETON.

May the shekels flow into them until their promise is redeemed.

Rev. A. C. Barry responded as follows:

I certainly did not think that I could be called upon to respond to another toast on this occasion, but I could not have been requested to discharge a more pleasant and agreeable duty than I am

now called upon to do. I have already learned to hold in the highest esteem the almost unbounded, certainly the generous, hospitality of the people of Appleton. Although it has not been my privilege to make the acquaintance of many of you, yet I have been in some of your houses, and I know something about the brightness and sunshine that you have gathered into them. Heretofore in my visits, as now, it has been my good fortune to be the guest of one of your oldest citizens and one of my best friends, and I refer now to Judge Sam Ryan, whom everybody knows in the state of Wisconsin, and who knows so well how to make a cloudy day one of sunshine. His home certainly is a very pleasant one, and yet no more pleasant than other homes I have' visited in the city of Appleton. I say as much as this because I can make it a sort of stepping stone to what I desire to say in response to the toast that has been read, and I shall but utter the sentiment of all who are present here this evening, when I say that we have been furnished here with a touch and a taste of the kindness, and the generous and lavish hospitality of the ladies of Appleton, and especially of the ladies of the Methodist Episcopal Church, the church owning and occupying this beautiful edifice. It is but fitting that we should say at least one or two kind words to these good ladies.

I have been told in very few words of what they are striving to accomplish; of the somewhat heavy burden they have taken upon their shoulders, and perhaps upon their hearts also. They have assumed a portion of the indebtedness that is resting upon this church, and in all possible honest and honorable ways, they are striving to lift this burden and to discharge the obligation they have assumed, and I only want to say here what I say everywhere: "God bless the women of this church, and God bless the women of Appleton, and God bless the women of Wisconsin everywhere." I know that everywhere the women of Wisconsin, especially, are doing the grandest work. They are busy in every great and benevolent enterprise; and I have had occasion to say a great many times, and those who are employed in the same profession that I am, have no doubt had occasion to say, that God finds it easier to make Christians of the women than he does of the men. The women, God be thanked, and they be thanked, are busy everywhere with the work of the church, the Christian work, the charity work of the

church, and I sometimes fear that we would not have any churches were it not for the women.

Ladies of the Methodist Episcopal Church of the city of Appleton, I am glad to look you in the face to-night, and I shall carry away from this banquet happy remembrances of your hospitality and beauty, and I know that the recollection will be healthful to me, and that I shall be stronger and made the better because I have met you on this occasion. [Loud applause.]

Hiram Smith proposed the following toast:

"The agriculturists and mechanics in the northern district always respond to reasonable appeals."

Mr. R. D. Torrey responded as follows: About a moment ago Mr. Smith came to me and notified me that I should be called out. I have been the clown of this circus ever since it came to town — three days ago. I have been trying to "keep in de middle ob de road." I have been trying to wear the "Golden slippers." I have been a Dutchman to amuse you, and now after all this kindness and after all these efforts to amuse you, I am brought up here on the spur of the moment to show you that I am an excellent man to make a speech. I was going to put that the other way, but I thought you would not believe me. The toast, "The agriculturists and mechanics of the northern district," I understand to apply to this immediate vicinity. Some of the most pleasant recollections, that I shall always have with me, one of the sources of real enjoyment, the remembrance of which will abide with me, comes to me since my connection with the Northern Agricultural Society; comes from the association with the agriculturists or farmers of this part of the state. They do respond always cheerfully and gladly, whether it is to the rap of the tramp like myself at the door, and to the hearth stone too, or whether it be to take hold of and make successful any movement that is for the improvement of their own number, or the improvement of those dependent upon them; and the city folks, too, always put their shoulder to the wheel and lift. It is so, too, with the mechanics.

I say, and say gladly, that the best associations of my life have been with the farmers in the northern district for the last ten years; and I regret to-night that circumstances over which I have no control will oblige me, for anything that I can now see, to sever the

close connection that has existed between us for that length of time; but I shall always carry with me this thought, that of the farmers and mechanics of northern Wisconsin, this part of Wisconsin need never be ashamed. They are a sturdy, determined, intelligent portion of the community, that will leave their mark, their impress, upon the whole commonwealth, and very soon their influence shall be so felt that the Fox River Valley will be known as the state of Wisconsin.

Hon. Hiram Smith said: There are several that have arrived this evening that did not hear the celebrated song, "Keep in de Middle ob de Road," and it is twenty-four hours since any of us have heard it, and I think it is high time that we heard it again.

Mr. Torrey said: I have made no remarks about this song, but I cannot forbear saying "Keep in de middle ob de road." When you are selling grain, "keep in de middle ob de road." When you are selling cheese, and when you are tempted to take the cream off and make cheese, "keep in de middle ob de road." I could apply it to all of you, but I forbear.

Mr. Torrey then sang the song, "Keep in de Middle ob de Road," which concluded the exercises, and closed the convention of 1880, all feeling that it was the best ever held in this part of the state.

