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Transactions of the Northern Wisconsin Agricultural and Mechanical Association, including a full report of the industrial convention, held at Oshkosh, Wisconsin, February, 1879, with other practical p...

Northern Wisconsin Agricultural and Mechanical Association
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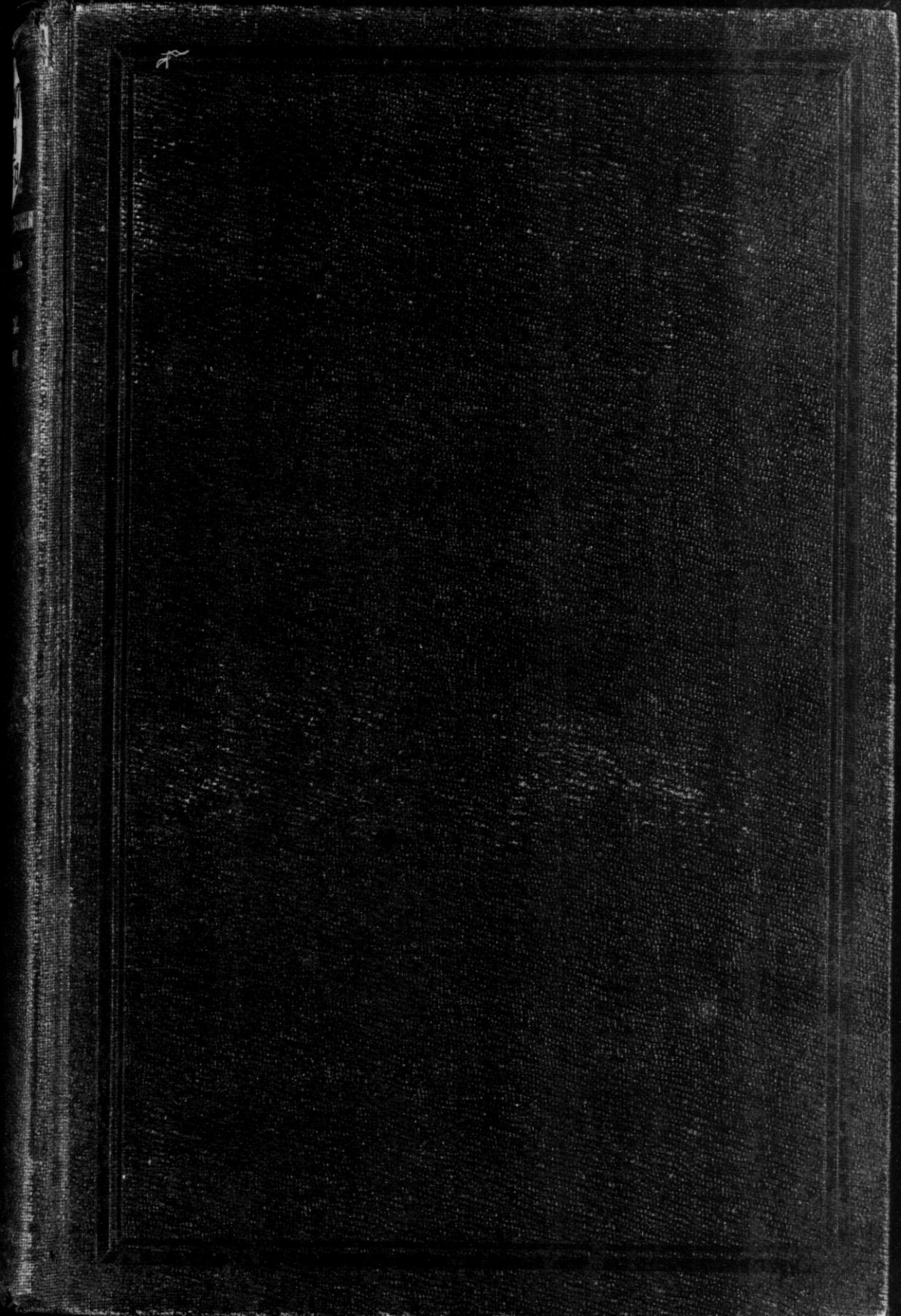
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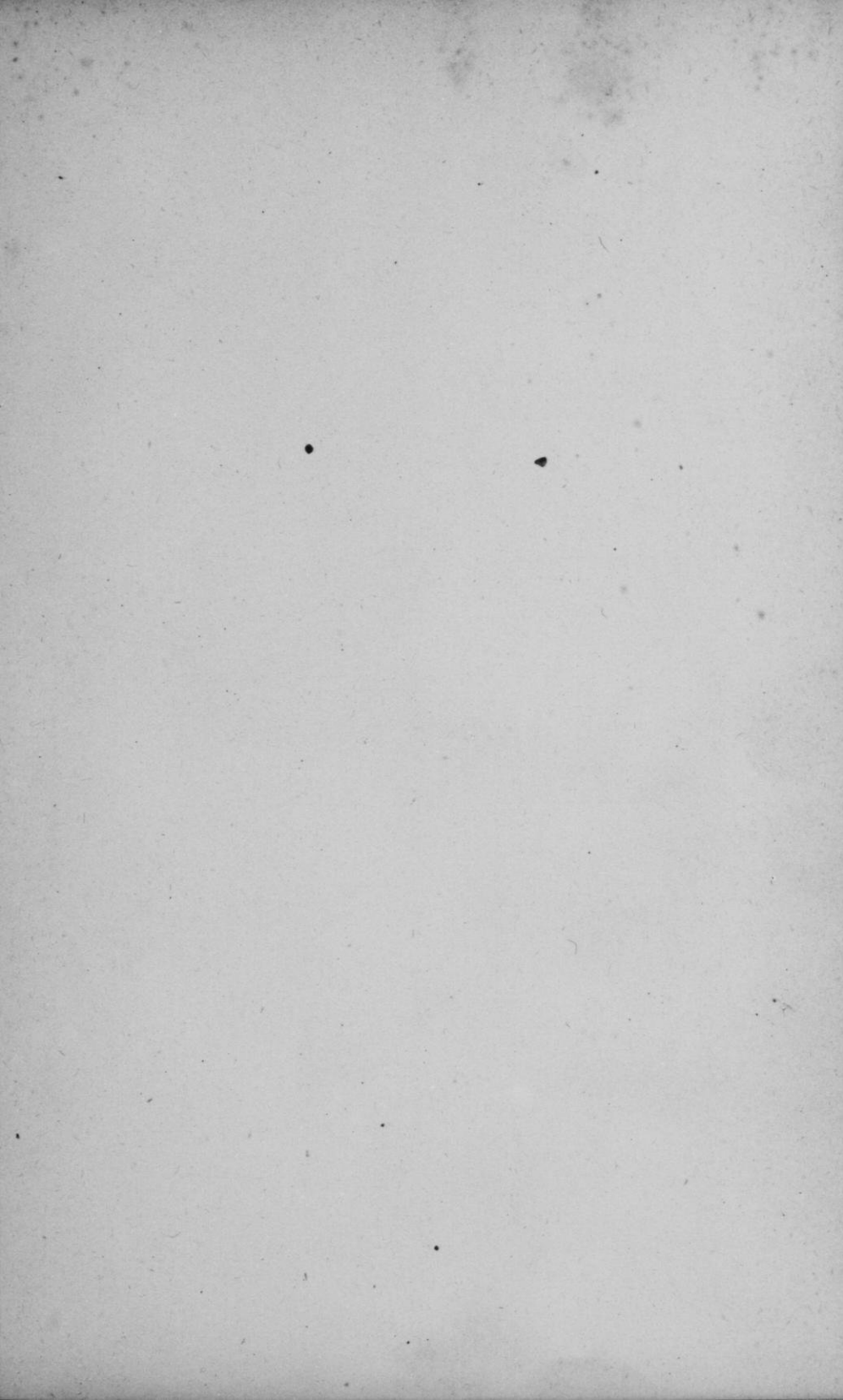
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TRANSACTIONS
OF THE
NORTHERN WISCONSIN
Agricultural and Mechanical
ASSOCIATION,

INCLUDING A FULL REPORT OF THE
INDUSTRIAL CONVENTION

HELD AT
Oshkosh, Wisconsin, February, 1879,
WITH OTHER PRACTICAL PAPERS.

COMPILED BY
R. D. TORREY, SECRETARY.

VOL. VI.—April 1, 1878, to April 1, 1879.

MADISON, WIS.:
DAVID ATWOOD, STATE PRINTER.
1879.

THE

PROCEEDINGS

Agricultural and Mechanical

EXHIBITION

OF THE

INDUSTRIAL CONVENTION

OF THE

UNITED STATES

OF AMERICA

1883

WASHINGTON

1883

78351

APR 21 1904

INTRODUCTORY.

To the Patrons and Friends of the Society:

SHAKE!



R. D. TORREY, *Secretary.*

OFFICERS FOR 1879.

PRESIDENT,
A. A. LOPER,
RIPON.

SECRETARY,
R. D. TORREY,
OSHKOSH.

TREASURER,
E. W. VIALL,
OSHKOSH.

VICE PRESIDENTS.

S. BECKWITH.....	OSHKOSH.	J. V. JONES.....	OSHKOSH.
J. GORDINIER.....	LITTLE WOLF.	C. McCONNELL...	BLUFFTON.
D. HUNTLEY	APPLETON.	G. H. PIERCE	WINOOSKI.
C. HAZEN.....	LADOGA.	C. D. ROBINSON..	GREEN BAY.

BOARD OF CONTROL.

K. M. HUTCHINSON..	OSHKOSH.	C. HAZEN	LADOGA.
J. V. JONES.....	OSHKOSH.	G. H. DAUBNER...	BROOKFIELD.
D. HUNTLEY	APPLETON.		

SUPERINTENDENTS OF DEPARTMENTS.

<i>Division A</i> , HORSES.....	J. V. JONES, OSHKOSH.
<i>Division B</i> , CATLE ...	G. H. DAUBNER, BROOKFIELD.
<i>Division C</i> , SHEEP.....	E. R. MARTIN, OMRO.
<i>Division D</i> , SWINE AND POULTRY.....	J. O'BRIEN, NEKIMA.
<i>Division E</i> , FIELD, GARDEN, DAIRY AND HOUSEHOLD.....	D. HUNTLEY, APPLETON.
<i>Division F</i> , FRUITS AND FLOWERS.....	E. M. BRAINARD, OSHKOSH.
<i>Division G</i> , DOMESTIC MANUFACTURES, FINE ARTS, ETC.....	K. M. HUTCHINSON, OSHKOSH.
<i>Division H</i> , MANUFACTURES	C. HAZEN, LADOGA.
<i>Division I</i> , MACHINERY.....	G. H. PIERCE, WINOOSKI.

SUPERINTENDENT OF GROUNDS,
GIB. LANE,
OSHKOSH.

MARSHAL AND CHIEF OF POLICE,
T. R. GOE,
OSHKOSH.

LIFE MEMBERS.

Names.	Residence.	Names.	Residence.
Abrams, Wm.	Oshkosh.	Goe, T. R.	Oshkosh.
Athearn, John	Oshkosh.	Green, M. B.	Oshkosh.
Allen, Albert	Oshkosh.	Gove, John M.	Winneconne.
Allen, Nelson	Oshkosh.	Gordinier, John....	Little Wolf.
Austin, A. C.	Oshkosh.	Gillingham, Frank.	Vinland.
Athearn, Geo. W....	Oshkosh.		
Arnold, Joseph	Oshkosh.	Hicks, J. H.	Oshkosh.
		Hawley, A. W.	Waukan.
Brainerd, James	Oshkosh.	Heath, Irwin	Oshkosh.
Badger, Geo.	Oshkosh.	Hubbard, Asher	Oshkosh.
Brainerd, E. M.	Oshkosh.	Harding, Geo.	Waukeshia.
Brainerd, A. M.	Oshkosh.	Hazen, C.	Ladoga.
Beals, P.	Oshkosh.	Huntley, D.	Appleton.
Beardmore, Geo. W.	Vinland.	Hart, A. H.	Appleton.
Babcock, H. A.	Neenah.	Hall, Wm. M.	Medina.
Ball, J. M.	Oshkosh.	Hoaglin, J. N.	Oshkosh.
Barber, Charles	Oshkosh.	Ham, J. D.	Clemansville.
Bray, J. M.	Oshkosh.	Hutchinson, K. M. .	Oshkosh.
Beckwith, S.	Oshkosh.	Hughes, Hugh F. . .	Oshkosh.
		Hall, Elihu.	Algoma.
Catlin, W. S.	Elo.	Houghton, C. P.	Algoma.
Cotton, M. F.	Oshkosh.		
Chase, L. S.	Omro.	Jennings, W. J.	Rosendale.
Cone, C. D.	Chilton.	Jackson, F. J.	Oshkosh.
Cheny, Thos. H.	Oshkosh.	Jackson, H. B.	Oshkosh.
Cross, I. W.	Algoma.	Jewell, H. A.	Oshkosh.
Chase, James.	Oshkosh.	Jones, J. V.	Oshkosh.
Clapp, E. S.	Winneconne.		
Clough, W.	Oshkosh.	Keyes, Geo.	Empire.
Chase, O. F.	Oshkosh.	Keyertee, Ira	Oshkosh.
Daubner, Geo. H.	Brookfield.	Loper, A. A.	Ripon.
Dake, J. W.	Omro.	Lampard, G. R.	Oshkosh.
Dale, H. B.	Oshkosh.	Lewis, James.	Winnebago.
Davis, J. B.	Oshkosh.	Lane, Gib.	Oshkosh.
Eaton, Jefferson ...	Oshkosh.	Mears, I. W.	Vinland.
		Mayhew, Leander..	Greenbush.
Foster, Carleton	Oshkosh.	Martin, E. R.	Omro.
Freeborn, John.	Oshkosh.	Musser, B. J.	Oshkosh.
Floyd, H.	Berlin.	McConnell, J. C.	Dartford.
Finch, E. P.	Oshkosh.	Meyer, Cornelius ..	Appleton.
Forbes, D. H.	Oshkosh.	Miles, I.	Oshkosh.

Name.	Residence.	Name.	Residence.
Moore, J. J.....	Oshkosh.	Stilson, Eli.....	Oshkosh.
Mellen, L. M.....	Oshkosh.	Sherwood, J. C....	Dartford.
McConnell, Wm. N.	Bluffton.	Suydam, Fred.....	Oshkosh.
McDougal, G. W....	Madison.	Sanders, E. W.....	Oshkosh.
Nelson, J.....	Oshkosh.	Stoddard, Jonathan.	Greenbush.
Osborn, A. K.....	Oshkosh.	Smith, J. M.....	Green Bay.
Olcott, J. B.....	Oshkosh.	Stevenson, Isaac...	Marinette.
O'Brien, J.....	Nekimi.	Sturtevant, N. G...	Oshkosh.
Paine, E. L.....	Oshkosh.	Stilson, Edgar.....	Oshkosh.
Padelford, J. R....	Omro.	Sawyer, E. P.....	Oshkosh.
Padelford, S. D....	Omro.	Servis, Wm.....	Sheboygan F ^{ls} .
Pinning, B.....	Oshkosh.	Stroud, Geo. F.....	Oshkosh.
Parish, B. T.....	Appleton.	Sawyer, E. P.....	Oshkosh.
Pilgrim, D. T.....	West Granville.	Scribner, Joseph...	Rosendale.
Paige, J. A.....	Oshkosh.	Torrey, R. D.....	Oshkosh.
Pratt, G. W.....	Oshkosh.	Terrell, J. K.....	Omro.
Paine, G. M.....	Oshkosh.	Thompson, L. F...	Oshkosh.
Phillips, B. T.....	Marinette.	Thompson, J. R....	Fond du Lac.
Peffer, Kate.....	Pewaukee.	Thomas, H. B.....	Oshkosh.
Peck, O. D.....	Oshkosh.	Thayer, P. S.....	Oshkosh.
Quick, H.....	Elo.	Vosburg, C. C.....	Clemansville.
Rogers, A.....	Berlin.	Vosburg, G. H.....	Clemansville.
Rollins, J. M.....	Oshkosh.	Vosburg, J.....	Oshkosh.
Rogers, Geo.....	Oshkosh.	Wilson, M. C.	Oshkosh.
Robinson, C. D....	Green Bay.	Weyerhorst, F.....	Black Wolf.
Roble, J. S.....	Clayton.	Woodward, W. W...	Port Hope.
Roe, J. P.....	Oshkosh.	Wade, A. B.....	Algoma.
		Wakefield, G. M...	Oshkosh.
		Weston, C. S.....	Oshkosh.

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 the officers in the discharge of their duties; they shall classify by department, group and class, all articles likely to be entered for exhibition; appoint the time 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 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. Notice shall be given as required by section 4 of the act of incorporation, approved March 23, 1871, general laws.

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

TRANSACTIONS.

MEETINGS OF THE BOARD OF CONTROL.

OSHKOSH, *September 23, 1878.*
Secretary's office at the Fair grounds,
10 A. M.

The Board of Control met at the secretary's office on the fair grounds.

Members present were: Stilson, Hutchinson and Huntley.

On motion, Mr. Hutchinson was chosen president *pro tem*.

The following persons were chosen for the several positions named:

Night watch for horses, C. McCurdy; gate keeper, F. Zentner; assistant gate keeper, Alf. Ward; assistant gate keeper, W. B. M. Torrey; assistant gate keeper, Asher Hubbard; assistant gate keeper, L. M. Billings.

Motion prevailed that the chief of police, F. M. Powers, be authorized to appoint all day police.

Motion prevailed to authorize the secretary to secure G. W. Peck, as orator, at \$50; and to sell poems of B. F. Taylor at 5 cents each.

Motion prevailed that the annual meeting be held at the council room in Oshkosh, for 1878.

Motion was lost to admit a wheel of fortune or gaming wheel, on an offer of \$800 for the privilege, made by Chicago parties.

On motion, adjourned.

R. D. TORREY, *Secretary.*

OSHKOSH, *September 24, 1878.*
Secretary's office at the Fair grounds.

The Board of Control met, pursuant to call of the president, at 10 A. M.

Members present: Hutchinson, Stilson, Huntley, Woolcott and Hazen. The president and secretary were also present.

Mr. Hutchinson introduced the following resolution:

Resolved, That the rule prohibiting games of chance be rescinded, and the secretary authorized to rent the privilege of one gaming wheel to the Chicago party at not less than \$800, payable in advance, for the balance of the week.

Resolution adopted on the call of the ayes and noes, by the following vote.

Ayes: Hutchinson, Woolcott, Hazen, 3.

Noes: Huntley, Stilson, 2.

On motion, adjourned.

R. D. TORREY, *Secretary*.

SECRETARY'S OFFICE, *September 24, 1878.*

At 2 P. M.

Full board present.

Protest of Misses Kate Peffer, Mary E. Prock and Mrs. Ferris, against the award of the judges on Vick's special premiums, on the ground that the award was not made in accordance with Vick's offer, was on motion unanimously sustained, and a new committee appointed by the superintendent.

On motion, adjourned.

R. D. TORREY, *Secretary*.

Tenth annual meeting, held at the council chamber of the common council of the city of Oshkosh, September 26, 1878, pursuant to the requirements of the constitution.

Meeting called to order by President Loper, at 7:30 P. M.

Motion of J. H. Hicks, that a committee of three be appointed by the chair, on credentials, prevailed.

Chair appointed J. H. Hicks, Frank Gillingham and C. Hazen, who reported the following delegates entitled to one vote each, in addition to the life members present:

For Ripon Agricultural Association—H. W. Woolcott, J. M. Little, Almon Osborn.

For Outagamie Bee-keepers' Association—H. M. Jones, D. Huntley, A. H. Hart.

For Winnebago Horticultural Society—J. O'Brien, Wm. Abrams, R. J. Harney.

For the Northern Wisconsin Poultry Association — D. W. Fernandez, C. B. Ryckman, H. B. Dale.

For Oshkosh Stock-Growers' Association — A. A. Hobert, E. W. Viall, E. P. Finch.

For Appleton Industrial Society — D. Huntley, H. M. Jones, L. L. Randall.

On motion of E. P. Finch, meeting proceeded to ballot for president for the ensuing year; E. W. Viall, J. M. Little, Geo. H. Daubner, being appointed tellers.

Result of ballot was, 79 votes cast, of which A. A. Loper received 77; scattering 2. A. A. Loper was declared elected.

On motion, which prevailed, the secretary was instructed to cast the unanimous ballot of the meeting for E. W. Viall, for treasurer. So done, and E. W. Viall declared elected for the ensuing year.

Motion prevailed that the treasurer cast the unanimous ballot of the meeting for R. D. Torrey, for secretary. So done, and R. D. Torrey declared elected for the ensuing year.

Motion prevailed that a committee of five be appointed by the chair, to nominate eight vice presidents for consideration of the meeting. Chair appointed E. P. Finch, D. Huntley, Asher Hubbard, John Gordinier and K. M. Hutchinson.

The committee on such nominations reported the following, who were unanimously elected:

S. Beckwith, Oshkosh; D. Huntley, Appleton; J. Gordinier, Little Wolf; C. Hazen, Ladoga; Geo. Pierce, Winooski; C. McConnell, Bluffton; C. D. Robinson, Green Bay; C. G. Cone, Chilton.

Secretary Torrey offered the following amendment to the constitution, which was adopted: Amend article 7 by adding to said article the words: "and the officers named in this article shall hold their office for one year from and after January first next succeeding their election, and until their successors are elected and qualified."

The president having designated Friday, September 27, 1878, at 10 A. M., at the secretary's office, on the fair grounds, as the time and place for the election of the Board of Control for the ensuing year, and there being no further business, the meeting adjourned *sine die*.

R. D. TORREY, *Secretary*.

OSHKOSH, *September 27, 1878.*

SECRETARY'S OFFICE, 10 A. M.

Board of vice presidents, the president, secretary and treasurer, met pursuant to notice given by the president, for the purpose of electing a Board of Control for the year 1879.

The entire number being present, the following were duly elected: K. M. Hutchinson, J. V. Jones, D. Huntley, C. Hazen, G. H. Daubner.

There being no further business, the meeting adjourned.

Board meeting held at the secretary's office, Oshkosh, September 28, 1878.

Present: President Loper, Secretary Torrey, Hutchinson, Woolcott, Hazen, Stilson.

W. W. Heron presented a protest against award of judges on carriages. Protest not sustained.

Protest of Eli Stilson *vs.* W. Kaiser, class 5 and 11, on the ground of barrenness of one cow exhibited by said Kaiser. Consideration postponed. Condition of postponement being, that if said cow proves with calf, having already had service, then the protest fails, otherwise to be considered sustained.

Motion prevailed to pay no premiums until October 9, 1878.

Board adjourned to October 7, 1878.

SECRETARY'S OFFICE, *October 7, 1878.*

Board met pursuant to adjournment; full board present. Also President Loper and Secretary Torrey.

Motion prevailed to pay 50 per cent. of premiums awarded at the fair of 1878.

The following accounts were allowed and ordered paid:

B. F. Taylor, poem.....	\$100 00
J. M. Clark, balloon (in part).....	80 00
Fernandez & Glaze, printing.....	29 50
H. B. Harshaw, postage.....	6 70
W. J. Morgan, diplomas.....	25 00
Mr. Frost, stamps, treasurer and secretary.....	14 25
H. B. Harshaw, postage.....	32 31
Theo. Grabe, hay.....	44 83
J. Hohler, hay.....	127 64
D. Conklin, labor.....	7 25
H. B. Clark, police.....	9 00
Kendrick Kimball, superintendent.....	11 00
Frank Shomer, engine.....	50 00
A. Hubbard, police.....	10 00

H. B. Dale, superintendent	\$28 00
F. M. Powers, police	35 00
H. W. Woolcott, superintendent	19 25
Alf. Ward, assistant at gate	10 00
Gib. Lane, disbursements	99 90
P. A. Dale, assistant superintendent	24 00
R. D. Torrey, disbursements	35 25
J. O'Brien, superintendent	22 63
Chas. Wyckoff, night watch	11 00
F. C. Schuck, cartage	1 00
Gertie Torrey, clerk	33 50
A. H. Reed, ticket accountant	12 00
J. R. Jordan, drayage and freight	13 25
W. H. Wall, use of wagon	1 00
J. H. Hicks, assistant superintendent	26 50
O. L. Hewey, night watch	10 00
Chester Hazen, superintendent	24 12
D. Huntley, superintendent	16 50
H. W. Woolcott, expense account	13 10
Eli Stilson, attendance on session of board	9 00
J. Dobson, straw	23 10
David Dixon, sawdust	4 50
Carswell & Hughes, premium badges	15 97
Alex. Rickey, assistant superintendent	12 00
M. C. Bushnell, superintendent	18 00
O. D. Peck, lumber	32 77
E. W. Viall, treasurer service	21 01
E. W. Viall, treasurer's help	31 50
Eli Stilson, straw	20 00
J. F. W. Decker, use of crockery	5 22
Sarau & Weidner, printing	16 50
Mrs. L. M. Rollins, labor	12 00
Allen & Hicks, printing and stationery	174 97
E. Quinn, labor	8 00
W. W. Wright, labor	8 00
C. McCurdy, labor	8 00
J. Carter, police	8 00
A. A. Loper, per diem and expense as president	65 25
John Mack, police	8 00
John Lucy, police	8 00
O. E. Carrier, drayage paid	1 10
H. D. Staat, telegraphing	4 60
Jos. Jackson, police	4 00
F. B. Ward, bill posting	2 50
E. Baker, police	8 00
W. B. M. Torrey, police	10 00
Chicago Evening Journal, printing	105 00
R. M. Hutchinson, superintendent of fine art hall	18 00
Ed. Ellsworth, asst. superintendent of fine art hall	12 00
H. M. Dyer, asst. superintendent of fine art hall	12 00
O. E. Carrier, asst. superintendent of fine art hall	12 00
Mrs. O. E. Carrier, asst. superintendent of fine art hall	12 00
Mrs. A. T. Glaze, asst. superintendent of fine art hall	12 00
H. Howard, police	8 00
J. B. Taylor, police	8 00
D. Zentner, superintendent of gates	16 50
A. Damuth, carriage hire	6 50
Edgar Torrey, assistant superintendent	10 00
C. Hazen, superintendent	18 00
Wm. O'Brien, police	10 00
H. M. Jones, assistant superintendent	12 00
D. Huntley, superintendent	18 00
K. M. Hutchinson, hardware	8 77

P. Baker, police	\$8 00
Geo. Cary, reporting	5 00
Fred Badger, clerk	33 00
Sawyer & Weston, reporting convention of 1878	89 00
Nick Conrad, clerk	24 00
Gib. Lane, superintendent and labor	42 00
M. E. Miller, clerk service	15 00
Asa Wild, night watch	10 00
L. M. Billings, gate service	10 00
B. H. Loper, use of furniture ..	6 00
W. Wagstaff, watch	5 00
I. H. Hicks, assistant superintendent	12 00
M. Forbes, livery	2 00
L. Olcott, watch	5 00
S. B. Jackson, watch	10 50
W. B. Towers, assistant	12 00
J. Black, labor	5 25
T. R. Goe, assistant marshal	24 00
E. R. Martin, superintendent	21 00
Oshkosh band, music	150 00
R. J. Taylor, clerk	15 00
Blissett & Son, oats	2 40
Foster & Jones, lumber	13 73
Second Baptist Church, dinner	55 20
J. Guyett, labor	11 00
J. Carter, labor	1 00
Wm. Guyett, labor	3 00
H. Harrington, drayage	4 00
G. W. Peck, address	50 00
G. F. Stroud, merchandise	1 74
C. F. Bowen, dinner	5 00
Will Wall, labor	5 00
Will Lansing, bill posting	2 75
S. Beckwith, board of orators	20 50
Gib. Lane, work done on fair ground	23 00
H. B. Harshaw, postage	20 75

There being no further business, board adjourned.

R. D. TORREY, *Secretary.*

SECRETARY'S OFFICE, *January 2, 1879.*

Board met pursuant to call. Present, full board (except Eli Stilson), including Pres. Loper and Sec'y Torrey. After a full examination of the treasurer's account, it was found correct and orders ordered burned.

On motion, adjourned.

Immediately on adjournment the new board convened. Present: Hutchinson, Daubner, Huntley, Jones and Hazen.

Motion prevailed to strike out rule 11 of entries, Huntley voting no, and Jones, Hazen, Hutchinson and Daubner voting aye.

A communication from Allen & Hicks, stating that they had, while selling tickets last fall, taken by mistake one \$5.00 bill, and asking that it be refunded to them.

On motion, the secretary was instructed to draw an order in their favor for that amount.

A committee, consisting of Loper, Hutchinson and Torrey, was on motion appointed to confer with the Oshkosh Stock Growers' Association with a view to consolidating the two societies.

The premium list was revised, and recommendations of the secretary were unanimously adopted. See list of 1879 as to details, size and style.

One thousand dollars was on motion appropriated to the speed of horses. The secretary was authorized to canvass manufacturing and other large cities for advertisements for the list (to pay expense of printing), at the expense of the society.

There being no further business the board adjourned.

R. D. TORREY, *Secretary.*

Meeting of the Board of Control held March 18, 1879, at the Beckwith House, pursuant to call.

President Loper, Secretary Torrey and full board present, except George H. Daubner.

The meeting being called for the consideration of business pertaining to the fair of 1879. Also, to devise ways and means for the erection of a permanent exposition building for the use of the society.

Motion prevailed that the president and secretary be a committee to secure speakers for the fair of 1879, preference being given for General Garfield, Senator Carpenter and ex-Senator Howe.

The president, secretary and treasurer were appointed a committee on tickets, with instructions to call in the old life members tickets and issue new ones therefor.

Motion prevailed that the names of judges be not published in the premium list.

The secretary was directed to correspond with — —, and not issue any more life memberships until ordered by the Board of Control.

The matter of building an exposition building coming up, a motion prevailed that when the board adjourned it be to meet with

the directors of the Oshkosh Stock Growers' Association, for the purpose of ascertaining on what terms the grounds of said association could be secured for a term of years, with a view to the erection of such building thereon.

The following accounts were presented and allowed:

Stephen Bowron, services as superintendent.....	\$9 00
Dr. A. C. Barry, expenses at convention.....	7 80
Thompson & Sprague, livery.....	8 00

Bids for printing the premium list of 1879 were received as follows: Allen & Hicks, Fernandez & Glaze, Chicago Journal Job office, Racine Advocate Co.

The bid of Allen & Hicks being deemed the most advantageous to the society, the board unanimously accepted the same, and the secretary was instructed to close the contract with that firm.

There being no further business the board adjourned to meet March 19, at 9 A. M., after hearing the proposition of the Oshkosh Stock Growers' Association, which was to be made in the evening at the office of Daniel & Gile.

R. D. TORREY, *Secretary.*

The minutes of the evening meeting were as follows:

There were present from the Oshkosh Stock Growers' Association: S. M. Hay, Eli Stilson, E. W. Viall, E. P. Sawyer, Al. Hobert; and from the Northern Wisconsin Agricultural and Mechanical Association: President Loper, Secretary Torrey, K. M. Hutchinson, D. Huntley, J. V. Jones and Chester Hazen.

After a full interchange of thought on the subject, the president of the Stock Growers' Association, S. M. Hay, for the directors of the society, made the following proposition, viz.: That the Northern Wisconsin Agricultural and Mechanical Association could have the use of the grounds for the fair of 1879, for five per cent. of the gross receipts, and that the society could have the lease of the grounds for the term of ten years at the same rate, if they erected the new exposition building, costing from four to six thousand dollars. The gross receipts were understood as not to include any gifts or appropriations made to the society, nor entry fees or exhibits.

March 19, 1879.

The Board of Control met at 9 A. M., at the Beckwith House, to consider the proposals of the Oshkosh Stock Growers' Association.

The full board was present, except Geo. H. Daubner, also President Loper and Secretary Torrey.

After due deliberation the following resolutions were adopted:

Resolved, That we accept so much of the proposition of the Oshkosh Stock Growers' Association as relates to the use of their grounds for one year, viz.: that we will pay for the use of such grounds five per cent. of the gross earnings of the fair of 1879, exclusive of entry fees and appropriations or gifts.

Resolved, That we accept that part of the proposition pertaining to the ten years lease, viz.: five per cent of the gross receipts each year, with the exceptions as noted in the first resolution, and the erection of the exposition building to revert to the Stock Growers' Association at the expiration of said time, provided the citizens of Oshkosh and vicinity shall contribute three thousand dollars to the erection of the building.

Resolved, That a committee of five be appointed to solicit subscriptions to carry out the second resolution.

The chair appointed K. M. Hutchinson, J. V. Jones, E. P. Sawyer, Gib. Lane and R. D. Torrey such committee.

On motion, adjourned.

R. D. TORREY, *Secretary*.

Meeting of the Board of Control, held June 3, pursuant to call.

The full board was present with the exception of G. H. Daubner, also President Loper and Secretary Torrey.

The committee appointed to solicit subscriptions March 18, 1879, made the following report, which was on motion accepted and approved:

To the Board of Control of the Northern Wisconsin Agricultural and Mechanical Association:

The undersigned, a special committee appointed March 18, 1879, for the purpose of obtaining subscriptions for the erection of a permanent exposition building for the use of said association, report as follows: That we have obtained subscriptions of the citizens of Oshkosh in the sum of \$4,225 in cash, labor and material.

Signed,

E. P. SAWYER,

K. M. HUTCHINSON,

J. V. JONES,

GIB. LANE,

R. D. TORREY.

The following resolution was adopted:

Resolved, That we hereby accept the proposition of the Oshkosh Stock Growers' Association as made to this Board of Control March 18, 1879, on the terms thereon proposed, and that a committee, consisting of A. A. Loper, president, and R. D. Torrey secretary, be and are hereby appointed to confer with the directors of the Oshkosh Stock Growers' Association, to draw up the necessary writings, to be submitted to this board for final approval and signature, June 23, 1879, at 8 P. M., at the secretary's office.

The following building committee was appointed by the board: E. P. Sawyer, K. M. Hutchinson, J. V. Jones, Gib. Lane, R. D. Torrey.

The board appointed K. M. Hutchinson as a committee on music.

The obtaining of an engraved wood cut of the building was left to the building committee.

The secretary was instructed to obtain the necessary posters and hangers on the best terms he could; also to print or issue new tickets entire.

The pencil sketch as sent from the Journal Office, Chicago, was adopted for an engraving.

There being no further business before the board, adjournment was taken to June 23, 1879, at 8 P. M.

R. D. TORREY, *Secretary*.

TREASURER'S REPORT FOR 1878.

E. W. VIALI, L,

*In account with the Northern Wisconsin Agricultural and
Mechanical Association.* DR.

To cash received from former treasurer	\$23 94	
state appropriation.....	1,000 00	
gate receipts.....	3,265 71	
Secretary R. D. Torrey.....	1,159 08	
	\$5,448 73	

CONTRA, CR.

By paid note and interest on same	\$178 06	
5 per cent. on Wisconsin Central R'y tickets,	6 05	
224 dinner tickets.....	89 60	
orders.....	5,169 60	
By cash on hand to balance	5 42	
	\$5,448 73	

SECRETARY'S WARRANT ACCOUNT.

FOR FISCAL YEAR ENDING JAN. 1, 1879.

No.	To whom and for what.	Amount.
1	Meyer Bros., premium of 1876, '77	\$4 00
2	Wm. Servis, premium of 1877	11 00
3	C. G. Cone, premium of 1877	4 00
4	Eli Stilson, rent	250 00
5	H. Sarau, bill posting	1 50
6	H. W. Harshaw, postage	6 76
7	W. J. Morgan & Co., diplomas	25 00
8	Wm. Stewart, premium of 1877	6 00
9	Jack Frost, stamp	6 50
10	R D Torrey, disbursements	20 00
11	M. Forbes, livery, 1877	10 00
12	Jack Frost, treasurer stamp	7 75
13	Dr Palmerton, premium, 1877	6 00
14	J W. Hornick, premium, 1877	3 00
15	H. B. Harshaw, postage	32 31
16	R. D. Torrey, balance of salary	400 00
17	B F. Taylor, premium	1 00
18	J. M. Clark, balloon, in part	80 00
19	Fernandez & Glaze, printing	29 50
20	Theo. Grabe, hay	44 83
21	J. Rohler, hay	127 64
22	D. Conklin, labor	7 25
23	T. J R Clark, police	9 00
24	Kendrick Kimball, superintendent service	11 00
25	Frank Schomer, engine	50 00
26	A Hubbard, police	10 00
27	Error, not issued	
28	H B Dale, superintendent service	28 00
29	F. M. Powers, marshal	35 00
30	H. W. Woolcott, superintendent	19 25
31	A. B. Waid, gate assistant	10 00
32	Gib. Lane, money paid out	99 90
33	P. H Dale, assistant superintendent of horses	24 00
34	R. D. Torrey, money paid out	35 25
35	J. O'Brien, superintendent of poultry	22 72
36	Charles Wyckoff, night watch	11 00
37	F. C. Schack, cartage	1 00
38	Gertie Torrey, clerk service	33 50
39	A. H. Reed, ticket accountant	12 00
40	J. Riordon, freight, etc	13 25
41	W H. Wall, use of wagon	1 00
42	J. H. Hicks, assistant superintendent	26 50
43	O. L. Hewey, night watch	10 00
44	Chester Hazen, expense account and superintendent	24 12

Secretary's Warrant Account — continued.

No.	To whom and for what.	Amount.
45	D. Huntley, superintendent.....	\$16 50
46	H. W. Woolcott, expense account.....	13 10
47	Eli Stilson, services.....	9 00
48	J. Dobson, straw, etc.....	23 10
49	David Dixon, sawdust.....	4 50
50	Carswell & Hughes, ribbon.....	15 97
51	Alex. Rickey, assistant superintendent.....	12 00
52	M. C. Bushnell, superintendent.....	18 20
53	O. D. Peck, lumber.....	32 77
54	E. W. Viall, treasurer, services.....	21 00
55	E. W. Viall, treasurer's help.....	31 50
56	Eli Stilson, straw.....	20 00
57	J. F. W. Decker, use of crockery.....	5 22
58	Sarau & Weidner, printing.....	16 50
59	Mrs. R. H. Rollins, services.....	12 00
60	Allen & Hicks, printing.....	174 97
61	E. Quinn, labor.....	8 00
62	W. Wright, labor.....	8 00
63	C. McCurdy, labor.....	10 00
64	J. Carter, police.....	8 00
65	A. A. Loper, per diem and expenses as president.....	65 25
66	John Mack, four days as police.....	8 00
67	John Lucy, four days as police.....	8 00
68	O. E. Carrier, drayage.....	1 00
69	H. D. Sloat, telegraphing.....	4 60
70	Jos. Jackson, police services.....	4 00
71	F. B. Ward, bill posting.....	2 50
72	E. Baker, police services.....	8 00
73	W. B. M. Torrey, police.....	10 00
74	Chicago Evening Journal, printing.....	105 00
75	R. M. Hutchinson, superintendent of fine art hall.....	12 00
76	Ed. T. Ellsworth, assistant superintendent of fine art hall.....	12 00
77	H. M. Dyer, assistant superintendent of fine art hall.....	12 00
78	O. E. Carrier, assistant superintendent of fine art hall.....	12 00
79	Mrs. O. E. Carrier, assistant superintendent of fine art hall.....	12 00
80	Mrs. A. T. Glaze, assistant superintendent of fine art hall.....	12 00
81	H. Howard, police duty.....	8 00
82	J. B. Taylor, police duty.....	8 00
83	F. Zentner, gate service.....	16 50
84	A. Damuth, carriage hire.....	6 50
85	Edgar Torrey, assistant superintendent of machinery.....	10 00
86	C. Hazen, superintendent service.....	18 00
87	Wm. O'Brien, police services.....	10 00
88	H. M. Jones, assistant superintendent of vegetables.....	12 00
89	D. Huntley, superintendent services.....	18 00
90	K. M. Hutchinson, hardware.....	8 77
91	P. Baker, police.....	8 00
92	Geo. Cary, reporting.....	5 00
93	Fred Badger, clerk service.....	33 00
94	Sawyer & Weston, reporting convention.....	89 00
95	Nick Conrad, clerk service.....	24 00
96	Gib. Lane, labor and superintendent service.....	42 00
97	M. E. Miller, clerk service.....	15 00
98	Asa Wilds, night watchman.....	10 00
99	L. M. Billings, gate service.....	10 00
100	B. H. Loper, use of furniture.....	6 00
101	Will Wagstaf, watchman.....	5 00

Secretary's Warrant Account—continued.