METEOROLOGICAL.

RECORD FOR JANUARY, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather</i>
1	8	19	8	snow.
2	-19	-14	-14	clear.
3	-19	-7	-6	clear.
4	-11	-4	8	clear.
5	6	16	18	clear.
6	-3	17	12	cloudy
7	10	24	20	cloudy.
8	10	10	7	clear.
9	-13	6	4	clear.
10	-4	12	14	clear.
11	14	22	17	clear.
12	6	22	18	clear.
13	14	27	24	fair.
14	16	26	20	fair.
15	6	14	17	cloudy.
16	20	28	20	clear.
17	10	25	18	cloudy.
18	2	14	11	clear.
19	0	9	7	cloudy.
20	2	15	12	cloudy.
21	8	26	33	cloudy.
22	21	22	21	cloudy.
23	8	24	26	cloudy.
24	28	40	33	cloudy.
25	36	37	30	clear.
26	26	34	34	cloudy.
27	39	34	38	cloudy.
28	21	32	34	clear.
29	24	42	37	clear.
30	19	40	33	clear.
31	18	30	30	clear.

Only three inches of snow this month; ground quite bare; no storms of any kind, and high barometer.

RECORD FOR FEBRUARY, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	9	18	22	clear.
2	8	21	26	clear.
3	24	29	28	clear.
4	26	29	29	snow.
5	10	25	22	clear.
6	3	31	22	cloudy.
7	0	22	18	clear.
9	23	42	32	cloudy.
8	3	28	24	cloudy.
10	37	40	40	rain.
11	23	24	22	snow.
12	11	23	18	lt. snow.
13	-4	2	-2	clear.
14	-18	-5	-4	clear.
15	-4	18	20	clear.
16	-2	16	12	clear.
17	6	24	19	fair.
18	3	26	24	fair.
19	20	34	28	snow.
20	0	10	12	clear.
21	11	30	28	cloudy.
22	24	30	28	clear.
23	2	12	18	clear.
24	12	22	20	cloudy.
25	18	30	24	cloudy.
26	3	6	2	cloudy.
27	-26	7	4	fair.
28	17	30	32	cloudy.

Snow fell on the 4th..... 6 inches.

Snow fell on the 11th..... 8 inches.

Snow fell on the 19th..... 3 inches.

Snow fell on the 25th..... 2 inches.

Snow fell on the 26th..... 3 inches.

Total..... 22 inches.

RECORD FOR MARCH, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	21	28	28	fair.
2	16	34	30	fair.
3	2	39	39	fair.
4	34	46	48	fair.
5	25	41	38	fair.
6	30	44	42	fair.
7	30	40	36	fair.
8	36	49	43	fair.
9	50	62	55	fair.
10	47	64	59	fair.
11	30	40	43	fair.
12	33	44	40	fair.
13	28	34	40	fair.
14	6	16	16	fair.
15	2	14	17	fair.
16	6	25	20	fair.
17	6	22	22	fair.
18	7	20	22	fair.
19	10	28	30	fair.
20	18	36	34	fair.
21	21	33	32	fair.
22	24	36	32	snow.
23	25	48	42	rain.
24	39	42	46	clear.
25	30	44	40	clear.
26	37	45	42	rain.
27	36	47	52	fair.
28	44	56	54	cloudy.
29	40	52	52	cloudy.
30	36	46	48	fair.
31	33	50	46	cloudy.

Snow two inches the night of 13th.

Snow two inches the night of 22d.

RECORD FOR APRIL, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	31	36	36	fair.
2	20	28	29	fair.
3	20	33	38	fair.
4	25	36	44	fair.
5	28	40	42	fair.
6	40	60	58	cloudy.
7	29	48	48	clear.
8	33	60	59	clear.
9	43	47	46	cloudy.
10	38	38	38	rain.
11	31	40	44	clear.
12	28	58	54	fair.
13	46	53	46	fair.
14	35	43	46	fair.
15	36	44	50	fair.
16	39	46	40	cloudy.
17	34	44	48	clear.
18	34	43	54	clear.
19	41	54	56	clear.
20	46	60	60	clear.
21	50	65	68	clear.
22	55	76	74	clear.
23	62	72	72	clear.
24	62	82	77	cloudy.
25	60	78	73	rain.
26	58	78	77	clear.
27	61	66	58	cloudy.
28	51	64	68	cloudy.
29	63	61	58	cloudy.
30	42	56	67	clear.

Weather from the 1st to the 19th chilly and dry. Prevailing winds north-east. First warm rain in the night of 24th and 25th. Cleared up at noon on the 25th. Vegetation coming forward rapidly at that date. Hard frost on night of the 29th.