No.	To whom and for what.	Amount.
102	I. H. Hicks, assistant superintendent.....	\$12 00
103	M. Forbes, livery.....	2 00
104	Lucius Olcott, watch.....	5 00
105	S. B. Jackson, watchman.....	10 50
106	W. B. Towers, assistant superintendent.....	12 00
107	J. Black, labor.....	5 25
108	T. R. Goe, assistant marshal.....	24 00
109	C. R. Martin, superintendent.....	21 00
110	Oshkosh Band, music.....	150 00
111	R. J. Taylor, clerk.....	15 00
112	Blissett & Son, oats.....	2 40
113	Foster & Jones, lumber.....	13 73
114	Second Baptist Church, dinner tickets.....	55 20
115	D. Huntley, premium, 50 per cent.....	41 75
116	C. Hazen, premium, 50 per cent.....	88 00
117	M. C. H. Root, premium, 50 per cent.....	18 50
118	George Root, premium.....	1 00
119	J. H. Wyckoff, premium.....	6 50
120	Mrs. D. Crosby, premium.....	2 00
121	Mrs. H. W. Woolcott.....	25
122	Eli Stilson, premium.....	128 50
123	D. H. Hillman, premium.....	25 00
124	J. Guyett, labor.....	11 00
125	Joe Carter, labor.....	1 00
126	Wm. Guyett, labor.....	3 00
127	H. Harrington, drayage.....	4 00
128	E. R. Martin, premiums.....	15 50
129	Minnie Martin, premiums.....	75
130	S. Weisman, premiums.....	1 00
131	Geo. Peck, address.....	50 00
132	G. F. Stroud, merchandise.....	1 74
133	J. J. Moore, premiums.....	7 50
133 ₂	Olive M. Patten, premiums.....	2 75
134	C. T. Brown, dinners.....	5 00
135	W. W. Daggett, premiums.....	2 00
136	F. Daggett, premium.....	1 00
137	Minnie Prautsh, premium.....	50
138	Mrs. J. B. Goe, premium.....	2 00
139	Mrs. Sherwood, premiums.....	50
140	K. M. Hutchinson, premium.....	7 25
141	Mrs. Mary Clark, premium.....	1 75
142	Will. Thomas, premium.....	1 75
143	W. L. Stroud, premium.....	2 50
144	Mrs. W. L. Stroud, premium.....	50
145	B. S. Thayer, premium.....	25 00
146	Jack Dobson, premiums.....	1 00
147	G. R. Lampard, premium.....	12 00
148	J. Gordinier, premiums.....	11 00
149	H. B. Dale, premium.....	3 00
150	C. E. Angel, premiums.....	1 00
151	Mrs. O. Angel, premiums.....	1 88
152	Harry Clunn, premium.....	2 50
153	Alice J. Wright, premium.....	75
154	William Wright, premium.....	2 75
155	Geo. Scofield, premium.....	2 00
156	Frank Waldo, premiums.....	7 50
157	N. C. Angel, premium.....	4 00

Secretary's Warrant Account—continued.

No.	To whom and for what.	Amount.
158	Edgar Padelford, premium	\$5 00
159	Charles Lawson, premium	1 50
160	H. C. Gustavus, premium	1 50
161	Mrs. C. Gustavus, premium	50
162	F. N. Appleyard, premium	7 00
163	John Phillips, premium	2 00
164	Thos. Davis, premium	29 50
165	E. J. Ross, premium	2 00
166	M. B. Green, premium	3 00
167	C. D. Buckstaff, premium	1 00
168	Mrs. McKenzie, premium	50
169	J. O'Brien, premiums	17 75
170	Clara Weisbrod, premium	75
171	F. Weyerhurst, premium	5 25
172	N. Dougherty, premium	7 50
173	M. L. Camburn, premium	50
174	Mrs. Camburn, premium	50
175	W. Sheldon, premium	4 00
176	Mrs. J. M. Simpson, premiums	1 00
177	Mrs. J. E. Simpson, premiums	75
178	Mrs. Burtis, premiums	5 50
179	M. Weyerhurst, premiums	3 00
180	B. H. Soper, premium	2 50
181	Mrs. T. D. Grimmer, premiums	1 75
182	Edgar Potter, premium	3 00
183	Will Hewitt, premium	75
184	Brainard Bros., premium	4 00
185	Jas. Brainerd, premium	14 00
186	Mrs. J. Brainerd, premium	3 50
187	Merwin Asire, premium	5 00
188	Wm. H. Tennant, premium	5 00
189	Conrad Ernst, premium	75
190	Frank Schomer, premium	4 50
191	Mrs. H. Hardy, premium	75
192	T. T. Smith, premium	1 00
193	W. G. Braur, premium	1 00
194	Mrs. C. A. Weisbrod, premium	1 00
195	O. D. Brown, premium	8 50
196	H. Smith, premium	1 50
197	J. Bonnett, premium	7 50
198	I. P. Cariton, premium	75
199	W. W. Wright, premium	4 00
200	Alice M. Collins, premium	1 50
201	Sam. Clark, premium	2 00
202	Ralph Burtis, premium	1 50
203	Fern Pratt, premium	1 50
204	I. S. Cox, premium	1 50
205	Allen & Hicks, premium	2 00
206	Geo. Reese, premium	3 50
207	J. W. Dake, premium	2 00
208	S. Stancliffe, premium	1 50
209	J. R. Padelford, premium	18 00
210	Wm. Chase, premium	4 00
211	Mrs. S. C. Russell, premium	50
212	Mrs. Thrall, premium	93
213	W. H. Wall, labor	3 00
214	Lottie Plaze, premiums	75

24 NORTHERN WISCONSIN AGRICULTURAL, ETC., ASSOCIATION.

Secretary's Warrant Account — continued.

No.	To whom and for what.	Amount.
215	Wm. Humes & Co., premium	\$1 50
216	Mattie Campbell, premium	1 00
217	Mena Tesch, premium	1 00
218	J. N. Hoaglin, premium	27 00
219	Mrs. J. N. Hoaglin, premium	4 25
220	Mrs. Wm. Vance, premium	1 00
221	Wm. Lansing, bill posting	2 75
222	W. Eaton, premium	15 00
223	A. B. Wade, premium	15 00
224	Chim Abrams, premium	1 50
225	Mrs. M. Campbell, premium	50
226	W. M. Towers, premium	8 50
227	I. W. Cross, premium	3 00
228	Isaac Metcalf, premium	5 50
229	A. L. Harrington, premium	1 00
230	C. R. Nevitt, premium	1 00
231	J. Nevitt, premium	50
232	Georgie Paine, premium	50
233	G. M. Paine, premium	2 00
234	E. L. Paine, premium	2 00
235	W. F. & N. Pierce, premium	7 50
236	Mrs. L. B. Reed, premium	75
237	Mrs. Rae, premium	1 75
238	Addie Cronk, premium	25
239	Mrs. Blythe, premium	50
240	J. Johnson, premium	1 00
241	Luella Thomas, premium	50
242	Mrs. L. Spore, premium	2 50
243	Katie Maxwell, premium	75
244	Cook Ely, premium	3 00
245	I. Miles, premiums	15 13
246	Wm. Collins, premium	1 00
247	C. Chadbourne, premium	2 00
248	E. Houston, premium	11 50
249	C. F. Johnson, premium	4 00
250	Wm. Lewis, premium	5 50
251	Isaac Anthony, premium	10 00
252	Rudd & Holden, premium	6 00
253	F. S. Hart, premium	50
254	M. H. Harmon, premium	50
255	Mrs. J. M. Bray, premium	50
256	Lillie Kimball, premium	2 00
257	Wm. Spikes & Co., premium	5 50
258	Mr. Drakey, premium	20 00
259	C. B. Fuller, premium	20 00
260	R. P. Roberts, premium	4 00
261	C. B. Fuller, premium	13 50
262	S. Beckwith, premium	20 50
263	Theo. Grabe, premium	2 75
264	Mrs. G. W. Washburn, premium	50
265	D. W. Ostrom, premium	50
266	J. C. McConae, premium	33 50
267	Geo. H. Daubner, premium	26 50
268	J. C. Plumb and Son, premium	5 00
269	Jas. Barr, premium	1 00
270	Mrs. H. McClelland, premium	10 50
271	C. G. Cone, premiums	3 75

Secretary's Warrant Account — continued.

No.	To whom and for what.	Amount.
272	Thomas Bowles, premium	\$9 00
273	S. Drakely, premium	12 50
274	George J. Kellogg, premium	14 00
275	James O. Zanne, premium	3 00
276	R. B. Olds, premium	2 00
277	J. Plowman, premium	3 00
278	A. J. Locke and wife, premium	2 00
279	E. M. Brainerd, premium	1 00
280	L. Rawson, premium	40 00
281	Owen Jones, premium	6 00
282	Normal school, premium	2 00
283	W. C. Wheeler, premium	2 00
284	A. G. Burtis, premium	1 00
285	William C. Keiser, premium, in part	50 00
286	Mrs. Houghton, premium	25
287	Edward Carrol, premium	3 00
288	Mrs. Kennedy, premium	1 00
289	L. M. Byers, premium	1 00
290	H. A. Babcock, premium	30 00
291	Gib. Lane, grading fair grounds	23 00
292	Edwin Nye, premium	1 00
293	J. Kophmgst, premium	9 00
294	Dalton Bros., premium	50
295	D. T. Pilgrim, premium	7 00
296	S. Drakely, premium	30 00
297	C. B. Fuller, premium	46 00
298	Al. Hobert, premium	40 00
299	J. McKeen, premium	9 50
300	E. E. Harmon, premium	6 25
301	M. Verity, premium	4 00
302	A. H. Hart, premium	3 00
303	H. B. Jackson, premium	5 00
304	Mrs. Ed. Hayden, premium	50
305	John Freborn, premium	2 00
306	Ed. Hayden, premium	50
307	W. S. Montgomery, premium	50
308	Lizzie Montgomery, premium	50
309	G. H. Stowe, premium	2 50
310	E. F. Dimpsey, premium	1 00
311	H. M. Jones, premium	1 00
312	M. Verity, premium	1 00
313	Mrs. A. Quick, premium	7 25
314	Mrs. Newman, premium	1 00
315	Wm. Hall, premium	4 00
316	Wm. Hall, premium	15 00
317	E. W. Sanders, premium	7 75
318	Mrs. E. W. Sanders, premium	1 25
319	Mrs. G. A. Badger, premium	3 75
320	A. H. Hart, premium	2 00
321	Wm. H. Tenant, premium	1 00
322	John Nelson, premium	11 25
323	S. Atkins, premium	9 00
324	J. Fridd, premium	4 00
325	J. Lewis, premium	17 50
326	C. F. Rogers, premium	1 50
327	Johan Myer, premium	1 00
328	Mrs. L. M. Taylor, premium	2 25

Secretary's Warrant Account—continued.

No.	To whom and for what.	Amount.
329	Charles Rauer, premium.....	\$1 00
330	Mrs. Barber, premium.....	1 00
331	Kate Peffer, premium.....	8 00
332	Streich Bros., premium.....	1 00
333	Annie Barnum, premium.....	1 00
334	J. Meyer, premium.....	3 00
334½	Myer Bros., premium.....	3 00
335	B. Edwards, premium.....	4 00
336	L. H. Curtis, premium.....	5 50
337	Mrs. E. Giddings, premium.....	1 00
338	F. E. Hayward, premium.....	7 50
339	Wm. Sill, premium.....	4 00
340	H. B. Harshaw, postage.....	12 75
341	Geo. H. Pierce, premium.....	3 00
342	W. W. Woodward, premium.....	15 00

PREMIUMS AWARDED

AT THE FAIR OF 1878.

DIVISION A — HORSES.

CLASS 1 — *Roadsters and Carriage Horses.*

Best stallion 4 years old and over, John Gordinier	\$12 00
Second best, H. B. Dale.....	6 00
Best stallion 3 years old and under 4, H. B. Jackson.....	10 00
Second best, L. F. Haas.....	5 00
Second best, 2 years old and under 3, G. R. Lampard.....	4 00
Best stallion 1 year old and under 2, J. Plowman.....	6 00
Second best, Chas. Lawson.....	3 00
Best sucking stallion foal, John Gordinier.....	4 00
Best brood mare and sucking colt, A. Hollenbeck.....	10 00
Second best, F. R. England.....	5 00
Best mare or gelding 4 years old and over, J. G. Morris.....	8 00
Second best, Samuel Clark	4 00
Best mare or gelding 3 years old and under 4, John Gordinier	6 00
Second best, H. C. Gustavus	3 00
Best mare or gelding 2 years old and under 3, J. N. Hoaglin.....	4 00
Second best, A. L. Harrington.....	2 00
Best mare or gelding 1 year old and under 2, H. Smith.....	3 00
Second best, J. Dobson	2 00
Best sucking filly foal, F. R. England.....	4 00
Second best, A. Hollenbeck.....	2 00
Best pair matched horses, H. Dunham.....	12 00
Second best, Eugene Potter.....	6 00

CLASS 2 — *Horses for General Purposes.*

Best stallion 4 years old and over, H. A. Babcock.....	\$12 00
Second best, Thomas Bowles	6 00
Best stallion 2 years old and under 3, Edgar Padelford.....	10 00
Second best, Isaac Anthony.....	5 00
Best stallion 1 year old and under 2, Wm. Sheldon.....	8 00
Second best, John Phillips.....	4 00
Best sucking stallion foal, Edward Carroll.....	6 00
Second best, Theo. Grube	3 00
Best brood mare and colt, J. Bonnett.....	12 00
Second best, F. N. Appleyard.....	6 00
Best mare or gelding 4 years old or over, T. Davis.....	10 00
Second best, J. K. Tyrrell	5 00
Best mare or gelding 3 years old and under 4, J. Fredel.....	8 00
Second best, J. W. Dake.....	4 00
Best mare or gelding 2 years old and under 3, O. Jones	6 00
Second best, S. Stancliffe.....	3 00
Best mare or gelding 1 year old and under 2, F. N. Appleyard.....	4 00
Second best, H. A. Babcock	2 00
Best sucking filly foal, F. N. Appleyard	4 00
Second best, A. J. Locke	2 00
Best stallion with five of his get under 2 years old, H. A. Babcock.....	12 00
Second best, J. W. Cross.....	6 00

CLASS 3—*Draft Horses.*

Best stallion 4 years old and over, Thos. Bowles.....	\$12 00
Second best, J. R. Padelford.....	6 00
Best stallion 3 years old and under 4, J. R. Padelford.....	12 00
Best stallion 2 years old and under 3, Sam'l Atkins.....	10 00
Second best, Frank Schomer.....	5 00
Best stallion 1 year old and under 2, Isaac Metcalf.....	8 00
Second best, J. R. Padelford.....	4 00
Best sucking stallion foal, H. A. Babcock.....	6 00
Second best, John Bonnett.....	3 00
Best brood mare and colt, H. A. Babcock.....	12 00
Second best, H. A. Babcock.....	6 00
Best mare or gelding 4 years old or over, John Kophingst.....	12 00
Second best, John Kophingst.....	6 00
Best mare or gelding 3 years old and under 4, Wm. Chase.....	8 00
Second best, Frank Schomer.....	4 00
Best mare or gelding 2 years old and under 3, O. Jones.....	6 00
Second best, Isaac Metcalf.....	3 00
Best mare or gelding 1 year old and under 2, H. A. Babcock.....	4 00
Second best, J. R. Padelford.....	2 00
Best sucking filly foal, H. A. Babcock.....	6 00
Best stallion and five of his get, under 2 years.....	12 00

CLASS 4—*Speed of Horses.*

RACE No. 1. FOR HORSES WITH NO RECORD BELOW 2:40.

S. Drakely enters "Little Frank," first money.....	\$100 00
C. B. Fuller enters "Jas. Lupe," second money.....	65 00
Al. Hobart enters "Dutch Frank," third money.....	35 00

No. 2. FOR HORSES WITH NO RECORD BELOW 3 MINUTES.

C. B. Fuller enters "Jas. Lupe," first money.....	\$100 00
Al. Hobart enters "Dutch Frank," second money.....	75 00
S. Drakely enters "Little Frank," third money.....	25 00

No. 3. FOR HORSES THAT HAVE NEVER TROTTED FOR MONEY.

B. S. Thayer enters "Tim," 1st money.....	\$50 00
V. Eaton enters "Lady Pulling," second money.....	30 00
G. R. Lampard enters "Maggie Forest," third money.....	20 00

DIVISION B—CATTLE.

CLASS 5—*Short Horn Thoroughbreds.*

Best bull 4 years old or over, Eli Stilson.....	\$15 00
Second best, Wm. C. Keiser.....	8 00
Best bull 3 years old and under 4, F. E. Hayward.....	15 00
Second best, Wm. Hall.....	8 00
Best bull 2 years old and under 3, Wm. C. Keiser.....	15 00
Second best, Eli Stilson.....	8 00
Best bull 1 year old and under 2, Wm. C. Keiser.....	15 00
Second best, C. F. Johnson.....	8 00
Best bull calf over 6 months, Eli Stilson.....	8 00

Second best, Eli Stilson.....	\$4 00
Best bull calf under 6 months, Eli Stilson....	8 00
Second best, D. H. Hillman	4 00
Best cow 4 years old and over, Wm. C. Keiser.....	15 00
Second best, Wm. C. Keiser.....	8 00
Best cow three years old and under 4, Eli Stilson.....	15 00
Second best, D. H. Hillman	8 00
Best heifer 2 years old, Wm. C. Keiser... ..	15 00
Second best, Eli Stilson.....	8 00
Best heifer 1 year old, Wm. C. Keiser.....	15 00
Second best, Eli Stilson.....	8 00
Best heifer calf over 6 months, Eli Stilson	8 00
Second best, Eli Stilson	4 00
Best heifer calf under 6 months, D. H. Hillman.....	8 00
Best bull of any age, Eli Stilson.....	Dip.
Best cow of any age, Wm. C. Keiser	Dip.

CLASS 6 — *Ayrshire Thoroughbreds.*

Best bull 4 years old or over, D. Huntley.....	\$15 00
Best bull 3 years old and under 4, C. Hazen.....	15 00
Best bull 1 year old and under 3, C. Hazen	15 00
Best bull calf over 6 months, D. Huntley....	8 00
Best bull calf under 6 months, C. Hazen.....	8 00
Second best, C. Hazen.....	4 00
Best cow 4 years old or over, D. Huntley.....	15 00
Second best, C. Hazen.....	8 00
Best cow or heifer 3 years and under 4, C. Hazen.....	15 00
Second best, D. Huntley.....	8 00
Best heifer 2 years old, C. Hazen.....	15 00
Second best, C. Hazen.....	8 00
Best heifer 1 year old, C. Hazen.....	15 00
Second best, C. Hazen.....	8 00
Best heifer calf 6 months or over, C. Hazen.....	8 00
Second best, D. Huntley.....	4 00
Best heifer calf under 6 months, C. Hazen	8 00
Second best, D. Huntley.....	4 00
Best bull of any age, C. Hazen.....	Dip.

CLASS 7 — *Devons — Thoroughbreds.*

Best bull 3 years old or over, L. Rawson	\$10 00
Second best, E. Homiston.....	5 00
Best bull 1 year old, L. Rawson.....	8 00
Second best, L. Rawson.....	4 00
Best bull calf, L. Rawson.....	5 00
Second best, L. Rawson	3 00
Best cow or heifer 3 years old, L. Rawson.....	10 00
Second best, L. Rawson	5 00
Best heifer 2 years old, E. Homiston.....	10 00
Second best, L. Rawson	5 00
Best heifer 1 year old, E. Homiston.....	8 00
Second best, L. Rawson	4 00
Best heifer calf, L. Rawson.....	5 00

CLASS 8 — *Jersey or Alderney — Thoroughbreds.*

Best bull 2 years old, John McConnell	\$8 00
Second best, William Wright.....	4 00
Best bull 1 year old, C. Hazen	6 00
Best bull calf, John McConnell.....	4 00

30 NORTHERN WISCONSIN AGRICULTURAL, ETC., ASSOCIATION.

Best cow or heifer 3 years old, R. P. Roberts.....	\$8 00
Second best, G. M. Paine	4 00
Best heifer 2 years old, John McConnell.....	8 00
Second best, John McConnell.....	4 00
Best heifer 1 year old, John McConnell.....	6 00
Second best, John McConnell.....	3 00
Best heifer calf, John McConnell.....	4 00
Second best, J. N. Hoaglin.....	2 00

CLASS 9 — *Galloway.*

Best bull 2 years old or over, A. B. Wade	\$8 00
Best heifer 1 year old, A. B. Wade.....	6 00
Second best, A. B. Wade	3 00

CLASS 10 — *Grade and Native.*

Best cow 4 years old or over, Thomas Davis.....	\$8 00
Second best, E. L. Paine	4 00
Best cow or heifer 3 years old, Eli Stilson	8 00
Second best, Thos. Davis.....	4 00
Best heifer 2 years old, J. J. Moore	8 00
Second best, John Freeborn	4 00
Best heifer 1 year old, Wm. C. Keiser.....	6 00
Second best, J. N. Hoaglin.....	3 00
Best heifer calf, Thos. Davis.....	4 00
Second best, Eli Stilson.....	2 00
Best pair of steers 2 years old, A. B. Wade	6 00
Second best, Thos. Davis.....	3 00
Best pair of steers 1 year old, Thos. Davis	6 00

CLASS 11 — *Sweepstakes and Herd Premiums.*

Best bull over 1 year, Eli Stilson.....	\$20 00
Best cow or heifer over 1 year, Wm. C. Keiser.....	20 00
Best bull calf, Eli Stilson.....	12 00
Best heifer calf, Eli Stilson.....	12 00
Best bull and 4 cows or heifers over 2 years of age, Wm. C. Keiser..	40 00
Second best, Eli Stilson.....	25 00
Third best, L. Rawson.....	10 00
Best bull and 4 heifers under 2 years of age, Eli Stilson.....	35 00
Second best, Wm. C. Keiser.....	20 00
Best bull and 4 cows or heifers over 1 year of age — Ayrshires or Jerseys, C. Hazen	35 00
Second best, J. C. McConnell.....	30 00
Third best, D. Huntley.....	15 00
Best bull and 3 of his get as a collection, Eli Stilson.....	Dip.

DIVISION C — SHEEP.

CLASS 12 — *American Merino.*

Best ram 2 years old and over, T. F. & C. D. McConnell	\$6 00
Second best, T. F. & C. D. McConnell.....	4 00
Best ram 1 year old, T. F. & C. D. McConnell	6 00
Second best, T. F. & C. D. McConnell	4 00
Best pen 3 ram lambs, T. F. & C. D. McConnell	6 00
Second best, T. F. & C. D. McConnell	4 00
Best 3 ewes 2 years old and over, T. F. & C. D. McConnell.....	6 00
Second best, T. F. & C. D. McConnell	3 00

Best pen 3 ewes 1 year old, T. F. & C. D. McConnell.....	\$6 00
Second best, T. F. & C. D. McConnell.....	3 00
Best pen 3 ewe lambs, T. F. & C. D. McConnell.....	6 00
Second best, T. F. & C. D. McConnell.....	3 00
Best ram of any age, T. F. & C. D. McConnell.....	Dip.
Best ewe of any age, T. F. & C. D. McConnell.....	Dip.

CLASS 13 — *Southdown and other Middle Wool Sheep.*

Best ram 2 years old and over, Geo. H. Daubner	\$5 00
Second best, M. N. Towers	3 00
Best ram 1 year old, Geo. H. Daubner.....	5 00
Second best, L. Rawson	3 00
Best pen 3 ram lambs, Geo. H. Daubner.....	4 00
Second best, M. N. Towers.....	2 00
Best pen 3 ewes 2 years old or over, Geo. H. Daubner	5 00
Second best, L. Rawson	3 00
Best pen 3 ewes 1 year old, Geo. H. Daubner	5 00
Second best, L. Rawson	3 00
Best pen 3 ewe lambs, Geo. H. Daubner	4 00
Second best, L. Rawson.....	2 00
Best ram of any age, Geo. H. Daubner.....	Dip.
Best ewe of any age, Geo. H. Daubner.	Dip.

CLASS 14 — *Grades from Fine Wool Bucks.*

Best ram 2 years old or over, E. R. Martin.....	\$3 00
Second best, Sam'l Atkins.....	2 00
Best pen 3 ram lambs, Sam'l Atkins.....	3 00
Best pen 3 ewes 2 years or over, E. R. Martin.....	3 00
Best pen 3 ewes 1 year old, E. R. Martin	3 00
Best pen 3 ewe lambs, Sam'l Atkins.....	3 00

CLASS 15 — *Cotswold.*

Best ram 2 years old and over, M. N. Towers	\$6 00
Second best, Eli Stilson	4 00
Best pen three ram lambs, Eli Stilson	6 00
Best pen three ewes 2 years old and over, Eli Stilson.....	6 00
Best pen three ewe lambs, M. N. Towers	6 00
Best ram of any age, M. N. Towers.....	Dip.

CLASS 16 — *Leicester.*

Best ram 2 years old or over, John O'Brien	\$6 00
Second best, John O'Brien.....	4 00
Best ram 1 year old, John O'Brien	6 00
Second best, George H. Daubner.....	4 00
Best pen three ewes 2 years or over, George H. Daubner	6 00
Second best, John O'Brien.....	4 00
Best pen three ewes 1 year old, George H. Daubner.....	6 00
Second best, John O'Brien.....	3 00
Best pen three ewe lambs, George H. Daubner.....	6 00
Second best, George H. Daubner.....	3 00
Best ram of any age, George H. Daubner.....	Dip.

CLASS 17 — *Grades from Long Wool Bucks.*

Best ram 2 years old or over, Eli Stilson	\$4 00
Best pen three ewes 2 years old or over, J. N. Hoaglin	4 00
Second best, Eli Stilson	2 00
Best pen three ewes 1 year old, J. N. Hoaglin.....	4 00
Second best, Eli Stilson	2 00
Best pen three ewe lambs, M. B. Green.....	4 00
Second best, B. Edwards	2 00

DIVISION D — SWINE AND POULTRY.

CLASS 18 — *Swine — Berkshire.*

Best boar 2 years old or over, Eli Stilson	\$7 00
Best boar under 6 months, F. Weyerhorst	4 00
Second best, N. C. Angel.....	2 00
Best breeding sow 2 years old, Eli Stilson	7 00
Second best, Eli Stilson	4 00
Best breeding sow 1 year old, Eli Stilson	6 00
Second best, Eli Stilson	3 00
Best pig under 6 months, N. C. Angel.....	4 00
Second best, N. C. Angel.....	2 00

CLASS 19 — *Swine — Poland China, etc.*

Best boar 2 years old and over, L. H. Curtis	\$7 00
Best boar 1 year old, E. R. Martin	6 00
Second best, W. W. Woodward	3 00
Best boar pig over 6 months, W. W. Woodward.....	4 00
Second best, W. W. Woodward.....	2 00
Best boar pig under 6 months, E. Martin.....	4 00
Second best, W. W. Woodward.....	2 00
Best breeding sow 2 years old, W. W. Woodward.....	7 00
Second best, D. H. Hillman.....	4 00
Best breeding sow 1 year old, W. W. Woodward.....	6 00
Best sow pig over 6 months, W. W. Woodward	4 00
Second best, W. W. Woodward	2 00
Best sow pig under 6 months, E. R. Martin.....	4 00
Second best, M. B. Green.....	2 00
Best breeding sow with litter of pigs, E. R. Martin.....	8 00
Second best, L. H. Curtis.....	4 00

CLASS 20 — *Essex, Suffolk, etc.*

Best boar 2 years and over, D. H. Hillman	\$7 00
Best boar 1 year old and under 2 years, B. Edwards	6 00
Best boar pig over 6 months, J. N. Hoaglin	4 00
Second best, D. H. Hillman	2 00
Best breeding sow 1 year old, Thomas Davis	6 00
Second best, D. H. Hillman	3 00
Best sow pig over 6 months, J. N. Hoaglin	4 00
Second best, D. H. Hillman	2 00
Best sow pig under 6 months, D. H. Hillman	4 00
Best breeding sow and litter of pigs, D. H. Hillman	8 00
Second best, and litter of pigs, T. Davis.....	4 00

CLASS 21 — *Poultry.*

LOT 1 — ASIATICS.

Best trio Black Cochins, G. E. Harmon	\$2 00
Second best, J. McKeen.....	1 50
Best trio Dark Brahmias, A. B. Wade.....	2 00
Second best, A. B. Wade.....	1 50
Best trio Buff Cochins, J. McKeen.....	2 00
Best trio Partridge Cochins, G. E. Harmon.....	2 00
Second best, G. E. Harmon.....	1 50

Complimentary.

Best White Cochins.

LOT 2 — GAME.

Best trio B. B. red game, C. D. Buckstaff.....	\$2 00
Second best, Willard Wright	1 50

Complimentary.

Best black game, J. P. Carleton.

Second best, J. P. Carleton.

LOT 3 — DORKING.

Best trio Plymouth Rocks, J. McKeen.

Second best, J. McKeen.

LOT 4 — SPANISH.

Best trio Black Spanish, J. Johnson	\$2 00
Second best, J. McKeen.....	1 50
Best trio White Leghorns, D. Huntley.....	2 00
Second best, D. Huntley	1 50
Best trio Brown Leghorns, E. W. Saunders	2 00
Second best, J. McKeen.....	1 50

LOT 4 — HAMBURG.

Best trio S. S. Hamburg, E. W. Saunders.....	\$2 00
Second best, E. W. Saunders	1 50
Best trio G. S. Hamburg, E. W. Saunders.....	2 00

LOT 5 — FRENCH.

Best trio Houdans, E. W. Saunders.....	\$2 00
Second best, E. W. Saunders.....	1 50

LOT 6 — POLISH.

Best trio black Polish white crests, J. McKeen.....	\$2 00
Second best, J. P. Carleton.....	1 50
Best trio golden Polish, J. McKeen	2 00
Second best, J. McKeen	1 50

LOT 7 — BANTAM.

Best trio B. B. red game, E. W. Saunders	\$2 00
Second best, W. Hewitt.....	1 50

3 — N. W. AG.

Complimentary.

Best trio white bantams, Dale Campbell.
 Best trio yellow duck wing game, C. D. Buckstaff.
 Best trio S S bantam, J. McKeen.
 Second best, J. McKeen.

LOT 8—TURKEYS.

Best pair bronze turkeys, A. B. Wade	\$2 00
Second best, A. B. Wade	1 50
Best pair white turkeys, J. McKeen	2 00
Second best, J. McKeen	1 50
Best pair black turkeys, G. E. Hannon	2 00
Second best, G. E. Hannon	1 50

Complimentary.

Best wild turkeys, G. E. Hannon.
 Second best, G. E. Hannon.
 Best common turkeys, G. E. Hannon.
 Second best, G. E. Hannon.

LOT 9—WATER FOWLS, ETC.

Best Bremen geese, John O'Brien	\$2 00
Best Aylesburg ducks, John O'Brien	2 00
Second best, John O'Brien	1 50
Best Rouen ducks, John O'Brien	2 00
Second best, John O'Brien	1 50
Best Black Cayuga ducks, John O'Brien	2 00
Second best, John O'Brien	1 50
Best white crested ducks, G. E. Harmon	2 00
Second best, G. E. Harmon	1 50
Best collection of pigeons, Will Thomas	2 00
Second best, Will Thomas	1 50

Complimentary.

Best white call ducks, Geo. E. Harmon.
 Best wild geese, J. O'Brien.
 Best Pekin ducks, G. E. Harmon.
 Second best, G. E. Harmon.
 Best white squirrel, E. W. Saunders.
 Best Himalayan rabbits, J. McKeen.
 Second best, J. McKeen.
 Best Aurora rabbits, J. McKeen.
 Second best, J. McKeen.

DIVISION D—FIELD, GARDEN AND HOUSEHOLD PRODUCTS.

CLASS 22—*Grain.*

Best navy beans, C. E. Angel	\$2 00
Second best, J. S. Cox	1 00
Best barley, Thos. Davis	2 00
Second best, D. T. Pilgrim	1 00
Best bushel beans any variety, Thos. Davis	2 00

Second best, W. F. & N. Pierce	\$1 00
Best bushel buckwheat, Maier Brothers	2 00
Second best, Thos. Davis	1 00
Best white dent corn, Geo. Scofield	2 00
Second best, Thos. Davis	1 00
Best yellow dent corn, A. Quick	2 00
Second best, Geo. Scofield	1 00
Best white flint corn, A. Quick	2 00
Second best, Jacob Meyer	1 00
Best yellow flint corn, C. G. Coon	2 00
Second best, J. C. Plumb & Son	1 00
Best bushel flint corn any variety, E. W. Saunders	2 00
Second best, Geo. Scofield	1 00
Best bushel white oats, D. T. Pilgrim	2 00
Second best, D. W. Ostrom	1 00
Best bushel black oats, D. T. Pilgrim	2 00
Best bushel field peas, Thos. Davis	2 00
Second best, D. T. Pilgrim	1 00
Best bushel rye, J. N. Hoaglin	2 00
Second best, D. T. Pilgrim	1 00
Best bushel clover seed, D. T. Pilgrim	2 00
Second best, Pierce Brothers	1 00
Best bushel timothy seed, C. F. Rogers	2 00
Second best, Thos. Davis	1 00
Best bushel club wheat, D. T. Pilgrim	2 00
Second best, F. Weyerhorst	1 00
Best bushel Fife wheat, F. Weyerhorst	2 00
Second best, J. N. Hoaglin	1 00
Best bushel any other variety wheat, D. T. Pilgrim ..	2 00
Second best, W. F. & N. Pierce	1 00
Best bushel white winter wheat, S. Wiseman	2 00
Second best, F. C. Rogers	1 00
Best bushel any other variety, Wm. Sill	2 00
Best collection of grain by one exhibitor, Thos. Davis ..	5 00
Second best, D. T. Pilgrim	3 00

Complimentary.

Best German wax dwarf beans, I. S. Cox.
 Best Black-eyed marrowfat beans, I. S. Cox.
 Best Champion of England peas, I. S. Cox.
 Best McLean's Little Gem peas, I. S. Cox.
 Best yellow oats, Geo. Scofield.

CLASS 23 — *Dairy.*

Best jar of September butter, Mrs. H. McClelland	\$8 00
Second best, Wm. Sill	6 00
Best jar of June butter, Mrs. A. Houghton	8 00
Second best, Mrs. H. McClelland	6 00
Third best, Mrs. H. McClelland	4 00
Best five factory cheese, C. Hazen	8 00
Second best, J. S. Roblee	4 00

CLASS 24 — *Household.*

Best two loaves graham bread, Mrs. H. McClelland	\$2 00
Second best, Mrs. S. A. Russell	1 50
Best two loaves white bread, hop yeast, Mrs. J. N. Hoaglin ..	2 00
Second best, Mrs. Geo. A. Badger	1 00
Best two loaves white bread, milk raising, Mrs. A. Newman ..	2 00
Second best, Mrs. H. McClelland	1 00

Best two loaves Indian bread, Miss Josie Peffer.....	\$2 00
Best sponge cake, Miss Lottie Glaze	1 00
Best pound cake, Mrs. C. H. Root.....	1 00
Best jelly cake, Mrs. G. A. Badger	1 00
Best gold or silver cake, Mrs. O. Angel.....	1 00
Best fruit cake, Mrs. C. H. Root.....	1 00
Best and largest exhibition of cake, Miss Mary Clark.....	3 00
Second best, M. Verity	2 00
Best exhibition baking powder, B. J. Musser & Co.....	3 00
Best exhibition flavoring extracts, B. J. Musser & Co	2 00

Complimentary.

Best perfumery, B. J. Musser & Co.
Best odor cases, B. J. Musser & Co.
Best cut glass ware, B. J. Musser & Co.
Best ornamental bottle, B. J. Musser & Co.
Best baking powder biscuit, B. J. Musser & Co.
Best crackers, B. J. Musser & Co.
Best doughnuts, B. J. Musser & Co.

CLASS 24 — *Bees and Honey.*

Best and largest product of extracted honey from one swarm, and increase in one year, with method of producing, to be sworn to in writing, A. H. Hart.....	\$4 00
Second best, W. H. Tennant.....	2 00
Best and largest product of comb honey from one swarm, and increase in one year, to be sworn to in writing, W. H. Tennant.....	3 00
Second best, W. H. Tennant.....	2 00
Best swarm of bees, W. H. Tennant.....	4 00
Second best, A. H. Hart	2 00
Best practical hive for profit, A. H. Hart.....	2 00
Second best, W. H. Tennant.....	1 00
Best sample of box honey, W. L. Stroud.....	3 00
Second best, G. H. Pierce.....	2 00
Best extracted honey, G. H. Pierce.....	3 00
Second best, A. H. Hart.....	2 00
Best honey extractor, M. Verity	2 00
Best bees' wax, M. Verity	2 00
Second best, G. H. Pierce.....	1 00

CLASS 25 — *Vegetables.*

Best two quarts Lima beans, J. Lewis.....	\$2 00
Second best, Mrs. C. H. Root	1 00
Best blood turnip beets, J. Lewis.....	2 00
Second best, Brainerd Bros.....	1 00
Best long blood beets, J. Lewis.....	2 00
Second best, Myers Bros.....	1 00
Best mangel wurzel, red, Jacob Myer	2 00
Second best, J. Lewis.....	1 00
Best mangel wurzel, yellow, W. F. & N. Pierce.....	2 00
Second best, Jacob Myer.....	1 00
Best mangel wurzel, Imperial, Jacob Myer.....	2 00
Second best, J. Lewis	1 00
Best orange globe beets, Myers Bros.....	2 00
Second best, C. G. Cone	1 00
Best cabbage, drumhead, N. Dougherty.....	2 00
Second best, J. Lewis.....	1 00
Best cabbage, Winningstadt, N. Dougherty.....	2 00
Second best, W. F. & N. Pierce.....	1 00

Best shorthorn carrots, J. Lewis.....	\$2 00
Second best, Brainerd Bros.....	1 00
Best long orange carrots, John Nelson.....	2 00
Second best, J. Lewis.....	1 00
Best cauliflower, J. N. Hoaglin.....	2 00
Second best, Mrs. C. H. Root.....	1 00
Best dwarf celery, N. Dougherty.....	2 00
Second best, John Nelson.....	1 00
Best evergreen sweet corn, I. S. Cox.....	2 00
Second best, J. Lewis.....	1 00
Best egg plant, John Nelson.....	2 00
Second best, N. Dougherty.....	1 00
Best citron melon, Brainerd Bros.....	2 00
Second best, N. Dougherty.....	1 00
Best muskmelon, W. F. & N. Pierce.....	2 00
Second best, Brainerd Bros.....	1 00
Best watermelon, E. J. Ross.....	2 00
Second best, J. K. Tyrrell.....	1 00
Best red onions, E. W. Saunders.....	2 00
Second best, J. Lewis.....	1 00
Best white onions, J. Lewis.....	2 00
Second best, Brainerd Bros.....	1 00
Best yellow Danvers onions, J. N. Hoaglin.....	2 00
Second best, John Nelson.....	1 00
Best onions any other variety, J. Lewis.....	2 00
Second best, W. F. & N. Pierce.....	1 00
Best parsnips, J. Lewis.....	2 00
Second best, J. N. Hoaglin.....	1 00
Best show large red peppers, Mrs. C. H. Root.....	1 00
Best show seedling potatoes, C. G. Cone.....	2 00
Best early rose potatoes, N. Dougherty.....	2 00
Second best, J. N. Hoaglin.....	1 00
Best peachblow potatoes, E. J. Ross.....	2 00
Second best, J. N. Hoaglin.....	1 00
Best snowflake potatoes, C. G. Cone.....	2 00
Second best, N. A. Dexter.....	1 00
Best early Ohio, N. Dougherty.....	2 00
Second best, J. N. Hoaglin.....	1 00
Best new variety, W. F. & N. Pierce.....	2 00
Second best, N. Dougherty.....	1 00
Best salsify or vegetable oyster, Myers Bros.....	1 00
Second best, J. N. Hoaglin.....	50
Best Hubbard squash, N. Dougherty.....	2 00
Second best, W. F. & N. Pierce.....	1 00
Best fall squash, W. W. Wright.....	2 00
Second best, J. Lewis.....	1 00
Best largest squash any variety, Brainerd Bros.....	2 00
Second best, J. N. Hoaglin.....	1 00
Best one-half bushel tomatoes, J. Lewis.....	2 00
Second best, W. F. & N. Pierce.....	1 00
Best one-half bushel flat turnips, J. N. Hoaglin.....	2 00
Best one-half bushel rutabagas, W. F. & N. Pierce.....	2 00
Best show by one exhibitor not less than 15 varieties, J. Lewis.....	12 00
Second best, J. N. Hoaglin.....	6 00

DIVISION E—FRUITS AND FLOWERS.

CLASS 26—*Apples, Pears, etc.*

NURSERY TREES.

Best collection deciduous nursery grown, J. C. Plumb & Son.....	Diploma.
Best collection evergreens, J. C. Plumb & Son.....	Diploma.
Best collection hardy flowering shrubs, J. C. Plumb & Son.....	Diploma.
Best collection hardy ornamental hedge, J. C. Plumb & Son.....	Diploma.

APPLES.

Best greatest variety, George Kellogg	\$8 00
Second best, Dr. J. O. Zanne.....	4 00
Best ten varieties northwest, J. C. Plumb & Son	4 00
Second best, George Kellogg.....	2 00
Third best, D. Huntley.....	1 00
Best five varieties northwest, D. Huntley.....	4 00
Second best, George Kellogg.....	2 00
Best largest variety winter, George Kellogg.....	4 00
Second best, W. W. Wright.....	2 00
Best five varieties winter, D. Huntley.....	4 00
Second best, B. B. Olds.....	2 00
Best show ten varieties, B. F. Carter.....	4 00
Second best, James Barr.....	2 00
Best largest variety autumn, George Kellogg	4 00
Second best, W. W. Wright.....	2 00
Best five varieties autumn, J. N. Hoaglin.....	4 00
Second best, B. B. Olds.....	2 00
Best plate Red Astrachan, H. M. Jones.....	1 00
Best plate Duchess Oldenburg, H. M. Jones.....	1 00
Best plate St. Lawrence, D. Huntley	1 00
Best plate Fameuse, D. Huntley	1 00
Best plate Utters, J. C. Plumb & Son.....	1 00
Best plate Plumb Cider, J. C. Plumb & Son.....	1 00
Best plate Seek-no-Further, W. W. Wright.....	1 00
Best plate Willow Twig, J. C. Plumb & Son.....	1 00
Best plate Ben Davis, W. W. Wright	1 00
Best plate Tallman Sweets, E. Nye.....	1 00
Best plate Golden Russet, F. Weyerhorst	1 00
Best largest apple, E. S. Clapp.....	1 00
Best heaviest apple, E. S. Clapp	1 00

PEARS.

Best three varieties northwest, G. P. Peffer	\$3 00
Second best, Dr. J. O. Zanne.....	2 00
Third best, P. S. Peffer	1 00
Best single variety, E. M. Brainard.....	2 00
Second best, J. Brainard.....	1 00

Complimentary.

Best exhibition, G. P. Peffer.
Second best, F. R. Martin.

CRANBERRIES.

Best exhibition, Wm. Hume & Co	\$3 00
Second best, T. T. Smith	2 00

PLUMS.

Best exhibition, G. P. Peffer	\$3 00
Second best, W. L. Stroud	2 00
Third best, Geo. Reese	1 00

GRAPES.

Best show twelve varieties, J. Brainard	\$5 00
Second best, J. P. Roe	3 00
Third best, Geo. Kellogg	2 00
Best show six varieties, J. P. Roe	3 00
Second best, J. Brainard	2 00
Third best, G. Kellogg	1 00
Best five varieties northwest, J. Brainard	2 00
Second best, J. P. Roe	1 50
Third best, G. Kellogg	1 00
Best three varieties northwest, J. P. Roe	2 00
Second best, J. Brainard	2 00
Best two varieties northwest, J. Brainard	1 00
Second best, J. P. Roe	50
Best one variety northwest, G. Kellogg	2 00
Best three clusters Concord, J. Brainard	2 00
Second best, J. N. Hoaglin	1 00
Best three clusters Delaware, J. P. Roe	2 00
Second best, J. Brainard	1 00
Best three clusters Crevelling, J. N. Hoaglin	2 00
Second best, J. Brainard	1 00
Best three clusters Walter, J. P. Roe	2 00
Second best, Geo. Reese	1 00
Best three clusters Isabella, J. N. Hoaglin	2 00
Second best, J. Brainard	1 00
Best three clusters Diana, J. N. Hoaglin	2 00
Second best, G. Kellogg	1 00
Best three clusters Iona, J. P. Roe	2 00
Second best, J. Brainard	1 00
Best three clusters 3 and 4, J. Brainard	2 00
Best three clusters No. 10, J. Brainard	2 00
Best three clusters No. 15, J. Brainard	2 00
Second best, J. P. Roe	1 00
Best three clusters No. 19, J. Brainard	2 00
Best three clusters No. 32, J. Brainard	2 00
Best three clusters Rebecca, Geo. Reese	2 00
Best single variety, quality to rule, J. P. Roe	2 00
Second best, G. Kellogg	1 00

CLASS 27 — *Delicacies, Preserves, etc.*

Best collection preserved fruits, Mrs. C. H. Root	\$3 00
Second best, Mrs. H. M. Quick	2 00
Best sample preserved pears, Mrs. C. H. Root	1 00
Second best, A. Quick	50
Best sample preserved peaches, A. Quick	1 00
Second best, Mrs. C. H. Root	50
Best sample preserved plums, A. Quick	1 00
Second best, A. Quick	50

Best sample preserved cherries, Mrs. C. H. Root	\$1 00
Second best, Mrs. C. H. Root	50
Best sample preserved strawberries, A. Quick	1 00
Second best, J. K. Tyrrell	50
Best sample preserved raspberries, A. Quick	1 00
Second best, M. Verity	50
Best sample preserved blackberries, Mrs. C. H. Root	1 00
Second best, A. Quick	50
Best sample preserved currants, A. Quick	1 00
Best sample preserved gooseberries, A. Quick	1 00
Second best, Mrs. C. H. Root	50
Best sample preserved grapes, Mrs. C. H. Root	1 00
Best sample preserved crab apples, A. Quick	1 00
Second best, Mrs. C. H. Root	50
Best sample preserved tomatoes, Mrs. E. W. Sanders	1 00
Second best, M. Verity	50
Best collection of jellies, Mrs. C. H. Root	1 00
Second best, C. G. Cone	50
Best specimen currant jelly, M. Verity	1 00
Second best, Mrs. C. H. Root	50
Best specimen apple jelly, Mrs. C. H. Root	1 00
Second best, L. M. Taylor	50
Best specimen crab apple jelly, Mrs. G. A. Badger	1 00
Second best, J. K. Tyrrell	50
Best specimen grape jelly, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. G. A. Badger	50
Best specimen raspberry jelly, Mrs. C. H. Root	1 00
Second best, Mrs. L. M. Taylor	50
Best sample blackberry jelly, Mrs. L. M. Taylor	1 00
Second best, Mrs. C. H. Root	50
Best sample apple butter, Mrs. C. H. Root	1 00

CANNED FRUITS.

Best collection canned fruits, Mrs. C. H. Root	\$3 00
Second best, M. Verity	2 00
Best sample canned apples, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. J. Brainard	50
Best sample canned pears, Mrs. J. Brainard	1 00
Second best, Mrs. J. N. Hoaglin	50
Best sample canned pared peaches, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. G. A. Badger	50
Best sample canned whole peaches, Mrs. G. A. Badger	1 00
Second best, Mrs. J. N. Hoaglin	50
Best sample canned plums, Mrs. J. Brainard	1 00
Second best, Mrs. G. A. Badger	50
Best sample canned cherries, Mrs. J. Brainard	1 00
Second best, Mrs. E. W. Sanders	50
Best sample canned crabapples, Mrs. E. W. Sanders	1 00
Second best, Mrs. J. N. Hoaglin	50
Best sample canned strawberries, Mrs. J. Brainard	1 00
Second best, Mrs. C. H. Root	50
Best sample canned raspberries, Mrs. C. H. Root	1 00
Second best, Mrs. J. Brainard	50
Best sample canned blackberries, Mrs. J. N. Hoaglin	1 00
Second best, Mrs. G. A. Badger	50
Best sample canned gooseberries, Mrs. C. H. Root	1 00
Second best, Mrs. G. A. Badger	50
Best sample canned currants, Mrs. J. Brainard	1 00
Second best, Mrs. J. N. Hoaglin	50
Best sample canned grapes, Mrs. J. Brainard	1 00
Second best, Mrs. G. A. Badger	50

EXHIBITION — PREMIUMS AWARDED.

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Best sample canned tomatoes, Mrs. C. H. Root.....	\$1 00
Second best, Mrs. J. N. Hoaglin.....	50
Best sample canned corn, Mrs. C. H. Root.....	1 00

PICKLES.

Best greatest variety, Mrs. C. H. Root.....	\$2 00
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CLASS 28 — *Plants.*

VICK'S SPECIAL PREMIUM.

Best collection cut flowers, Mary E. Prock	\$20 00
Second best, Mrs. R. B. Ferris.....	10 00
Third best, Geo. Reese.....	5 00
Best ornamental floral work, Kate Peffer.....	5 00

PLANTS.

Best display green house plants, Isaac Miles	\$5 00
Second best, John Nelson	3 00
Best oleander in bloom, Conrad Ernst	1 00
Second best, I. Miles.....	50
Best display pelargoniums in bloom, I. Miles.....	1 50
Best display zonale geraniums, John Nelson	1 00
Second best, I. Miles.....	50
Best display fragrant geraniums, I. Miles.....	1 00
Second best, John Nelson	50
Best display double geraniums, I. Miles.....	1 00
Second best, K. M. Hutchinson	50
Best single specimen geranium, Mrs. T. Thompson	1 00
Second best, John Nelson	50
Best variety fuchsias in bloom, I. Miles	2 00
Second best, John Nelson	1 00
Best single single specimen fuchsias, K. M. Hutchinson.....	1 00
Second best, John Nelson	50
Best display roses, I. Miles	2 00
Second best, Geo. Reese	1 00
Best single specimen roses, I. Miles	1 00
Second best, Geo. Reese.....	50
Best display double petunias, Mrs. L. Thompson	1 00
Best hanging baskets with growing plants, K. M. Hutchinson	1 00
Second best, John Nelson	50
Best display cacti in variety, I. Miles	2 00
Best single specimen, I. Miles	75
Second best, Mrs. F. Thrall.....	35
Best single assortment of ornamental foliage plants, John Nelson	2 00
Second best, Isaac Miles.....	1 00
Best single specimen ornamental foliage plants, John Nelson	1 00
Second best, I. Miles.....	50
Best display begonia in variety, I. Miles.....	2 00
Second best, John Nelson	1 00
Third best, Mrs. F. Weyerhurst.....	50
Best single specimen, I. Miles	50
Second best, Mrs. O. Angel.....	25
Best specimen English ivy, on trellis, Mrs. O. Angel.....	1 00
Best display of tuberose, I. Miles	1 00
Second best, George Reese.....	50
Best poinsettia, I. Miles	1 00
Best display of caladiums, K. M. Hutchinson.....	2 00
Second best, I. Miles	1 00
Best smilax on trellis, K. M. Hutchinson.....	1 00

Second best, J. Nelson.....	\$ 50
Best fernery, I. Miles.....	2 00
Second best, J. Nelson.....	1 00
Best single specimen, house plant any variety, K. M. Hutchinson....	2 00
Second best, Charles Rauer.....	1 00
Third best, Conrad Ernst.....	50

CUT FLOWERS.

Best largest collection and best arranged, Kate Peffer.....	\$2 00
Second best, I. Miles.....	1 00
Best most artistically arranged floral design, Kate Peffer.....	2 00
Best pair round bouquets, K. M. Hutchinson.....	1 00
Second best, I. Miles.....	50
Best pair flat bouquets, Kate Peffer.....	1 00
Second best, Mrs. G. W. Washburn.....	50
Best pyramid bouquet, I. Miles.....	1 00
Second best, Kate Peffer.....	50
Best most tastefully arranged basket, Mrs. J. B. Goe.....	1 00
Second best, Mrs. G. Washburn.....	50
Best show dahlias, J. C. Plumb & Son.....	1 00
Second best, Kate Peffer.....	50
Best show pansies, John Nelson.....	2 00
Second best, Mrs. P. Grimmer.....	1 00
Best largest show gladiolas, J. C. Plumb & Son.....	1 00
Second best, Geo. Reese.....	50
Best largest show verbenas, John Nelson.....	2 00
Second best, I. Miles.....	1 00
Third best, Kate Peffer.....	50
Best show zennias, McKenzie.....	1 00

COMPETITION CONFINED TO AMATEURS.

Best show asters in quality and variety, Mrs. F. Thrall.....	\$1 00
Second best show of gladiolas, Geo. Reese.....	50

AWARD BY COMMITTEE.

Best German ivy, Mrs. O. Angel.
Best heliotrope, Mrs. L. Thompson.
Best Welch holly, Mrs. H. M. Jones.

DIVISION F.

CLASS 29 — *Domestic Manufactures, etc.*

Best flannel, factory made, Hutchinson & Co.....	\$2 00
Second best, O. I. Brown.....	1 00
Best flannel, home made, F. R. Martin.....	2 00
Best rag carpet, Mrs. E. Giddings.....	2 00
Second best, Mrs. W. D. Stroud.....	1 00
Best woolen blanket, factory made, O. I. Brown.....	2 00
Best woolen blanket, home made, Mrs. A. J. Locke.....	2 00
Second best, A. Quick.....	1 00
Best white quilt, Mrs. Wakeman.....	1 00
Second best, Olive M. Patton.....	50
Best cotton patch-work quilt, Mrs. F. Grimmer.....	1 00
Second best, C. Whitcer.....	50
Best log cabin quilt, W. Cheney.....	1 00
Second best, Mrs. O. Angell.....	50

Best quilt, any material not mentioned, Olive M. Patten.....	\$1 00
Second best, Alice M. Collins.....	50
Best woolen yarn, factory, Hutchinson & Co	1 00
Best woolen yarn, home, Mrs. Wm. Vance	1 00
Second best, Mrs. Wm. Vance	50
Best men's woolen socks, Mrs. L. Spore	1 00
Second best, Mrs. H. W. Wolcott.....	50
Best women's woolen stockings, Rev. Mrs. Crosby.....	1 00
Second best, Mrs. L. Spore.....	50
Best woolen mittens, Mrs. L. Spore.....	1 00
Second best, Mrs. Wm. Vance.....	50
Best worsted crotchet tidy, Katie Maxwell.....	1 00
Second best, J. M. Simpson.....	50
Best netted cotton tidy, Mrs. L. B. Reed.....	1 00
Second best, Mrs. L. B. Reed.....	50
Best rug, Theo. Grabe.....	1 00
Second best, Mrs. W. Bishop.....	50
Best affghan, Rev. Mrs. Crosby.....	1 00
Second best, Mrs. J. M. Bray.....	50
Best wool scarf, Alice J. Wright.....	1 00
Second best, Alice J. Wright.....	50
Best knit bed spread, Mrs. M. K. Stowe.....	1 00
Second best, Mrs. C. Gustavus.....	50
Best tatted tidy, L. M. Taylor.....	1 00
Best crotchet cotton tidy, W. L. Montgomery.....	1 00
Second best, Alice M. Collins.....	50
Best knit breakfast shawl, Mrs. J. J. Dillon.....	1 00
Second best, Mrs. C. H. Root.....	50
Best knit hood, Rev. Mrs. Crosby.....	1 00
Second best, Mrs. H. B. Hardy.....	50
Best worsted embroidered Bible cushion, Mrs. F. Edwards.....	1 00
Second best, Alice M. Collins.....	50
Best worsted embroidered sofa pillow, M. L. Camburn.....	1 00
Second best, Mrs. Belz.....	50
Best worsted embroidery ottoman, Sarah Cheney.....	1 00
Second best, Olive M. Patten	50
Best Java canvas embroidery, A. Leach.....	1 00
Second best, Mrs. G. A. Badger.....	50
Best transferred embroidery, Mrs. M. K. Stowe.....	1 00
Second best, Mrs. Ed. Hayden.....	50
Best silk embroidery, Mrs. J. B. Goe	1 00
Second best, Mrs. C. A. Weisbrod.....	50
Best specimen spatter work, F. S. Hart.....	1 00
Second best, Mrs. P. F. Thrall.....	50
Best hair pin cushion, Olive M. Patten	1 00
Second best, Lottie Glaze	50
Best floss embroidery, Mrs. G. H. Stowe.....	1 00
Second best, L. M. Taylor	50
Best worsted canvas work, Emma Cheney.....	1 00
Second best, Mrs. J. M. Simpson.....	50
Best chenille embroidery, L. M. Taylor	1 00
Second best, Emma Goodland	50
Best worsted fruit, Lizzie Montgomery.....	1 00
Best worsted wreath, Mena Tesch.....	1 00
Second best, Alice M. Collins	50
Best fancy knitting handwork, Mrs. Barber.....	1 00
Second best, Olive M. Patten.....	50
Best wax fruit, Clara Weisbrod	1 00
Second best, Mrs. J. E. Simpson	50
Best wax flowers, Mrs. J. E. Simpson	1 00
Second best, Clara Weisbrod.....	50
Best work in wax other than above, E. F. Dimpsey	1 00
Second best, Mrs. M. Clark	50

Best work in hair, Mrs. M. Campbell.....	\$1 00
Second best, Minnie Prautsch	50
Best moss work, Mrs. M. K. Stowe	1 00
Best shell work, Theo. Grabe.....	1 00
Second best, Theo. Grabe.....	50
Best bead work, Rev. Mrs. Crosby	1 00
Second best, Mrs. A. Rae.....	50
Best lace work, Mrs. G. H. Stowe.....	1 00
Second best, Mrs. C. A. Weisbrod.....	50
Best display millinery, Mrs. M. E. Davis	Dip.
Best lamp mat, Mrs. A. Rae.....	1 00
Second best, Addie Cronk	50
Best set embroidered under garments, Mrs. J. B. Goe.....	2 00
Second best, Mrs. H. Blythe	1 00
Best set plain under garments, Olive M. Patten.....	2 00
Second best, Mrs. L. M. Taylor.....	1 00
Best fine shirt, J. S. Peffer.....	2 00
Second best, L. M. Byers.....	1 00
Best fancy door mat, Mrs. M. Kennedy.....	1 00
Second best, Mrs. Camburn.....	50
Best fancy basket in wood or cone, F. E. Burtis.....	1 00
Best hanging basket, beadwork, Mrs. J. M. Simpson	1 00
Second best, Katie Maxwell	50
Best paper receiver, wood or paper, Ralph M. Burtis.....	1 00
Second best, Ralph M. Burtis.....	50
Best ornamental bracket, in wood, R. M. Burtis.....	1 00
Second best, R. M. Burtis	50
Best specimen braid work, Mrs. T. Grimmer.....	1 00
Second best, Mary Conklin	50
Best child's embroidered dress, Mrs. Cherwood.....	1 00
Second best, Mrs. T. Grimmer	50
Best collection silk embroidery, Mrs. A. Rae	2 00

AWARDED BY COMMITTEE.

Best woolen gloves, Mrs. Wm. Vance.	
Best feather work, Mrs. A. Rae.	
Best worsted work, Hattie Cronk.	
Second best, Hattie Cronk.	
Best air castle, H. M. Quick	Dip.
Best embroidery on hair cloth, Mrs. Wakeman	50
Best display Zephyrs, A. Leach.....	Dip.
Best display woolen yarns, Hutchinson & Co	Dip.
Best assortment machine knit goods, Jas. M. Gates.	Dip.
Best sheet sham, Mrs. A. Neaman.	
Best silk embroidered lambrequin, Hattie Thomas.	
Best woolen gloves, Mrs. J. Wilson.	
Best handkerchief box, Lottie Glaze.	
Best lambrequin, Mrs. Hodges.	
Best pillow shams, Kate Peffer.	

CLASS 30—*Natural History.*

Best collection in natural history, Merwin Asire	\$4 00
Best collection in ornithology, Merwin Asire.....	3 00
Best collection in conchology, M. Asire	2 00
Best collection in mineralogy, M. Asire	2 00
Best collection in entomology, M. Asire.....	3 00
Best collection illustrating botany, Wisconsin Normal School.....	2 00
Second best, Allie Collins.....	1 00
Best collection woods of Wisconsin, Normal School.....	2 00

CLASS 31 — *Works of Art.*

Best largest collection original oil paintings, F. Waldo	\$10 00
Second best, J. H. Wyckoff.....	5 00
Best original oil painting Wisconsin landscape, J. H. Wyckoff, Dip. and	3 00
Second best, F. Waldo.....	2 00
Best original oil painting, F. Waldo.....Dip. and	3 00
Second best, Mrs. G. H. Stowe.....	2 00
Best original painting water color, Fern Pratt.....	2 00
Second best, Mrs. H. B. Hardy.....	1 00
Best portrait in oil, J. H. Wyckoff..... Dip. and	3 00
Second best, M. Weyerhurst.....	2 00
Best pastel portrait, F. Weyerhurst.....	2 00
Best India ink portrait, C. Shadburn..... Dip. and	2 00
Second best, Cook Ely.....	1 00
Best portrait in water colors, J. H. Wyckoff.....Dip. and	2 00
Second best, Miss Fern Pratt.....	1 00
Best solar photograph, Cook Ely.....Dip. and	2 00
Best exhibition sun pictures, Cook Ely.....Dip. and	3 00
Second best, C. Shadburn.....	2 00
Best collection coins or medals, W. T. Griffith.....Dip. and	3 00
Second best, C. R. Newell.....	2 00
Best collection of stamps, A. B. Hooper.....	2 00
Second best, J. Nevitt.....	1 00
Best pen and ink drawing, W. W. Daggett.....	2 00
Second best, Fred Daggett.....	1 00
Best specimen penmanship, W. W. Daggett.....Dip. and	2 00
Second best, Fred Daggett.....	1 00
Best pencil drawing, W. G. Brauer.....Dip. and	2 00
Best collection pencil drawings, Lillie G. Kimball.....	4 00
Second best, Wm. Cullen.....	2 00
Best collection pencil drawings, under 16 years, M. Weyerhurst.....	4 00
Best map drawing by boy or girl under 16 years of age, Harry A. Clum.....Dip. and	2 00
Second best, Geo. E. Paine.....	1 00
Best specimen stencil cutting, W. C. Wheeler.....Dip. and	2 00
Best sculpture, J. J. Moore.....Dip. and	2 00
Best specimen bird painting, Mrs. G. H. Stowe.....Dip. and	1 00
Best exhibition printing in variety, Allen & Hicks.....Dip. and	2 00
Second best, Dalton Bros.....	1 00
Best exhibition book binding, Allen & Hicks.....Dip. and	2 00

FOR BOYS AND GIRLS UNDER 15 YEARS.

Best worsted motto on perforated card board, Minnie Martin.....	\$1 00
Best silk motto on perforated card board, Georgie Loot.....	2 00
Best worsted design on perforated card board, Mattie Campbell.....	2 00
Second best, Luella Thomas.....	1 00
Best silk design on perforated card board, Annie Barnum.....	2 00
Best map drawing United States, Harry Clum.....Dip. and	3 00

BRACKET SAW WORK.

Best side bracket, Ralph Burtis.....	50
Best card receiver, A. G. Burtis.....	50
Best cabinet picture frame, Ralph Burtis.....	50
Best card photo frame, A. G. Burtis.....	50
Best easel, A. G. Burtis.....	50
Best glove box, Ralph Burtis.....	50
Best doll's eradle, Ralph Burtis.....	50
Best doll's carriage, A. G. Burtis.....	50
Best clock shelf, Ralph Burtis.....	50
Best corner bracket, Ralph Burtis.....	50

Best book rack, A. G. Burtis	50
Best work box, F. E. Burtis	50
Best clock case, F. E. Burtis	50
Best towel rack, Ralph Burtis	50
Best exhibition bracket, Ralph Burtis	3 00

AWARDS BY COMMITTEE.

Original oil painting, C. L. Webber	Dip.
Map drawing of Wisconsin, W. C. Lawrence	Dip.
Map drawing of Wisconsin, Carrie Wakeman	Dip.
Sign, Dalton Brothers	Dip.
Universal saw set, W. C. Wheeler	Dip.
Oil photograph, Mrs. G. H. Stowe	Dip.
Water color photograph, Cook Ely	Dip.
Crayon, Cook Ely	Dip.
Tinted photo, Cook Ely	Dip.
Stuffed animals, Mrs. G. A. Badger	Dip.
White holly cross, A. G. Burtis	Dip.
White holly wheelbarrow, A. G. Burtis	Dip.

CLASS 32 — *Textile Fabrics, etc.*

Best piece cassimere, O. S. Brown	\$2 00
Best piece blanketing, O. S. Brown	2 00

DIVISION G.

CLASS 33 — *Manufactures from Iron, Stone, etc.*

Best specimen of brick, Cook, Brown & Co.	\$2 00
Best collection drain pipe, Cook, Brown & Co.	2 00
Best galvanized iron fence, A. D. Parker	Dip. and 2 00
Best cook stove with furniture, K. M. Hutchinson	Dip. and 2 00
Best parlor stove, K. M. Hutchinson	Dip. and 2 00
Best office stove, K. M. Hutchinson	2 00
Best display monuments and headstones, J. J. Moore	5 00
Second best, Chim Abrams	3 00

AWARDS BY COMMITTEE.

Stucco work, Williamson & Jones	Dip.
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CLASS 34 — *Leather and Leather Manufactures.*

Best double carriage harness, F. J. Jackson	Dip. and \$2 00
Best single or buggy harness, F. J. Jackson	Dip. and 2 00
Best farm wagon double harness, F. J. Jackson	2 00
Best gent's riding saddle, F. J. Jackson	1 00
Best horse collar, F. J. Jackson	1 00
Best hames, F. J. Jackson	1 00
Best fancy buffalo robes, F. J. Jackson	2 00
Best fancy blanket, F. J. Jackson	1 00
Best display of rubber stamps, W. C. Wheeler	2 00

CLASS 35 — *Manufactures of Wood.*

Best display carriages and sleighs, Rudd & Holden	\$6 00
Second best, Wm. Servis	4 00
Best three-seat carriage, platform spring, Thompson & Hayward....	Dip.
Best two-seat top buggy, Rudd & Holden	2 00
Second best, Athearn & Herron	1 00
Best single seat top buggy, Wm. Servis	2 00
Second best, Athearn & Herron	1 00
Best single seat phaeton, Thompson & Hayward	2 00
Second best, Rudd & Holden	1 00
Best single seat open buggy, Wm. Servis	2 00
Second best, Wolf & Potter	1 00
Best two-seat sleigh, Rudd & Holden	2 00
Second best, Wm. Servis	1 00
Best lumber sled, McDonald Manufacturing Co.	2 00
Second best, Jas. Gillingham & Son	1 00
Best single seat sleigh, Wm. Servis	2 00
Second best, Rudd & Holden	1 00
Best lumber wagon, G. C. Griffith	2 00
Second best, Streech Bros	1 00
Best set chamber furniture, Wm. Spikes & Co.	Dip. & 1
Best spring bed, B. H. Soper	Dip. & 1
Best handsomest bureau, B. H. Soper	Dip. & 1
Best sofa, lounge or couch, Wm. Spikes & Co.	Dip. & 1
Best set parlor chairs, B. H. Soper	Dip. & 1
Best display parlor or drawing-room furniture, Wm. Spikes & Co.	Dip. & 1
Best easy chair, Ed. Hayden	Dip. & 1
Best book case, Wm. Spikes & Co.	Dip. and 1 00
Best extension table, B. H. Soper	Dip. and 1 00
Best marble top table, Wm. Spikes & Co.	1 00
Best marble top stand, Wm. Spikes & Co.	1 00
Best mantle mirror, B. H. Soper	1 00
Best display fanning mills, Johan Myers	Dip. and 1 00
Best display oxyokes and bows, Harmon Jones	Dip. and 1 00
Best display picture frames, Wm. Spikes & Co.	Dip. and 1 00
Best display ornamental painting, H. M. Harmon	Dip. and 1 00

COMPLIMENTARY AWARDS.

Wagon and carriage hubs, Webster & Lawson.
 Whiffletrees, Webster & Lawson.
 One track sulky, Wm. Servis.
 Carriage umbrella, Wm. Servis.
 Center table, Raymond Bros.
 Tressel steel spring bed, W. D. McLane.
 Imitation of wood inlaid on glass, J. Willock, Dip. and \$1.

CLASS 36 — *Machinery, etc.*

Plow for turning sod land, Appleton Manufg Co. Hon. mention.
 Plow for turning sod land, M. K. Dahl. Hon. mention.
 Plow for turning under stubble, W. D. Stroud. Hon. mention.
 Plow for general work, South Bend Chilled Plow Co. Hon. mention.
 Harrow, general use, Fond du Lac Harrow Co. Hon. mention.
 One horse cultivator, Appleton Manufg. Co. Hon. mention.
 Seed sower, roller and cultivator combination, Appleton Manufg. Co. Hon. mention.
 Seed sower and cultivator combination, G. A. Williams. Honorable mention.
 Seed sower and cultivator combination, Estley & Son .. Honorable mention.
 Two horse seed drill for grain, Wheel Seeder Co. Honorable mention.
 Two horse seed drill for grain, Harris Manf. Co. Honorable mention.

Two horse seed drill for grain, Geo. E. Scott.....	Honorable mention.
Combined mower and reaper with or without self-raking attachment, Harris Manf. Co	Honorable mention.
Mowing machine, Geo. E. Scott.....	Honorable mention.
Horse rake, J. H. Thomas & Son	Honorable mention.
Contrivance for husking corn, C. A. D. Huson.....	Honorable mention.
Threshing machine, G. W. Hines	Honorable mention.
Wind mill, Aulhouse, Wheeler & Co	Honorable mention.
Farm gate, O. W. Kellogg	Honorable mention.
Carriage gate, O. W. Kellogg.....	Honorable mention.
Washing machine, Sperry & Bailey.....	Honorable mention.
Wind mill with pump, S. Hazen & Son.....	Honorable mention.
Wind mill with pump, Aulhouse, Wheeler & Co	Honorable mention.
Display wooden pumps, W. Clough... ..	Honorable mention.
Sulky plow, W. D. Stroud.....	Honorable mention.
Middlings purifier, Geo. T. Smith	Honorable mention.

DIVISION G.

CLASS 37 — *Miscellaneous.*

Dariung attachment, R. J. Wilse & Co	Dip.
Dressing top, Goddard & Burrows	Dip.
Soap made by J. R. Loper, J. R. Loper.....	2 00
Sample bone fertilizer, J. R. Loper.....	2 00
Sample neatsfoot oil, J. R. Loper.	2 00
Fisher's grand cabinet organ, G. R. Lampard.....	Dip.
Burdett cabinet organ, G. R. Lampard.....	Dip.
Case books, B. E. Haatwedt.....	Dip.
Sewing machines, Mayer & Nelson	Dip.
Lard oil, J. R. Loper.	
Tanners' oil, J. R. Loper.	

EXHIBITS AT THE NORTHERN FAIR.

Held at Oshkosh, 1878.

FINE ART DEPARTMENT.

The true theory or objects of an exhibition of any kind, is not always understood or appreciated by the exhibitors. There is an ideal as well as a practical view to be considered, and the former is very apt to be lost sight of, or considered of minor importance; the premiums offered being the sole motive for bringing articles forward for exhibition. This remark, of course, does not apply to those having goods for sale, and who employ the exhibition as a medium for advertising their wares, and who are generally satisfied with a diploma or favorable mention by the judges; but does apply to that larger class who consult the annual premium list very closely before deciding what they will bring to the fair. No one should hide his light under a bushel; nor if he has a good thing should he ask to be hired to allow others to enjoy it. Practical knowledge comes largely by observation and comparison. Old methods are abandoned when one discovers an easier and better way of accomplishing the same result. The desire to excel, in an honorable way, is an honorable ambition. If one man builds a fine house, and lays out his grounds with taste, cultivates flowers and makes his premises attractive and pleasant, although primarily it was for his own enjoyment, yet it is honorable in his neighbors, being stimulated by his example, to excel him if possible in the same direction. Society does not retrograde. The people are better fed, better clothed and housed than at any previous period in our history, and this all comes by appropriating to our own use what others have found out, as well as by our own discoveries, thus showing advancement, and proving that all men are indirectly, if not directly, educators of others.

But we commenced to say something concerning the Fine Art Department, and it is quite time we entered upon the subject.

This is especially the ladies' department, as it is made up in a large degree with their own handiwork. It seems to be conceded that the feminine mind has a higher appreciation of the decorative art than the masculine. The man builds the house and buys the furniture — here his mission ends. The arrangement of the same so that each chair or sofa shall invite repose, covering the bare walls with pictures, and arranging with judicious taste all the minor articles, so that the picture as a whole may be beautiful and attractive, is the province of woman.

To encourage and foster a correct taste in decorative art, this department is especially adapted.

Exhibitors can see what others have done in the same line, and, if superior to their own work, they are naturally stimulated to excel another year. Thus this department grows better and more attractive each succeeding exhibition.

In the centre, fronting the main entrance, was the exceedingly fine exhibit of WM. SPIKES & Co., dealers in furniture on Kenyon street, under the Seymour House. The goods displayed by them cannot very well be excelled, particularly in the upholstering of parlor and chamber sets, all done by their own workmen. There must be an artist about this establishment who possesses a keen eye for harmony in color, and a just appreciation of design and arrangement, who superintended this splendid lay-out for public inspection. The leading idea seemed to have been, and it was a correct one, to make indispensable household furniture beautiful as well as useful. A lady inspecting these goods remarked in our hearing, that a fine house, beautifully and comfortably furnished, might not *necessarily* make a home happy, but, in her judgment, it went a great ways towards it.

In the left hand corner of the space reserved for exhibitors, were two large showcases filled with goods from J. F. W. DECKER'S establishment, No. — Main street. The first contained the most beautiful specimens of glassware imaginable. The articles were all useful as table furniture, but were as light and thin as soap bubbles, and when held to the light reflected all their peculiar chatoyant colors. We were assured they were not more liable to break than ordinary ware. This glassware is manufactured from the English patent of Mr. Thos. W. Webb, and is produced in the following manner: "Chloride of tin, or tin salt, is burnt

in a furnace, and the glass having an affinity for it when hot, receives the fumes, and so at once an iridescent surface is produced." The other case contained silverware; many specimens very unique, but all so beautiful in design and finish as to gratify the most cultivated taste.

Next came the exhibit of woolen yarns and flannels by J. W. HUTCHINSON & Co., of Appleton, Wis. The goods were manufactured by them and were all of fine quality, and fully equal to eastern manufactures. They deserve, and doubtless receive, large patronage from western merchants.

We have now reached the splendid exhibit of B. J. MUSSEY & Co. This firm never does things by halves. They are up to a full standard of excellence any time. Their display this year eclipsed any previous effort. Cases of their justly popular *Coin Baking Powder* formed the base of the pyramid, upon which was erected, tier upon tier, their showcases of elaborate finish, containing the various lines of goods manufactured by them, the most noticeable of which were some bottles of their *Coin Flavoring Extracts*, in every imaginable variety. Not satisfied with this, a fountain of perfumery was kept running, and the cards of the firm, saturated with it, were distributed to the passing crowd. Two long and broad blue ribbons conspicuously displayed, one given them by the Michigan State Fair, at Detroit, and the other by the Minnesota State Fair, held at St. Paul, show conclusively that their goods have an extensive sale, being appreciated abroad as well as at home.

Next to this was the parlor and chamber exhibit of B. H. SOPER, No. — Main street. We do not retract anything we have said concerning the display of Wm. Spikes & Co. in the same line, but do desire to duplicate the same as applicable to these goods. They were all taken from his stock, and were not expressly prepared for exhibition.

It is a difficult task to determine which collection possesses supreme merit, and we imagine such to have been the conclusion of the judges, since first premiums were about equally divided between them.

Near by was a case of ladies' hats and other millinery goods, contributed by Mrs. M. E. DAVIS & Co., No. — Main street. We at once confess our inability to describe them in suitable language, our education in this branch of polite "learning" having been

sadly neglected. But such exclamations from the ladies as "Oh! how beautiful!" "Charming!" "Exquisite!" "Ain't that lovely!" etc., told the story very plainly, and by competent critics, too, that the goods were very attractive and beautiful. In the opposite corner Webber had a similar display. But to enumerate all the articles in this class deserving of "favorable mention" merely, would far exceed our limits; but to show how complete this department was, and how inadequate the present building is for the display in an attractive manner of the articles brought in for exhibition, we append a list of only a few, not previously mentioned, from the entry books and the number of entries of the same articles.

The old fashioned rag carpet had 6 entries. Bed quilts of all kinds, 39 entries. Imagine the disgust of 37 exhibitors because they did not receive 1st or 2d premiums, and at the same time fancy, if you can, the hard work of the conscientious judges in determining which were first and second best. Woolen socks had 27 entries; woolen mittens, 25 entries; rugs and mats, 16 entries; afghans, 5 entries; scarfs, 6 entries; embroideries and worsted work, 82 entries; fancy knitting, 12 entries; wax work, 16 entries.

The above is only a small item but it will serve as an index to the others, such as shell work, lace work, fancy baskets and ladies' ornamental work, of every kind, etc., altogether too numerous to mention; but which helped to make this department more full and complete than any previous exhibition.

W. W. DAGGETT, the Commercial College man, illustrated in many fine specimens of his art, that the pen is more graceful as well as mightier than the sword. CASWELL & HUGHES had a splendid case of furs, and JONES BROS. a fine display of ladies' cloakings.

H. D. FISHER, of Menasha, the indefatigable land hunter and collector of minerals, was on hand early, claiming the whole building, but was finally persuaded to content himself with only a small portion for his iron, copper and silver ores, collected in his wanderings through northern Wisconsin, Michigan, and the north shore of Lake Superior.

We first knew the Professor twenty-two years ago as a clerk in a hardware store at Oshkosh, but for some reason he was not considered a success. This fact seems also to have impressed itself upon his own mind, for he soon after *took to the woods*, and since

then for long periods has been lost to civilization; but somehow manages to turn up at home yearly about thanksgiving days.

THE ANNEX TO THE FINE ART DEPARTMENT.

In this division were fifty-two entries of paintings in oil, and thirty-nine of pencil drawings, beside a large display of photographs and other works of art, all of superior merit. We shall refer to these further on. MERWIN ASYRE, a student of the Normal School, had a large collection in several departments of natural history. His stuffed birds were very good for a beginner, but many years of patient study and practice, united with close observation of the feathered tribe in their wild or domesticated state, will be required before perfection can be attained in giving them life-like attitudes.

His entomological collection was particularly fine. The "bugs and things" looked alive and as though they would crawl or fly out of their cases in spite of the pins that kept them in position.

Prof. KELLERMAN of the Normal exhibited a splendid herbarium and a complete collection of woods indigenous to Wisconsin, both of which were very instructive and interesting.

Mr. JAMES WILLOCK exhibited three specimens of graining, on glass, that we venture to say cannot be excelled by any one east or west. The exact imitation of satin, rose, maple, walnut, mahogany and other rare woods were wonderful, and established his reputation as standing without a rival in this particular branch of his business.

Miss FERN PRATT had several specimens of her work in both pencil and brush, which were very creditable. We have watched this young lady's work very closely from her first effort and are glad to note great progress, and are satisfied that her untiring industry, if continued, will yet produce works of very superior merit.

COOK ELY, of this city, surpassed all his competitors in his display of photographs. In character scenes he stands without a rival; one of his compositions entitled "Winter" having been honored by being used as an illustration for an art journal published in Philadelphia. It represents a young girl closely enveloped in cloak and hood returning home with a bundle of faggots on her back. This artist, for such he is, understands perspective, and the proper

arrangement of surroundings, costumes, etc., perfectly, so that his pictures are sought for as works of art by those who would not care for or recognize the portrait itself. In his studies all seasons are represented, and such an amount of screens, landscapes, balconies, fields of ice on lake and river, etc., are accumulated as to impress the visitor with the idea that he had penetrated the property room of a theatre. The case of children's photographs, in which he seems to excel, represents the little ones in their best moods and positions.

The two largest exhibits of painting in oil were by Mrs. G. H. STOWE and FRANK WALDO, of this city. We might as well make the confession now, for the conviction is sure to come to the mind of the reader of this, that we have not sufficiently studied art criticism to enable us to use correct language in describing these admirable works of our Wisconsin artists. We confess to know of no better rule by which to judge of the merit of any picture than that it pleases us; and after all is not this the true test? Correct drawing, natural coloring and perspective, are essential to a perfect picture, yet all these may be combined in the scene before the observer and yet not prove what we may call, for want of a better term, *satisfactory*. Why? Because the artist has drawn too largely upon his imagination, in place of actual observation as to *position*.

We will illustrate: Suppose the scene is a lumberman's camp. The trees of the pine forest are drawn correctly; the shanty of logs covered with boughs, and the smoke lazily curling up through the tree tops, the ox team coming down the roadway with heavy loads of pine logs to the landing by the river side, and the choppers leveling these sentinels of the forest, are all clearly seen and recognized. To the majority of observers it is a perfect picture.

But it may be faulty in this: that the driver of the team is placed on the *off side*, and if a teamster were looking at the picture, he would be very apt to say that never since oxen did service for man were they driven in that way; while a chopper might inquire whether the man with the ax in the act of felling a tree was intended to be represented as about to commit suicide, since his head is placed by the artist in a direct line between the ax and the tree he is represented as cutting down.