RECORD FOR MAY, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	41	56	58	clear.
2	41	59	60	clear.
3	47	60	59	cloudy.
4	60	64	64	cloudy.
5	44	55	46	cloudy.
6	40	58	52	cloudy.
7	41	56	57	clear.
8	44	66	61	cloudy.
9	58	74	72	clear.
10	56	76	74	fair.
11	68	80	72	fair.
12	80	90	86	fair.
13	75	90	80	fair.
14	54	57	58	rain.
15	46	60	73	fair.
16	54	63	70	clear.
17	61	30	75	fair.
18	54	70	68	fair.
19	62	82	76	fair.
20	72	74	70	fair.
21	54	72	68	fair.
22	60	75	70	fair.
23	60	76	70	fair.
24	66	72	82	rain.
25	57	60	60	cloudy.
26	52	63	60	lt. rain.
27	60	74	68	cloudy.
28	54	70	70	rain.
29	72	89	86	fair.
30	72	84	80	h. wind
31	64	54	52	rain.

Frost on the 1st, 2d and 7th.

RECORD FOR JUNE, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	46	62	62	fair.
2	56	63	60	fair.
3	61	74	72	fair.
4	66	82	78	shower
5	61	70	72	fair.
6	54	61	60	clear.
7	58	70	71	fair.
8	70	84	86	fair.
9	74	90	82	fair.
10	72	83	82	fair.
11	72	88	80	fair.
12	74	84	77	shower
13	70	81	80	fair.
14	68	81	79	rain.
15	78	68	60	rain.
16	55	68	70	clear.
17	56	67	69	clear.
18	64	74	72	clear.
19	66	78	78	clear.
20	68	82	74	cloudy.
21	70	84	82	rain.
22	78	89	86	clear.
23	82	94	88	clear.
24	82	93	88	clear.
25	76	78	82	rain.
26	75	90	84	rain.
27	73	86	70	rain.
28	68	83	74	fair.
29	70	79	76	fair.
30	72	82	82	fair.

Slight frost on the night of the 2d.

RECORD FOR JULY, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	72	88	86	fair.
2	79	90	88	fair.
3	82	94	87	cloudy.
4	72	82	80	clear.
5	74	90	82	cloudy.
6	68	78	76	rain.
7	70	84	80	cloudy.
8	76	84	84	rain.
9	78	89	86	rain.
10	72	88	86	rain.
11	77	85	84	rain.
12	78	88	89	clear.
13	86	97	86	shower.
14	82	94	80	clear.
15	78	90	86	rain.
16	74	84	80	fair.
17	67	75	72	fair.
18	65	74	74	fair.
19	68	80	78	fair.
20	74	90	84	fair.
21	79	92	92	fair.
22	76	88	84	fair.
23	71	78	76	fair.
24	66	78	78	fair.
25	71	87	82	fair.
26	70	80	77	fair.
27	76	84	78	fair.
28	76	80	82	fair.
29	75	80	70	fair.
30	78	82	87	fair.
31	78	92	86	fair.

RECORD FOR AUGUST, 1879.

<i>Day.</i>	7 <i>A. M.</i>	12 <i>M.</i>	6 <i>P. M.</i>	<i>Weather.</i>
1	73	94	88	fair.
2	84	92	89	fair.
3	74	82	77	fair.
4	74	84	88	fair.
5	76	90	88	fair.
6	74	91	90	fair.
7	68	76	74	fair.
8	57	73	72	fair.
9	58	76	76	fair.
10	74	82	74	rain.
11	66	82	84	rain.
12	72	84	80	fair.
13	68	79	76	fair.
14	64	69	70	fair.
15	62	70	68	fair.
16	56	68	68	fair.
17	64	76	72	fair.
18	64	78	76	fair.
19	68	80	78	fair.
20	74	86	76	cloudy.
21	76	92	78	fair.
22	74	82	82	fair.
23	71	80	78	fair.
24	67	74	72	fair.
25	56	74	76	fair.
26	63	78	75	fair.
27	68	84	84	fair.
28	74	90	88	fair.
29	77	92	90	fair.
30	70	90	88	fair.
31	70	90	85	fair.

RECORD FOR SEPTEMBER, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	70	82	79	fair.
2	62	74	70	rain.
3	64	76	70	cloudy.
4	58	70	67	fair.
5	50	78	68	cloudy.
6	54	72	66	fair.
7	54	66	54	rain.
8	48	61	55	fair.
9	44	65	61	fair.
10	48	70	68	fair.
11	60	68	69	lt. rain.
12	60	67	70	fair.
13	54	59	56	show'y.
14	45	58	60	fair.
15	56	64	62	cloudy.
16	54	59	56	rain.
17	46	53	60	cloudy.
18	46	54	56	fair.
19	43	60	55	fair.
20	39	62	60	fair.
21	52	68	56	cloudy.
22	58	72	70	fair.
23	50	65	60	fair.
24	34	56	53	fair.
25	40	66	62	fair.
26	58	66	61	cloudy.
27	62	65	68	rain.
28	61	82	78	cloudy.
29	71	82	78	cloudy.
30	71	76	72	cloudy.

RECORD FOR OCTOBER, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	68	73	74	rain.
2	71	74	72	rain.
3	51	68	68	fair.
4	53	76	67	fair.
5	67	86	80	fair.
6	67	88	82	fair.
7	68	84	77	fair.
8	68	74	71	rain.
9	68	84	80	fair.
10	72	80	70	fair.
11	64	76	68	rain.
12	64	76	66	fair.
13	66	69	68	cloudy.
14	62	80	80	clear.
15	66	84	78	clear.
16	69	82	78	fair.
17	67	74	60	rain.
18	54	56	52	cloudy.
19	36	52	49	clear.
20	38	63	55	clear.
21	42	62	60	clear.
22	46	70	52	storms.
23	38	44	40	cloudy.
24	26	45	42	clear.
25	30	50	46	clear.
26	36	56	52	clear.
27	38	59	59	cl. & rn.
28	43	54	46	cloudy.
29	40	51	48	cloudy.
30	32	38	32	clear.
31	23	32	28	clear.

RECORD FOR NOVEMBER, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	10	28	30	cloudy.
2	22	31	30	cloudy.
3	13	24	22	cloudy.
4	5	26	24	fair.
5	31	42	36	fair.
6	36	54	48	fair.
7	52	60	54	fair.
8	52	60	58	cloudy.
9	40	48	44	rain.
10	30	50	48	cloudy.
11	47	62	53	rain.
12	46	52	44	rain.
13	46	56	52	cloudy.
14	47	50	48	cloudy.
15	39	50	47	cl.&rn.
16	34	42	36	cloudy.
17	31	38	36	cloudy.
18	29	38	33	cloudy.
19	30	42	26	h. wind
20	8	17	14	fair.
21	5	24	19	clear.
22	26	36	36	cloudy.
23	18	24	20	clear.
24	22	32	34	fair.
25	20	32	30	clear.
26	29	36	34	cloudy.
27	42	38	36	rain.
28	30	30	28	lt. snow
29	16	22	18	clear.
30	22	31	32	cloudy.

On the 2d, two inches of snow.

RECORD FOR DECEMBER, 1879.

<i>Day.</i>	<i>7 A. M.</i>	<i>12 M.</i>	<i>6 P. M.</i>	<i>Weather.</i>
1	26	38	35	cloudy.
2	30	30	29	cloudy.
3	25	29	30	cloudy.
4	29	37	38	cloudy.
5	41	46	44	cloudy.
6	57	44	38	cloudy.
7	27	27	25	cloudy.
8	32	26	29	cloudy.
9	32	37	37	lt. snow
10	34	32	20	cloudy.
11	10	14	10	cloudy.
12	8	10	8	fair.
13	12	28	26	clear.
14	23	32	26	fair.
15	13	16	10	fair.
16	9	16	14	snow.
17	3	4	-3	clear.
18	18	4	1	snow.
19	4	12	14	snow.
20	5	14	5	cloudy.
21	2	22	20	lt. snow
22	16	17	8	clear.
23	-9	8	12	snow.
24	12	24	19	cloudy.
25	-8	-7	-12	clear.
26	-19	-7	-4	fair.
27	12	34	22	cloudy.
28	15	22	30	cloudy.
29	27	32	30	snow.
30	2	8	6	clear.
31	22	26	20	clear.

Fourteen inches snow this month; last half good sleighing.

WEATHER WAIFS.

To Secretary Torrey:

I herewith hand you a synopsis of the weather from January 10, 1879. My altitude is 75 feet above the river, 240 above Lake Michigan, and 823 above the sea. I have kept the record by the same thermometer (a spirit gauge) for twenty-five years. This hangs under a north cornice, in a very cool place for summer and rather warm for winter. I also keep the coldest and hottest of each days by two others, one hanging in the sun and one on the north side of an apple tree.

1879.

January 1.....	13 below	February 13.....	10 below
January 2.....	30 below	February 14.....	19 below
January 3.....	28 below	February 15.....	7 below
January 4.....	22 below	February 18.....	0 below
January 5.....	3 below	February 27.....	29 below
January 6.....	19 below	November 4.....	3 below
January 7.....	0 below	December 12.....	4 below
January 8.....	14 below	December 17.....	16 below
January 9.....	27 below	December 18.....	24 below
January 10.....	16 below	December 22.....	2 below
January 12.....	12 below	December 25.....	18 below
January 18.....	9 below	December 26.....	22 below
January 19.....	12 below	December 27.....	10 below
January 20.....	3 below	December 28.....	0 below
February 6.....	0 below	December 29.....	0 below

January — 14 days aggregating 208.

February — 6 days aggregating 64.

December — 9 days aggregating 96.

Total for 1879 — Number of days at zero and below, 30; aggregating 371.

1880.

The coldest day in January was 5 above; for six nights it did not freeze; for twelve nights it froze but very little; for seventeen, thermometer did not get below 25; for twelve days it stood as high as 40 to 50 in the shade, and from 70 to 97 in the sun. This is the warmest January since 1858.