This kind of homely criticism is further illustrated by the ob

ervation of a farmer, looking at a painting of pigs feeding, that "the hogs were all right, even to the twist of their tails and bristles on their backs, but faulty in this: that not one of them had a *foot in the trough*." Our idea is, not that the artist need be necessarily in the first instance an ox teamster or a wood chopper, but that he should be an accurate observer; that nothing should escape him, even to the minutest detail.

In the paintings before us no such faulty drawing was discernible. They were mostly landscapes, and, so far as we could discover, even *botanically* correct, as they should be. By this we mean that, as in the sketches of Mr. WALDO of the "Harbor at Island Park," "Miller's Point," "Morley's Bay," and the "Sunset Scene on Lake Butte-des-Mortes," scenes familiar to us all, the different species of forest trees could be at once recognized as being in place. We know them by the pictures as well as in the scene itself.

The large painting in the center of Mr. WALDO's exhibit represents mountain scenery in Colorado, and is the property of the First National Bank of this city. The others were smaller sketches of scenery about Lake Winnebago, some of which have already been enumerated. Mrs. STOWE had for the center of her collection a marine piece, entitled "*Abandoned*." It represented a large ship dismantled and abandoned at sea. The drawing was admirable, and the coloring perfect. There was a peculiar greenish tint of the waves of the sea, quite indescribable in words, but which gave them such a *hungry* look as to make us thankful that we stood on dry land. A very striking and thrilling effect was produced one afternoon on this picture by the sunlight shining upon one spot on the dark heavy clouds suspended over the scene below. It seemed as though the sun was behind the clouds and almost ready to illuminate the dark scene, indicating that the storm was over. There was such a striking contrast of light and shadow, and the illumination was so appropriate, that no one who saw it could believe it was not a part of the picture. It had a most impressive effect.

There were many other sketches surrounding this, all of superior merit, but which we have not space to enumerate. But the *sweetest* thing was the basin of honey in the comb. It was curious to note the crowd passing by pictures of greater pretensions with

only a glance, but stopping to admire this gem of the whole collection. It was so admirably drawn and colored that it is said to have deceived even the bees themselves.

There were but two portraits in oil that we remember. One was the likeness of Rev. W. G. MILLER, D. D., of Milwaukee. This is a well rounded, benevolent face, by no means of that type of evangelists whose great *forte* is to frighten men to repentance, nor yet of the slobbering, sentimental sort who weep and snivel over the sins of the world, but rather of that manly, open-hearted and generous kind, who in their daily walk exemplify their faith, and who would take the erring and fallen by the hand and by kindly precepts lead them to better ways.

The other was that of a Polish girl, from the collection of F. WEIRHORST, Esq. It is a perfect art gem. If you were looking at the small pastel portrait from the same collection, you would very naturally remark: "What queer old fashioned costumes were in vogue in our grandmothers' day;" but in that of the Polish girl, the cap and dress are secondary, and the query comes uppermost to your mind, "What *thought* lies back of those dark eyes peering in a thoughtful yet modest way over the prayer book held to her lips?" The facial expression is so intricate and various that no two persons would be likely to agree upon its true interpretation. As some poet felicitously expresses it:

"Fair are the flowers and the children, but their subtle suggestion is fairer;
Rare is the rosebud of dawn, but the secret that clasps it is rarer;
Sweet the exultance of song, but the strain that precedes it is sweeter;
And never was poem yet writ, but the meaning outmasters the metre.

Back of the canvas that throbs the painter is hinted and hidden;
Into the statue that breathes the soul of the sculptor is bidden;
Under the joy that is felt lie the infinite issues of feeling;
Crowning the glory revealed is the glory that crowns the revealing.

Finally, the fair, as a whole, in all its departments, was superior in the variety and excellence of the exhibits presented to the public to any ever held under the auspices of the association. Much praise is due its officers and the superintendents of departments for their active, persevering and intelligent efforts to promote its success.

MANUFACTURERS' DEPARTMENT.

Wisconsin has always been classed as one of the great agricultural states, which is probably entirely correct; but it would seem that in the importance of this branch of industries, we have lost sight of an equally great fact, that our state is also one of the great manufacturing states. For proof of this it would only seem necessary to visit the valley of the lower Fox river. Commencing at the head of Lake Winnebago, we find Fond du Lac with investments of many hundreds of thousands of dollars in manufactures, and employing hundreds of skilled workmen at fair wages. Half way down the lake we find Oshkosh, of equal importance in population and manufactures, which during the past year has increased rapidly, so that all, or nearly all, find employment who want it. At the foot of the lake we find the twin cities of Neenah and Menasha with all the busy hum of their manufacturing industries.

At these places begins the water power proper of the great Fox river. Six miles further below we reach Appleton, the manufacturing centre of this valley; then comes Depere, then Green Bay. Thus we have the historic number seven, not of "the plain," but of the lower Fox river valley, and each and all of them strong manufacturing points. It is not only pleasing but it is also very profitable for all who desire the prosperity of the state, to visit the annual fair of this agricultural society, and see at least the products of their several cities.

To speak of each would be impossible, so I will content myself by mentioning only a few of the exhibitors who were present at the fair of 1878.

Exhibits in Division G, Class 33.

The exhibit of brick and drain tile by Cook, Brown & Co., of Oshkosh, was very creditable to the northern section of Wisconsin.

The galvanized iron fence, by A. D. Parker, was a splendid exhibit, and worthy of the notice of all parties wishing to purchase such goods.

The display of cook, parlor and office stoves, exhibited by K. M. Hutchinson, was very fine and deserves more than a passing notice.

It was one of the most interesting exhibits in this department, and attracted the attention of most of the visitors in this building.

The display of monuments and headstones, by J. J. Moore, also by Abrams & Parker, was very good. The designs were good, and the execution was A No. 1. The white zinc monuments, exhibited by A. D. Parker, was a new departure in this line of goods, and I think worthy of the notice of the public.

In *Class 34*, the exhibit of boots and shoes, by J. M. Rollins, was very fine.

There was a good display of harness by F. J. Jackson, and Atherar & Harron.

Class 35. The display of carriages and sleighs was immense. The exhibitors were Wm. Servis, of Sheboygan Falls, Rudd & Holden, Thompson & Hayward, Streich Bros., Atherar & Harron and Wolf & Potter. The work exhibited was very fine, such as would be a credit to any mechanical fair in the northwest.

The display of cabinet work, parlor sets, etc., exhibited by Wm. Spikes & Co., B. H. Soper and others, was of superior design, and the work was executed by master mechanics, as it shows for itself.

I am happy to be able to state that the exhibition in this department was decidedly a success. With many thanks to the exhibitors for helping to make up so fine a display of manufactured goods, and hoping that they will patronize our exhibition this season,

I remain, Your most obedient servant,

CHESTER HAZEN, *Superintendent*.

AGRICULTURAL DEPARTMENT.

DIVISION E, CLASSES 38 to 42, consisting of grain, vegetables, dairy, apiary and cookery, ranks second to none in importance, although as an attractive feature of the fair it may not interest as many as some other departments.

In *Class 38*, consisting of grain and seeds, there was a very fine show, fully up to former years, with the exception, perhaps, of wheat, the season being very unfavorable for this grain.

The show of vegetables was especially fine. A very attractive

part of that show was the exhibition made by the State Hospital of Oshkosh. It was a common remark during the fair, that this was nicer than anything of the kind ever before seen in this or any other state.

The exhibition of butter and cheese was also good, but it should be much larger at the coming fair, as this industry is fast becoming one of first importance, both in the state and nation; and Wisconsin standing second only to the state of New York in the quality of goods, should strive to maintain the reputation already acquired.

CLASS 40. *The Apiary.* The show of bees, honey, hives and fixtures has become one of the interesting features of the fair, and much praise is due to Mr. A. H. Hart, of Appleton, for the zeal and perseverance with which he has, more than any other person, worked up this department, and it is to be hoped that this industry will continue to be fostered by the society.

The exhibition of bread, cake and pastry was large and fine, and particularly attractive to the ladies.

If the expectations of the society be realized in the erection of a new exposition building in which all of the classes above named, together with fruits, flowers and the fine arts, in fact, everything with the exception of stock, can be seen in one hall, it can but add greatly to the pleasure of all who visit the fair.

D. HUNTLEY, *Superintendent.*

ANNIVERSARY POEM

BY BENJ. F. TAYLOR,

Read before the Northern Wisconsin Agricultural and Mechanical Association, at Oshkosh,
Wis., September 26, 1878.

THE ROCKY MOUNTAINS.

Beyond the midland Rocky Range,
That wrinkles up the rugged world,
Where gray volcanoes sat and smoked
Like burgomasters weird and strange,
And watched the volumes as they curled;—
Where old Decembers crowned and cloaked
Have seen a thousand Junes go by,
A thousand winters leave the line,
Cast down upon the rocks to die,
Until the granite crags grew white,
With icy bones and Arctic fight
And grave-clothes decked with pine;—
Where grim Sierra shows her teeth,
Medusa East, Minerva West,
A nursing Boreas at her breast,
The chained and halted years beneath,
She fronts two worlds with pale intent,
And grins across the Continent!

CALIFORNIA.

Beyond her California lies
At graceful length with zone undone;
Behold this Cleopatra's eyes
Grow azure under Western skies;
Her smitten cheeks turn one by one
Like rare-ripe peaches to the sun;
A June of Junes in either hand,
Her early roses light the late
To bed, and not a flower to grieve
From Easter morn to Christmas eve;
A tropic heart, a bosom fanned
By breezes from the Golden Gate.
Then throned upon the girdled wheat
She slips the sandals, and her feet

Walk white among the lilies, while
 We tramp the snow-drift's silent mile!
 Her months like Graces stand in groups,
 To cull a flower November stoops,
 December's lips with berries stained
 Are pressed upon the cheek of June,
 October's hand is violet-veined
 And morning glories last till noon;
 The year's four seasons tossed and strown
 Like Sibyl leaves along the track
 Of time — the good old reckoning gone —
 The almanacs have lost their knack
 When May meets August coming back,
 And tender blades and yellow sheaves
 In one rich landscape strangely met,
 And winter woods wear flowing sleeves,
 And bud and bloom and harvest all
 Commingle in a carnival.
 So California's fingers set
 To-morrow next to yesterday —
 The blessed hour when you were born
 From the dear record tears away:
 It was in March, a howling morn,
 And Urza Major at the door,
 There daises star the grassy plains
 And pansies wink in gentle rains
 And Barefoot prints the greensward floor.
 Amazed you look the weather through
 Nor find a birth-day fit for you,
 'Till Topsy's doubts your soul appall,
 If ever you were born at all!

OUR OLD-FASHIONED SPRING.

Give me the sweet old fashioned Spring
 Dear as a girl's engagement-ring —
 I hear the keys in crystal locks
 Slow turn to let the rivers run
 And shine like lizards in the sun;
 I watch the rigid world come to,
 The skies come off with broods of blue,
 The soft clouds troop in fleecy flocks,
 The mosses green the umber rocks,
 The twin leaves lift their tips of ears,
 The rushes raise their slender spears,
 The squirrels tick their crazy clocks,

The sunshine leave the Southern hall
And creep around to the Northern wall.

THE SUGAR BUSH.

I watch the blue smokes slowly rise
Amid the maples' redd'ning skies —
The hemlock couch, the rafter rails,
The neck-yoked Libras, with their pails,
The bended twig, a ghostly spoon,
The films across like a cloudy moon;
The white eggs dance in the tumbling sap,
The nutcakes heap a checkered lap,
The young moon's sickle reaps the stars,
Her light ribbed off with maple bars;
The laugh of girls, the camp-fire glow,
The great black caldron bubbling slow,
The amber mouthpiece on the snow —
Oh, memories of the maple fane
Wax sweet for aye, though moons shall wane!
I tread the brown earth with loving foot,
 Its breath steals up with Agur's prayer;
I see the lily's green surtout
 Unbutton to the light and air;
I hear the hymn book songs begin
 To fly abroad from windows wide,
With notes of lilac breath thrown in,
 And rhyme and thyme in mingled tide;
I hear the bees' small hum-books drone
 From garden bed to clover glade,
And frogs strike up with deep trombone,
And lilting bells and tambourine,
 The old Homeric serenade.
Give me the dear long-coming spring,
Horizons like an emerald ring;
 I love its sights and sounds and scents,
 The plowshare's fragrant corduroy,
 The greenwood's rustling tides of joy,
 Down to the toad-stool's tiny tents.
The fire-fly brings his lantern light
To show the summer's velvet night,
The beds of pinks are bright with thrums,
And golden glow chrysanthemums;
Verbenas burn, geraniums blaze,
 The smoke-tree clouds with purple mist,
The china-aster sheds its rays,

The fuchsia wears an amethyst;
 A ruby at the hum-bird's throat,
 And silver in the finch's note,
 And satin on the martin's coat,
 And fire upon the red-bird's wing,
 God speed the June! The Sun is king!

HEARTHES AND HEARTS.

There was a time when hearths and hearts
 In rural life were counterparts —
 The only neutral ground of grace
 In all this troubled world. Would I
 Could paint the homely picture right,
 The low-browed dwellings altar-place
 Forever lost, forever nigh —
 Paint the divergent rays that shed
 Along the dark lines of light,
 Like nimbus round a saintly head.
 There, sturdy fire-dogs, legs apart,
 Upheld that glowing work of art,
 The beech-and-maple kitchen fire,
 The twinkling, crinkling, creeping fire,
 The flaring, glaring, leaping fire
 That gives a flash and shows a spire,
 One instant builds a phenix nest,
 Another, mounts a gleaming crest;
 A feu-de-joie, it shoots a jet,
 Up comes a crimson minaret;
 The flame is fanned, the blaze is blown,
 You hear a flume's deep undertone —
 The rattling, battling, roaring fire
 With flapping flags and lapping tongues,
 That purrs and burrs with lion's lungs,
 Expands the ring of kitchen chairs
 And brightens up the brow of cares,
 Drives every shadow to its hole
 And warms the hands and thaws the soul.

"SITTING UP."

The coals of rubies fall apart,
 The secrets of a burning heart;
 The embers show a Valentine,
 Dead faces smile, lost castles shine,
 And pansies blow and eglantine,
 And old gold beads and rings of price

And buds and birds of paradise.
 A soft red twilight charms the room,
 And fills it like a faint perfume.
 There couples sat the night away
 Whist as a button-hole bouquet,
 Some russets roasting in a row,
 Some talking flames that told of snow,
 Some cider that her hands had drawn,
 Two pairs of lips, a single cup,
 Both kissed the brim and drank it up!
 The candle had its night-cap on,
 The very embers gone to bed —
 Who shall record what either said?
 Or who so eloquent can tell
 How early apples used to smell?
 The "woody" evanescent taste
 Of berries plucked with eager haste
 As through the meadow lands they crept
 And fingers touched and fancy woke
 And never slumbered, never slept,
 'Till day on life's sweet dreamings broke?
 The pious clock a murmur made,
 Held up both hands before its face,
 Not meant so much for 'twelve o'clock
 But just astonishment and shock
 At such a want of modest grace,
 For up the sweetheart sprang, and laid
 A muffling finger on the bell
 Lest the shrill steel should strike and tell!
 And gave the hands a backward whirl,
 Took time "on tick," the reckless girl!
 Where is the lover? Old and lone.
 And where the maiden? Gray and gone.
 I read the dim *Italic* stone,
 A willow tree, a "SACRED TO" —
 The sad old story ever new,
 For all the twain the world moves on.

AN APPEAL.

The cheery, honest fires that burned
 Their way into our hearts and lives,
 As sweet to hear as humming hives,
 As glad to see as genial wives, —
 Those human, Saxon fires have turned
 Caloric ghosts, while Science locks

Their bodies in an iron box —
 The poor, incarcerated fire
 Grown sadder than a Grecian pyre,
 With red lips moaning at the draft,
 Once cracked its brilliant jokes and laughed!
 Oh, builders of the stately home
 With furnace, register and stove,
 I pray you dedicate one room
 To fire-place, auld lang syne and love;
 And there, when drift the wintry ways,
 Heap up the forest sacrifice
 Of maple, hickory and pine,
 Until the children's wondering eyes
 Like royal jewelry shall shine
 In the dear light of other days.
 Talk of high art! No master yet
 So fair a vision ever set
 Upon his canvas rainbow-wet
 As that old hearthstone's flame vignette!
 I think, if any Yankee soul
 With its old fashion for a stroll
 Shall haunt its earthly home again,
 It will not walk the flower'd ingrain,
 It will not seek "the other room,"
 The parlor grim with hair-cloth gloom,
 Or gay with rep or damask bloom,
 But just the bramble-hidden spot
 With rubbish tumbled and forgot,
 Where lie the hearthstones stained and rent,
 The wood-lot's crumbling monument!

LOVE OF HOME.

I saw a spider drift about
 Upon the sun-shot morning air,
 As if, like thistle blossoms blown
 At random, desolate and lone,
 Now here and there and *anywhere*,
 And all the while that aeronaut
 Was paying nature's life-line out!
 I traced it by the nervous thread
 Back to its little silken lair
 Safe hid in a verbena bed.
 It never cut that cable fine
 But felt its home along the line.
 And then I thought, and then I said,

Our life line is the love of home;
 Oh, make it fast where'er you roam —
 Amid the rough world's rolling strife
 It is the anchorage of life!

PAIRING.

The "pairing off" that cravens do
 When bound to give a ringing "ay"
 On some grave question grand and true,
 And cowering into silence when
 The theme involves the rights of men,
 And just one brave and manful "no"
 Might hold a rampant wrong at bay,
 Is baser than a coward's blow.
 But who forgets the pictured ark
 When "all aboard" the order ran,
 And packed and ready to embark
 By couples moved the caravan
 Two elephants with dusty trunks,
 Two owls in hoods like muffled monks,
 Two bears in overcoats of fur,
 Saint Peter's bird in plume and spur
 With partlet pacing at his side,
 Two leopards in their blankets pied,
 Two mice with each a friendly cat,
 Two terriers bound for Ararat!
 So all the world filed in by twos,
 E'en to the gander and his goose.
 Learn Mathematics as you will,
 And Grammar with its mode and tense
 And wordy drouth and dearth of sense,
 Parse Pope's old Essay through and through,
 Name all earth's rivers to a rill,
 But what to him the Rule of Three
 Who never learned the Rule of Two?
 And what to him all land and sea,
 Who never knew the sweetest grace
 Is written in a woman's face?
 And what to him a predicate
 Who never learned to conjugate
 "I love" — "you love" — "we love" — for life,
 And clasps a hand and wins a wife?
 New arks afloat, new rainbows smile,
 Young men and maidens, DOUBLE FILE!

A THISTLE SERMON.

I strike no sympathetic chord
 In any man's indignant breast
 Who swears at thistles with a hoe,
 [As worthy people sometimes slam
 The door and leave a word unspoke
 That make a perfect rhyme with "lamb,"
 And fancy no commandment broke!]
 And yet I dare a single word
 For Scotland's flower with crimson crest,
 That wears a bee on every blow
 And drifts its silver life balloon
 Along the year's dull afternoon
 Bound for another Sprig, and girds
 The feeble heart like holy words.
 Just as the seeds are fit to fly,
 A yellow-bird drops deftly down,
 A living nugget from the sky
 And lights upon the thistle brown.
 And then, as if the golden head
 Were shaking up its feather bed,
 A little breathless tempest breaks
 About the bird in silver flakes,
 A cunning cloud of flock and flock—
 Alas, the thistle is a wreck!
 But no, the seeds are taking wing,
 The goldfinch has no time to sing
 For taking toll, and then the gale
 Sweeps out the fleet of silk and sail,
 And so, the weeds are always here,
 And finches dine another year,
 And so, oh troubled Soul, good cheer!

MENTAL WEEDS.

In the fine knighthood of the quill
 You find a fellow now and then
 Who sneers at tanned and brawny men,
 Forgets that Bunker's sturdy sons
 Who trained the fire-locks, worked the guns,
 Had carried a *potato*-hill!
 Had first threshed grain, then grenadiers,
 And gone direct from roasting ears
 And plows, to glory's upper tiers!
 Unfit to kiss their blouses' hem,
 Between the farmer's pigs and him

The odds, indeed, are wondrous slim:
 He holds a pen — a pen holds them!
 Some weeds are growing green and strong
 In mental door-yards round about,
 They need a hoe and get a song,
 Pray lend a hand to root them out.
 Was any reason ever given
 Just why a rainbow for a spine
 Should make a mortal fit for heaven?
 Or why the toil is most divine
 That knots the thews and racks the joints?
 Be these things so, and I maintain
 The only saints of type and men
 Must be [? ?] interrogation points!
 Do crooked backs make upright men?
 Or callous hands show fair intent
 Like fictions on a monument?
 You know a farmer who believes
 That virtue always goes half dressed,
 And he the honestest and best
 Who braves the weather in shirt-sleeves.
 What noble souls the Hottentots
 Who wear no shirts at all must be!
 And shall we seek the torrid spots
 And wear the shadow of a tree?
 Oh, spare the tailor yet a while,
 And let the mantua-maker smile.
 Beauty and Use were married when
 This world was finished off for men,
 And he who would divorce the twain
 Is out of heart and poor in brain;
 Would have the fruit without the flower;
 Would have the bow without the shower;
 Would have the peach without the bloom;
 Would have the noon without the morn.
 Suspect the Midas-eared, to whom
 A cackling pullet's proclamation
 That to the world an egg is born
 Is sweeter song than Coronation.
 Pray for the men that plod and plod
 This lovely world as death-bells toll,
 With heavy heart and drowsy soul
 As leafless as a lightning-rod;
 Strange funerals where no friends escort,
 And corpses all prefer to walk,

Play sextons to themselves and talk;
 Believers in the stupid code
 That dignity is *dig*, "for short,"
 That real work is drudge and dredge,
 And live as bright and cheerful lives
 As fossil fishes in a ledge,
 And no man mourns their widow'd wives!
 What language can his fate deplore
 Who writes a "NO ADMISSION HERE
 "EXCEPT ON BUSINESS!" on the door
 Of his dilapidated heart?
 A sort of pen for colt and steer,
 A Board of Trade, a cattle-mart,
 A place for all four-footed joys,
 Admits his pigs, but not his boys,
 Nor yet his girls. No bipeds dare,
 Except his poultry, enter there!
 These mental weeds were never meant
 To swell the sorrows of the Curse.
 From Golden Gate to Plymouth Rock,
 Let us conspire to count them worse
 Than purslane, pig-weed, yellow dock,
 And sweep them from the Continent.
 Ah, he who builds a rural nest
 Where sunshine, peace and beauty dwell,
 Where hands are ready, hearts at rest,
 Who raises boys and girls to love,
 And flocks and herds and corn to sell,
 And hails and helps all true advance —
 That man, I think, is rarely blest,
 That man ennobles work above
 All fortune by inheritance!

THE CIDER MILL.

"Improvement" puts old times to rout
 And crushes fragrant meanings out
 Like apples in a cider-mill
 When creaks the screw and runs the rill,
 And gives the *pomace* in the place
 Of what had once exceeding grace.
 Ah, cider-mill in clapboard cloak,
 A brimless roof above the screw,
 A mighty minute-hand of oak
 That round and round the horses drew,
 While *our* hand caught the amber flow

That tinkled fitfully below,
 Where came the dissipated bees
 With drowsy talk and woolen legs,
 And swarthy wasps like Turkish Begg,
 And ten-toed boys about "the cheese"
 With oaten straws and tattered knees.

A VISION OF HANDS.

I give all honor to the man
 Whose sturdy work sweats off the tan,
 Who furrows out the royal road
 Where broad-tread harvests march abreast
 In rustling robe and golden vest,
 And gains his bread first-hand from God;
 Lives hand and glove with out-door life,
 Lives hand in hand with faithful wife,
 Strikes hands with earnest men who strive
 To keep both soil and soul alive;
 Who does his duty out of hand
 And tills his heart and feeds his land;
 Is hand to hand with every wrong,
 And, sometimes tallest when he kneels,
 Will lend a hand to roll the wheels
 Of manful, mindful toil along.
 There is a stain but not of dust,
 That soils a hand beyond repair,
 The "damned spot" of broken trust;
 There is a fairer hand than fair,
 There is a shapelier hand than Burns
 Has sung. It may be broad and brown
 And knotty as an antler'd crown —
 The open palm that never turns
 Its back when need is at the door;
 The hand that feels the left-breast knock
 Like flails upon a threshing-floor,
 And closes like the Arab rock,
 And strikes for undefended right,
 With soul and sinew tense and tight,
 Straight out, and smites Goliath down —
 I think that hand has won renown,
 I think that hand would grace a crown.
 The plighted hand that glances white;
 The royal hand with diamond light;
 The gentle hand that cools the brow
 Like whispers from the fragrant snow

Of orchards blossoming in May;
 The artist hand that halts the sun
 To dawn across the canvas gray;
 The hand whose tuneful fingers run
 Along the strings as zephyrs play,
 And float the soul on some sweet dream
 Of peace for which we ever pray;
 The cunning hands that delegate
 To nerves of fire and pushing steam,
 To lively valve and nimble wheel,
 To things that never want nor wait,
 To things that never lie nor steal,
 Alive as life, and trained and taught,
 The work by human sinews wrought—

THE FARMERS' HANDS.

Ab, all these hands are wondrous fair,
 And yet, recounting all, I dare
 To toast the FARMERS' hands that kept
 The wolf and wilderness at bay
 Where Pilgrims' bristling winters slept
 And shaggy, white-maned lions lay;
 Who picked the flint and picked the flint
 For Indian corn and Indian foes,
 And cleared the cabins and the rows
 Of weeds and wampum by the dint
 Of rude flint locks and rugged hoes.
 The hands that fired the morning gun
 Of Freedom when the world struck "one,"
 And dug their rations as they went
 And left the Lord to pitch their tent,
 Were FARMERS' hands! — I rather think
 They stood so near to glory's brink
 That one step more, they would have seen
 Headquarters of the sons of men!
 Twins of the million hands that donned
 The hickory shirts and blouses blue,
 And marched with equal steps beyond
 The solemn dead-lines duty drew;
 When soulless reapers took the field
 And tireless threshers smote the grain,
 And speechless mowers swept the swath,
 While gallant squadrons charged and wheeled,
 And bolts of thunder struck the plain,
 And batteries tore a ragged path

Through solid columns massed amain,
 And mowed the human aftermath,
 And Blue and Gray alternate reeled,
 And Gray and Blue alternate kneeled
 Along the road of wreck and wrath.
 The sun set red as if he wrought
 The bloody work he looked upon;
 The moon rose high as if she caught
 The pallid stare on which she shone,
 Of dead men's faces turned supine
 And broken pitchers stained with wine!

WISCONSIN.

I saw WISCONSIN'S Eagle borne
 Where wildly blew the bugle-horn
 And grandly flew the tattered flags
 And bravely swelled the soldier's song,
 As if the bird from mountain lorn
 Swooped downward from his angry crags
 And brought the thunder-bolts along!
 I see proud Rome's dead eagles shine
 From Thames to Tiber and Old Gaul,
 And think "Old Abe" leads off the line,
 The noblest Roman of them all!
 And now your hands have richly strown
 Upon this later battle-field
 The triumphs of the arts of peace
 No costly blood has ever sealed,
 And made it nobler than a throne
 With gifts to beautify and bless —
 WISCONSIN! May thy tribe increase! —
 Have heaped them here where yesterday
 Grim forests held the world at bay,
 And Indian trails and snow-shoe mails
 Meandered through the wilderness!
 I hear the farmer's clock-tick beat
 Of axes "blazing" empire's way
 And every stroke brings sunshine down
 Entangled in a leafy crown;
 I hear the tread of myriad feet
 That walk the State's imperial street;
 I see the checkered farms in plaid
 Just woven in the looms of God,
 As if old Caledonia clad
 In tartan bright, Wisconsin's sod.

Puissant Realm! Stand boldly forth,
A princess royal of the North,
A sovereign's crown upon thy head
And God's first crop unharvested!
For lo, thy plummy forests wait
As when they made the mornings late
Ere woodmen's clocks began to strike
And wake the wilderness of calm,
And poor WISCONSIN'S map was like
The hundred fifty-second psalm!
New York's brook trout are in thy rills,
New Hampshire's vigor on thy hills,
Thy woods of Maine make busy mills,
Green Mountain air thy bosom thrills,
The Bay State lends thee sturdy wills,
Good Morn! New England of the West!
I read the legend on thy crest,
'Tis "FORWARD!" Pass the word along
In trumpet peal and tuneful song,
The standing order of the day,
'Till life's last battle ebbs away,
And make your tablets eloquent
Of something more than "born and died"
And couples on a monument—
Grand mile-stones in the world's advance
That catch the heart up with the glance.
NOW GRACE AND PEACE WITH THEE ABIDE!

ANNUAL ADDRESS

BY GEO. W. PECK.

[Delivered September 26, 1878, at the Fair Grounds.]

FELLOW CITIZENS: My pride at being selected to fill a place made vacant by the calamity that has befallen one of the bravest old men of history, I cannot express. While we enjoy health, happiness, and all that tends to make life dear, let us remember the grand hero of many battles, who would delight to be with us, but who is lying on his bed of pain in a distant city, his life perhaps nearing its honorable end, his thoughts of the beautiful world beyond. Let us drink, in imagination, to the soldier, the hero, the statesman, the farmer, God's noblest work, an honest man — *General Shields*. May his tribe increase.

Another year has rolled around since we were in this place, listening to words of soberness, and admiring sheep and fall bonnets. Another year has used its paint brush on our hair, and whitewashed it on the last inning; old time has had another twelve month in which to pencil wrinkles on our brows, and to cause his rheumatism to climb up around our bones. What a change a year makes with us. Men that last year at this time were raising a good crop of hair, are to-day as bald as a China saucer. Girls that last year came to the fair with their mothers, are here to-day with beaux of their own, and have learned to chew gum left handed. The world is full of changes, but some of it is only worth ninety cents on the dollar.

How pleasant it is for neighbors to get together at a stated period each year, when the summer is past and the harvest is ended, to compare notes, and see who is paying the most interest, to place upon exhibition your handiwork, enter into a pleasant rivalry as to whose horned cattle shall wear off the blue and red millinery ribbons, to size up your pumpkins, observe how beautiful other peoples bed quilts would have been if they had been made after your pattern, speculate upon how much wheat you would have raised to the acre if it hadn't been for the chinch bugs, admire the fast

steppers as they haul two wheeled, round shouldered men around the circular highway, so near like a horse race that you couldn't tell the difference, unless you know positively that it was an agricultural exhibition, and to go home with the firm conviction that each man has on his farm better articles than were exhibited by anybody.

I will not waste valuable time by the stereotyped allusions to this beautiful country, the Garden of Eden where we all live, a land that is fairer than all the other lands in the world, except for a few drawbacks, nor to compliment everybody upon everything they have done or left undone, as is the custom. This land of the free is good enough, if we make it good, and if we make it bad it is just as bad as any country under the sun. It all depends on how the people act.

The object that every man has in view, whether he be farmer, mechanic, preacher, politician, editor or tramp, is to make money.

The farmer looks kindly upon any scheme that promises to increase his crops, lighten his labor, or make more valuable that which he raises; the mechanic is not vexed to have his wages raised, and kicks like a man when they are cut down; the preacher between sermons is thinking of a land that is fairer than this, where the wicked cease from troubling and they never spring a donation party on the unwary, coming upon him unawares, with a saucer of pickles, and eating up all the provisions he has laid in for winter; the politician is looking at his feet to see if they will fit the shoes of another politician whose place is coveted, and whose salary is the chief end of man; the editor is looking out for the main chance, totally regardless of the color, race, or previous condition of the man whose money flows into his coffers; and the tramp is the most independent of the whole lot, if he has a meal in his haversack and the walking is good to the next town. All are cast in the same mould, and all mean to do the fair thing, as near as they can.

The farmer has more to contend with than all others, because his interests are more diversified. And it is right to have a diversity of interests, as the right card is liable to turn up somewhere. If a farmer's wheat is killed by rain, he is consoled by the fact that rain is just what his corn needs. If his cattle die of disease, his consolation lies in the fact that pork will bring a good price. If boys

steal his watermelons, he knows by experience that they will have the cholera morbus. So everything that is unpleasant has its compensation.

We should study how to prevent the calamities that befall crops, and experiment on preventives. For instance, now, about the rusting of wheat. Is there not something that can prevent that staple product from rusting? If I was a farmer and had a large field of wheat, and there should seem to be indications of rust, I would take a piece of flannel cloth, saturate it with sweet oil, and go over it myself, and wipe off the rust. Such a process will work wonders on a shotgun. Why will it not do on a field of wheat? This may seem impracticable to some, and may be scoffed at, but we must remember that every new idea that has been advanced by scientific men has been laughed to scorn, until it proved successful.

Again, it is admitted that the rusting of wheat is caused by rain and sunshine, spread on a little too thick. Nature furnishes rain and sunshine, but she does not, at all times, place them where they will do the most good. She seems to depend upon man to utilize what she furnishes. Now, why not erect awnings over a field of wheat, made so as to be rolled up when you desire the sun, or rolled down when you have got enough. You arrange to control the elements of nature on your cranberry marshes; why not buy striped tent cloth, and control the sun and rain on your wheat fields? You might have one erected over the fair ground and experiment on it. These tents would add to the appearance of a farm, and make a good place for tramps to sleep. Before leaving the subject of wheat, permit me to allude to the oft-repeated cry of chinch bugs. It *does* seem to me that those bugs can be summarily disposed of at very little expense. Most farmers have self-raking reapers. It would be but little trouble to attach fine-tooth combs to the arm that holds the rake, and go over the field and comb the bugs out of the heads of the grain, as is done on a smaller scale at an early period in the existence of nearly every man. If this method is considered too wearing upon the thumb nails, a solution can be procured at a drug store that will destroy chinch bugs, or kill every head of wheat.

In some places the chinch bugs are enticed into the hotels, and they become so accustomed to hotel life that you can't get them to

leave the beds to attack a wheat field, and they become regular guests.

These suggestions are crude, but they are thrown out in the hope that the inventive genius of the land will find an idea that can be improved upon. The elements, rain and sun, and wind, and cold, are at times against us, and there is no rule that can be adopted that will succeed always, and we get tangled when we think how nature sometimes slops over. For instance, up in La Crosse valley this spring, a farmer got drunk, and remained drunk three weeks, while all his neighbors were sowing their wheat, and he never turned a furrow. He laid down in his wagon box every night, and let his oxen drive themselves home from town, and he sang "In this (hic) wheat by and by." They all pitied him and his family as they looked at their fields of wheat all dragged in nicely. He sobered up about the time that their wheat was sprouting, and went to work and plowed and sowed. The result was that the wheat sown early was destroyed by rain, rust, and nine kinds of bugs, and they never cut it at all, while the drunken man had twenty-five bushels to the acre. And when he put his roll of greenbacks in his pocket after selling his wheat, and looked pityingly at a farmer who was burning over his field, he said: "Look not upon the wine when it is red, eh? 'Soll humbug." I do not mention this as an argument in favor of farmers getting drunk for two weeks in the spring, but to illustrate how uncertain everything is in this wicked world.

There are so many improvements that can be inaugurated on a farm that it is hard to tell where to commence. If the awning project is good for sun and rain, why is not a gigantic street sprinkler a good thing for drouth, where a farmer is not provided with water works and hose? With a sprinkler the field could be kept wet, and the time occupied would keep the farmer from going to town with a two horse team to buy a spool of thread.

It is a pleasure to every true friend of agriculture to see the change that has come over Wisconsin in the last few years in the matter of stock. Not many years ago, the average farmer seemed to think a four-legged creature with hair and horns, that would give milk and come up nights, was a cow, and that there could be no improvement. To-day there is hardly a farmer but that has some blooded stock, and the days of the old crockery crate cow that wouldn't get fat are numbered. The old cow, with her skim

milk, has been sold to the butcher, and in her place is found the round fat, sleek, aristocratic cow, that acts just as though she was offended if the "company" that visits the farmer's house did not pay a compliment to her. On many farms blooded stock give receptions regularly and entertain guests in a royal manner. Farmers have found that it pays to raise good stock, and it is much pleasanter to have the cattle buyer come to your place and beg you to sell him stock, and keep offering you higher prices when you don't want to sell, than to lead an old brindle cow to market, looking as though her sides were wash boards covered with an old buffalo robe, and sell her for twelve dollars, and take half of the pay in wagon grease and clothes pins out of the store. And if it pays to raise blooded stock, why not go into it more extensively? There is no end to the money that can be made. Why not go to raising elephants? A good elephant will sell for eight thousand dollars. A pair of elephants can be bought by a community of farmers pooling their issues and getting a start, and in a few years every farm can be a menagerie of its own, and every year we can rake in from eight to twenty-four thousand dollars from the sale of surplus elephants. This will save boys the trouble of leaving off corn plowing to go to a circus. It may be said that elephants are hearty feeders, and that they would go through an ordinary farmer in a short time. Well, they can be turned out into the highway to browse, and earn their own living. This elephant theory is a good one, and any man that is good on figures can sit down and figure up a profit in a year sufficient to go into bankruptcy.

The artificial propagation of fish has attracted much attention of late years, and the success of experiments has shown that every farmer that has a stream of water on his land can raise fish enough to get rich in five years, four months and twenty-one days. The hatching of fish eggs has become an important factor in the food production of the country, and many farmers whose "setting around" has heretofore produced nothing but patches on the elbows of the pants, has found that the noble industry of "setting" is productive of much wealth. There is no labor in hatching fish. All you have to do is to procure eggs, place them in the water, and let nature take its course. A farmer who has a good fish pond is an object of interest, and he will find that visits from city friends with fish poles will be too numerous to mention. To raise fish suc-

cessfully a man needs a well intentioned bull dog and a shotgun that goes off accidentally when it is not loaded. The artificial propagation of amphibious animals will follow the success of raising fish, and the time is not far distant when every farmer whose farm is located on the Lake Winnebago, will have a school of hippopotamus. These animals are easy to raise, and can be artificially propagated, and the selling price is quoted at \$25,000. From the sale of two or three good hippopotamus a year a farmer would become more independent than if he owned a brewery.

Many farmers are discovering that there is plenty of money in the dairy business, and butter is getting to be an everyday occurrence, and cheese fills a want long felt. However, many men go into the cheese business that do not understand it, and the consequences are that the market is full of cheese that does not average well. Some pick their cheese before it is ripe, while others let it remain on the vines until it will drive a tramp out of a smoking car. If there be any doubt as to a cheese being ripe, it should be plugged. If the core is red, and it looks like a nice, cool, summer resort in there, it is safe to pick it. A Bohemian on the train last night had some cheese in his vest pocket that was too ripe, and the conductor had to disinfect the car, and order the Bohemian to be quarantined before the train would be allowed to enter the city. Cheese is all right in its place, but it don't want to be allowed to lay above ground too long after it has departed this life. If farmers will pay a little attention to cheese in its different stages, much trouble can be avoided. In union there is strength; so there is in a smoking car.

There is an industry, my friends, that seems to be entirely monopolized by one or two counties in the southern part of the state, in which more money can be made, according to the investment, than in any other species of agriculture. I allude to the raising of wolves, in order to sell the scalps to the state. You devote a good deal of time and labor to the raising of sheep, and what do you get for it? The best sheep cannot lay more than eight pounds of wool in a season, and even if you get fifty cents per pound for it, you have not got any great bonanza. Now, the state encourages the raising of wolves, by offering a bounty of ten dollars for a piece of skin off the head of each wolf. It does not cost any more to raise a wolf than it does to raise a sheep, and while sheep

rarely raise more than two lambs a year, a pair of good wolves are liable to raise twenty young ones in the course of a year, if it is a good year for wolves. In addition to the encouragement offered by the state, many counties give as much more, so that one wolf scalp will bring more money than five sheep. You will readily see that our wise legislators are offering inducements to you that you should be thankful for. You can establish a wolf orchard on any farm, and with a pair of good wolves to start on, there is millions in it. The cultivation of the wolf is bound to become a leading industry in other counties, as it has already become in Grant and Crawford counties. The scalp of a wolf is legal tender anywhere. They will live on any soil, and since the new process has been discovered which causes hair to grow on a bald headed wolf, it is not impossible to grow two or three scalps a year on each wolf. If you can grow three scalps a year on each wolf, and get from the state and county twenty dollars for each scalp, a small flock of wolves is better than a large flock of sheep. It will pay to raise sheep simply as food for wolves. This subject of wolf culture is receiving great attention, and as the editor of an agricultural paper, I am constantly in receipt of letters asking where a good article of wolves can be obtained for seed. I have the address of an eminent wolf culturist that I will furnish to any farmer who desires to go into wolf culture. I would, however, warn you against disreputable parties who are raising a breed of dogs that so nearly resemble wolves that in many instances the state authorities have been deceived into paying bounties on their scalps. This is wrong, and is almost equal to passing a ninety-cent dollar on to an unsuspecting greenbacker. As farmers we cannot be too careful about engaging in any deception. Such conduct is on a par with placing a stone in a crock of butter, or hiding a boy weighing a hundred pounds in a load of hay, and selling him by the ton, as is often done at Fond du Lac.

The raising of watermelons is becoming an important industry in this state, and no county is better adapted to the business than Winnebago county. Your warm, genial soil, and pure air is what the watermelon needs while in the process of incubation. However, there is one drawback to the watermelon that is causing it to lose ground, and that is the prevalence of cholera morbus in its vital parts. If some farmer can experiment and raise a species of

watermelon that is safe at all times, that will not innocently take possession of a man, and in such a moment as ye think not, cause an orangeman's riot to take place in his paregoric remains, that farmer will cause a monument to be erected to his memory with a shaft higher than the monument to Washington. How innocent the watermelon looks, as it peacefully reclines on the sidewalk in front of the grocery, and you yearn for it. Like a volcano, you can't tell when it is going to belch forth red hot lava, consternation, cramps, death and demoralization.

As it is now, it is safer to curry a mule than to eat watermelon. What the country needs is a melon from which the incendiary ingredients have been removed. It seems to me that by proper care, when the melon is growing on the vines, when it is innocent and has not seen much of the wicked world, the cholera morbus can be decreased, at least, the same as the cranberry has been improved by cultivation. The experiment of planting homeopathic pills in the hill has been tried, but homeopathy, while perhaps good in certain cases, does not seem to reach the seat of the disease in the watermelon. What I would advise, and the advice is free to all, is that a porus plaster be placed upon watermelons, just as they are beginning to ripen, with a view of drawing out the cholera morbus. A mustard plaster might have the same effect, but the porus plaster seems to me to be the article to fill a want long felt. If, by this means, a breed of watermelons can be raised that will not strike terror to the heart of the consumer, this agricultural address will not have been delivered in vain.

If it would not be considered out of place, I would make a few remarks on a subject that is as dear to us farmers as to any class of men, and that is the currency of the country. There are a few men in every community who know more about finances than the oldest statesmen, who have studied the currency question for a lifetime, and they will sit on a wagon box in your barn yard, and whittle a piece of shingle or a corn cob, and tell you that a piece of paper with the proper label on is as good as gold, and that if we have enough of it we are fixed. It is too true. If we have enough of it, we are fixed so that we can wear our old clothes until they drop off, and then go naked. Paper will not do. What we want is a currency that every farmer can issue for himself. A law should be passed making the products of the farm a legal tender for all

debts, public and private, including duties on imports, interest on the public debt, and contributions to charitable purposes, and pew rent. Then we shall have a new money table, about as follows:

Ten ears of corn make one cent — *after a doctor.*

Ten cucumbers make one dime.

Ten watermelons make one dollar.

Ten bushels of wheat make one eagle.

When this is done, the gentlemen who are now engaged in canvassing for and advocating the unlimited issue of tissue paper money will find their occupation gone, and they can go to work and earn cucumbers and other currency. Then it will be a great day. Then we can hitch up our four-horse teams, put sideboards on our wagons, and take our currency to town. With a basket of cucumbers we can purchase our dry goods; with watermelons we can strike terror to the heart of the grocer; and the banker will be obliged to take our pumpkins and squashes on deposit or be arrested for treason; and when the tax gatherer comes around, we can give him a check on the bank for produce, which he in turn can pay into the state treasury for the state tax, and everything will be lovely.

It is often remarked and believed by many that farmers are in the habit of grumbling a great deal, and that their tempers are not the most amiable; and the great newspapers, whose editors do not know a plowshare from a railroad share, compare the farmers with the grand old men of ancient times, the patient men. I do not wish to be understood as detracting one iota from the sublime patience of Job, but where would Job's patience have been if he had, when enjoying those historic boils, been obliged to go out into the barn yard and teach a calf to drink out of a tin pail? After the calf had mashed the middle finger of the left hand, tipped over the pail of milk on Job's trousers legs, bunted him on the biggest boil, and kicked him after he was down, if the patient Job did not swear the shingles off the barn, he would, I am sure, have hired an orator from Milwaukee to swear for him. Or, gentlemen, imagine Job trying to break a yoke of steers.

Take the meek Moses, for instance. In those days a man could afford to be meek. But suppose Moses had got up some winter morning and found six feet of snow between the house and barn,

and the boys all gone to Ripon to a dance. After he had shoveled the snow all out, and was leaning on the shovel, wondering if it was going to be much of a storm, and a gust of wind should drift the snow all back into the path, do you suppose, now, honestly, that Moses would have been much meeker than some of you? It is my unbiased judgment that he would have gone into the house and pulled off his boots and waited for those confounded boys to come home.

They say that Methuselah was the oldest man. Do you suppose he was any older than some of the farmers of the present day feel, after pitching bundles all day on the hurricane deck of a threshing machine? Would his ancient back ache any worse than backs do these days after mowing away straw?

We hear of the wisdom of Solomon, and picture in our mind a man who knew it all, and who never got mad about anything. Suppose a hired man had run away with Solomon's favorite daughter, and got married over at Eureka on the sly, don't you suppose the old man would have pranced around very much like the farmer of the present day, and loaded his gun with buck shot? Or suppose Solomon's boys should have gone to a camp meeting, and come back after he had all the chores done, smelling like a brewery, do you suppose Solomon's wisdom would have been able to account for it?

Suppose that Mrs. Job had a hired girl that was perfect in every respect, and she should go off picking cranberries the day before the threshers came, would Mrs. Job have been any more patient than our farmers' wives of the present day?

I am aware that many people find fault because there is an occasional farmer who is too sharp in a bargain, but as a class farmers will average well with ministers and editors. Adam was the first man — that ever fixed strawberry boxes so that the bottom was raised up two inches. It was not that he wished to cheat on the measure, but it was to keep the berries from crushing. And when he took the first lot to market, and the groceryman was going to have him arrested, he stood up like a man and said, "I cannot tell a lie, Eve did it."

There is no law that compels a farmer to buy every agricultural implement that an agent comes along and recommends. I would not say a word against labor-saving machinery, for the Lord knows

that anything that will take a crick out of a farmer's back, whether it be a machine or a patent medicine, is a good thing to have in a family; but I believe that half the farm implements that are offered for sale, and canvassed for, are nuisances, and a damage to the farmer. And a man who *urges* you to buy a thing that you cannot see that you absolutely need, is an enemy, and should be classed with the lightning rod peddler, the book agent, the cloth peddler and the tramp. I do not advocate the miscellaneous killing of these peddlers and tramps, nor killing them in cold blood, but I would advise every farmer to have a Gattling gun on his premises, and practice with it often. If these peddlers happen to come along when you are practicing with your gun, and they are killed, accidentally, any jury will acquit you. Or if you are not in favor of the unlimited use of gunpowder, keep a mule, and when these people call upon you to sell you their wares, and take your note, ask them, in a kindly manner, to take a ride on your mule. In this way a good mule will pay for his keeping.

Speaking of agricultural implements, there are few of them that are more reliable than the mule. The mule never runs off a tire, or breaks a coupling when you are hurried with work. The mules' raker never breaks, and you don't have to stop in the midst of harvesting to repair the sickle bar or grind the sickle of the mule. During threshing his cylinder never breaks any teeth, and his separator never gets clogged. The mule never gets a hot box, and always exhibits a patience that is sublime. His ears can be used for a bill board, and his heels for a fanning mill. The mule is one of the noblest work of creation; patent applied for.

While I believe in the efficiency of prayer on general principles, I would not advise any class to depend on that altogether to ward off the rains, or to cause the rain to pour, or to keep off the frost until everybody is ready for it. It will not work, infallibly. You can see that in this cranberry business. Just maintain the even tenor of your way, be as good as you can without getting into profuse perspiration, and trust in Providence. Everything will come out right if you wait long enough. Be contented with your lot, and be loyal to your state and country. When the winter is cold, and you are froze up, and they talk to you of the sunny south, think of the yellow fever, and pile on the wood. If people talk to you of the splendid climate of California, tell them there is no

place like home. Let farmers maintain the reputation they have acquired for honesty, industry, brotherly kindness, and all will be well. The call of suffering never needs the aid of an ear trumpet to reach the farmer; the call of his country is heard always without being repeated. His life has many features that are unpleasant, but on the whole he is more independent than the millionaire, more happy than the aristocratic devotee of fashion, and when he dies, though his remains may not be encased in a silver burial case, or be drawn to its last resting place by six horses with gorgeous millinery, it is usually followed by sincere mourners, loving friends and sympathizing neighbors; and when the last trump shall sound, his horny hand is more apt to grasp that of St. Peter at the gate than is the hand of the demagogue who despised him as a laboring man here below; and he is as liable as any to occupy an orchestra chair in the front row, before the throne, that all the people will delight to see after the work of life is over.

SOME PRACTICAL, COMMON SENSE IDEAS.

Address of Gov. W. E. Smith, at the Northern Wisconsin Fair.

Governor SMITH was introduced by the President, A. A. Loper, as follows:

Ladies and Gentlemen: I will now introduce his Excellency, Governor Wm. E. Smith, who will give you a short address. If he talks as well as he governs, you will be pleased.

Governor Smith spoke as follows:

Mr. President and Fellow Citizens: You have listened patiently and attentively to an interesting, instructive and racy address, and to a beautiful and sparkling poem, and it would be improper for me to impose upon you by any extended remarks. I am induced to be brief and thus relieve you.

I am highly gratified at being here to-day to take part in the exercises of this occasion, and to contribute my mite to this imposing and instructive exhibition of the agricultural, mechanical and civic resources of the great and flourishing state of Wisconsin. I am personally gratified to see before me and to have met so many of the representative men and women of our commonwealth; men

and women who in their social and business relations give tone, vigor and dignity to our western civilization; men and women whose influence at home and abroad is both felt and wanted, and who are in fact as well as in theory, the conservators of moral, intellectual and political affairs, and without whom the fertility of our soil, the wealth of our mines and our forests, and the salubrity of our climate, would have been barren — yielding no fruits in the past and upholding no promises for the future.

I congratulate the officers and men of this society upon the success of this annual fair. The amount of grain and fruit, the farm and dairy products here exhibited; the display in the domestic and fine arts; the productions of the shop and the manufactory; the display and exhibition of horses, of cattle, of sheep, and of furniture, all give abundant and concurring evidence that Wisconsin is true to her motto that, not content with the achievements of yesterday, she is to-day, despite of calamities, moving grandly forward with every industry and art in their proper position. It is a fortunate circumstance for Wisconsin, my friends, that from the very earliest history of our state every industry and every profession has developed here step by step.

We have thus to-day the several stages of our growth, filling a complete civilization; every year has been a year of progress.

During the present month it has been my privilege to attend quite a number of fairs, including the state fair at Madison, the fair at Minneapolis, and quite a number of our county fairs. At those I had the privilege of seeing the exhibition of the products of the farms and shops in various parts of our own and the adjoining part of Minnesota.

I had the privilege of conversing with observing, well-informed citizens of part of our own and other states, and it is with unfeigned pleasure I am able to declare to you here to-day that there are signs of returning prosperity to be seen on every hand. It is true there is a drawback to a full and complete restoration of prosperity to our country, but happily Wisconsin is largely exempt from the infliction to which I refer. I refer to the demagogues whose voices are heard in some of our other cities, and occasionally it may have been heard in this city, seeking to array one class of our people against another. To array class against class, race against race, farmers against merchants, producers against non-pro-

ducers, so called in their present relation, the poor against the rich.

Now, I tell you, my friends here to day, that he who seeks to array one class of our people against another, is a common enemy. I believe that there can be no permanent prosperity or enduring civilization without a division of labor, and I warn you here against him who teaches or attempts to teach that there is any natural antagonism between a man who labors with force in his shop or on his land, and the one who labors in his store, in his office, or in his counting room; between the employed and his employer, each of whom are necessary, in the economy of nature, for the attainment of the best results. As well could the hand say to the head, I have no need of thee; or the heart to the foot, I have no need of thee, as for any one to say I can prosper without you.

The fact is, my friends, whether we admit it or not, we are all dependent. The roots and fibres of moral, intellectual and political being, branch and spread through all the latitudes and longitudes of society, so that the prosperity of one is the prosperity of all; and calamities are not confined to the individuals, to the classes and occupations upon which they first impinge. You will not expect me on this occasion to enter into a discussion of the many interesting questions connected with practical farming. I believe, however, that agriculture is the most important of all industries, not only as giving employment to the greatest number of individuals, and as utilizing, in the aggregate, the largest amount of capital, but because upon its success depends very largely the success of all other industries.

Without agriculture, and I may add without enlightened, progressive agriculture, without farmers who realize that farming is both a science and an art, who are willing to study, and investigate, and to apply the learning which it gives, to the growing of crops and the raising of stock, it is idle to expect the highest type of civilization and permanent prosperity.

It is doubtless true that commercial and manufacturing interests may sometimes seem to prosper. They may accumulate wealth more rapidly than agriculture. They may build more costly habitations, filling them with sculpture and paintings, but unless these interests are largely recruited from the farm they will decay, and those elegant buildings crumble into ruin. Trade and commerce

must seek new lands. History is full of illustrations of the truth of these statements. I regard it, then, exceedingly fortunate for Wisconsin, that while she has within her borders mines rich in lead, zinc, iron and copper, and forests of magnificent and practically inexhaustible timber; streams that invite manufacturers to establish mills and factories, yet with all this, without a soil and a climate adapted to the cultivation of grains and grasses, her past would have been less productive of good and her future far less promising. But I have detained you, my friends, longer than I had intended; longer, I think, than justice requires. Permit me to say, in conclusion, that I trust we shall all be benefited by the experience and lessons of this fair; that we shall all return to our homes with more hope, more courage, more charity and more thankfulness for the advantages we enjoy and for the benefits arising from living in a state where diversified industry can prosper, and where we have the inestimable blessing of a healthful climate.

AGRICULTURAL CONVENTION.

COUNCIL ROOMS, CITY OF OSHKOSH,

February 26, 1879.

The Convention met at the Common Council rooms at 10 o'clock A. M. President Loper being absent at Madison, the convention was called to order by Vice President Hutchinson, who said: I suppose that it is generally understood that the programme is not to be carried out as it is published, in consequence of our not being able to have the council room last evening. Dr. Barry is here, and his paper will probably come this afternoon or evening. The next paper on the programme is from Mr. Roe, on Grape Culture in the Fox River Valley. If there are no objections on the part of anyone, we will listen to what Mr. Roe has to say.

Mr. Roe then read a paper as follows :

GRAPE CULTURE IN THE FOX RIVER VALLEY.

The early history of grape culture in the region known as the valley of the Fox river, is shrouded in some obscurity. The thought and energies of the early settler were absorbed in the struggle to obtain a foothold in the forest clearing, the oak opening or the open prairie. Utility, narrowed into necessity, marked the channel of endeavor. But when a lodgment had been effected, the wilderness subdued and made to minister to the wants of man; as the first rude structures and simple appliances of the pioneer began to give place to more spacious and comfortable dwellings, expanding with the means and wants of their owners; after this first industrial battle with the tough primitive sod of the prairie, and the tougher roots, stumps and log-heaps of the clearing; with this first sitting down to the enjoyment, immediate and prospective, of the fruits of his labors, came the obvious thought of fruit culture. Each would now have his own vine and apple tree. Rather by as-

sociation with the old homes in the east, the apple tree took the precedence. With the Yankee settler the orchard antedated the vineyard. The German Rhinelander, the Switzer and the Frenchman were the first to embark in vineyard culture. The foreign varieties of the grape, from the vineyards of the Rhine, the Moselle, the Danube and the Rhone, proved unsuited to the requirements of our soil and climate. Their introduction resulted mainly in failure and discouragement. This brought a temporary halt in grape planting; but it soon took a new start and (with a juster appreciation of the requirements of the case) native seedlings were sought out. The Isabella, a native of South Carolina; the Catawba, a native of Maryland; the little Elsinburgh Norton's Virginia, still prized as a wine grape; the Alexander, better known with us as the Doty grape, having been introduced in this section by Gov. Doty. Except in specially favored locations the shortness of the seasons told against the success of the Isabella and Catawba. The same applied to the Diana, a seedling of the Catawba, though ten days earlier. It was not long before earlier varieties were introduced. The Hartford Prolific and Northern Muscadine, still classed among the earliest, both of inferior quality and their habit of dropping from the stem, or, as shippers phrase it, shelling in package, renders them worthless as commercial grapes. The Clinton was now introduced: vine perfectly hardy, and thus, like the Alexander, good for arbor purposes; grape too foxy for table use, but valuable for wine. The advent of the Concord and Delaware marked a new era in grape growing. With their introduction began our systematic and successful vineyard planting. And now, as the interest of the fruit-growers of the country became attracted to the grape, new varieties began to make their appearance in rapid succession. Dr. Grant, Rogers, Allen, Campbell, Caywood, became familiar names with us. Dr. Grant, widely known as the propagator of the Delaware, the originator and propagator of the Iowa and Israella, and subsequently of the Eumelan; Rogers, of the famous Rogers numbers, especially 15, 19, 22 or Salem; Allen, of the superb white grape, Allen's Hybrid; Campbell, of the Martha; Caywood, of the Walter and the Duchess, a big, promising white grape; Greenman, of the Janesville, one of our earliest; Worden, of Worden's Seedling, for flavor one of our best. The success which attended the introduction of the Concord and Delaware; the admirable adaptation of

soil and climate, especially to the latter; the superior quality of the wine made from them; the ready market and fair returns obtained for them as table grapes, largely stimulated grape growing. Vineyards now are being planted throughout the whole length of the Fox river valley. Livermore, at Berlin; Floyd, at Eureka; Bushnell, Cass and Hoglin, of Omro; Nelson, at Winneconne; Harney, Brainard, Stroud, Parker, Kohlman, Ford, Schaub, Tesch, Osborne, Neil, Nelson, Vincent, Lindla, Randall, Weyerhorst and Roe, of Oshkosh; Clinton, on Doty's Island; Hammer, at Menasha; Bennett & Mason, at Appleton; Arndt & Stewart, at Depere; Blish, at Fort Howard, and Euke, at Green Bay. Of these, the majority are yet in the business, though in a few instances vineyards have changed hands; they are yet (so far as known) existing and productive. That of the Messrs. Kohlman, of Oshkosh, but little over two acres in area, yielded 1,000 gallons of wine last year, and in '77, 1,500. These vineyards, extending along the valley of the Fox for nearly 100 miles, embracing the shores of Lake Winnebago, have a great variety of soil and location, valleys, bluffs, hillsides, gentle slopes, and levels barely susceptible of drainage; clear sand, sandy loam, gravels, gravelly loam, clayey loams and stiff clays, with a few instances of shale. Of these, a gravelly loam (limestone predominant), as in the vineyard of Dr. Parker, and the shale, as in that formerly owned by Daniel Vincent, are among the most successful. Those located on Lake Winnebago enjoy the most immunity from late and early frosts. It is a singular fact of the Delaware, that it will not thrive in a malarial region. The valley of the Fox and the shores of Lake Winnebago, located so near to the high divide of the continent where the streams flow either northwesterly to the Mississippi or northeasterly to the lakes, a region of unsurpassed salubrity, where fever and ague are unknown, seems the home of the Delaware grape, and indeed of every variety known to our northern climate. The annual exhibit of grapes at our northern fair, located at Oshkosh, is admitted by the best judges to be equal to that of any region outside of California. At our last fair of 1878, over thirty varieties of grapes were exhibited, fruited in perfection.

Of these vineyards, the average distance in planting is eight feet between the rows; the closest being six feet; the farthest twelve. Distance in row, five to twelve feet; here the average again being

eight feet. While some use stakes, the majority prefer trellis, not higher than five feet. With this general historic outline, we now give as briefly as possible, according to request, something of our own experience and observation in grape growing. Late in the spring of 1869 we proceeded to set out our vineyard. Location, gentle slope, inclination to the east; soil, stiff clay, clayey loam and muck loam. It is the belief of the writer, that he was either singularly unfortunate, or that he developed an extraordinary capacity for blundering; a complete novice in the art of vineyard culture, he listened with credulous ears to every kind of well meaning advice. Said a noted eastern propagator, "set your vines as deep as you would plant corn," we did so; no sooner through planting than the first heavy rainfall and hot sun showed the mistake, in the washing out and exposure of their roots. Late as it was in the season, we commenced the laborious process of taking up and replanting at a greater depth, and kept at it until the heavy rains of that wet season drove us off the field. Those so reset, lived and thrived; the bulk of the rest subsequently perished. We found that setting the vines with the roots spread out like a fan at an angle of forty-five degrees, the ends of the roots reaching the depth of one foot, the crown within three inches of surface, gave the most satisfaction; thus deep planting, preceded and followed by deep culture, gave the best results; this being better than mulching, in that the mulch keeping the surface moist, the grape roots are attracted by the moisture too near the surface, and are liable to injury by the occasional long drouths and great extremes of heat and cold of our climate. Deep planting, preceded and followed by a corresponding depth of culture, is a necessity.

In laying out our vineyards, we were advised to run our trellis north and south, that the morning and afternoon sun might in turn strike each side of the trellis. Excellent advice, we thought. The theory in the main correct, yet subject to modification. As character of soil combined with the lay of land, ours a stiff clay loam, inclination to the east. Agreeably to the advice received, we lined our vineyard perfectly true north and south, regardless, in our haste, of regularity east and west. And now came trouble—plowing to the vines to secure sufficient depth of covering; the land descending to the east, each ridge became a dam, holding the surface water during the heavy rains. When, as is so often the case in

our variable climate, the weather set in hot and dry, the super-saturated earth baked harder than a brick, defying all efforts of plow and cultivator to subdue it. The theory I started with was admirable. Things celestial were lovely, but terrestrial were otherwise. The whole vineyard looked like an abandoned brick yard, and for successful results in grape culture might have been. I had now the tedious and perplexing task of relining a vineyard after it was set; taking up and resetting, layering vines, and thus drawing them as far as could be to north and south, to obtain something like order in the new alignment. [Moral — In planting a vineyard, consult primarily the character of the soil and lay of the land.] Two years of continuous drouth, extracting the moisture to a great depth from the soil, followed by the intense cold winter of 1872-73, wrought havoc in our vineyard, especially among the Walters, which were located on a clay knoll. And now the difference in deep and shallow planting showed itself. The furrows we had been enabled to reset, to the depth and in the manner mentioned, came through triumphantly, the severest trial the fruit culture of this country has experienced; but three-fourths of that vineyard went "where the woodbine twineth." Drouth alone, or severe cold, might have been resisted, but the combination of the two proved irresistible.

It was a period of general disaster, when the heart of the western fruit grower was nigh unto breaking. Then it was that the ironclads went under decayed cherry trees. The stumps of pear, ragged looking apple trees, empty spaces in the orchards and ominous brush heaps on their borders, yet tell the tale. The blow and disappointment was so heavy that it was some time before we mustered up courage for reconstruction. The process of replanting was as slow as returning hopefulness. Experience now taught us the necessity of careful selection of varieties, having in view the following requisites: Hardiness of constitution, fruitfulness, earliness, marketable and keeping qualities — the last of these not the least in consideration. Instead of play and profit, as the seductive writer on horticulture hath it, thus far it had been work and worry in my vineyard. Taught somewhat, it was hoped, by hard experience, instead of coming with our high, mighty theories to nature, we concluded to sit down at the old dame's feet and let her "school-marm" it over us to her heart's content. We are yet

in the primary department, having our experiences, getting in divers ways our knuckles rapped, as we doubtless deserve; yet, we trust, learning and profiting by our lessons.

In setting our vines, we originally made the rows twelve feet apart and the vines twelve feet in the row. Adopting the cane renewal system, we can set the vines from eight to ten feet in the row, and yet have trellis room. But we remain satisfied with the wisdom of this distance in planting. As proof of it, note the distance the roots of a layered vine will travel for nourishment in one year. The greater the numbers above, the more multiplied and closer crowded together the root; the sharper the competition of those seekers for nourishment below, with less relative area to draw from.

The grape, with its proverbial fruitfulness, is by necessity a gross feeder. If you desire permanent fruitfulness to immediate results, do not overcrowd your land. Another reason—the less liability to mildew. The wider apart the rows, it is obvious the more room for the play of the air and sunlight. The close, sultry atmosphere that followed the rains during the summer of 1878, which induced rust on the straw, and blight and shrinkage of the kernel in wheat, so that there was more of No. 3 than No. 1 wheat raised in the northwest, told severely on the crowded vineyards, especially on what are known as the foreign blooded varieties, which in size, flavor, shipping and keeping qualities, are our best. Mildew was the general complaint. Our own loss from this cause was comparatively slight, and it is our confident belief that were the land properly drained, and had summer pruning been promptly attended to, there would not have been a particle of it. At such a time, particularly, the great desideratum to foliage, and fruit, and root below, is light and air, especially the latter. During those sultry days of July, when we panted for air, the vine, too, was the sufferer, and as with us humans, the more the crowd the greater the suffering. We commenced our summer pruning too late to prevent the appearance of mildew, but we arrested its progress. As stated, where the mildew appeared with us, it was where the summer pruning had been neglected. An immense growth of wood, reaching from the top of the trellis to the bottom, effectually curtained out the air from the fruit-bearing portion within, and suffocation resulted in mildew. At the top, the bottom, the far ends of the

vine, wherever air could be got, the grapes were relatively free, and this was seen in every instance through our vineyard. The same is true of an old neglected Alexander or Doty grape vine in our dooryard. Here the philosophy of the thing appeared so plain as to be generally understood and commented upon, even by our working hands, during the vintage. In summer pruning, do not wait until compelled to amputate with the knife. Take it in time, when it can be done with far greater ease and readiness with thumb and finger; in time to prevent mildew, and in time to throw the energies of the vine in perfecting the fruit of that season and the fruit-bearing canes of the next. The only instance of rot in my vineyard were the Creveling, where the vines were diseased, and had in every instance to be rooted out; and the Salem, which is too capricious and uncertain a grape for general culture. But the existence of rot in the east, especially in the old vineyards about Cincinnati, and its recent appearance on Kelly's Island, is a serious matter. It is our conviction that the grape element can be taken from the soil and the land exhausted, as truly as it can be done with wheat. How to prevent this will be the study of the future vineyardist. And here we have the experience of the vineyards in Europe, many of them in bearing condition for centuries; there the utmost pains is taken in keeping up the fertility; manure, especially from the cow stable, is used in large quantities; bones, bone dust, leather clippings, old woolen rags steeped in liquid manure and night soil composted with earth. One of the most successful vineyardists of Southern France invariably returned all the prunings of his vines to his vineyard, and bought all his neighbors would sell, until they took the hint and refused to sell at any price. We believe that the burning of our grape prunings as rubbish will be like the burning of our straw stacks, a thing of the past.

Take a heavy cleaver and chop the fall prunings fine, sow them in the rows and plow them in. Return, so far as practicable, as much as you take out, and thus keep the grape element in your soil. It is our belief that, as mildew comes from want of air, sweetness and light, that rot results from premature exhaustion — there is not enough nutriment in the earth to bring the grape, after it is set, to perfection. As to the enemies of the vine, keep a sharp lookout for the cut worm as the young shoots appear on the newly

planted vines; and further on in the season for the grape sphinx or tomato worm, a huge, disgusting creature with a voracious appetite; you will note by the droppings beneath the vines and the denuded foliage, where he has been at work. Of insect enemies the thrips, during one or two seasons, gave us much annoyance, but of late less. Look out, next season, for the bug that preys on the unopened bud just before starting. This bug has appeared on our borders, and has utterly destroyed the crop in many places. A solution of tobacco, or, if this fails, Paris green, will probably do the business. Be sure to leave enough buds to insure sufficient canes, and preserve these until sufficiently matured as to be beyond worm and wind; then promptly remove all but the one or more designed to remain; tie these with coarse twine or rags to stakes. The young canes, as they push rapidly when from eighteen inches to three feet in length, are exceedingly brittle, and are liable to be broken on the least occasion. Follow them up promptly and keep them well tied, or the heavy blow that accompanies a June shower may prove disastrous. Do this, or the young canes which waved so promisingly on a summer's eve may lie withered and prone on the morrow. In our spring and summer's training on the trellis, we use the article known as wool twine. This tied properly can readily be used the second season, and thus a saving in time and money effected.

As to the choice of varieties for culture, we here write not as a wine, but fruit grower, and here you consult the conditions of climate, soil and market. Hardiness of constitution, productiveness, earliness, flavor, shipping and keeping qualities are to be considered. And here the grape, like the apple, will eventually be divided into the summer, fall, and winter varieties. With the first two classes, except the earliest, the market is always liable to be glutted. Of the winter varieties, scarcely ever. For them there will always be a demand, from the fact that they can always be kept until there is a demand or shipped where there is. By these we mean the thick-skinned varieties and those which cling to the stem, or in other words do not shell, such as Rogers' No. 15 and No. 4, the Iona, the Walter, and the Isabella.

And it should be borne in mind that the same qualities which make them good keepers, render them best adapted for shipping to a distant market. In selecting your grapes from your winter varieties for packing, take and cut with a sharp knife or scissors each

bunch by the stem; do not throw or drop it; lay each bunch carefully in your basket. In packing use hard wood saw dust, thoroughly dried. The mode is as follows: First a layer of sawdust, say two inches deep, then a layer of grapes, one full bunch in thickness, then add the clean, dry saw dust, shaking it down between the berries of the bunches, then a layer of clean sawdust, then again of grapes, and so on until the barrel is filled; head up and set in a cool, dry place, not on the cellar floor, or where liable to freeze or gather dampness; and thus with little expense or trouble you can have grapes on your table or for market any season of the year; indeed they have been so kept the year around. Remember to use the greatest care in handling; every berry loosened at the stem is lost, and induces damp and mould in its locality.

As a rule, never let your vines bear all they will; remember it is weight and size, ripeness of flavor, not numbers, you want; by judicious trimming you secure the same weight in the increased development of those remaining, and from handsome appearance better market returns, without risk of straining the vine. Each grape, however small, of the same variety, has the same amount of seed. It is the production of seed which exhausts a plant. It is not seed you are after, it is the luscious pulp and juice. As to the depredation of birds, a little yellow bird, its plumage tinged with gray, resembling the female canary, is the most to be dreaded; these, instead of standing up and taking a square meal like the robin, puncture each berry of a bunch, their bills working with the rapidity of a sewing machine, taking with each puncture a sip of the exuding juice, thus going over every berry of a bunch, until in an incredibly short time a whole vine will be dripping; then follows the ants and wasps. Our only remedy, a man and gun in the vineyard during the period of ripening, from dawn till dark, an abundant use of powder and a moderate use of shot.

In fall pruning we adopt the cane renewal system, getting as close to the root as possible; studying the individuality of each vine; gauging our future demands in bearing wood upon its relative strength or weakness. We prune from the middle to the latter part of October, from ten days to a fortnight before covering, that the vine may have time to dry and seal up at the cut, thus preventing loss in spring by bleeding. We cover with earth; two men and a boy can with ease cover an acre a day. Then we plow

the earth to the vines, leaving a dead furrow in the centre between the rows, securing for each of these an outlet for the water, and the year's work of the vineyard is done.

After the reading of the paper the following discussion took place:

Mr. J. M. Smith — I understood what is known as the Doty grape was a wild grape. From your remarks I suppose it is not, and that I have been mistaken.

Mr. J. P. Roe — My impression is that the Doty grape is the same as the Alexander. The Alexander was originally a wild grape, a native of the woods of Pennsylvania, and I think it was introduced by ex-Gov. Doty, who is now dead, some twenty years ago or over. I have on my premises an old Alexander grape, I understand by the description, and as it was called by the former owner of my farm, of whom I bought. I may be at fault in the matter. It has all the appearance of the description of the Alexander.

Mr. J. M. Smith — I may be at fault. My impression was, that what is known as the Doty grape was a wild grape from Ohio.

Mr. J. P. Roe — This grape is a very firm grape, thick skinned, round and like a bullet. It is liable to mildew. It is an unfit grape for culture except for its quality of hardiness.

Mr. J. M. Smith — Have you tried Rogers' No. 3?

Mr. J. P. Roe — I have not. I have introduced but a few Rogers; I have been thoroughly satisfied with No. 15, with its bearing, market and keeping qualities. I know one gentleman in this city — I am at liberty to mention names because any statement I make here I am ready to back up with proof — Banker Roe has packed in the way mentioned here, and has kept the Rogers grape, and kept them until the month of August, and has had them in perfect order until the month of May.

Mr. J. M. Smith — I will state here that one gentleman you mentioned, Mr. Stewart, of Depere, has Rogers' No. 3, and he regards it as the best grape. It is an excellent keeper. At the agricultural convention at Madison, there were some of them in perfect condition, apparently just as good as they were the day they were picked from the vines. That convention was the first week in February. He speaks and thinks very highly of the No. 3, indeed, superior if anything to the Delaware.

Mr. Huntley — In speaking of mildew, in a conversation with Mr. Earl, the successor of Mr. Bennett, in our place, he says that he has used flour of sulphur whenever he has seen proper, and he never has been troubled with mildew when he has used it. Have you had any experience with it?

Mr. J. P. Roe — I attempted to use sulphur, but it sickened me so that I couldn't use it myself; and it is my conviction, in regard to mildew, that the prevention is better than the cure. I am perfectly satisfied, so far as my observation goes, and from everything I can collect that bears upon the question, that with proper drainage and proper summer pruning, there need not be any mildew. It is the result, evidently, of want of air. In my vineyard, the fall previous, I pruned moderately, leaving a large amount of wood, expecting to layer very heavily, procuring vines. I allowed more wood to remain, and in consequence my trellises were very much crowded. There was double or treble the amount of wood there ought to have been. After that severe frost on Saturday, which extended from Colorado to the seaboard, the extremities or ends of the vine on top of the trellis, and even down to the bottom, wherever there was the least opportunity for air, the grapes were in the most perfect order. As you approached the center where they were so crowded together, and where there was no opportunity for light and air, especially air, they were mildewed.

Mr. J. M. Smith — You said that, in your opinion, the rot was caused by exhaustion; are you sure you are correct in that opinion?

Mr. J. P. Roe — All I can say is, that some of the ablest speakers and writers, especially quite recently, those whose attention has been turned to the condition of things recently developed at Kelly's Island, have come to that conclusion. Now at Kelly's Island, from the very location of things there, the opportunity for obtaining large amounts of fertilizing material is extremely limited; and so far as we can learn, the process of taking "grape" out of the soil, as we say of taking "wheat" out of the soil, by continuous and heavy cropping without fertilizing material, has been going on there. At first, the returns from Kelly's Island were very satisfactory, and it had a high reputation for production and flavor; but last year the rot developed itself there, especially in some varieties, particularly the Catawba, and indeed, I think in all the vari-

eties. That is the best cause that I can find assigned for the rot, and others are coming to the same conclusion.

Mr. J. M. Smith — A good many years ago, a friend of mine put out some grapes on a soil that was naturally rich and was very heavily manured. He made it very rich indeed. The growth of vines was immense. He trimmed them and he got wood, but he never got a grape. They grew until at midsummer the grapes got nearly their growth and then they would rot. I noticed a bunch of grapes on those vines. The owner of the land laid it to having enriched it so much that it spoiled them. It seemed as if it was not for the want of the quality in the soil.

Mr. J. P. Roe — I think that is easily understood. It was overfeeding and inducing dyspepsia. There is more in that joke than I mean. I think you can overfeed.

Mr. J. M. Smith — It would be the same with a plant from overfeeding as with an individual.

Mr. J. P. Roe — Yes.

Mr. Fisk, of Omro — Do you think that the variety has anything to do with the rot?

Mr. J. P. Roe — I think there are varieties of grape that are more liable to rot than others; I mention, for instance, the Salem. Here, in the most favorable localities, as in the vineyard of Richard Harney, a very careful observer, and also as a grape-grower one of the most successful, with him the Salem was affected, and he was compelled to abandon it. There may be something in the original constitution of the grape. The Iona, which was sent out by Dr. Grant, in this section, if I am rightly informed, was a failure. I know with Henry Floyd, of Eureka, who is a very intelligent grape-grower, the Iona was a failure. The same methods were employed in the propagation of both of them. The Greenwood was used so as to mature quickly. They were forced with liquid manures; forced under glass. A great amount of plants were forced on the market at the time when the propagator thought he had a paying thing. Unquestionably, those vines had no constitution. They were destitute of constitution, and when brought to the test of our soil, periods of drought and severe winters, they went under. This, I think, is true of the Iona. Years of culture in the open air, a natural and healthy propagation by cutting and by layering, is bringing back to the Iona its lost constitution. With

me the Iona is one of the most valuable grapes, and it is succeeding admirably; developing fruit as well as the others. There has not, in the Iona, been the least appearance of mildew or rot. With the Walter I believe that the same process which has gone on will result the same. I believe the Walter will eventually develop a good constitution, and when it does it will be the best grape in point of flavor and keeping qualities that we possess.

Mr. Plumb — This subject is a very fruitful one, and I am glad to testify to the practical value of this paper. It covers a good deal of ground in a way that will undoubtedly be of permanent use to us. In speaking about the necessity of air, the writer of this paper struck a fundamental point. He said that the grape could be made successful on most any soil, provided it was properly fed; but when you come to the question of air, I conceive it to be one of the strongest points. That is a subject that needs especially to be understood. When the season is just right, from early growth of the fruit to fall, we borrow no trouble, but when the season is not just right, then we experience these difficulties that are spoken of, and which he spoke of during the last year, the summer of 1878. The result was the peculiarities of the season. I will not state what they were entirely, but with us it was, in the first, frost; in the second place, an unusual amount of moisture in the month of June. With those who went to either extreme, severe summer pruning, or a severe letting alone, the result was alike disastrous. During that summer I visited probably over a hundred vineyards in different parts of the state, carefully and critically. In Dane Co., in Sauk Co., and so on. I did not examine the vineyards in this part of the state much. I found those vineyards which were allowed to grow a great mass of points, mildewed. I found those that were severely pruned also mildewed. In the city of Madison, there are some vineyards pruned on the arm system, not the renewal system. They were so carefully pruned that they did not intend to let a single leaf or bud of the vine three inches beyond what they desired permanent shoots. This is the nipping process which stops at the second bud. That is a very elaborate system, and it is a beautiful system if well carried out. The result of that close system of pruning, in the city of Madison and elsewhere, so far as I saw last summer, was, that it did not exempt those vines from mildew, and where they were stopped at the top of the trellis, and not allowed

to go on, the result was that in the month of October there were hundreds of bushels of grapes hanging under the trellis.

On ex-Gov. Washburn's place in the city of Madison, which has been very successful hitherto, I estimated that there were in that vineyard at the time at least twenty-five bushels of Delawares, fifty bushels of Rogers' Hybrid, or at least a hundred bushels of grapes that were on the trellis under that close system. The Concord had adapted itself to that close trimming right in the immediate vicinity. For the want of foliage they failed to ripen. In the immediate vicinity, on Dr. Hobbins' ground, I found his vines were all pruned. We had a long discussion on that question. I said, "Doctor, were there any of your vines that escaped the summer mildew?" He said there was one vine. It was by the side of the garden. It got away from him, and went on the fence and into a tree. That vine was perfect. He said, "All the good Delawares that we got were on that vine that got away from me." I found in several places that they would start out all right, and where the vines had got away from them they had good grapes. They have learned a severe lesson in regard to summer pruning. Where you see the foliage has received a severe shock, stop right there. If you stop the growth of the vine, the leaves left are struck with disease and there is nothing left. Should you stop or go ahead? Want of air is a very prominent point. It all comes here together. I would suggest that the phyloxera, although it is not mentioned here, is doubtless one cause of the death of old vineyards. The phyloxera is an important disease which has prevailed in the old vineyards, and they will probably realize the necessity of having new vineyards in new localities.

We in the west are going to be comparatively free from them.

R. D. Torrey then read a paper written by Mr. Geo. J. Kellogg, entitled

STRAWBERRIES AGAIN — "FIVE BUSHELS TO THE SQUARE ROD" — PRACTICE AS WELL AS THEORY.

By GEO. J. KELLOGG, JANESVILLE, WIS.

Mr. President and Members of the Northern Wisconsin Agricultural and Mechanical Association: I was quite amused at the

discussion following my paper in the last volume of Transactions, pages 84, 93, and think there must be a want of *good, ripe* strawberries in your market, and I think some of your members want them measured in a bushel basket. Concerning the strawberry box, the bottom is set up to give proper ventilation in transportation, otherwise our strawberries could not be shipped over a hundred miles. Any of the quart boxes now in use, if properly filled, eighteen will fill a half bushel even full, but after shipping them five hundred miles and setting out in front for every admiring purchaser to try their flavor, no wonder they become beautifully less.