February 1.....	2 below.	February 6.....	2 below.
February 4.....	2 below.	February 19.....	1 below.

February — 4 days aggregating 7.

February gave but three nights it did not freeze; nine nights it did not get below 25; seven days thermometer stood 40 to 50 in the shade; nine days thermometer stood 70 to 100 in the sun.

Following is the comparison of January and February of the "mud blockade," 1878:

January, 1878, gave only one night it did not freeze; thirteen nights thermometer did not fall below 25; only one day thermometer stood at 40 in the shade, and three days that it rose as high as 50 in the sun.

February, 1878, two nights it did not freeze; nineteen nights not below 25; five days, 40 to 48 in the shade; seven days, 70 to 99 in the sun.

Now I will give you the heat of the past four years of the warm months. The observations always from the north side, cool shade, unless otherwise stated.

1876.	<i>Thermometer.</i>	<i>Hottest.</i>
May, 13 days.....	70 and above.....	May 29—87
June, 26 days.....	70 and above.....	June 26—90
July, 26 days.....	80 and above.....	July 8—95—100
Aug., 25 days.....	80 and above.....	Aug. 28—95
Sept., 12 days.....	70 and above.....	Sept. 19, 20—75

1877.		
May, 12 days.....	70 and above	May 19—85
June, 26 days.....	70 and above	June 15—87
July, 23 days.....	80 and above.....	July 31—91
Aug., 24 days.....	80 and above.....	Aug. 1—92½
Sept., 25 days.....	70 and above.....	Sept. 30—85
Sept., 10 days.....	80 and above.....	

1878.		
May, 2 days.....	70 and above.....	May 24—76
June, 21 days... ..	70 and above.....	June 27—89
July, 25 days.....	80 and above... ..	July 16—95
Aug., 27 days.....	80 and above... ..	Aug. 2, 24—88
Sept., 22 days.....	70 and above.....	Sept. 8—88
Sept., 13 days.....	80 and above.....	

1879.		
May, 15 days.....	70 and above.....	May 12—87
June, 25 days.....	70 and above.....	June 12, 22—88
June, 15 days.....	80 and above.....	
July, 24 days.....	80 and above.....	July 15—93
Aug., 16 days.....	80 and above.....	Aug. 30—90
Sept., 14 days.....	70 and above.....	Sept. 1, 30—80
Oct., 16 days.....	70 and above.....	Oct. 5—85

With the record of the thermometer in the sun for the past two summers, I will apologize for trespass, or pay 6 d., the legal fee, and quit:

- 1878 — May, 4 days in sun, 100 to 105.
June, 15 days in sun, 100 to 120.
July, 26 days in sun, 100 to 113½.
August, 30 days in sun, 100 to 138.
September, 19 days in sun, 100 to 124.
October, 2 days in sun, 100 to 110.
- 1879 — May, 17 days in sun, 100 to 116.
June, 18 days in sun, 100 to 120.
July, 29 days in sun, 100 to 124.
August, 27 days in sun, 100 to 134.
September, no record of any above 100.
October, 16 days in sun, 100 to 127.

This October heat was the great cause of the premature decay of our winter apples. The kind keeping best is "Willow Twig."

GEORGE J. KELLOGG.

UNIVERSITY FARM.

The following is from the annual report of the Board of Regents of the State University, showing results from experiments made under the direction of Prof. W. W. Daniells, professor of chemistry and agriculture. A careful reading can but be profitable.

R. D. TORREY,

Secretary.

To the Hon. C. C. Washburn, President of the Board of Regents of the University of Wisconsin:

SIR—I have the honor to submit herewith a report of the experiments conducted upon the University Experimental Farm, for the year ending September 30, 1879.

Very respectfully,

W. W. DANIELLS,

Professor of Chemistry and Agriculture.

WINTER WHEAT.

The following varieties were sown September 23, 1878, broadcast by hand, upon clay-loam land that has been cropped with cereals continuously for nine years. One and one-half measured bushels of seed were sown to the acre. Twelve wagon loads of well rotted stable manure were put upon each acre before plowing. The land was rolled after sowing, and after the disappearance of frost in the spring.

Fultz.— Weight of seed per bushel, 61 lbs. Harvested July 3, 1879. Weight of straw and grain per acre, 6,300 lbs. Weight of grain, 3,267 lbs. Weight of one measured bushel, 62½ lbs. Yield per acre, 54.45 bushels. Percentage of grain to weight of straw and grain, 51.9.