Mr. Torrey said: In connection with that I will read an extract from page 85 of last year's report, a question by Mr. Hutchinson:

"Mr. K. M. Hutchinson — There should have been a paper prepared by some one, to follow this paper of Mr. Kellogg, upon the most improved plan of preparing boxes for strawberries, so that we might get as few as possible for our money. I would have something to say on the subject, because I have to buy the most of my strawberries. I would like to have the bottom of the box put down where it belongs, instead of standing upon legs."

Mr. Torrey then read the rest of the paper of Mr. Kellogg's, as follows:

In this paper I wish to make the *practice* agree with the *theory* I laid down in my last paper.

On good sandy loam last season, the third crop on the same ground for three successive years, rows 16 rods long by 2 feet wide, gave 40 quarts at a single picking, June 25 and 26, 1878; and the average pick of these two days was just one-tenth part of my crop that was picked and marketed, besides a per cent. equal to the cost of picking that never gets into the box at all.

This yield equaled 20 quarts to the square rod, and ten pickings, making 200 quarts per square rod, or at the rate of $6\frac{1}{2}$ bushels per rod or 1,000 bushels per acre. This was a plantation of Wilsons, four years set, three successive crops, and the ground before planting was not as well manured nor as well tended as I recommended; no extra pains taken, no irrigation, no extra mulch, and no "Greeley turnip" experience either.

On another plantation, soil similar, with like treatment, a bed two years in fruit, three years planted, "Green Prolific," rows eighteen rods long, three feet wide, gave June 26th 54 quarts; being an

average of one-tenth the crop, which equals 165 quarts per square rod, or five bushels and five quarts, equal to 825 bushels per acre.

This is the "lazy man's" strawberry. It will give more bushels for the same number of plants set than the Wilson, but it is entirely worthless planted by itself; it is too soft for a distant market, and it is difficult to keep it over night in good condition.

Any pistillate variety must have a staminate near, say three to six feet, or there will not be a perfect berry.

The Wilson is the most perfect in the blossom of any variety we have. Set one or two rows of Wilsons and the same of any pistillate variety, and you are sure of a crop if other surroundings are favorable. But if you let the two kinds run together and wish to plant a new bed, you will find that in nearly all cases the pistillate variety makes so many more plants that your new bed will be a failure. This is the great cause of so many failures among farmers who get their plants of a neighbor, even though taken from what was first planted as pure Wilson. Often a single spurious plant will get in, or a seedling which is worthless, and soon spoil the bed, or if they hear of some wonderful variety and order of "Col. Cheney," Green Prolific, Agriculturalist, Russell's Prolific, or any other pistillate variety, set alone and you again have a complete failure.

Now I wish to make this practical; and if you like strawberries well enough to prepare a few rods of ground, and for ease of cultivation let it be a long strip, and not less than a good two-horse load of *well* rotted manure (not "*Hill*," as the printer made my last paper read) to the square rod, and follow my directions as found on page 80 of last report, or Mr. J. P. Roe's, page 92, and set the right kind, and you cannot fail. If you have no fence to protect your garden from chickens, either use lath or pickets, or go to the back side of the corn field for your strawberry patch.

Now I will give a short list of varieties, both old and new, and the sizes of berries that they have borne, many with very ordinary, a few with extraordinary culture. Those not marked with "P." are perfect enough in blossom to perfect the crop of fruit. Wilson, 5 inches; Green Prolific, "P." 5 inches; Charles Downing, 5 inches; Boyden No. 30, 5 inches; Russell's Prolific, "P." 7 inches; Triumph de Gand, 7 inches in hills, on clay soil; Knox's Jucunda, 7 inches in hills, on clay soil; Monarch of the West, 7 inches, best on clay soil; Crescent Seedling, new, choice, first quality, 5 to 6

inches, does well on all soils, with all kinds of treatment; this is another lazy man's strawberry; Col. Cheney, 8 inches, "P.;" set this beside the Kentucky, which is a very choice late berry, rather soft, 5 to 6 inches. If the Col. Cheney is beside an early staminate, uncover the Cheney a week the earliest. Capt. Jack, very profitable for market, firm, good size, good quality; Prouty, very prolific, medium size, uniform; Duchesse, 5 inches, very early and promising; Red Jacket, very promising; President Lincoln, 11 inches, next in size to Great American, which was fruited in 1878, 14½ inches. This last needs hill culture and clay soil. Pioneer, Forest Rose and Sharpeless, three of the most promising in this whole list, attaining to 9 inches, and every way worthy.

As I have about thirty kinds that bid fair to bear heavy the coming season, I hope to be able to prove their comparative value on light prairie loam.

The most profitable of this list of twenty kinds, I will give as near as I am able in the order named; those not yet proven, I leave out of the list: 1st, Wilson; 2d, Crescent Seedling; 3d, Green Prolific; 4th, Col. Cheney; 5th, Chas. Downing; 6th, Boyden No. 30; 7th, Capt. Jack. Perhaps I have gone too far now in classifying—some of the others will far exceed in size, and some require special soil and treatment, but the above will succeed usually on all soils with fair treatment. I must state one peculiarity of the Crescent, which I believe will make it the farmer's berry beyond all others—its *great vigor* and productiveness, will commend itself to those who cannot devote much time to the strawberry bed. The first year it is necessary to keep the plants well hoed, after which it is claimed on the best authority, and the vigor of the plant substantiates the fact, that the bed will remain clear of weeds and continue longest in good condition and productiveness of any variety we have, producing with neglect, 15,000 quarts per acre; and the quality, some think, almost equal to the wild berry. You will doubtless ask how I obtained so great a yield of Wilson, after most cultivators would have ploughed the bed under. Ground set 4 feet by 1 foot will allow a two-horse plow between the rows. When the bed gets old, put the plow down to the beam and then turn that furrow right back with as much soil as possible turned up. Do this between each two rows, then drag it lengthwise, until you get the ground as near level as you can. When you get through

with this treatment you may not be able to see a strawberry vine. This was the case of my bed after fruiting, July, 1877, and if you do anything with an old bed do it as soon as the fruit is off. This bed received but little cultivation, and yet you have the yield as stated, in which I cannot see any error, for the day's pick yielded an average of one-tenth of the crop. My first berries for market were picked June 12th, Wilson; last, July 14th, Kentucky. Touching the question of yield, let me state the contests in which, some five years ago, Mr. J. F. Morse raised five bushels from a square rod, and J. L. Jenks, Esq., four and one-half bushels on a square rod in the city of Janesville. In these cases the fruit was carefully picked and measured. Upon this was my paper based one year ago.

If any of you think I have overstated the yield of 1878, just set out a bed and follow directions, keep account of labor and amount of fruit; don't be afraid to put on the labor the first year; in the fall, *after it freezes up*, mulch with marsh hay, leaves, corn stalks, saw dust, chip dirt or clean straw, just so as to cover the leaves from sight. In the spring, leave all the mulch on the plants can get through, and if not enough between the rows to keep down the weeds and keep the ground moist, put on more; avoid hoeing or cultivating before the fruit is harvested; after the first crop you can mow the bed, or hand weed, cultivate between rows or keep the weeds down by mulch; set a new row or two every year, and let the old bed stand as long as it will pay \$25 per acre, beside the labor bestowed; let it "go to grass" if you must, and *then* it will often produce twice the number of bushels to the rod that you can get of potatoes with the best of treatment. All beds after fruiting, either new or old, should have a liberal top dressing of well rotted manure.

A good deal was said about the wild strawberry. I have grown them in quantity in my nursery; they never increase much in size, and at 50 cents per quart would not pay. Among the new varieties we have some kinds nearly equal in quality, of large size and production; but I doubt whether "K. M." would pay twenty-five cents a quart for Knox Jucunda or *wild strawberries*, when he can get *well ripened* Wilson and Crescent Seedling for ten cents per quart. Wilson, *well ripened*, is good enough for anybody, and Crescent is a good deal better, to say nothing of 25 other kinds that are special favorites.

In conclusion, I will extend an invitation to any and all the members of your convention to visit my grounds during the latter part of June, and eat, and see, and measure for yourselves, and compare the thirty varieties, of which I have of new plants in nice condition for fruit not less than half a million.

Mr. R. D. Torrey — Mr. Hutchinson last year raised another question. He says: "Is it a possible thing to raise a cultivated strawberry, that will have that rich flavor that we get in the wild strawberry? Would not the wild strawberry deteriorate? Would they go back? Would they keep up the flavor of the wild strawberry, as we get them out in the meadows and on the hillsides anywhere? Of course we know that there is more richness, more flavor in the wild strawberry than in any we cultivate, but whether they would keep that flavor under cultivation I do not know. It is worth trying, for a quart of wild strawberries is worth half a bushel of some of the cultivated varieties to my taste."

Mr. K. M. Hutchinson — I am satisfied, and I still remain satisfied, that the trouble lay in this pistillate. You run them out. You must cross them with some other variety, otherwise you can not raise them. I know that many patches of strawberries on my father's farm one year would bear abundantly, and the next year there would be no fruit at all. I think that is the reason you can not cultivate them. I would like to hear your opinion, Mr. Roe.

Mr. J. P. Roe — I would rather hear Mr. Smith on these points.

Mr. J. M. Smith — Two years ago the city of Green Bay was ruined in the strawberry line. There were not two beds in the city that were worth anything, from the fact that they were overrun, not with pistillates but with staminates. The only two beds that were not overrun with staminates were two beds that I was cultivating. The pistillate, as a general thing, will overrun other plants, and they will cease to bear; but the staminate, which, of course, never bears under any circumstances, is still worse than the pistillate. I would as soon have Canada thistles on my ground as to have staminate plants. I want to say a word with regard to the Crescent. I put them out last spring. When they came into blossom, I examined them very carefully, indeed, with a glass, and it seemed to me that they were a pistillate variety, pure and simple. If there were any staminates, they were so small that I could not find them with a magnifying glass. I did not set them

far enough from any others so I could test them, because I had other plants on two or three sides of them that would fertilize them. If they are a pistillate, as I presume they are, they will be found to be failures by the common farmers, because not one farmer in twenty will take pains enough to keep the proper number of staminate near them. They will overrun. If they are close to the Wilson they will overrun the Wilson in a very short time and crowd them out. I would not advise the farmers to get the Crescent Seedling.

Mr. K. M. Hutchinson — You admit the point to be a correct one, that the reason why you cannot raise the wild strawberry is because one will run out the other.

Mr. Plumb — From my observation, I think that the wild strawberry is a hermaphrodite.

Mr. K. M. Hutchinson — Then they will not run out.

Mr. J. M. Smith — Have you examined them?

Mr. Plumb — I have not very recently.

Mr. J. M. Smith — Either you or I are mistaken on that point. I have examined a good many wild blossoms, and it is very common that you will find a patch of strong, heavy blossoms; and you examine them afterwards and you will not find a berry. I have been led to think that they were not properly fertilized. In some cases they are staminate and in others pistillate. I think you will find, on a close examination, that the three varieties of plants extend to the wild one. There are three distinct varieties of the strawberry plant, the staminate, or male plant, the pistillate, or female plant. The staminate never bears under any circumstances. The pistillate only bears as it has been fertilized by some of the others. Then there is the hermaphrodite, which has staminate and pistillate both. The Wilson is the most perfect of that variety, having staminate and pistillate both, bearing without any fertilization. Those three varieties are distinct.

Mr. Plumb — I have no doubt, in fact I know, there are those three different, not varieties, but orders, as you might call them, but I think that wherever you find a wild patch prolific you will find them self-fertilized. That is my impression about that. When the question was first brought up as to the sexual character of the plants, by Langworthy, of Cincinnati, I then gave it considerable attention, but since growing the ordinary berries, I must

confess I have not paid much attention to it for several years. I want to say a word in regard to the Crescent Seedling. I know that friend Smith here is putting on the brakes. It is all right he should do so, but the testimony of those who have grown it most is that, under all circumstances, it is very fruitful. With me they have proved themselves very fruitful. They are along, row by row, with perfect blossoms, with the Wilson, and others of the pistillate variety. It is sufficiently self-fertilizing to answer all purposes. I do not know, even if it does require fertilizing, why the farmer cannot grow a little patch of the Wilson and a little patch of the Seedling. If he grows half and half, he is sure of fertilization. I know of a patch of Green Prolific. There were no Wilsons within sixty rods. He put them out by mistake. I told the man when he put them out that he would fail to get a crop. He supposed he was planting part Prolific, but he was planting all Prolific, by mistake. Later in the season, he picked bushels and bushels off that patch. The first setting seemed to be a failure. This shows that they were first fertilized from some distance. They must have been fertilized from other plantations at least thirty or sixty rods away.

Mr. J. M. Smith — They were probably fertilized by bees or insects.

Mr. Plumb — Yes, sir.

Mr. Huntley — It seems to me that a man in experimenting should not give conclusions of what can be done in one section. If I understand, that was not the way our friend Smith measured his berries, taking a picking and supposing that you are going to get ten times as many by ten pickings. I heard that Mr. Kellogg measured the land, throwing out the alleys. That he measured the land the width of the row, and calculated that if it had been solid it would have been so much; that he made one picking and calculated that ten pickings would be ten times as much. It don't seem to me that that is the kind of measurement that we can rely upon.

Mr. K. M. Hutchinson — That way of measuring is very clear when you consider the size of the vessel he measures his strawberries in. [Laughter.] Mr. Kellogg, in his paper, referred to my criticisms last year, and I have prepared a little answer to it. It will appear in this volume, and is rather a personal matter be-

tween Mr. Kellogg and myself, so I will pass it to the secretary without reading it.

Mr. R. D. Torrey — I would suggest, Mr. President, that we have it read.

Mr. K. M. Hutchinson — When Mr. Torrey received this document he told me something of what this subject was and how he treated it, but I had no opportunity to prepare anything more elaborate, and this is what I have written. Mr. Hutchinson then read a paper as follows:

One year ago we had a paper on the culture of strawberries, and how to raise 800 bushels to a square rod, or five quarts to a square acre, or something of that sort, by Mr. Kellogg, of Janesville. This paper appears to be a continuation of the same subject. The subject was fully discussed then, and if I remember correctly, those engaging in it were incredulous that the feat could be accomplished.

Among other points raised in the discussion, was the injustice to purchasers of strawberries being sold short measure. Market men and merchants generally give full measure or weight, as the case may be, but in the sale of small fruit, particularly the strawberry, the case seems to be different. For a yard of cloth you will invariably get 36 inches, not thirty. For a pound of sugar or coffee you get sixteen ounces, not twelve, but for strawberries you generally get one and a half pints. The reason why this short measure comes about is, that the boxes are so constructed that the bottom is placed by the manufacturer about one inch higher up. The real reason why this was so is announced in this paper just read. It is ventilation. It is essential that strawberries should be ventilated, says Mr. Kellogg. Why not ventilate the strawberry box question also? If one inch space is essential on the bottom of the box why could not the box be made one inch higher, or in other words, speaking architecturally, why not put a mansard roof upon the box. It is possible that another year we may get a continuation of this important subject wherein the question will be successfully answered, that strawberries need ventilation on the top as well as the bottom.

The fiat seems to have gone forth that small fruit boxes shall be so constructed. *Fiatism* seems to have invaded the strawberry question. A few years ago the city of Chicago, by an ordinance,

sought to regulate the sale of these small fruits, but one of the small dealers, being impressed with the importance of ventilation to his boxes, took the case into the courts and he got his case and the ordinance was repealed. Thus you see *flatism* has invaded the courts also, and with this condition of things existing, I do not anticipate any reform in this particular.

I do not doubt Mr. Kellogg's statement of his wonderful yield of strawberries, nor would anyone else doubt it when we see the size of the vessel he uses to measure them with.

Mr. Plumb—There is ground for the fault found in regard to the strawberry boxes, undoubtedly. We will say it originated in the spirit of selfishness of the fruit growers. They are selfish, like other men. If you receive berries in your section from southern Illinois, what are called Egyptian berries, you get small boxes. If you receive them from Michigan, you get fair sized boxes. Michigan manufacturers have two sizes of boxes on their list. They say distinctly, which do you wish—No. 1 box or No. 2 box? No. 1 box is the one that takes out the ventilation. The No. 2 box is that which gives a clean legal quart in cubic inches, in a heaped box, besides the ventilation. My impression is that, so far as I know, all berry growers in this state are adopting that larger size box. I have always used it. I have never used any other. I have grown and marketed from 150 to 175 bushels a year for a good many years. The retailer says: "We will buy your berries, but we will make a reduction, for we cannot measure them out in our quart measure and sell them. Let us see your measure. *Let us take a box and empty it." They never measure but once, for they cannot get my quart of berries in their quart measure. In picking, I fill our boxes with full corners and then heap the box, and we have a full quart measure that will measure out an even quart; and if fruit growers in this state will universally use these boxes, it will be to their advantage. The ventilation is necessary. One of the largest berry dealers in the state of New York was in our place last summer, just after the strawberry season, and he said to me: You don't know anything about the necessity of ventilation. Your strawberry boxes with the ventilation space are necessary. You will throw away your other boxes, and use them again. You will find the consumer will pay twenty-five per cent. more for your berries if you give them a little more ventilation. The berries are

too short-lived. They do not reach the consumer in proper condition. I say this in favor of the ventilated boxes.

Mr. K. M. Hutchinson — We get strawberries from our home people, who live about a half a mile from town, and I will take care of the ventilation.

Mr. Huntley then took the chair in the absence of Mr. Hutchinson.

Mr. Plumb said: I have hung up here a map of the state of Wisconsin, not because I want to teach you geography, but I wish you to understand that my starting point in all this work, is the fundamental question of geology and soil formation.

Mr. Plumb then read a paper entitled

FRUIT GROWING IN CENTRAL WISCONSIN.

I must confess to be "the man with a hobby," for as I look over the volumes of this society's reports, I find that in 1877 I gave an outline of the natural conditions of soil and climate of the eastern part of this region, embracing all within the basin of the Fox river and its tributaries.

This is divided into four natural districts, viz: The *Archæan* region of granite rocks and heavy timber.

2. The *Sandstone Jack Oak* region of the Potsdam sandstone.

3. *Galena, Trenton* and *Lower Magnesian* limestone formations.

4. The immediate valley of the *Lower Fox*, from Fond du Lac to Green Bay.

In the last volume of your report I enlarged upon this theme, giving special directions for the treatment of orchards upon sandy lands, and now I shall endeavor to lead you further, as my observations have been wider in the past year. I think I am sustained in all I have told you before, and wish you to read up the volumes of 1877 and 1878 of this society that you may with me watch the progress of fruit growing as a permanent interest in central Wisconsin, and become familiar with the causes which tend to success or failure.

I am more than ever convinced that where the best locations are taken, the best selection of varieties is secured; and the best mode of culture and pruning adopted, central Wisconsin will excel in the production of the more hardy apples, pears, plums and grapes. This excellence will be manifest in four ways.

1st. The absence of many of the diseases and insects of more southern regions, such as twig blight of the tree, now one of the most formidable and destructive affections of the fruit tree in the south; also insects which destroy the foliage, and mildew upon the grape.

2d. Beauty of coloring and polish of the surface, beyond any found south, and the absence of fungoid growths, which spring into active life at the least provocation in the south, giving a scabby, fungus surface to the fruit, which strikes in and causes rapid decay when injured or past the prime.

3d. The greater keeping quality of the hardy varieties grown here. This prolonged ripening gives you the Fameuse, Fall Orange, Plumb's Cider, Utters and Alexander, as winter apples, when if grown 100 miles south they become only fall apples.

4th. The success of the grape here is purely that of the climate, which gives a healthy foliage to the vine, and the currant which we do not have in southern Wisconsin and further south.

Add to these conditions the fact of a near market: a *home market* which is yearly increasing beyond the home production. I think I may safely say that not one-tenth the fruit is now consumed in this region that would be for the health of the people, or will be consumed where it becomes as cheap food as bread or of *home production*, for only where fruit is produced at home will it be in general use in the family of the average farmer and laborer. You who may be residents of the larger towns and cities are luxuriating in good cheap apples from the east. But the average farmer will not buy at any rate. He must produce it or his family will not enjoy it.

The peculiarities of the past season have given us much food for thought and study. In the southern portions of the state we had, in early spring, an unusual promise of fruit. But the thirteenth of May we had a severe freeze which destroyed much of our young fruit. In the summer we had blight upon the foliage which ruined the remainder of the crop to a large degree, causing it to drop, be misshapen and of poor quality. This was apparently from the want of nourishment. The unusual amount of moisture in the early summer is given as one cause of this peculiar blight. We had more than our usual complement of worms, which we may always expect after a mild winter.

In this region you had less rain fall in June, and a remarkable
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healthy foliage except where the forest caterpillar prevailed. Your fruit was remarkably fine and abundant; free from blemish of any sort. The finest specimens of Duchesse, Fameuse, Alexander, Russets and Ben Davis I saw anywhere last fall were grown in this region. The most beautiful, perfect specimen of Fameuse I saw last year, I picked in the city of Oconto. The finest collection of pears were from Green Bay. The plums from the Niagara limestone soil to the east of you cannot be surpassed in the Hudson river country, and in the production of grapes this city and valley is not excelled east of the Rocky mountains.

Such is the soil and climate of this region that the Russets fairly outdo the world in size and perfection of fruit. Yea, more! The Siberians put on the colors and put in qualities which they never knew in the south.

I assure you, my friends, that these are facts; then why should you ask for a more southern clime for fruit growing? For myself, I confess to a plan which I dream of; which looks to a permanent fruit growing enterprise not far from the genial waters and limestone bluffs of the Lower Fox, 100 miles or over from my present home.

I believe there are natural advantages for commercial fruit growing in this region which are full equal to any that Michigan offers.

My observation confirms my former statement that "latitude is a secondary consideration," for I find in latitude 44 to 44½, clear across the state, varieties doing well under what we now know to be favorable conditions of soil and elevation, viz.: The top of the hills, with no sort of windbreaks, but with a firm soil of clay, or clay loam, upon a limestone basis, or its equivalent, the archæan clays of the north.

Geology—Soil formation is the basis of fruit-growing as well as of agriculture in general, and the more important because within the province of man to modify more than any other of the natural conditions. These we can elevate or depress, drain or saturate, enrich or impoverish, shade or sun, shelter or expose. But where the soil is deficient in elements, the case is very different, and such will require the addition of new elements. We find plenty of sunshine to mature the grape, and all the most valuable fruits, and time to grow good, strong, healthy wood.

We have less of extreme changes and but little lower in the ag-

gregate than 200 miles south. I may say for this winter, that while in central Indiana and Illinois they find almost every apple and pear much injured from the cold of early winter, we are cutting scions for spring grafting as safely as in November.

Varieties— Nothing will answer but the *test from root graft to full bearing*. That test should be full and impartial. We must have varieties that have constitutional vigor to cope with our climatic and soil conditions. Blood will tell. The Duchess of Oldenburg takes first rank for its season all over the northwest, and when we have a full list of the family well sifted, it will be more hopeful for a home supply in the north.

Nomenclature— I am often surprised and vexed at the inexcusable laxness, if not dishonesty, of some growers and dealers in naming fruits. It is a matter that societies should attend to, first, by having really efficient and competent committees, and making it their *duty* to correct all possible misnomers at our *exhibitions*, and assist those who are in doubt. If exhibitors were required to have fruit correctly named, they would gladly avail themselves of the committee's assistance, and every farmer would soon become too intelligent to be deceived by unprincipled dealers.

New Varieties— Concerning the new varieties originally within our state, I believe we have in them valuable additions to our hardy list of apples and Siberians. We have carefully experimented with over one hundred of the most promising that have come within our reach, and in common with hundreds of other varieties from other states, we find most of them to have some good qualities, and most some serious defects, when put to the test of comparison with our *best* of the old list. Yet we are slowly and surely developing a new set of varieties especially adapted to our needs. I have much hope for the beautiful apples of Waupaca county origin, brought out by the efforts of the Waupaca County Horticultural Society, some of which I hope to see illustrated and described in your next volume of reports.

There is just now quite a furore for apples of Russian origin, under a sort of impression that they are synonymous with all good in the apple line. They "take" well, and give a new "dodge" to the "tree peddler." Their real merits are not new to intelligent growers. We have had Tetofsky, Fourth of July, Astrachan, Red and White, Duchess, Alexander, and other varieties of this class in

our nurseries for many years, and the new importations will doubtless add to our list some varieties of equal merit for hardiness and fruitfulness. But they are not all "Russians" that come from Russia. I believe them better for the north than the south, being improved in quality and healthier in tree, and the question now is, "Have we a winter apple of good quality among them?" I fear not, and my reason is briefly this: They are too coarse in texture to ripen in cold weather. All good, long-keeping apples are fine-grained, compact, heavy, with rich juices. Such it must be to mature its juices in winter, and such I have not seen among the Russian type of trees. In company with Prof. McAfee, I visited and carefully examined the Russians in the experimental garden at Washington, in September, '76, and made a collection of immature specimens which promised well for winter keeping, but found, as I have since, that none of them proved at all worthy in winter. I regard them of especial value to hybridize with the Siberians, which will give us fineness of texture and concentrated juices with sufficient size, and vigorous, hardy trees for unfavorable locations in this latitude, and general use north of the present range of apple growing.

"Necessity softens asperities." I found in Chippewa county, Wis., late in October, Hislop crab of wondrous size and beauty used as a common table diet, simply baked, very acceptable and nowise unpalatable. So you should go for the better class of Siberians, which will give a good and reliable supply of home grown fruit for summer and winter use. The improved varieties of this class are exceedingly fine in texture and flavor, and adapted to all the wants of the family.

The hybrids of this class make very fine stocks to top work some more tender kind upon. Not that it will make more hardy or long lived trees, but that when they fail, the choice Siberian or Russian will remain to renew the tree at no great loss. As stocks, they promote vigor and early maturity of the tree, and early bearing be the result; but when we root graft we must rely mainly upon the scion for our ultimate root, in its character for hardiness.

Next to soil, comes *form of tree and culture*. I recommend and urge heading the tree low, even at the ground.

All the best conditions of culture, pruning, bearing, picking, and health of tree are best secured by low heads.

Cultivate no nearer the trunk than the outside of the tops.

My idea of the perfection of culture for the fruit tree in this climate is to seed down with clover (or weeds) as soon as the tree is well established, and mow the grass weekly through the summer, letting the product remain on the land.

Very little pruning is required or safe in this climate, and that should be done during the growing season only, by stopping excessive extension or thinning out the young shoots; sprouts should be removed as they appear.

These questions of *where to plant, and what to plant, and how to cultivate*, are each broad enough for a lecture, and should each be solved before the first step is taken in tree planting. I will condense them all in three recommendations:

1st. Plant on high, dry, firm soil, or make the soil so by ridging, draining or dressing with clay.

2d. Plant varieties you know to be successful in locations similar to your own.

3d. Top low and grow slow; secure early growth and early maturity of wood, and keep a perpetual mulch by a grass sod frequently cut and spread around the tree.

After reading of Mr. Plumb's paper the following discussion took place:

Mr. Smith said: I have seen it stated that what we call the Walbridge in this state, is called in Illinois and Iowa the Edgar Redstreak, and in the east the Cogswell. I would like to ask if the three are one and the same apple?

Mr. Plumb—The Walbridge originated in the county of Edgar, state of Illinois, in 1818, and the Indiana Horticultural Society named it the Edgar Redstreak. It was brought into Wisconsin about twenty-four years ago without any name that I know of. Trees were scattered all through the state of Wisconsin, and some of them at Baraboo, and it was named after a farmer by the name of Walbridge. It received that name, supposing it to be entirely a new variety. After years of controversy it was traced back to its old home, and Mr. Charles Downing called it the Walbridge. Our society has not seen fit to change it, and it is known throughout the northwest as the Walbridge.

Mr. Huntley— I see that Mr. Tuttle, who propagated it more largely than any man in the state, now puts it down as worthless.

Mr. Plumb — I guess it is not the Walbridge.

Mr. Huntley — It may be a mistake in the print, but it is in the last volume of transactions.

Mr. Plumb — I am not saying anything about the Walbridge for Central Wisconsin, but for the state of Wisconsin. There is no apple with its twenty years' test that stands as high as it does, but when the Ben Davis has had its day, I question if the Walbridge will stand at the head.

Mr. Smith — My son set out a small orchard, and among the trees I think there are eight or ten or a dozen Walbridge, and there are no trees in that orchard that look as well and promise as well as the Walbridge.

Mr. Smith moved that convention adjourn until half past one o'clock P. M. Carried.

At half past one o'clock, the convention was called to order, Vice President Hutchinson in the chair, continuing the discussion of the forenoon.

Mr. Plumb said: Prof. Riley tells the people of Missouri that the annual destruction by insects in that state of their farm crops exceeds all the expenses of the state government, county and township; and he goes further than that. He says the annual destruction caused by destructive insects in the state of Missouri cannot be computed by any known data. It is enormous. He leaves it in that way. There is no question about that, and the question is such a large one that the state of Iowa, the state of Missouri, and the state of Illinois, all have their state entomologists; and they are scientific men — men who have made that a specialty, and they are regarded as the most useful men in the state. The state of Wisconsin has no such officer, except by the appointment of our State Horticultural Society at our recent session. We have appointed Dr. Hoy, of Racine, as our state entomologist, but his work is simply a gratuitous work. He receives no pay for it. We wish this matter brought before the farmers of the state in conventions, so that, when opportunity offers, the state may give more attention to the subject of the insects that destroy the crops in all directions of both the farmer and the fruit grower. Now, in reference to the destruction of insects among fruit, I will not speak of anything else, only incidentally. After various experiments with traps and machines for catching insects, we have come down

mainly to two positions. In the first place, we believe, and we find it to be a fact, that nature has provided for every insect which comes in large numbers a natural enemy which follows closely. Twenty years ago, fruit growers thought that our trees were going to be ruined by the bark louse, that oyster shell bark louse that prevailed all through the southern portion of the state.

After a few years, we learned that trees moved from Wisconsin to southern Illinois lost those bark lice in two years. The southern Illinois people said, "you had better leave Wisconsin; the lice are going to eat you up. Come down to southern Illinois; we don't have any lice here." It looked very plausible, but very soon we discovered that the bark lice were leaving us. We found a little enemy, a chalcideous parasite, technically called; an insect so small that you can hardly distinguish it with the eye, which would go into those shells and destroy those eggs. There was an insect which, all silently and obscurely (not one man in a thousand ever saw it), has done away with the old bark louse, completely annihilated it from the state of Wisconsin, so that all we have got left are those shells. I mention that simply to show that throughout the range of these insects there is a natural enemy. We need to encourage the natural enemy. Our school children ought to be so instructed that when they see one of those little insects, instead of saying "that is a bug, I will kill him," they will say, "that bug is my best friend," as the gardener says of the toad. I venture to say that our friend Smith would not have a toad killed in his garden, nor would he the little insect called the ladybug. There are several varieties of them. We would not have one of them destroyed. I would not have an ant destroyed. I have heard farmers say "the ants are ruining my trees; if I could only get rid of those ants my trees would be healthy." That little ant is your best friend. It does not disturb a thing, but is invaluable to you, and he lives and preys upon those insects, upon certain forms of lice which would otherwise increase. We need to understand which are our friends and encourage them, and they will help us very much. We cannot wait for them. It is found that certain poisons have been used; as I remarked here before adjournment, the most efficacious and cheap remedy that we have in the way of poison is arsenic. Farmers have been paying from thirty to sixty cents a pound for Paris green to use on potatoes when they can accomplish the same good at one-tenth of the

cost with arsenic. One pound of arsenic in solution with eighty gallons of water, will go about four times as far, from four to eight times as far, in the destruction of the potato bugs, as one pound of Paris green.

Mr. J. M. Smith — Why not mix it with plaster?

Mr. Plumb — You can't do that. In using arsenic in the destruction of those insects that prey upon the foliage, you take a pound of arsenic and put it in a gallon of water, and boil it twenty minutes, and then it is very difficult to dissolve. The chemists tell us you cannot dissolve arsenic but you can suspend it in water. By that process you can dissolve it sufficiently so that you can saturate and poison eighty gallons of water with a pound of arsenic prepared in that way. Our usual way is to boil it fifteen or twenty minutes; then we set it aside to stand until it settles, and then we turn out the clear liquid and use it in those proportions. A year ago last summer I commenced experimenting. I used a pound of arsenic to sixty gallons of water. I thought there was no strength; I couldn't taste it. I told the boys to use it pretty freely. Where they used it on the potatoes, it killed the potatoes just like fire. Then I diluted it still more. I got up to eighty gallons of water and found that did pretty well. Judge Dixon, of Iowa, says a pound of arsenic, if fully dissolved, will poison one hundred and twenty gallons of water, sufficiently for all practical purposes for the destruction of insects. Now the question would be, how far can we go in the destruction of insects with poison? The first insect that appears in the spring is the canker worm. I presume that a million dollars would not cover the cost of the trees that have been destroyed and ruined by the old-fashioned canker worm in two or three counties in the southern part of the state, within my observation.

It is found that those trees can be perfectly freed from the canker worm, at a cost of from two to five cents a tree by this solution of arsenic. It should be applied just as soon as the tree comes into leaf. The eggs have been laid the previous fall or the present spring by the female moth. They hatch out with the first start of the leaves upon the tree. They are so minutely small that they are not ordinarily discovered until they have made considerable progress. Then is the time, when they first start, to use the poisonous solution, and if they are not very thick, one application

is enough; two applications are sure for that season. The American caterpillar, which has come from the forests to the orchards of this vicinity, is the second. They come early in the spring and then come later; the second coming in the month of July or August. I have not seen them in the month of August. I have seen them after they had gone. I have been told they came in July and left the latter part of August. That is the extreme northern country.

Mr. K. M. Hutchinson — You mean this caterpillar that eats the black oak trees?

Mr. Plumb — Yes, sir. They come from the forests into the orchards.

Mr. K. M. Hutchinson — They are in the city now.

Mr. Plumb — You will find in the city very large clusters of eggs on a tree. They are distinct from the other caterpillar in size. They can be just as surely destroyed with this arsenic solution if you will use it upon them.

If you find that they are coming in such exceeding numbers that you cannot destroy them with this solution, you want a band of stiff paper or tin put around your trees, so as to prevent their going up. It is a very serious matter, and if not attended to promptly and in time, they ruin the tree. The currant worm is one enemy that has come. I don't know that you have it here, but they are coming upon you rapidly.

The currant crop is one of the most important crops you can have here, perhaps, next to the strawberry and the grape. I mean the worm that preys upon the foliage. They come suddenly. They will cover a currant bush, perhaps, within three or four days after the first are observed. You will find them there all at once. Apparently they come very suddenly. You need to be watchful. You need to apply this solution.

Mr. J. M. Smith — I do not believe we have any.

Mr. K. M. Hutchinson — I do not want to prolong this discussion. I have got a plum tree. There are not any plum trees within half a mile of it, but this year it had blossoms and fruit. I thought it was so isolated that I took no precaution, but I found every plum punctured by the curculio. Did you ever hear of the remedy of jarring the trees and collecting what fell in blankets or sheets, and burning them?

Mr. Plumb — I will say in regard to the curculio that it is the

only enemy of the plum tree. The plum trees in this state have produced as well as trees anywhere. The further northeast you go, the better they are. The curculio is the only enemy you have. It is a little bug. It is a little bit of a fellow. Under the supposition that they crawled up the tree, one of our entomologists, a scientific man, exhibited at our meetings a trap. He had a section of a tree with a collar around it. I showed it to Dr. Hoy and asked him about it. He laughed and said, "that man don't know a curculio." The curculio is a kind of a sluggish, dormant, soft, piggish sort of a bug. His home is in the ground. He stays in the ground almost constantly, or on the surface, but at certain times of the day, when the air is still and everything is quiet, he flies up out of the ground and into the tree and does his work and goes back again. Now if you commence in the morning about nine or ten o'clock, just after the dew leaves the tree, at the time they fly up, and give the plum tree a jar at the time when the plum is first falling, giving the tree a quick blow, they will drop. If you have a sheet under that tree you will catch them. There is no trouble at all, and they will lie right there until you have time to pick them up in your hands and bottle them. If there are large numbers you want to gather up the sheet and shake them out into a pail of water. There is a trap made of a sheet suspended on a frame attached to a wheelbarrow. A man wheels it right up to a tree. As soon as he gets up to a tree it is arranged so it gathers right around the tree. Then he has a pole in his hand and gives that tree a sudden jar, and down they come into the sheet. The sheet being in the form of an inverted cone, they all roll right down in the center, and he shakes them out and gathers them up, and goes to another tree. There is no patent on it at all.

Mr. Lake — What is the manner of applying this poisonous solution to the trees?

Mr. Plumb — With a force pump. A year ago last summer I met a man on the streets in Janesville. He was in a great hurry. He was a young man from the town of La Prairie. Says he, what shall I do? The worms are eating up my trees. Well, I knew there were canker worms in that vicinity. Said I, you go right into the drug store and tell them you want a pound of arsenic, and tell them you want it to kill insects with. If you don't tell them that, they will charge you about twenty-five cents a pound. If you want

it to kill insects they will let you have it for ten cents. Then you step into the hardware store, and you will find a little bit of a force pump you can get for four dollars and a half, and I told him just how to use it, and he went on and I went on. A week after that I said, what success did you have? I got arsenic and I got the force pump. The next day I went to work. The neighbors wanted to borrow it. Now, says he, that cost me \$4.50. If four of you will put in a dollar apiece, we will own this between us. Now, his investment in that was just \$1.25. It went through the neighborhood. There was some five or six of the neighbors used that machine. As I said, we get arsenic for ten cents a pound for this purpose, and the result was, there was no question but just that little investment of that young man, made on the spur of the moment, was worth to those farmers in that vicinity hundreds of dollars; and what was done there can be done all over the state. We meet obstacles in the way of fruit growing, and it is just so in regard to house plants. How many times I go into a house and the lady says, my plants are suffering some from the lice. What shall I do? I presume, perhaps, some of our ladies will tell their experience in that respect.

Mr. K. M. Hutchinson— I know what will kill green lice very well, but I cannot kill the red spider.

Mr. Plumb— The red spider is just as easily killed with tobacco fumes.

Mr. K. M. Hutchinson— They will chew tobacco. I have fed them on tobacco all winter.

Mr. Plumb— Tobacco is almost a sure antidote for all insects.

Mr. K. M. Hutchinson— It is not an antidote for the red spider. Here I have a little green house that is heated with hot water, and there is a little galvanized iron tank and that is filled with hot water, and it is open. I have placed a couple of sticks across that, and put plants on those sticks right directly over where the steam envelopes the plants entirely. They tell me a moist atmosphere will kill the red spider, and I have kept them there for a week, and they were larger in a week than when I put the plants there, and livelier.

Mr. Plumb— I think Mrs. Robinson has a paper, published in our last volume, in which she relates her experience in killing the insects on house plants.

Mr. K. M. Hutchinson — Her red spiders have reached a respectable old age, and are ready to die anyway. Mine are all young.

Mr. Plumb — If fumigation by tobacco will not kill the red spider, I do not know of anything that will.

Mr. K. M. Hutchinson — It will not. There is one man that can do it by fumigation, and he does it with sulphur, but it is not safe to do it.

Mr. Plumb — I was going to say something about that. All people ought to be careful about the use of sulphur. They have been recommended, the fume of sulphur for mildew and all sorts of fungoid diseases, for years. I have come to the conclusion, as Mr. Roe expresses in his paper, that instead of growing mildew, and killing it after it is grown, we never should grow it. We should grow our trees as not to render them susceptible to fungus. When a man is sick he wants a cure, but the better way is prevention. I say this because I want to talk in connection with the idea which was brought out, and that is entertained by a great many, that fungoid diseases can be cured by the application of sulphur. Of course they can be helped. You can destroy the fungoid but they remain! Fungoid will come again. If you have any fungoids on your trees you want to find out what they are.

Mr. Fisk — Can you kill the curculio with arsenic?

Mr. Plumb — We have a man in our county that says he can.

Mr. J. P. Roe — I have heard of another cure for the curculio. Not exactly a cure, but something in the way of prevention; and perhaps some of you have heard of it in the convention. I have tested it only but partially. My partial test thus far has been partially a success, and I would rather try it further before I could give it as a cure. It is planting a tomato vine under the plum tree. They say that the curculio does not like the odor of the tomato, and where I have planted the tomato under a plum tree, I have had plums thus far, I know. It is said that the geranium will drive away certain species of snakes, indeed, nearly all. They cannot endure the odor of the geranium. In regard to planting a tomato vine under a plum tree, I have heard of it from one or two sources. I tried it last year and I got plums where I planted the tomatoes; where I did not I failed. It is certainly a very simple and cheap remedy if there is anything in it, and it is worth a trial.

Mr. K. M. Hutchinson — Why cannot the plum tree be enveloped by mosquito netting?

Mr. Plumb — That is hardly a practical remedy. To be sure it can be done, but it is not practical. In the last two or three years there has been a good deal said about putting fresh stable manure under the tree about the time the curculio appear. That was as the tomato plant was with Mr. Roe, apparently a success, but after a while it was found that it failed. I believe it will be so with the tomatoes, or any thing else of that nature. The first trial may be apparently a success, but the curculio comes back. The fact is it is only a kind of a scare. There is nothing dangerous about it and he comes back. All those things will fail, and you must come to the simple matter of catching them.

Mr. Huntley — I would like to inquire of Mr. Plumb if there has been any thing under discussion as a preventative of blight.

Mr. Plumb — Blight is a sort of a general name for quite a variety of affections that come very suddenly upon the foliage of the tree, usually either upon the foliage or the tree anywhere — a class of affections that are obscure. Their cause and their progress is obscure. The most that we know about this is, that when we see a tree affected we see the effect, but the cause we do not understand. The general theory in regard to blight has been that it was caused by the attack of fungoid or cryptogam, and therefore it must be doctored as such; hence we must use sulphur or some other application to destroy the fungoid growth. But as I remarked before, I came to the conclusion years ago that back of all that lay a primary cause and that it was, in common language, a disease of the circulation. Some obstruction. Something unnatural about the circulating forces. Now, blight comes suddenly. The first we see of it is that it looks as though there came a blaze of fire across the limb or some portion of the tree, and burned it and killed it. It seems something very mysterious, but the conclusion I have come to and which others are coming to, is, that it is primarily a disease of the circulation. It is caused by a rupture of the cells which contain a circulating fluid; or by a want of circulation from some changes in the temperature. Medical physiologists tell us that the process is adding cell to cell, and that it is by the force of capillary attraction that the fluids which the trees absorb from the ground pass through the cells to the extremity of the tree. If a severe change

comes at a particular time, the leaf, perhaps, will fail to do its office. The result is the sap that is there stagnates; it sours; it spoils, and then it is open to the attack of fungoid. Fungoids attack it at once and the result is death.

Now, if that be a true theory, the cure lies back of that. A tree must be grown in such a way that all these functions of circulation and of digestion and assimilation and excretion, and all those natural functions, will be naturally performed in their due time and season. That is the foundation for our remedy. Our remedy lies, then, in having such proper conditions. Ninety-nine one-hundredths of the pear trees we find in the west have died by blight. What saved the one-hundredth? They say because they were upon the top of some hill where they had a free circulation of air. That promotes health, because they had just sufficient nutrition in the soil to give the tree just about food enough to eat, and no more. That promotes health. When we have excessive rains, and excessive sunshine in the month of June, the blight appears. A little starvation just then, having the ground sodded over with grass, will prevent the blight. Blight does not appear under those circumstances, ordinarily. That is the remedy, then. The remedy for blight is in a healthy growth; all the conditions healthy. I want to be understood. I do not believe there is any application of sulphur, or any certain application that is going to stop the blight and cure. Some people say it starts and goes all over the tree. That is not the fact. If you stop the conditions that produce the blight, you have found the remedy.

Miss Ella Giles, of Madison, then read a paper entitled

HOBBIES.

By ELLA A. GILES.

A man that's married to a *hobby* is a man that's marred! In his essay on Concentration, or Oneness of Aim, Prof. Mathews says truthfully, "Surely man dwarfs himself if he pushes too far the doctrine of the subdivision of labor. Success is purchased too dear, if, to attain it, one has to become a monster of one-sided development." Less readily do we assent to his statement that "a man who would get on, must single out his specialty, and into that

pour the whole stream of his activity—all the energies of his hand, eye, tongue, heart and brain.”

Any line of thought or study, any labor of hand or brain, if followed thus exclusively, will narrow the mind. Do narrow minded people get on, or progress, in the best sense of the term?

The present age has produced many men and women whom we accept as beautiful instances of broad and generous culture. They show us the nobility of manhood and the strength of womanhood when it has consented to drink at any fountain where the thirst of the higher nature can be satisfied.

A mere specialist in any department of life becomes but a human factor in a social or economical science—a cog, pulley, lever or screw in some great machine. He may be able to accomplish valuable work, but it is at a sacrifice of all that makes life full and free. He defeats the end and purpose of existence, which is the complete development of all our powers, the perfection of our nature. The adoption of a specialty necessitates monotony of action, unless, with one grand object in view, varied activities are kept awake, and different faculties employed. Men and women who mount hobby horses will find them obstinate steeds, who like to travel only in one direction. It is difficult to turn them. But the rein must be drawn, and the lash applied, if the hobby rider's natural course does not sometimes lead through the broad highways of life.

Varied information can be obtained only by treading diversified paths; and we all know that subjects which are apparently remote from one's calling may be brought into close approximation to it. The narrow-minded may deem certain acquisitions a hindrance, but, sooner or later, they are found to be a help.

Thoreau cared only for the latest news from woods, hills, rivers and meadows, and many called him a one-sided man—a hobby rider. But although he was a specialist and achieved his reputation as a prophet of out-doordom, his was not a narrow and contracted mind. He was “alive from top to toe with curiosity.” All his senses were alert. He possessed a faculty for seeing the minutest thing. Nothing escaped him. There was no restraint on his widest thought. His predominant gift was a clear and powerful eye, says one of his biographers, with, however, a busy brain behind it.

In any profession Argus eyes are eminently desirable. A horse

with blinders (and hobby horses always wear them) may choose his path more carefully, and is less apt to stumble than one without those appendages. But people with mental or spiritual blinders, that allow them to see only the road that lies in front of them, to the exclusion of the fields by the way-side, with their many-hued flowers, their varied shades of living green and broad acres of golden grain waiting to be harvested, are in a pitiful condition.

While it is true that "the man who would know one thing well must have the courage to be ignorant of a thousand other things, however attractive and inviting," one cannot fail to see that the most prominent and powerful men in the world to-day, who are lifting it to a higher plane of life and thought, are those who entertain the most benevolent and comprehensive views, the most generous and liberal spirit. The most brilliant and successful men and women in both ancient and modern literature belong to this class. They gather sweets from wayside blossoms and condense them into a honey-comb. One fragrant flower may be to them a great element of strength, but the delicate flavor of their writing is sipped from such various cells that the most subtle test fails to reveal all the source of their inspiration.

I know that such men as Stuart Mill, who was not only an able writer on metaphysics and politics, but a botanist, a fine pianist, an archaeologist and philologist, are rare, yet they are forcible illustrations of my theory. I have been filled with wonder in reading the life of Leonards Da Vinci, who was, in addition to being a great artist, a metaphysician, mathematician, musician, poet, sculptor, engineer, architect, botanist, anatomist, astronomer, and well skilled in mechanics and natural history. He, too, may be cited in proof of the fact that varied exercise of the mental faculties produces a healthy development, and that a man may be distinguished as a specialist in some one particular field of science, art or literature, while being more or less familiar with all.

It is said of Humboldt that he became thoroughly acquainted with chemistry, astronomy and terrestrial magnetism, and, as the investigation of one subject leads to another, for the reason that there is a mutual dependence and a necessary connection between all facts, he became acquainted with all known sciences.

"His fame does not depend so much upon his discoveries (although he discovered enough to make hundreds of reputations) as upon his vast and splendid generalizations," says Ingersoll.

Sydney Smith censures what he calls the foppery of universality, of knowing all sciences and excelling in all arts. The modern precept of education, he writes, is, very often, Be ignorant of nothing. His advice is to have the courage to be ignorant of a great many things, in order to avoid the calamity of being ignorant of every thing. There is justice in this censure. I do not believe in a multiplicity of pursuits, but only in that generous liberality of thought and genial spirit of good will, which we have been told "makes insight—as one finds his way to the sea when embarking on a river." I would not, by any means, imply that there is any sense in mentally cramming ourselves, until our eyes start out of our heads, and we are in perpetual danger of intellectual apoplexy. We need not be guilty of mental dissipation, but, as we "gang our ain gait," we can keep our eyes open without squandering or abusing our energies. In works of art, do we not often see a great variety of detail with perfect harmony and unity of conception? So in the conduct of life, there may be a hundred accessories which shall all contribute toward one grand result.

Dr. Adam Clarke used to say: "The old adage about too many irons in the fire conveys an abominable lie. Keep them all agoing, poker, tongs and all!"

I read in a newspaper, a few days ago, of a St. Louis woman, who notifies on her door plate that she is an elocutionist, poetess, washer and ironer. It is quite probable that she excels in only one of these accomplishments, washing. But she is evidently one of those wise individuals who seeks to broaden her narrow sphere, and even her seeking makes it less confined.

I know there are many who will not agree with me. They will say that broad culture and many-sidedness are beautiful to contemplate, but that it is the narrow edged men, the men of single ideas and intense purpose, who steel their souls against all else, that accomplish the hard work of the world and who are in demand everywhere where work is to be done. But look about you. Where you will find one man who has wasted his talents by too generous distribution of his thoughts, you will find twenty who have pushed one-ideaism so far that, while they are not self sufficient, they are by no means companionable to others. The world abounds in dwarfed specimens of humanity. Society is full of one sided people against whose angularities we are always falling. "Has not

every profession its peculiar tendencies that more or less cripple, mutilate or warp those that devote themselves to it too exclusively, paralyzing this or that mental or moral faculty and preventing them from attaining to a complete, healthful and whole souled manhood?" There are men who have such a passion for political power that they ignore all other considerations. They crush in their hearts all feelings of tenderness, because they interfere with their ambition; but finally look out from the prison yard of thought into which their hobby has carried them, with such hungry, home-sick eyes that no one envies them their personality, however high a position they may have attained.

Symmetrical development of body, mind and character is possible for nearly every one. We need not expect to find a perfect man or woman, but in order to find one who approaches perfection, there is no reason why we should be obliged to take a brain from one, a heart from another, and feet and hands from another. The popular literature of the present day, the manuals for general use in every department of knowledge, the means of a truly liberal culture, which are within the reach of all, leave no excuse for those who see, talk and know nothing but the shop. "'Tis not a compliment but a disparagement to consult a man only on horses, or on steam, or on theatres, or on books, and, whenever he appears considerably to turn the conversation to the bantling he is known to fondle," says Emerson. "We must leave our pets at home when we go into the street, and meet men on broad grounds of good sense." Nevertheless, if we are generous, tolerant and charitable, we will regard with none but kindly feelings men and women who are mounted upon hobbies if they will only ride valiantly and gracefully. Bayard Taylor, whose death is so deeply lamented by admirers in various walks of life, was an editor, traveller, lecturer, poet and diplomat. No more versatile scholar has appeared in American history. He was not a great genius, he was not a specialist, and he is an excellent illustration of the fact that talent, industry and observation reap a worthy reward.

I can but rejoice that the ranks of mere specialists are not so full as they once were. Ministers used to be known by their clerical coats, their white neck-cloths and the purely theological tendencies of their minds. Now it is often difficult to tell when we meet one outside of the pulpit, whether he is a learned divine, a

physician, a scientist, or a distinguished member of congress. Standing on the border line of doubt or the precipice of uncertainty, we may even wonder if he is not an insurance agent — and carry our sacrilegious suspicions so far as to speculate upon the nature of the policies he issues!

My idea of a seamstress used to be a thin, pale, sharp-faced woman who looked like a living needle. Now I know it is possible to find one who is plump, pretty and winning, and who can talk as well about books, pictures and statuary as she can about bias bands, patterns and the latest styles; because with all her work and worry she reads the newspapers every day, and listens to a [mind-enlightening and soul-inspiring sermon every Sunday. And all the week her brain is as active as her hands; for although she may be cutting dress-skirts narrow, it does not affect her intellect, and she widens her sphere of thought. I know just such a seamstress, and she makes me hopeful for the great mass of toiling women who, in this day of golden opportunities, have great thoughts brought to them and new ideas which they can skillfully fasten on the gracious garment of their minds. Weavers may from mere force of circumstances grow to resemble animated shuttles, but by enlarging their scope of observation they can discern rare beauties in the complicated machinery of human life. They can trace a distinct and beneficial purpose in life's pattern, as clear in its outlines and as harmonious in its combination of light and shade, as that in the cloth upon which they work.

Farmers need not appear like walking plows, and are less apt to be like them than many city people seem to think. It is possible for them to convince the world that they were made, not only for the honorable purpose of tilling the soil and inhaling the odor of the resinous woods, but for enjoying the fruits of knowledge and wisdom. Farmers, more than any other class, should be broad and liberal in their views. Their minds have all out-doors to grow in. If they will let down bars of distrust and prejudice, they can see beyond immediate results, beyond the sowing and planting and reaping, and find in their toilsome duties texts of infinite suggestiveness and beauty. The weaver need not become a web, the machinist a machine, nor the farmer merely an agricultural implement.

Men and women of all grades of society and all professions are

learning that it matters not so much what they are doing or where they are standing, if they but carry the right eyes with them, open their minds to new ideas, make use of their opportunities, and wisely employ the powers of acute observation which have been given them.

It may well embarrass a machinist if he cannot tell a daisy from a milkweed blossom; and a botanist, if he does not know a gear wheel from a friction wheel.

Not long ago a newspaper reporter, in describing the bridal toilet of a friend of mine, stated that she was most becomingly attired in a cream-colored silk with a bunch of calla lilies at her throat — meaning, of course, lilies of the valley.

Men and women need not try to be equally well-versed in all the sciences, nor spend much time on subjects foreign to the secular vocations in which they are actively engaged. But there are innumerable avenues to an intelligent perception of various truths. It should be our object to improve and harmonize our natures in the fullest sense by making the best use of all our powers. Thus shall the culture of our intellect be real, our consciences enlightened and our hearts fed with generous sentiments which shall perfect us in our common employments and lend a grace to our common actions.

Mr. J. M. Smith — Many of you have been familiar with Mrs. Ayres' papers which she has written for former conventions, but you have never had the pleasure of having her appear before you and read one of her own writings. I take pleasure in introducing before you, Mrs. D. C. Ayres, of Green Bay.

Mrs. Ayres then read the following paper:

THE FARM AND THE FARMER'S WIFE.

BY MRS. D. C. AYRES.

The farmer's wife, she who passes her life upon a farm until it is thoroughly incorporated into its daily routine, and regular yet varied duties.

For one uninitiated by practice, to enter upon the details of this life, or to attempt to describe labors of which she knows nothing practically, would be manifestly absurd; permit me therefore to

take what I will call an outside view, looking rather at what she has *not* than at what she has, at what she *does not* than at what she does.

With the weight of responsibility which rests on the mind of the wife of the farmer, the household cares, the everyday duties which fill each hour, an incessant round of homely, yet necessary labor, how shall she rise in proportion to the degree with which her husband is rising in the estimation of the nation? As cultivated, intelligent men take up the occupation of farming, its influence increases. The farmer holds the wealth of the nation in his hands. The most inventive, energetic minds of the day are busily thinking out the problem of tilling the ground. How then shall the wife reap the benefit of these changes? This question has puzzled and is puzzling wiser heads than mine.

Like all other feminine minds of these times, the farmer's wife is learning to claim full equality as her right. The man who works in the field and the woman who works in the house, should be equally interested in the improvement of the land and home, sharing each other's toils and anxieties. While improved machinery is used on the fields, it should also be brought into the house, and every available means used to lighten the labor there. We hear of wonderful machines which will do the work of eight, ten or twelve men. Where is the machine that will perform the labor of eight women, and where is the farmer who will present his wife with one, if found?

The home columns of some of our city newspapers reveal much of the life of different women in city and country. While on the one hand it is pitiful to hear women boasting of passing away their time in making cloth animals and all sorts of monstrosities, it is also pitiable to hear the cry of overworked and overburdened wives and mothers, coming up from the rural districts of our land. Of all women who rise to toil, and lie down to the rest they are too weary to find, the hard worked wives of the hard working farmers seem to stand first. Nor is it easy to tell how it may be avoided. One of the first resolutions made by a farmer's daughter seems to be, not to marry a farmer; and they generally embrace the first opportunity to engage in some occupation precluding the danger of having to do farm work. The boys frequently choose farming as their business simply because they are fit for nothing

else, and will select wives who will be as smart as mother, that is, will do as much work as three women ought to do, and die before they grow inconveniently old and inefficient.

Yet on the well ordered farm with its cheerful home, bright with gay, young faces, attractive with books, music and flowers, is the truest independence and the most thorough comfort to be found. No doubts rise as to the future. Well filled storehouses, barns and poultry yards attest the certainty of plenty. The aid of every kind of available machinery, in doors and out, all working in unison, makes labor easy; family interest and family enjoyment are synonymous. Girls educated for sensible women, find helping mother, not a burden, but a privilege, while opportunities for cultivation of intellect and observation, assist to form a useful and happy womanhood.

The farmers' wives of this day are, and are to be, the mothers of the farmers of the next generation. According to their standard is to be that of their children. If they keep pace with the times, cultivate home graces and home interests, lead them in the path of rectitude, honor and progress, the result must be farmers of increased intelligence and corresponding power in the nation. A farmer's boy in his quiet home listened to the words of a loving mother, and storing them in his heart, lived to bless them for the impetus to noble deeds of self-reliance and courage. Yes, lived to act out the lessons of truth, purity and honor. That mother's boy became the "Father of his country." He whose patriotism was part of his religion, and who would rather be president of a struggling republic than a friend to wrong. Who shall say that Mary Washington did not help to mould the destinies of our country; if every farmer's wife might bring up one such boy, our nation would indeed be the proudest of the earth.

Every farmer's wife needs much that only a favored few possess; and the consciousness of the want makes the deprivation greater.

She needs more religious privileges. I am not of the opinion that man *can* do without religion, but woman *will* not. Most men can, however, bear the loss of opportunities for religious enjoyment with great equanimity, while it is a real isolation to most women. The distance from the place of worship, the family cares at home, oftentimes the want of suitable clothing, all preclude attendance at services which would bring a blessing in more ways than one. The

rest of the Sabbath is lost just where it is most needed, and the family grows up without the restraining and refining influence of its holy teaching.

She needs books. Many are starving for want of food for the mind. When the farmer takes his county paper, does he select one which will also interest the "*women folks*," which has a story column, and a young people's corner? Or does he think it sufficient to keep up with the price of crops, and not at all necessary to waste time on nonsense? A good newspaper, carefully read, is of itself an education. A good magazine is a source of pleasure and usefulness. Information of every advance in literature, fine arts, politics and farming also, may be found in many of those published at very low prices. Four or six farmers could form clubs and have plenty of good reading to interest each member of the different families; and steady advance in cultivation of intellect would be the result. It would help wonderfully to lighten hearts heavy with care, and furnish new sources of interest.

Let mothers in farm houses see to it that their children read good books; not those teeming with sensational, pernicious teaching of dishonesty, craftiness, indolence and everything dangerous to nobility of life; but pure, healthful, pleasing, with such characters as may be imitated and admired without evil influence.

Flowers are a need of the farmer's wife. Ah, you say, where is the time for their care? It will come. The front yard of the farm house fenced in, and cleared of poultry and animals, will be the place. Here and there a bed of plants, brilliant with bloom and fragrant, will rest the tired eyes, and freshen the wearied lives. Only a little time is wanted; pulling up a weed as soon as it is seen; tying up a plant ere it droops; a few seeds dropped here and there, some kindly hand stretched out with gifts of plants and cuttings; what a fresh impetus to life it would give, this opening of the heart to the beautiful? When we visit those in want, let us take seeds and plants, in addition to other and more needed things; so shall nature's life of beauty be born in some waiting souls.

Social interests are needed by the farmer's wife. We have seen this developed in the agricultural picnics of Brown county. They have been a bond of interest among neighbors, and brought the farmers of our rural districts into closer fellowship. If agricul-

ture is to-day progressing in our county, it is due mainly to the interest awakened in these meetings, in which the farmer and his wife both share. It is an outside interest, yet one concerning her daily life; and every woman needs something distinct from, yet pertaining to her ordinary interests, to which she may look for pleasant intercourse, or she is in danger of becoming narrow minded and circumscribed in her action. A mutual interchange of thoughts and feelings must always be an advantage on both sides.

The last need I will mention is perhaps palpable only to a feminine mind. It is that of better dress. I would not seem by this to desire to develop a taste for fashionable, frivolous follies, which would be utterly inconsistent with all the surroundings of a farmer's wife; but a certain degree of self respect is elicited by the feeling of being suitably clothed. A friend in the country once boasted to me that she was going to a farmer's picnic in a dress made ten years ago, and shouldn't mind it a bit; but when she was there, and saw how differently she appeared from others, she *did mind it*, revealing the fact that dress is of some importance in these days, when every newspaper contains hints of fashion, when sufficient neat dress material can be purchased for a dollar, and a suitable pattern obtained for a trifle. There is no reason why a little of the hard earned money saved from the farm should not be used for the women of the family in this particular. There is not much danger of the farmer's wife ever having time to become a devotee of fashion.

Having thus presented a woman's idea of the needs of the farmer's wife, I will leave it to other minds more capable of grappling with the subject, to say how they shall be obtained, only hoping that at some time in the near future, these simple yet beneficial adjuncts to every woman's life may be found in all the farm houses of our land.

Mr. Huntley — I would like to say a word on one or two points of that paper; still I don't feel confident to talk on the subject. I have had a little experience in one or two things that Mrs. Ayres speaks of, and I find it is so true. One point is, the taking of periodicals.

I have had a little experience in teaching children. I am doing it now. I can pick out every one of the scholars in my school to-day that have access to newspapers that are suitable for them. They

received an education before they got into the school house. Their mothers have read to them. They have read themselves in the children's column, and as they grew, and as their minds have grown, they also have had reading that was appropriate. I believe that one good paper, coming weekly, is worth more than a year's education of the school room without it.

Another point is socials, or the visiting of farmers together in Brown county. We have the same now. We formerly had a farmer's club in which the farmers met, but the wives were seldom seen. We found that did not answer, and we changed to another form, and the wives meet with us now every month.

It has been a great source of pleasure and profit to the farmers' wives I know. I have conversed with a great many who have attended them, and they are growing in favor and are looked forward to as a holiday, and a day of recreation and profit.

Mr. Hutchinson — Do the ladies usually take part in those discussions at the meeting?

Mr. Huntley — There is one lady and one gentleman appointed to read original papers or selections, and discussions follow on those papers. There are twelve or thirteen families that have agreed to meet twelve or thirteen times a year, once a month, at the residence of one of those farmers. When we meet there, that farmer's wife takes all the trouble of providing the table and entertaining the guests. That gives every farmer and his wife eleven meetings in which they have no trouble except to go and be entertained. After dinner come the papers, and then comes the question basket and discussion upon farm topics, some topic previously given out; and the ladies have taken fully as much interest in the discussion as the gentlemen.

Mr. K. M. Hutchinson — That is a sort of an agricultural convention in a smaller way.

Mr. J. M. Smith — I would say a word in connection with the Brown county society just referred to. It has been some five or six years since it was organized; two or three years it was reorganized and put upon a broader basis. We have had picnic meetings in the summer. They have been very successful and very interesting.

In June, our discussion was the matter of cutting and curing hay. It was estimated by one of our most intelligent men that the

hay of Brown county was worth ten thousand dollars more than it would have been if that meeting had not been held.

Our discussion brought out the point that our hay was left uncut until it was too ripe. There was a great deal of interest taken in it. Previous to this winter we have held our meetings in the council room, but this winter we have followed pretty much the same plan as Mr. Huntley speaks of. The meetings are very interesting and very successful; and it is a noticeable fact that Brown county farmers have improved at a very rapid rate indeed, and it is owing very much to those meetings.

Mr. K. M. Hutchinson — I want to concur in what Mr. Huntley has said in regard to the value of the papers by these ladies, and perhaps I ought to make an explanation. I see the secretary has placed me on the programme for a paper on "Hobbies." I announced to him the subject, and he remarked that he had another paper on the same subject, from a lady. I didn't write any more. I stopped right then and there, and I am very glad I did.

Mr. Torrey — I believe you did state to me your subject, and something of the manner in which you handled it. I believe you did say that any business man could succeed better in his business with a hobby than without it, with one exception.

Mr. Huntley — Let us have that one exception.

Mr. K. M. Hutchinson — The man that sings never can succeed in a regular business, but a man without a hobby does not weigh as many ounces to the pound as a man that has a hobby. He is rather apt to be weak.

Mr. Torrey — I now take pleasure in introducing Mrs. H. M. Lewis, of Madison, whose topic is "Garden Revelations."

Mrs. Lewis then read the following paper:

GARDEN REVELATIONS.

BY MRS. H. M. LEWIS.

O, the summer, the beautiful summer; how dear it should be to us all, with its fresh, green leaves, lovely flowers, blue skies, balmy air, and joyous birds. Let us endeavor to live in the present, and enjoy each day of it, for it will too soon pass away.

"There is no price set on the lavish summer,
 And June may be had by the poorest comer,
 And what is so rare as a day in June?
 Then, if ever, come perfect days;
 Then Heaven tries the earth if it be in tune,
 And over it softly her warm ear lays;
 Whether we look, or whether we listen,
 We hear life murmur, or see it glisten."

How kind of God the giver to have made this earth of His so beautiful. Why did not He make it a desert, and create men with no capacity for the enjoyment of His beautiful creations. But no, He has created man but little lower than the angels, and He has made a world full of astounding beauty for his enjoyment, bodily, mentally and spiritually; and if man will but study it, love it, and enjoy it, in the right spirit, it will not have been made in vain for him. One beautiful June morning when all nature was overflowing with joy, beauty and gladness, I heard a long-faced, sorrowful man pray to God, that he would close his eyes forever to the beauties of nature. Methinks such a man unfitted for Heaven; he could not enjoy Heaven were he there, for God intends us to measure Heaven by the world he has given us here, and He loves this world of his.

"'Tis man's own sickly blunders makes the world deformed alone.
 Who know it most, see beauty most; who know it least see none."

The poet truly tells us, "There is a lesson in each leaf," and if we but open nature's book to read her secrets, what a mine of wealth and knowledge is before us, to cheer us in the dreary pilgrimage through life, for

"Nature never did betray
 The heart who loved her."

A traveler once asked Wordsworth's servant to show him his master's study. The servant replied that he would show him his master's library, but his study was out of doors in the garden. Let us, this early spring morning, refresh our senses by a pleasant walk, as we go arm in arm through Wordsworth's study, the garden; and perhaps we, like Shakespere, may

"Find tongues in trees, books in the running brooks,
 Sermons in stones, and good in everything,"

as we inquire into the mystery of the plant life that is so abundant about us, and perhaps we may discover, to us, some new truth, which Leibig says is adding a new science; but we cannot expect to fully comprehend and fathom nature's mysteries, for that is a lesson to be learned in the millions of years to come.

The first object of interest that greets us is the apple tree, for it seems to have had the most ancient and mystical history of all trees, as it made its advent upon earth before man, and, when man did appear, it was the means of getting up the greatest revolution the earth has ever known. The apple is mentioned often in the old testament. Solomon says: "Stay me with flagons, comfort me with apples." And again: "As the apple tree among the trees of the wood, so is my beloved among the sons." The apple tree has migrated from the east to the west with man, and it still goes marching on. It can truly be called the most healthful, useful and delicious fruit grown. In 1836, in the horticultural garden of London, more than 1,400 varieties of apples were exhibited. The number of varieties in our country exceeds that. Probably hundreds of apple trees in what is now known as Ohio, Illinois and Michigan, owe their origin to an eccentric individual commonly called Johnny Appleseed (Jonathan Chapman), who in 1801 transferred in two canoes lashed together, on horseback and on foot, bushels of apple seeds from the cider mills of Pennsylvania to the frontier. The lone traveler stopped at every inviting spot to plant the seeds, traveling hundreds of miles on foot, forgetting pain and weariness in his work for the coming man. There is an inexpressible charm hanging over the eventful history of the old apple tree, and we love to linger in its atmosphere; and as we accept the proffered seat under the shade of its branches, a voice is heard to say: "See what a living tree I am. I have my season of growth as well as of rest. I have the power of selecting from my mother earth the elements for my healthy growth. Millions of invisible pumps are drawing for me food and drink for my hungry mouths. I am using my forces silently, but I have a power within me, a power more mysterious and powerful than the mighty Corliss engine. Understand and explain by what means I carry nourishment from the earth to the topmost bough. Ah, man! that is a secret; a something you can never fully understand.

"My 300,000 leaves with more than a billion pores are my lungs;

these I use for exhaling and inhaling the gases surrounding me. In the fall I pack most carefully and orderly the new leaves, blossoms and fruit into a tiny trunk for the coming spring, then give again to mother earth her leaves that she has loaned me for my summer uses, for her future needs, and I drop into a sweet, long winter's sleep; but my great heart still beats, and my circulation goes on languidly, until my mother says: 'Arise and shine, my children, and rejoice with me, for the season of rest is over and gone,' and I put forth my tender leaves and beautiful flowers so delicately tinted and perfumed, that they delight the world. After I have gladdened you in the early spring time, I drop my petals like gentle snow flakes around me, and the growth of the fruit expands and ripens upon ever bough, until at last it is 'touched by the soft and unseen pencil of nature with tips of gold and shadows of crimson.' And when you pass by me in the cool of the evening, you shall breath an atmosphere so delightful and refreshing, that the very gods envy me. Am I not, dear one, the apple of thine eye?"

The sugar maple, with spreading bough and dark green, glossy leaf is the near neighbor, and we listen as it says: "Man can learn the true laws of architecture from me; please examine my symmetrical structure, graceful form, lines of beauty, and airy grace; also the firm foundation on which I stand. I send out millions of fibrous roots that penetrate the earth in every direction. Some of them plunge down so far that they reach never-failing springs. This water sustains and invigorates me through the dry season, and if you would make a thorough examination of my virtues, thrust an iron into my side early in the spring before frost is gone, and witness the throbbing and beating of my pulses as my sap ascends. Have I not been gathering sweets from the earth for my summer's needs? Catch my delicious juices if you will, and analyze them; you will find their crystals as pure and beautiful as those of the diamond. Very early I put out my scarlet leaves and tassels, and some members of my family shower down beautiful winged, lace-like seeds of scarlet and pale green before the leaf is half grown."

While conversing with the maple tree we spy an English Ivy clinging to the bark, which we try to disengage, but in vain, for it seems to have become a part of the tree. My companion exclaims: "What can this mean? Roots growing out of the ground? I thought roots were made to grow in the ground." The ivy sweetly

replies, "My dear, these aerial roots enable me to climb over bush, stone and castle wall, and when I have established myself they hold me as firmly in place as if I was planted in the ground."

Then we speak of Washington's old church in Alexandria. My friend says it has become a bower of lovely green. At one time an effort was made to exterminate it, as the roots were growing into the cement to such an extent that the building was in danger of weakening. But cutting it off at the ground was of no use, for the vine would not yield until the cement did, and in despair the effort was abandoned. Dear old Ivy, stand firm, hold fast, and when the walls crumble and fall to the ground, you shall go with them to beautify the ruins with your drapery of fresh, bright, living green.

The study of vines with their various ways of growth is most instructive and interesting. We will stop for a moment to examine the vines growing in the rustic hanging basket. First the Maurandia, with its delicate little heart-shaped leaf, we find growing upwards, over the handle of the basket, even into the tree, as it inclines only to an upward growing, and clings to the support by the leaf stalk. If perchance we oblige it grow over the side of the basket, it constantly holds out beseeching hands to us to lift it up. But the Lineria inclines only to a downward growth, and finds its true place only as it falls over the basket.

The rustic hanging basket alone is revealing to us many mysteries of plant life, and as we study it, we are astonished and delighted at the workings of nature, for she varies the arrangements of growth, as if to show us that she will be "fettered by no rule." The Galium, bed straw, or goose grass, is spied nestling down among her more cultivated companions; let us listen to her rustic story: "My home is in the wild woods and I delight in cool, shady spots. If you wish me to climb to the top of the basket just give me a slight support, and train me upright; if over the side, to cover the basket, just direct me downward; in either way I am content. My leaves grow in whorls, and are very rough; if you examine the end of the leaf you will find there a sharp curve, or hook; by these I climb. My jointed, four cornered rough stalk also assists me as I rise. My very small white flowers are borne in clusters, and if you will arrange them with showy companions like water lilies, I am sure you will be pleased with me, for at a distance I resemble mist.

Many, many years ago, thrifty matrons and blooming maidens

perfumed straw beds with me, therefore the name 'bed straw' that is commonly given me." Over the side of the basket the striped purple and green jointed Tradiscantia is hanging; let us examine it critically: We first discover that the stem is hollow, and that it is filled with water. This enables the plant to live months without soil or moisture. It is in fact almost an air plant. The purple in the leaf unconsciously discloses the color of the flower, telling its own little secret, as the majority of the plants around us are doing each day; and what a pleasure to discover these precious little secrets. We regretfully leave the lovely vines climbing up or creeping down, as inclination and habit dictates, and pursue our studies.

Hark! I hear a feeble voice saying, "Brethren, whatsoever things are true, whatsoever things are lovely, whatsoever things are of good report, if there be any virtue and if there be any praise, think of these things; and remember that God made nothing by accident or in vain. Everything is made and controlled by fixed laws, and there is good in all things. Look at me, as I grow in the gravelly walk under your feet; I am meek and lowly, but useful. I have some characteristics that my showy neighbors envy me. I can foretell what the weather of the day will be, and I have many pleasant visits and chats with merry school girls. When you see my blossoms fully expanded, you can be certain of a sunshiny day; but if, in the morning, I hold down my head and refuse to open my eyes, defer the picnic until another day, and take the umbrella with you, for you will need it before night. Try me, and prove me, for the chickweed is the soul of truth and honor."

As we enter the summer house, the California Sedum is discovered by my friend, whose interest now is greatly awakened, as the little plant relates its own history: "I belong to the stone-crop family, a family that delights in growing over old walls and stones. I was fastened to this lattice two months ago by my mistress, and in a few days I delighted her with signs of life, for I began to develop my tiny plants on the edges of the leaf. Slowly the growth went on, until three perfect plants with roots, leaves and stem appeared, that are now objects of great wonder to all beholders. Some old people avoid me because they believe I am drawing my nourishment from the animal life surrounding me; but they are mistaken; for the elements of my growth are obtained from air and moisture."

My friend inquires of the Agave (American century plant), if that too is of use to mankind. When it boldly steps forward, bristling with thorns, and makes the following characteristic speech: "I am one of the tropic's favorite sons. You seem to forget how deeply you are indebted to the tropics for the beauty of the greenhouse and garden. I thrive and enjoy most perfect life where it would be suicide for others to attempt to live. Nature has refused to give to my family of five hundred species beautiful forms of body, but we are content, as she has more than compensated us by giving us the most beautiful flowers in the vegetable kingdom. Some of my family have caught the glory of the flame, others the rosy sunset, and again some reflect such a pure, tranquil beauty, that we could almost fancy it akin to the moon. Nearly all of my family develop the full blossom about midnight; therefore we are looked upon with superstitious awe in the east, and one of my family is planted as a symbol of the resurrection when the dead is laid away. The multiplicity of curious flowers in my family exceeds imagination. Some creep upon the ground, others live upon trees, and some varieties are trees themselves. We are at home in the desert, where no other vegetation is found; at the mouth of the volcano, in the low valley, and on the mountain top, sometimes mounting to the line of snow. And one of my family makes its home in Wisconsin, even growing as far north as Lake Superior. Many varieties have edible fruits as delicious as figs.

"Of myself, individually, I can say when I reach an advanced age, anywhere from twenty to seventy, I send out an immense stalk crowned with thousands of blossoms, and my work is done — for my life is ended. But I hear your inquiries as to my uses. If you open my long, thick leaf, you will perceive that it is filled with hundreds of fine fibres, as fine as the spider's web. If the leaves are macerated, these fibres are converted into fine thread that will make lovely lace, strong twine, thread, hammocks, etc.; paper is also manufactured from the leaf. If the traveler is without water, he can pierce my leaf and obtain enough to satisfy his thirst. If the cattle are hungry, the leaves can be cut into slices and fed to them, and they will have an appetizing meal. If the innermost leaves are torn out, juice will flow for a year or more, which, by inspissation, yields sugar, but which, when diluted with water and allowed to stand for a few days, becomes the agreeable but intoxicating drink

of the Mexicans called *pulque*. Mexican Indians not unfrequently sacrifice both fortune and life to obtain it."

Our journey through the garden, like all other pleasant things, must end, and we bid you a reluctant good-bye, hoping that the little ramble of the morning may benefit by giving us a new taste of Nature's sweets, uses and beauties.

The poorest laborer who enjoys his garden in full sympathy with the objects of nature about him is seldom unhappy, for he can have lovely trees, fruits, flowers, and green pastures, and riches can add but little more. And the magic of the cheerful laborer's spirits will light up his face with a radiance never seen on the face of a millionaire, for beauty can be made to come as gladly for love as for money.

The very name of garden charms us with its dear old associations and memories. Let us remember that the garden was created in perfection on the very morning of creation. It was in the garden that the Lord walked in the cool of the day. It was there that He fainted. It is also "hallowed as the chosen resort and repose of the Messiah, scene of his passion, place of his sepulchre, and witness of his resurrection."

Then ensued the following discussion:

Mr. Plumb — I can express, in very few words, my approbation of this paper, and the sentiment and the material of it. The line of thought there comes home to me with special force. My whole life, since I was able to handle a hoe, when I commenced making flower beds for my sister as a childish employment, has been filled with this love of nature. And with my more mature years, and, I perhaps might say with my declining years, this love, instead of growing less, has increased from day to day, and the thought came to me a few days ago, that I will have to account for everything I have in this life; a sort of conviction that I am accountable for all the benefits and blessings I enjoy here. But after I have accounted for all the misdeeds I have done, there is another thing that I never thought much about. It is the neglect that I am giving in my whole life to the little things around me. I believe God, in his good providence, has surrounded us with a thousand little enjoyments that we pass over and esteem as mere nothings. I believe we should look around, and there will not be a day of our lives but we will find something in the association with our fami-

lies, in our employment, in our gardens, and among our flowers and trees, that will lead us higher and to a better life, giving us a broader view of life, giving us more faith in God and immortality. I simply express the thoughts that came to my mind while listening to this paper. This paper is full of rich thoughts and words of instruction.

Dr. Barry — Mr. President, Ladies and Gentlemen: I have not thought, certainly, of saying a single word this afternoon, having preferred to sit in my chair and listen and enjoy, and I need only say, perhaps, in giving expression to the feeling that is within me now, that I have not only been greatly pleased, but I have been delighted with the three papers that have been read this afternoon; and I have been pleased because those papers have been full to the running over with the richest thought and the purest sentiment, and the whole tendency of them, I know, has been and is to elevate, or to call out all that is purest and best within the hearts of those of us who have had the privilege of being here and listening to them. In this pleasant talk about gardens, about flowers, there is something in the very subject itself that has a peculiar fascination for me, for I never look into the face of a flower, however simple or however humble it may be, but that it teaches me the most beautiful lessons, and, as Mr. Plumb has well said, speaks to me about God, and about immortality, and about that beautiful abode where flowers, as we trust and as we believe, bloom in perpetual beauty and fragrance. There is an educational force, as it were, in flowers, teaching us, as they continually do, lessons of trust and humility; bringing us into harmony with this beautiful universe that lies all around us; into harmony with this grand nature, and so inspiring within us thought, the tendency of which is to lift us up above any low plane of thought or feeling, elevating and making us to be, in every true sense, better men and better women; educating us continually for higher duty, and so helping us to win crowns that never fade, and to make this manhood and this womanhood of ours purer, and better, and diviner; more like what God intended it should be, and what, with His help, we mean to make it to be; and so I have thanks for these good ladies, not only for the interest which they have added to this occasion, but for the wisest and the richest truth and instruction that has proceeded from their lips. God bless the women! [Applause.]

Mr. J. M. Smith — In our admiration for these papers and for fear we may forget it, before we go any further I want to propose a vote of thanks to the ladies. It is well known to all, I suppose, that the ladies who work for us at these conventions, "work for nothing," and "find themselves," and we cannot do any less than say "thank you."

Mr. J. P. Roe — As I was sitting here listening to these papers — by the way, as fine as I ever listened to in any convention — I thought we must go back, so to speak, for the causes, and the soil on which they are grown. There are certain conditions of home life and social life which have been long at work before papers of the kind here listened to could be produced, and I have thought that if Brown county can send us such specimens of thought so elaborately expressed, if Madison can render us such a favor, whether or no, under like conditions, allowing that the latent talent, the undeveloped energies of our own lady workers and thinkers of Oshkosh, were turned and encouraged to turn in the same direction; if we had our horticultural society, if we had our like gatherings, as they have enjoyed for years, and having this discipline and culture which they have had for years — whether or no, under like circumstances, we may not obtain such results, and when conventions are held elsewhere, we may not send delegates which we may feel proud to honor. [Applause.]