This variety has now been in cultivation upon the University farm for eight years, with the following results:

	<i>Bushels.</i>
Yield per acre in 1872.....	33
Yield per acre in 1873.....	20
Yield per acre in 1874.....	35
Yield per acre in 1875.....	17.5
Winter killed in 1876.....	00
Yield per acre in 1877.....	47.4
Yield per acre in 1878.....	52.5
Yield per acre in 1879.....	54.4
Average yield for eight years.....	32.4

For the same years, with equally good cultivation, our most prolific variety of spring wheat, the Red Mammoth, yielded 19.4 bushels per acre. The relative quality of the grain for these same years is indicated by the average weight of one measured bushel of each, that of the Fultz being 61.5 pounds, and of the Red Mammoth 56.2 pounds.

The Fultz wheat has been raised to a considerable extent by farmers in the vicinity of Madison, and no instance has come to my notice where the yield was not greatly above the yield of spring wheat for the same season.

Clawson. — Weight of seed per bushel, 58 lbs. Harvested July 10. Weight of straw and grain per acre, 6,420 lbs. Weight of grain, 3,000 lbs. Weight of one measured bushel, 59 lbs. Yield per acre, 50 bushels. Percentage of grain to weight of straw and grain, 46.7.

This wheat has now been in cultivation upon the University farm for four years. The average yield per acre has been 41.8 bushels. So far as can be judged from our experience, it will prove a valuable variety for general cultivation in Wisconsin.

Prussian. — Weight of seed per bushel, 57.5 lbs. Harvested July 12. Weight of straw and grain per acre, 5,740 lbs. Weight of grain, 2,284 lbs. Weight of one measured bushel, 57 lbs. Yield per acre, 38 bushels. Percentage of grain to weight of straw and grain, 39.8.

Golden Straw. — A variety obtained from the Department of Agriculture at Washington in 1877, of which the commissioner says: "Said to be an excellent variety;" from Tennessee. Weight of one bushel of seed, 60 lbs. Harvested July 12. Weight of straw and grain per acre, 5,120 lbs. Weight of grain, 2,422 lbs.

Weight of one measured bushel, 60 lbs. Yield per acre, 40.6 bushels. Percentage of grain to weight of straw and grain, 47.3.

Silver Chaff.—A Canada variety, received from the United States Department of Agriculture. Weight of seed per bushel, 61 lbs. Harvested July 5. Weight of straw and grain per acre, 5,000 lbs. Weight of grain, 2,378 lbs. Weight of one measured bushel, 60 lbs. Yield per acre, 39.6 bushels. Percentage of grain to weight of straw and grain, 46.2.

SPRING WHEAT.

The following five varieties were sown April 18, with one and one-half bushels of seed per acre. Twelve loads of stable manure were plowed in upon each acre the previous fall. Soil, a clay loam.

Red Mammoth.—Weight of one bushel of seed, 56 lbs. Harvested July 21. Weight of straw and grain per acre, 6,160 lbs. Weight of grain, 1,542 lbs. Weight of one measured bushel, 57 lbs. Yield per acre, 25.7 bushels. Percentage of grain to weight of straw and grain, 25.

White Michigan.—Weight of one bushel of seed, 53½ lbs. Harvested July 21. Weight of straw and grain per acre, 6,120 lbs. Weight of grain, 1,524 lbs. Weight of one measured bushel, 57.5 lbs. Yield per acre, 25.4 bushels. Percentage of grain to weight of straw and grain, 24.9.

Touzelle.—Weight of one bushel of seed, 52 lbs. Harvested July 21. Weight of straw and grain, 5,620 lbs. Weight of grain, 538 lbs. One bushel measured weighed 32 lbs. Yield per acre, 9 bushels. Percentage of grain to weight of straw and grain, 9.5.

Champlain.—A new variety obtained in 1878, of B. K. Bliss & Sons, New York city, who say of it, it was produced by Mr. Pringle, of Vermont, in his endeavors to unite the remarkable hardiness of the Black Sea and the superior quality of the Golden Drop. Several varieties were the result of this hybridization, from which this one was chosen as realizing the end in view. A careful selection from this for seven years, has fully established its character, and we have a wheat bearded like the Black Sea, with the white chaff of the Golden Drop.

Weight of seed per bushel, 50 pounds. Harvested July 22. Weight of straw and grain per acre, 5,460 pounds. Weight of

grain, 1,200 pounds. Weight of one measured bushel, 57 pounds. Yield per acre, 20 bushels. Percentage of grain to weight of straw and grain, 22.

Defiance.— This variety was also obtained of B. K. Bliss & Sons. It is "the result of a series of experiments by Mr. Pringle in 1871, to incorporate superior qualities upon the hardy stock of our common Club wheat, by hybridizing it with one of the finest, whitest, and most extensively grown sorts of the Pacific coast." It is a beardless, white chaff wheat, for which great productiveness, hardiness and vigor are claimed. Weight of seed per bushel, 46 pounds. Harvested July 24. Weight of straw and grain per acre, 4,620 pounds. Weight of grain, 1,292. Weight of one measured bushel, 56 pounds. Yield per acre, 25.5 bushels. Percentage of grain to weight of straw and grain, 23.6.

This grain was all badly injured by the very hot weather which occurred while it was maturing.

BARLEY.

Sown April 8th, broadcast, by hand, with two measured bushels of seed to the acre. The land was cultivated and manured the same as that for spring wheat.

Manshury.— Weight of one bushel seed, 48 pounds. Harvested July 14. Weight of straw and grain per acre, 7,100 pounds. Weight of grain, 3,712 pounds. Weight of one measured bushel, 48 pounds. Yield per acre, 77.3 bushels. Percentage of grain to weight of straw and grain, 52.2.

Common Scotch.— One bushel seed weighed 48 pounds. Harvested July 15. Weight of straw and grain per acre, 7,820 pounds. Weight of grain, 3,040 pounds. Weight of one measured bushel, 50 pounds. Yield per acre, 63.3 bushels. Percentage of grain to weight of straw and grain, 44.5.

Saxonian.— Weight of one bushel of seed, 50 pounds. Harvested July 17. Weight of straw and grain per acre, 7,080 pounds. Weight of grain, 2,640. Weight of one measured bushel, 50 pounds. Yield per acre, 55 bushels. Percentage of grain to weight of straw and grain, 37.3.

Probstier.— Weight of one bushel of seed, 46 pounds. Harvested July 18. Weight of straw and grain per acre, 7,520 pounds.

Weight of grain, 2,818 pounds. One measured bushel weighed 50 pounds. Yield per acre, 58.6 bushels. Percentage of grain to weight of straw and grain, 37.4.

The following table gives the yield of each of these varieties since they have been cultivated upon the University farm:

VARIETIES.	YIELD IN BUSHELS OF 48 POUNDS EACH IN THE YEAR.									Average.
	1871	1872	1873	1874	1875	1876	1877	1878	1879	
Manshury.....	32.7	48.0	20.3	60.0	49.6	65.0	66.8	52.2	49.3	
Chevalier.....	43.5	16.4	10.2	9.2	44.3	58.1	33.5	30.7		
Common Scotch.....	20.6	34.4	13.4	44.0	29.6	51.7	54.8	44.5	36.6	
Saxonian.....	45.9	22.2	26.5	26.5	45.0	19.6	52.5	43.6	37.3	
Probstier.....	51.4	23.2					57.6	41.4	37.4	
									42.2	

OATS.

Five varieties were sown April 19, with $2\frac{1}{2}$ bushels of seed per acre, upon land cultivated and manured the same as that for spring wheat.

White Schonen.—Weight of one bushel of seed, 32 lbs. Harvested July 23. Weight of straw and grain per acre, 7,660 lbs. Weight of grain, 3,078 lbs. One bushel weighed 33 lbs. Yield per acre, 96.2 bushels. Percentage of grain to weight of straw and grain, 40.2.

White Waterloo.—Weight of one bushel of seed, 33 lbs. Harvested July 21. Weight of straw and grain per acre, 8,180 lbs. Weight of grain, 3,080 lbs. Weight of one measured bushel, 36 lbs. Yield per acre, 96.2 bushels. Percentage of grain to weight of straw and grain, 37.6.

Somerset.—Weight of one bushel of seed, 32 lbs. Harvested July 21. Weight of straw and grain per acre, 7,780 lbs. Weight of grain, 2,984 lbs. Weight of one measured bushel, 37 lbs. Yield per acre, 93.2 bushels. Percentage of grain to weight of straw and grain, 35.7.

Canada.—Weight of one bushel of seed, 35 lbs. Harvested July 19. Weight of straw and grain per acre, 6,400 lbs. Weight of grain, 2,850 lbs. Weight of one measured bushel, $37\frac{1}{2}$ lbs.

Yield per acre, 89 bushels. Percentage of grain to weight of straw and grain, 44.5.

White Dutch.—Weight of one bushel of seed, 35½ lbs. Harvested July 23. Weight of straw and grain per acre, 11,680 lbs. Weight of grain, 2,684 lbs. Weight of one measured bushel, 39 lbs. Yield per acre, 83.8 bushels. Percentage of grain to weight of straw and grain, 22.9. This variety was so badly lodged that it had to be cut with a scythe, which accounts for the great amount of straw.

The following table gives the average yield of these varieties for the years mentioned:

VARIETY.	YIELD PER ACRE IN BUSHELS OF 32 POUNDS IN THE YEAR.					Average.
	1875.	1876.	1877.	1878.	1879.	
White Schonen.....	95.0	46.5	89.5	75.2	96.2	80.5
White Waterloo.....	.....	.....	86.0	70.0	96.2	84.0
Somerset.....	71.0	26.9	84.3	67.0	93.2	56.5
Canada.....	58.3	24.8	89.2	79.4	89.0	68.1
White Dutch.....	.....	.....	.....	45.4	83.8	64.6

CORN.

Four varieties were planted May 16. The land was fall-plowed. Before plowing in the spring, 12 loads to the acre of well-rotted stable manure was spread upon the ground. The White Australian was planted in hills 3½x4 feet apart. The other varieties, 4x4 feet. The cultivation in other respects was the same. The yield of Cherokee was diminished somewhat by the presence of a large tree.

<i>Variety.</i>	<i>Yield per acre in bushels of ears weighing 75 lbs. each.</i>
White Australian	80.1
Lysaght's.....	80.4
Cherokee.....	83.2
Yellow Dent.....	84.5

The variety called Lysaght's we have had in cultivation three years. The average yield of these several varieties during this time has been as follows:

	<i>Bushels.</i>
White Australian.....	89.4
Lysaght's	77.8
Cherokee	86.1
Yellow Dent.....	89.7

To test the relative value of different varieties of flint corn, Mr. Hayden planted four varieties May 20, upon 100 square rods of ground divided into four equal plats. The cultivation of all varieties was the same. The results are given in the following table:

VARIETY.	Time of Ripening.	Yield of ears in lbs.	Bushels of 75 lbs each per acre.
Compton's Early	July 26	744	63.5
White Australian	Aug. 1	884	75.4
New England	Aug. 1	724	61.8
Waushakum	Aug. 10	564	48.2

POTATOES.

The following varieties were planted May 17th, in rows $3\frac{1}{2}$ feet apart, hills 18 inches apart in the row. One-third of an ordinary sized potato was planted in a hill. The yield was greatly diminished by the drouth, which also ripened nearly all varieties prematurely.

The yield per acre is as follows:

	<i>Bushels.</i>
Ruby.....	97.5
Improved Peachblow.....	67.4
Superior ...	10.6
Early Rose.....	77.2
Snowflake.....	134.8
Manhattan	161.3
Bliss's Triumph.....	142.0
Trophy.....	96.8
Centennial.....	205.0

Of these varieties, Bliss's Triumph, Manhattan and Trophy are new, this being the first year we have had them in sufficient quantity for a field trial. Manhattan and Trophy are late varieties. The quality of Manhattan was poor this year.

We have also had in cultivation, for the first time, three new varieties, of which $7\frac{1}{2}$ pounds of each were planted, giving the following yield:

- Dunmore, 375 pounds, quality excellent.
- Beauty of Hebron, 479 pounds, quality good.
- Late Snowflake, 392 pounds.

EXPERIMENTS WITH FERTILIZERS.

The following experiment was begun to test the value of different fertilizers upon the soil of the University farm. The land upon which the experiment is being tried was first brought into cultivation in 1876, consequently no fertilizer has ever been put upon it, except as stated in the conditions below given. Seventeen adjacent plats, each containing one-tenth of an acre, are to be cultivated for a series of years, in accordance with these conditions. Adjoining plats are separated by a space of three feet, in order that one plat shall not be affected by the fertilizer placed upon another. All plats were planted to corn in 1877, 1878 and 1879. In 1877 no fertilizer was used upon any of the plats, that the relative production of each might be obtained. Four unfertilized plats have been left as a basis of comparison. The following is the method of treatment:

- Plat 1. Two loads of well rotted stable manure.
2. Nitrate of soda equal to 32 lbs. nitrogen per acre.
 3. Peruvian guano, equal to 35 lbs. ammonia, 54 lbs. phosphoric acid, and 7.3 lbs. potash per acre.
 4. Nothing.
 5. Hard wood ashes, equal to 160 lbs. potash (KOH) per acre.
 6. Potassium chloride, equal to 160 lbs. potash per acre.
 7. Nothing.
 8. Superphosphate of lime, equal to 18 lbs. phosphoric acid per acre.
 9. One load well rotted stable manure.
 10. Sulphate of ammonia, equal to 32 lbs. nitrogen per acre.
 11. Nothing.
 12. Wood ashes, as in No. 5.
 13. Twenty-five lbs. gypsum.

14. One load well rotted stable manure, with one-half the quantity of guano used in No. 3.
15. Nothing.
16. Sodium nitrate, equal to 20 lbs. nitrogen per acre; hard wood ashes, equal to 45 lbs. potash per acre; superphosphate of lime, equal to 15 lbs. available phosphoric acid per acre.
17. Stable manure, as in plat 1.

The following table contains the results of this experiment to the present time:

PLAT.	POUNDS YIELD IN —					
	1877.		1878.		1879.	
	Ears.	Stalks.	Ears.	Stalks.	Ears.	Stalks.
1	332	200	776	574	584	382
2	352	326	714	460	434	268
3	380	365	774	386	500	329
4	420	392	690	414	504	359
5	420	406	672	430	530	354
6	442	415	686	490	464	352
7	437	475	648	396	500	292
8	422	416	684	398	488	354
9	414	401	748	408	584	400
10	454	394	790	530	540	340
11	460	416	694	416	548	532
12	456	424	742	436	630	382
13	460	419	674	426	562	354
14	470	420	776	518	612	379
15	480	443	642	428	560	314
16	464	374	686	478	540	342
17	436	370	726	516	570	344

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