Mr. K. M. Hutchinson — The very purpose, as I understand, of these agricultural conventions, is to call out papers and discussions on kindred topics.

Mr. Smith's motion of a vote of thanks to the ladies was carried.

Mr. Roe then said: I would merely throw out this thought that has been in my mind, and which has been rather emphasized by the article of Mrs. Ayres on farm life, and its bearing on co-operation of labor on the farm, and more particularly in regard to the farmer's home, that portion of the farm labor which may be brought around the home. Small fruit culture, in connection with floriculture, horticulture, bee keeping, poultry keeping; each one of them be made a specialty by some one member of the family, or they may take more than one. I have in mind now a large and a pleasant family, a very intelligent family, where there are a number of young ladies, and they are all looking in one direction for occupation and support, for instance, school teaching, a direction which I

have fear they will not have the physical strength to undergo the prolonged strain. I have such an ideal family before me, where each member of the family will take some one branch of farm labor, not strictly farm labor, but farm gardening; one taking grape culture, one the strawberry or the raspberry, or more if so desired and able; one taking the floral department, one being responsible for the poultry department, one devoting him or herself to bee keeping, and each one bringing in their returns, comparing notes monthly, and having, maybe, a common treasurer; the husband or the wife, or the father or the mother, encouraging each one of the younger members of the family by giving them a certain percentage of their returns from their own department; and I think in this way we can encourage and develop a taste in our children for the occupations which center around the farmer's home, and bring to them intelligent thought and interest and study, that will begin and carry forward that education in the farmer's home life which will make the future farmer's home and the coming farmer what we may desire him to be.

Mr. K. M. Hutchinson — If there is no objection we will now have the paper from Mr. Smith. It seems to be on a subject germane to the general tendency of all the papers that we have had this afternoon.

Mr. J. M. Smith — I am very sorry to have my paper come in and make such an entire break as it makes after these ladies' papers, but I only a wayfarer here and obey the dictates of those in authority, and I will read.

Mr. Smith then read a paper on the

POLITICAL EDUCATION OF THE FARMER.

By J. M. SMITH.

Mr. President, Ladies and Gentlemen: In papers that I have heretofore prepared, either for the Association or for others, I have very rarely referred to political matters, either directly or indirectly, and do not propose to refer to them at this time in any partisan manner. The evils to be spoken of are those that all parties are interested in, and such as all farmers ought to be interested in removing. It is only about ten years since the farmers of this state

commenced to hold agricultural conventions, and some of you will recollect with how much doubt and fear the first ones were undertaken. Many of our best cultivators did not think they could possibly succeed. They feared that the farmers would not be interested in them; and if they were, it was doubtful if there was sufficient education among them in the line of preparing papers, conducting discussions, parliamentary rules, etc., to make them a success. That they were a success from the first, is now a matter of history. That they have improved very much, is also true. Over a goodly number of them, it has been my pleasant task to preside; and while doing so, I have watched the proceedings with the greatest interest. I have repeatedly been in our legislative halls, and have seen and heard men who are supposed to be far above the common stamp of mankind; but have never heard discussions conducted in a more dignified manner, or with more earnestness and ability, than in some instances in our agricultural conventions. Individual failures have been rare, and when they have occurred, they have by no means been confined to farmers.

That these conventions have been the means of much good, will be disputed by no intelligent man in this state. That great improvements are taking place in many branches of agricultural science, is also one of the undisputable facts. Take, for instance, the dairy interest. Only a few years ago, no Wisconsin farmer dared to ship either his butter or cheese to New York, and put his name and residence upon it as a Wisconsin dairyman. How is it now? At the close of the Centennial Exhibition, Wisconsin stood at the head of the list in the quality of her cheese, as well as very high in regard to her butter. At the late National Dairymen's exhibition in New York, the largest premium ever offered in this country for butter, and I believe the largest ever offered in the world, \$250, was carried off by one of our Wisconsin dairymen in an open contest with the world, and where there were nearly 100 entries by butter-makers from all parts of the country. So much for this department.

Our herds of Short-horn, Ayrshire and Jersey cattle, will compare favorably with those of any other state. Our long, lank, five-rowed breed of Wisconsin hogs have given place to Berkshire, Poland-China, Chester White and other improved breeds. Merino and other improved breeds of sheep, are fast taking the place of mongrels. In yield of crops, our corn exceeds by some four or five

bushels per acre the average yield of that grain in Illinois, which is claimed to be the greatest and best corn producing state in the Union. The same is true of oats, potatoes and wheat. In the last named, Wisconsin falls a little below some of the more favored wheat producing states. In small fruits, our state stands high. The largest crop of strawberries ever reported from one-quarter of an acre in the United States, was from Wisconsin.

Probably no state in the Union, taking all branches of agriculture into consideration, is making more rapid strides in its advancement than our own. I presume that you are ready to admit all that has been said, and are ready to ask, "What has this to do with the political education of the farmer?" Well, as I have attended one convention after another in different portions of the state, have heard men discuss agricultural, as well as some other subjects, with so much intelligence and real ability, have conversed with them upon different subjects and learned their sincere and candid views upon many subjects, and the true value of the men, the question has occurred to me, is it not about time for farmers to elevate some of the good and able men from their own ranks to places of financial trust, and also to other positions of high honor and responsibility? Is it not fair to suppose that we can select men from our own ranks who will serve us as faithfully and as well, as men from other branches of industry; or, as is too often the case, men who are engaged in no particular industry of any kind, but are standing around, Micawber-like, waiting for something to turn up? Are our public trusts safer in the hands of such men than they would be in the hands of our best farmers? Without going into details or pretending to be to a dollar exact, I can readily count up defalcations of town and county treasurers to the amount of not less than \$150,000, that have taken place within a few years past in counties in the northwestern portion of this state. In this list I am happy to be able to say that not a farmer was involved except, unfortunately, in some instances as bondsmen.

In some cases, the men who, by a corrupt system of caucuses and frauds, have received nominations and then been elected to places of important trusts, and of great pecuniary responsibility, are men whom not one of us would dare to loan ten dollars for a week; and not only this, they are men who are, if possible, more thoroughly bankrupt morally than they are pecuniarily.

Not long since, a friend of mine who is a bondsman for one of this class, complained of his being compelled to make up for such stealing, when a gentleman who heard him replied as follows: "I do not see why you should complain; you knew the man to be a complete failure in everything that he had undertaken for himself, even when he had good opportunities. You had no reason to suppose that he would suddenly become capable, honest and industrious when he came into possession of the public money."

There was a great deal of truth in these few remarks, and if they were thoroughly applied and acted upon in selecting our public officers, there would be comparatively few failures of men in public positions. How is it in state and national affairs? Are we any better represented there? During the last thirty years we have had one professional farmer for governor of the state. In speaking of him not long since to one of his own political friends (who, by the way, is a prominent lawyer), he remarked that it would be a long time before another farmer would be taken up for governor, on account of Taylor's having made such a complete failure.

With due deference to my friend's opinion, I assert that Governor Taylor's administration was not a failure. Upon the contrary, during his administration the most important contest ever waged in this state was carried on and brought to a successful termination in favor of the people of the state as against some of the railroad companies who had openly defied the laws and refused to obey them. In that contest, in which the farmers were more vitally interested than any other class, Governor Taylor stood nobly by them, and should have been sustained by men of all parties throughout the state, though, I am sorry to say, that such was not the case. How is it in congress? One writer says there are in the two houses of congress 336 members. Their professions are as follows: lawyers, 239; physicians, 20; bankers, 19; merchants, 17; farmer and planters, included, 12; manufacturers, 7; railroad officers, 7; school teachers, 5. Let it be remembered that the farmers constitute more than one-half the entire population of the United States, and their wealth more than two-thirds of the entire property of the nation, while the lawyers are comparatively insignificant in numbers and about equally so in wealth. Another writer speaking upon this subject says: "In the British Parliament not more than one-tenth are lawyers. The occupations which lead being country squires, or

the landed farmers, military men, bankers and railroad interests. In parliament lawyers are of very little account. The leaders are men like Disraeli and Gladstone, who know what laws the people want, and see that they get them. In the French Assembly, the same interests are paramount, with a larger installment of literary men and artists. In Germany the same interest prevails; lawyers are nowhere. It is only in the United States and in brow-beaten and bankrupt Italy that lawyers come to the front and obtain the supreme opportunity to hocus pocus and bedevil the laws which they are paid to interpret."

There is another evil in this connection. We do not as a general thing get our best lawyers for our public offices. A very large proportion of them are only second or third rate, and drift into political life because it is their only hope of getting a living except by hard labor. This feature is by no means confined to the west. I call to mind an old schoolmate who was absolutely the thickest-headed boy that I ever heard attempt to recite a lesson. I studied for years in the same academy with him, and can say that I never knew or heard of his having one lesson in any branch of his studies even reasonably well. His father succeeded in getting him admitted to the bar, and died soon afterward, leaving him a large fortune. He was a complete failure at the bar, and in a few years his property was hopelessly encumbered, and himself a bankrupt. There seemed to be no resource for him but congress. And to congress he went; and is now serving out his second term. Now I have no fault to find with him. He is doubtless as honest as the majority of the members, and perhaps as well fitted for the place as they are. If his party saw fit to send him, he would have been an idiot not to have accepted the place.

The same is true of lawyers in other places. If the farmers choose to keep on voting for them, and giving them almost an exclusive monopoly of the best offices in the gift of the nation, they will doubtless keep on accepting the offices in the future, just as they have done in the past. But, gentlemen, is this the best way? Is this justice to ourselves? Is it justice to the immense agricultural interest of this country.

This interest is now increasing in importance, at a rate never before known in our history. We have almost always been a debtor to other nations; or, in other words, the balance of trade has

almost invariably been against us, until within the last five years. Within that time, the great increase in our agricultural products has caused a most remarkable change, and now the balance of trade in our favor amounts to more than \$1,000,000 per day. Is it either natural to suppose that a body of second-rate lawyers will care for these immense interests, as well as the many others, with as much industry or intelligence as the men who have helped to produce and are most vitally interested in maintaining such a favorable condition of affairs? If Eli Stilson should find it necessary to leave his large farm in the hands of a manager for two or more years, who do you suppose that he would select to fill such a place? Would he hunt up some cheap lawyer in Oshkosh, Appleton or Green Bay, and say to him, "Go upon my farm and conduct it for two years, and I will make your pay much better than it is here, and then very likely let you have it for another term?"

If he should, we should be very likely to say that it was nearly time his friends took him to the lunatic asylum. He is too shrewd a man to make such a mistake. He would search the country in all directions, and secure the services of the most careful, industrious, best managing farmer that he could possibly obtain, and then give him careful directions about the system of culture that he wished carried on; and he would insist upon his directions being carried out, or else he would certainly dismiss his manager. And in doing this, he would act the part of a sensible business man, such as we all know him to be.

If this is necessary upon a single farm, is it wise for us to select from this very class of men to conduct and care for the public welfare, and the accumulated agricultural interests of this nation? I do not thus refer to these men in this manner out of contempt or anger, but simply to illustrate my meaning, and because they fill these offices almost to the exclusion of every other class. It may be asked, would you have them filled exclusively by farmers? By no means. We would simply have the great agricultural interests of the country, which are greater than all others combined, and the prosperity of which is necessary to the prosperity of all others, fully and fairly represented, and represented by the farmers themselves. How can this object be attained? Gentlemen, let it be constantly borne in mind that neither lawyers, bankers, nor any other class of men, can become governors, members of congress,

nor fill any other high position, without your votes. But here comes another difficulty. It is often the case that a man is nominated whom you do not like, and whom you really believe to be unfit for the position he seeks to fill; but he represents the principles that you honestly believe to be for the best interests of your community, or the country, and you vote for him, although under protest, and as a choice of evils. We should begin at the beginning, and see that such men do not get nominated. If the farmers would attend the primary meetings and see to it that the right men are elected delegates to attend the conventions, they could very readily dictate the nominees in almost every case. Suppose, for instance, the farmers in the different parties in this congressional district should combine together, each in his own party, and select from their own number a first-rate man, one who is known to be intelligent and trustworthy, honest in his business transactions, and true to his convictions of right and wrong, and then say to the political leaders of their parties, we propose to vote for this man for congress.

If you choose to go with us, all right; if not, we shall pursue our course without you. How long, think you, they would stand aloof? Not twenty-four hours. They are too shrewd a class of men for that. They would cheer as loudly for the farmer candidate as they are in the habit of doing for the candidate of the grog shops and the corner groceries. It has been said that farmers have not the political education necessary to prepare them for a successful public career. Will they become better fitted for it by being left at home? I presume that those who really believe this doctrine, also believe in the theory of the old lady who declared that not one of her boys should ever go into the water until after they had learned to swim. Gentlemen, I have heard this theory more than once, and confess that I scarcely know how to treat it patiently. Upon what meats do these common lawyers feed, that they alone of all others should be fitted to make the laws for more than 40,000,000 of people? What peculiarities are to be found in their business of trying petty suits before a justice of the peace, or defending some criminal before the circuit court, and clearing him from the grasp of justice, when every intelligent man in the community knows that the penitentiary is his proper place; what peculiar teachings are there in the legal quibbles and technical points which they

argue by the day before our courts, and that, too, in hundreds of cases, for the very purpose of arresting justice in its course, that fits them of all others to grapple with great questions of tariff or free trade, of commerce and navigation, of finance, of that, perhaps the greatest of all questions to be decided in the near future, the inland carrying trade of our agricultural products?

Gentlemen, this position is so utterly ridiculous that it carries its own refutation along with it, and I will not stop to argue it any farther. We all know that there are farmers who are utterly unfitted either for congress or for any other public position. We also know that there are lawyers who are just as unfitted for public places as men can be. It has been my good fortune to become acquainted with a large number of the good and intelligent farmers of this state. Still, I am very far from being acquainted with all of them, or perhaps even a large proportion of the whole number; and yet I would not hesitate from the number of my personal acquaintances, to select men who would fill the governor's chair as creditably as it has been done within the last twenty-five years. I would not hesitate to select from the number, men who could take their places in congress, and transact the business necessary, as well as it has been done in the past; and if there was not a decided improvement over the past, I should be mistaken. And I say this with the belief that this state has been as well and as ably represented in the past as any of her sister states in the northwest.

Gentlemen, I have tried to make these statements fair and just. If they are so, it is certainly time that we as farmers should cease to be merely hewers of wood and drawers of water for a lot of political wire-pullers. Indeed we have already followed that business too long. It is time that we should not only assert our rights to be heard, but that we should resolutely maintain them against all opposition. It is not necessary that democrats should give up the principles upon which they believe the government should be conducted, nor republicans theirs, nor greenbackers theirs; but let the intelligent farmers of each party demand and insist upon it at all hazards, that the farming interest shall be fairly and faithfully represented in all departments of our government. In doing this we are only asking for justice for ourselves.

As before intimated, there is one question coming up in the near future, in our national legislature, before which all others will, for

the time being, be apparently forgotten. It is the question of transportation of our products to the seaboard. That this must be settled in congress, is, I think, no longer doubtful. And to farmers this question is of such vast importance that all others will seem insignificant. It is whether we shall pay a few men a fair remuneration for the transportation of our crops, or whether we shall allow them to take what they please, leaving us such a pittance as they in their selfishness may deem best for us to have.

Allow me just a moment to illustrate this. Last fall I learned the price of transportation of one of my crops from Green Bay to New York city. I made arrangements with a house there to send it on as soon as the price reached a certain point, which we deemed about certain, and which would allow me a living price for my crop. As we expected, the price was soon reached and passed, but in the mean time, Cornelius Vanderbilt and two or three others of his class, had held a meeting in one of their offices, and had advanced the rate of freights to much more than cover the corresponding rise in the price of the crop. Of course, I was either shut out of the market, or allowed to send it forward upon such terms as would be ruinous. If I had been the only one affected by this action of these men, it would have been of no consequence. But, gentlemen, that action of theirs went to the pockets of every one of you who have crops to sell. It matters not what the price of any article of produce that you raise may be worth at the seaboard, it is to-day in the hands of less than half a dozen men to say just what you shall receive for it, or, in fact, whether you shall send it forward at all or not.

As I said before, this question must be settled in congress. Who shall represent our interests there in the settlement? Upon this question, the interests of all other parties combined are as nothing when compared with ours. It resolves itself into a question of a life-long struggle, with poverty and privation ever before us, or one where we may, by intelligent industry and economy, make ourselves comfortable homes for our old age. Shall we select some more second-rate lawyers or grog-shop politicians, or shall we say to some of the best and most intelligent of our farmers, "do you go to Washington and attend to our interests there with the same zeal and interest that you care for your own business at home?" Gentlemen, I cannot dictate to you, and would not if I could, but

for myself I prefer the latter, and towards that course I propose that my efforts shall hereafter be directed.

Mr. J. P. Roe — There are a great many that ought to say something on that point, and I have no doubt that they can do so.

As our friend, Mr. Smith, referred to what has been done in the dairying line, and the premiums that have been paid, I would say that there is one here present this afternoon, a member of this convention, whose wheat took the first premium at the World's Fair at Paris. I allude to my friend and neighbor, F. Weyerhorst.

Mr. K. M. Hutchinson — It seems to me that Mr. Smith's paper ought not to go without some severe, sharp criticism. I think it deserves it. He makes the farmer the coming man. He has not said anything about the hardware man.

Mr. Huntley — I hope there are some here that will criticise that paper. My ideas are too near like Mr. Smith's for me to do much talking without I talk in a similar line, and I know you would not like to hear that.

Messrs. Torrey, Smith and Plumb were appointed a committee on assignment of questions propounded.

Mr. J. P. Roe — Before this subject is dropped, there is one point that is touched upon by Mr. Smith which we ought to dwell upon a little longer, and it is the point in regard to the levy which is made on the products of the country by these railroad kings, as they are called, these magnates of the iron rail. A few men, Vanderbilt, Scott, and others we might name, can meet together in one of their offices and make a tariff which takes from the farmers of the country the margin of profit. They have done this, and they are systematically doing it; and one great reason why it is that we have such a small representation of the farmers in congress, and in our state legislatures, lies in this fact that the small income of the farm — so much of the farm products being swallowed up in the cost of transportation, that of the small margin of profit left to the farmer so little is left for his own comfort, for his own education, for the education of his children, for the leisure which he ought to have to turn his attention to the various demands of social life and political life, that the man is compelled to be a drudge. The farmer pays for all, lies at the bottom, supporting all, and upon the principle of the lowest sheepskin in a pile, he is hard pressed. It is our

duty, care and privilege alike to bring the attention of our legislatures to this crying wrong.

If it was a wrong in feudal times for the barons, those who stayed in their castles looking down on a company of merchants, to swoop down upon them like the eagle upon its prey; if that was from being wrongly educated, from a lack of civilization, for these railroad kings to do the same in a more refined, underhanded way behind the corner, to-day, is the same principle, and it has the same effect. It is producing like results. It is a war levied upon the industries of the country. I call attention to this fact, because right by the gates of our city is a great national waterway and highway of the country. The eastern customer, every poor eastern mechanic, is concerned in making this great national highway what it ought to be. Here it is by our door and our interest, and our thought and our effort should be steadfastly, systematically and persistently turned in the direction of making this highway what it ought to be. Instead of a beggarly appropriation of a few hundred thousand dollars, which virtually amounts to nothing, there ought to be a prompt, immediate appropriation which would carry the work through and make it what it ought to be, the great national highway of the country.

This work should not drag from year to year, merely furnishing salaries for the officers who survey it; who bring in their annual reports, and thus the farce going on year after year.

Mr. Plumb — Mr. Smith suggested one question: "How shall we get the necessary intelligence and experience that is necessary in a member of congress?" I believe that if the farmers really had confidence in each other, and believed that the farmer was the best man to represent them in the halls of legislation, they would go for the farmer every time. But I fear the farmers have not faith in the farmers. I fear that is where the trouble lies. Now what is the remedy? I believe that education, I believe that this convention and conventions of like character are doing the work that will ultimately lift the farmers up where they will have confidence in each other. I believe the reading of the reports lying on these tables, the careful reading of these many volumes, is going to do more to further this than anything else they can possibly do. The farmers do not know what our friend Torrey is doing for the farmers. He has put his brains, his hand, his head to this work, and I

can say, although he is not a farmer, that he is doing good and sound work; so are other men who are not farmers. Sec'y Torrey has been doing especially good work in going up to Madison to carry the appropriation for this society, and I hope this society will not forget it. This society needs the help of the state. I said at Madison the publication of that little book is worth more to the fruit growing interests of this state than any possible sum of money that can be secured. I understand this morning they have denied us the sum we asked for, and yet they will publish our volume. If they will give us two thousand copies of our volume it is worth more than \$5,000 in money.

Mr. J. M. Smith—In the paper that I read I took the ground distinctly that I did not want to have the farmers an aristocratic class, nor I do not want them to be elected to congress, or to any other office simply because they are farmers. No man would oppose that more strongly than I do. It seems to me that you can hardly put it in another light than that a man is elected to office because he is a lawyer, when three-fourths of our whole representation in congress are lawyers. We ought not to oppose a man simply because he is a farmer. We have an example of it in this district. I have nothing to say against Mr. Bouck. He is a lawyer and a good lawyer, and I have no doubt but that he is fully as capable a man as the majority of men in congress, and perhaps more so. He is a democrat. Will any man pretend to me that there is not a democratic farmer in this district that would not be Mr. Bouck's equal in congress? Mr. Stilson is a democrat. Will any man assume that Mr. Stilson would not be as good a man in congress as Mr. Bouck is? It is not because I want the farmer represented entirely, but I say that we have a right to a fair, honest, equal representation. The railroad interest of this country between Chicago and the Atlantic Ocean is now in the hands of three or four men. Those men can meet in a ten by twelve office in New York, and in two hours can raise the freights or depress them, so as to take the profits from every farmer in the northwest. I have forgotten the amount of stock of the Central road when Vanderbilt took possession of it, but he issued eighty millions of watered stock at one time. What was the result. You and I and every man has to pay interest on that watered stock.

If we find any fault, they say, "We are only getting seven or

eight per cent. on our stock; we are not making a large dividend." But there is on that road some two or three times the amount of the original stock that never cost a dollar. It does not represent a day's labor. It does not represent a single cent of money expended, except for printing and paper, and you and I, and every farmer in the northwest who has anything to sell, is helping to pay interest on that stock. That is only one road out of four or five. The Pennsylvania Central is in the same situation. The Baltimore and Ohio the same. They are working together, and I say it is only an act of justice for the farmers to combine together and elect a man that will represent their interests; not their interests alone. Our interests are not represented. We have millions and millions expended; hundreds of thousands of millions expended during the year, for which the farmer has no representation whatever. In our cabinet we have no representation. We have a man as commissioner of agriculture, but the office has been made a kind of football. For years past it has been a mere political foot-ball. I think it is better now, and I think eventually it will have some better influence than it has had on the country. I do not want to array the farmers against any other class. I would fight against the idea as quickly and as strongly as any other man, but I do say that farmers have the right of representation. In the senate there is one farmer, whose time expires next week, and then we are without any representation in the senate.

Mr. Huntley— It is said that the mills of the gods' grind slow, but they grind exceedingly fine. I think we are making progress in this direction. Public opinion is not going to change in one, two or three years. It has only been a few years since this kind of a convention was decried and laughed at, and book farming was ridiculed as something unworthy of any man's attention. We are making progress, and in years to come we shall have a larger representation in all these legislative bodies than we now have. I think our friend Smith was a little unfortunate, however, in his selection of the word farmer. I think the man who makes boards out of the saw logs, or who converts that lumber into chairs or furniture, is as much a producer as the farmer. I believe the interests of all industries, or of any man who is engaged in making one dollar worth two or three or five, are identical with those of the farmer; and if Mr. Smith had said industrial classes, producing classes, he would have been right. Their interests are alike and equal.

The committee on Assignment made their report.

On motion, the convention adjourned until half-past seven o'clock,
P. M.

WEDNESDAY EVENING,
Half past seven o'clock.

Convention met, Hon. J. V. Jones in the chair.

President Jones said: Ladies and Gentlemen, your chosen president is unavoidably absent for the evening, and the honors of the position seem to have fallen upon me, a compliment that I most highly appreciate. I am glad that I am classed among the farmers. I congratulate myself, for I am in good society. We have with us to-night, one of Wisconsin's most distinguished farmers, although not perhaps exactly a tiller of the soil. Perhaps he is not accustomed to put his hand to the plow, yet he is always cultivating, plowing, fertilizing the minds of the people by his intelligence, his wisdom, and his example to man; and it affords me very great pleasure to present such a farmer in the person of Dr. A. C. Barry, who will now address you.

Dr. Barry: After the very flattering introduction from my very good friend who presides this evening, I do not know whether I ought to go on at all or not. If I do, I am a little afraid that I shall disappoint you, and not meet your expectations.

I had purposed, if I were called to speak before you again or to read a paper before you, to prepare myself specially for the occasion, and to present something that would be of practical value to you men who are farmers, but I found myself unable to do so, and therefore was under the necessity of falling back upon a preparation, as we say, that I had on hand.

The subject which I propose to discuss before you this evening, is entitled "From the Monad to Man." I have, by way of introduction, to say to you something of the great scientific minds that the world has produced, and especially one of the greatest and perhaps most celebrated scientific geniuses that the age has produced; and so I remark at the outset that take the great leading minds of any age, the original investigators, they who fill the world with the wonders of discovery, and are the prophets of a new era of light and progress, and they are no more the product of a single birth than the delicious apple is the immediate product of the sour crab.

In the very beginning, I have no doubt, they occupied a prominent place in the eternal plan; and long ere they are wanted, they are being gotten ready for the places they are to fill and the work they are to do. We may say this of all prophets and apostles: of Moses, and Isaiah, and Paul, and Galileo, and Copernicus, and Luther, and Newton, and Humboldt, and Cuvier. God made them — not at once — but just as He made the world. They were separate and apart from all other men. They were not the product of their own age. They were raised up by a succession of births, for the mission assigned them in the divine plan.

One died not long ago, the loss of whom all civilized nations mourned. He was one of the race of intellectual giants. And he departed this life leaving no successor to the field he occupied, and the work to which he was assigned. The same law controlled the production of this man, as that of the men just named. You cannot account for him, for what he was and did, in any other way. He was a providential man — he had existed beforehand in the divine purpose — and away back God began to fashion him, and when he came into the world, after many births, it was to go about the work that waited for his coming. And I feel no little pride in being able to say of this man, that he was the product of six generations of clergymen. If the common opinion is correct, either these six generations of clergymen must have been uncommon men, or they must have had uncommon women for their wives.

Be this as it may, the fact remains that Louis Agassiz was the lineal descendant of a Swiss Protestant clergyman, who lived at a remove of six generations from him. There was no accident in all this — the divine plan worked itself out in this way; and while the field of labor was preparing through the works of others, he who was to occupy it and do a work others could not do, was being prepared also.

In the autumn of 1852 I attended a meeting of the American Scientific Association, held in the city of Cleveland, Ohio. At this meeting I first saw Agassiz. He had then been in this country about six years, and was Professor of Zoology and Geology at Harvard University. How well I remember his appearance; the look upon his face, the tones of his voice, the earnestness of his manner, and his great familiarity with everything appertaining to science. He had a stout, robust body; a large head, broad and

massive in front; and a Teutonic face full of a charming expression, and that knew how to laugh all over. And then he was as simple and unaffected as a child, as such a man naturally would be. He put on no airs; he had no owl-like gravity and dignity; he did not need them. If you approached him he did not repel you, but was glad to see you, as though you and he were old neighbors. And then he had the rare knack of making you see what to him was plain — he gave you his eyes to look through, and lent you the very words best fitted to describe what you saw. Besides, the enthusiasm that burned in him a steady flame, he kindled in you also. He was full of the most charming pictures, and even in common conversation out they would come, and hang themselves up to delight and instruct you. It was as Robert Collyer said of him, that "It was no matter what he told us, it was still the one story of the beauty and freshness of all that God had made. He was of all men I ever met, the most natural, joyful and youthful of men to the last. God had put the world in his heart, and he found in its scenes and objects springs of perpetual wonder and delight.

"To call this world hard names, as so many do, would be to him simply blasphemy; to wish he was out of it and in Heaven, folly; to wish it were something else than it is before man takes hold and refines it, impossible. Nature, in this purely natural sense, was not one thing and the man another; he was simply a child of his mother, and he loved her and believed in her, as all true children do."

I have spoken of the simplicity of this great man — let me mention his humility, another element of genuine greatness. With all his wealth of knowledge, standing on an elevation to which few men have ever climbed, and seeing marvellous things hidden from all below him, there was not a bit of pretension about him; no vain pride, no haughty assumption of superiority. Only little men, with narrow vision and a smattering of knowledge, are conceited and have "stuck up" ways. Of himself he has only this to say: "I have devoted my whole life to the study of nature, and yet a single sentence may express all that I have done. I have shown that there is a correspondence between the succession of fishes in geological times and the different stages of their growth in the egg — this is all."

You may think, perhaps, with only this simple statement before

you, that really, if this were all, the great naturalist had not accomplished very much. Let me give you an idea of what is one item of work he performed.

He starts with the law of Cuvier, that there are four great types or models on which all animate creations have been shaped — the vertebrate, articulate, mollusk, and radiate. These he compares to the different orders of architecture to which all buildings, public or private, may be referred, if they have any design in their structure. And he shows that they are no artificial distinctions made for our convenience, but the actual plans of nature, the ruling forms in the mind of God. This is proved by the willingness of nature to be so divided, and the universal reach of these divisions through the millions of tests to which they have been applied. Only the names are of man; the facts are of higher birth. They give us the outline draft of the animate creation, the skeleton of all terrestrial life.

I must not stop to illustrate to you the grandeur of this generalization, and only have time to say, that, starting from the four great primary forms, Agassiz shows how these have been wrought upon to give the almost infinite variety to the animal kingdom — in what innumerable ways living beings have been organized, without the minutest violation of their typical character. And so, step by step, he traces the unfoldings of the divine plan in the creation of animal life, and gives us to see how it is that, out of materials apparently so scanty, infinite wisdom and power have drawn such amazing myriads of forms.

To show you now something of how God wrought upon His plan through the geologic ages, and of the order in which he wrought, is my principal object in this lecture.

I hold in my hand a modern representative of the first inhabitants of the earth. It was one of my captures during the war. In other words, I picked it up one spring morning on the beach of Ship Island in the Gulf of Mexico. Also, this other specimen of a different species. Both are descendants of the most ancient family — that of the *Radiata* — and may therefore claim affinity with the fossil aristocracy.

The truest representatives, however, and which still occupy the lowest place in the animal kingdom, are the Zoöphytes, or Plant Animals. Their study is most interesting. At first they were confounded with marine plants, which in some respects they closely

resemble. In every other class or species of animals: in quadrupeds, in birds, fishes, reptiles, insects — in all these, as in man, life is simple and indivisible. If you cut off a wing from the bird, or a limb from the quadruped, these members so severed from the animal will perish, and no new ones will be furnished. Destroy any vital organ, whether in man, or the horse, or the fish, or the turtle, or the fly, and the whole body will perish. The law which constitutes each of these a single living body, with a single indivisible life, has been violated, and the penalty is death. In the case of the Polyp it is different, or another law prevails. With it life is almost infinitely divisible, since you may take the general animal and cut it into any number of parts, from two to two hundred, or two thousand, and each part will become a separate and distinct animal, a living, independent Polyp, possessing all the organs and exercising all the functions of the animal when entire. The knife has not injured it at all; only divided up its life, so strangely compounded, and caused two hundred, or two thousand Polyps to exist where only one existed before!

We may, if we please, reverse the experiment, and instead of subdividing a single Polyp into many parts, may consolidate many Polyps into one. This is just as easily accomplished as the separation of one into many. For this purpose take any number of Polyps, two, or two hundred — no matter how many — and stitch them together, and it will not be long before a perfect union will be formed, and the whole number will become but parts of one animal. In this way we might go on filibustering in our experiment, with needle and thread annexing Polyp after Polyp, until we had exhausted the entire Polypical realm, and converted it into one mighty living animal!

There is another curious fact connected with these strange animals. It sometimes happens that two Polyps will each seize the extremities of a worm by way of furnishing themselves with a dinner, and each proceeds to take in the worm until they are brought into immediate contact, when the largest swallows the least Polyp, worm and all! This also is curious: that the individual thus "taken in" by no means loses his identity, but remains a living, individual Polyp, and seems quite contented and happy in his new quarters. By and by, however, when he tires of the confinement, and would see a little more of the world, he makes his way out, unhindered by

his jailor, and neither party suffers in the least from what has taken place.

The seat of life, or of vitality, in these animals is everywhere — it resides in every part, and in every fractional part of them. This furnishes the reason why you can turn a Polyp inside out, just as you would a stocking or a bag, or as a politician would his coat, and not injure it at all, but leave it as perfect and comfortable as it was before the operation. That which was its stomach serves very well for its outer covering; and the cuticle forms a wall for a new stomach, which digests its food just as well as the old one. Such are some of the peculiarities of the first animals brought into existence, or of which we have any fossil remains.

Many, if not all of you, have seen in geological cabinets, or in home-collections of curious objects, what are called, by the uninformed, petrified wasps' and hornets' nests. They are the remains of zo-ophytic animals — the habitations they builded, and in which they lived, ages before the honey bee studied geometry, or the hornet learned to make paper.

We know this from the fact that they are found imbedded in the solid rock, and forming a part of it, thousands of feet, in many instances, below the earth's surface. We are largely indebted to them for our limestones, and for many of the wheat growing properties of our soils. They fulfilled, therefore, a wise and beneficent purpose. The starting point in animal life, of the very lowest form of organization, only a single remove from the vegetable, they were not only adapted to a condition of things that would not admit of the existence of the higher forms of animate being, but they had a determined place and object in the Infinite Plan, and that place and object they filled and accomplished.

In addition to the Polyyps, we find in the rocks of the Transition Period, but in an overlying series, a higher form of life revealed in the Mollusks — a class of shell-fish not unlike many existing marine organizations — the first creations, perhaps, that really merit the name of animal, though themselves very imperfect. In this class, life begins to concentrate, to have a fixed seat or centre; a nervous system is imparted, by means of which the animal has a knowledge of its existence; but the form of life is a low one, the organization low, only a little above that of the Polyp, some of whose peculiarities it seems to have borrowed, or assumed.

As an example of this class and its peculiarities, take the snail, which is a familiar object. This animal, as you know, is endowed with powers of locomotion. With its house upon its back, it travels from place to place. It has a head, and eyes, and a mouth. In these respects it is superior to the Polyp, but is like it in one particular: if its head be severed from its body with a sharp instrument, its life is not destroyed; only the severed head dies, while the balance of the animal lives on, and at once proceeds to grow a new head just like the old one. A few days' rest, securely housed within its shell, it all that is required for the reproduction of the lost member.

Of the seventeen species of fossil shells which characterize the period to which our remarks have reference, nearly all, if not the entire number, were of this low organization. The *Orthoceratite*, an extinct species, without a living representative, is a fossil shell of the period, and abounds largely in the Niagara lime rock of the state. It is sometimes found of great length and size.

Next above in the scale of being, and of superior organization, is that singular articulated animal called the *Trilobite*, which seems to be an intermediate link between the Mollusk and the Crustacean; or, in plainer words, between the shell-fish and lobster. It is quite numerous in the Niagara and Trenton groups of limestone, and may be regarded as the superior creation of the Silurian and Devonian periods.

At the close of this last named period (the Devonian), the geological conditions of the earth seemed to have been totally changed. The immense deposits which for ages had been gradually accumulating at the bottom of the ancient ocean, were uplifted and became dry land, and the waters gathered into comparatively small basins. When this process of upheaval had been completed, and the great change of the earth's surface effected, a long state of repose again succeeded, during which a new formation was commenced, carried on and completed, and new forms of animals and of plants introduced to multiply and perish as others had done before them.

At the base of the new or Secondary formation, lies the old red sandstone, which Hugh Miller has made so famous in all the civilized world. In the rocks of which this series is composed, the first vertebrate animal has been found, quite out of place if the theory of evolution be true, for lower forms succeed it. This animal is a

fish of strange form, called the *Cephalaspis*, from the resemblance of its head to a kind of buckler. This drawing will give you an idea of its appearance. (See Plate 5, Fig 1.)

The head, you will notice, is very large in proportion to the body, and occupies nearly one-third the entire length of the animal. The middle portion is elevated and the sides dilated, so as to overtop the body. The eyes are placed in the middle of the shield, near to each other, and are directed straight upwards. The entire animal is covered with scales of a peculiar and varied shape. If the development theory be true, this fish ought not to have appeared when it did; it was out of time and out of place. An immense distance intervenes, and untold ages it may be, between it and the highest forms of life below it. It comes in between these and the next higher forms as if on purpose to show that each separate form is created, and not developed from a lower. "In cutting into the stony womb of nature," instead of looking "upon mere embryos and foetuses," we find instead, as in the case of this fish, "the full-grown and the mature." Geology, therefore, not only does not sustain the development theory on hypothesis, but it would seem to upset it, or leave it no better foundation than the sand.

To the animal we have had under notice, new and interesting species of crustacea and fishes succeeded — several of the latter of gigantic size. But as yet there is no trace of any air-breathing animal — all forms of organic life thus far have been confined to the ocean. The presence of poisonous gases has unfitted the atmosphere for respiration, but it has been favorable to a luxuriant growth of vegetation. And so the valleys have been covered with a gorgeous and more than tropical beauty, and the sides of the mountains with forests of living verdure. This marks a new period, that of the Coal Formation. In obedience to the well known laws of vegetable growth and nutrition, the atmosphere yields up the carbonic acid with which it has been surcharged, and the dry land is covered by a rank and profuse vegetation. Ferns grow into trees, and club-mosses attain to mighty dimensions.

Thus a condition of things incompatible with the existence of the higher order of animals, was eminently promotive of vegetable life. And as the atmosphere nourished and helped mature the luxuriant and gigantic vegetable growth of the Coal Period, its carbon being

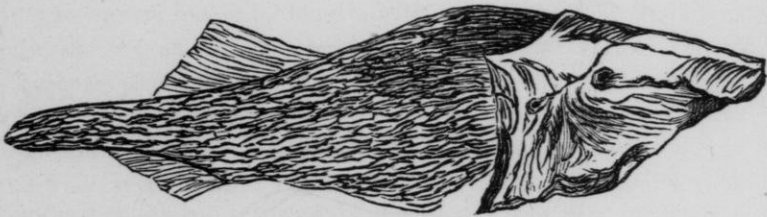


Fig. 1'



Fig. 2

PLATE 5.

stored away to supply the world with fuel in after ages, and its oxygen being set free, it was gradually prepared for the existence of air-breathing animals. It is therefore just what we might reasonably anticipate, when on turning a leaf in this wonderful book we are reading, we find it recorded that such animals have been created.



PLATE 2.

In the New Red Sandstone, the geological position of which is immediately above the Coal Formation, perfectly defined tracks of birds have been found. These are more numerous in the sandstone of the Connecticut valley, perhaps, than anywhere else. At first they were regarded, not as the fossil footprints of birds, but simply as curious marks or impressions, and of no scientific importance whatever. But when they came to be investigated in a serious, intelligent way, there was no longer any doubt as to what they were. While some of them are quite small, others are of great size, measuring seventeen inches in length, with steps from four to six feet apart, showing an enormous stride, and indicating a feathered biped of gigantic proportions. These birds appear to have inhabited the shores of an ocean, and while in quest of food to have left their footprints in the sand at low water, which were subsequently covered with layers of sand and mud brought in by the returning tide. They probably belonged to the order of *Waders*, like the Heron, and in their habits formed a connecting link between marine and land animals.

Some years ago, as though to dissipate all incredulity respecting large birds, there were discovered, in the alluvial deposits of the north island of New Zealand, the skeletons of several birds which showed them to have been a third larger than the ostrich. The tibia of these skeletons is twenty-eight and one-half inches long; the femur fourteen inches long, and seven and one-half inches in circumference. This is an outline representation of one of these birds. (See Plate 2.)

The head of a tall man would no more than have reached to the breast of a living bird. And it is very plain that the feet of such a biped would quite equal in magnitude those, the tracks of which we have been describing.

In the Connecticut Valley sandstone are also found the tracks of turtles, and those of a singular quadruped, proved to have been, by a recent discovery of bones, an immense *frog*, not less in size than a good substantial ox. There are, so far as is now known, no fossil remains of the *croak* of this frog, although we imagine there are some very good imitations of it in our day! (See Plate 5, Fig. 2).

This animal, however, was only half frog, or frog up to the head; that part was crocodile. It is described as possessing a rough, de-

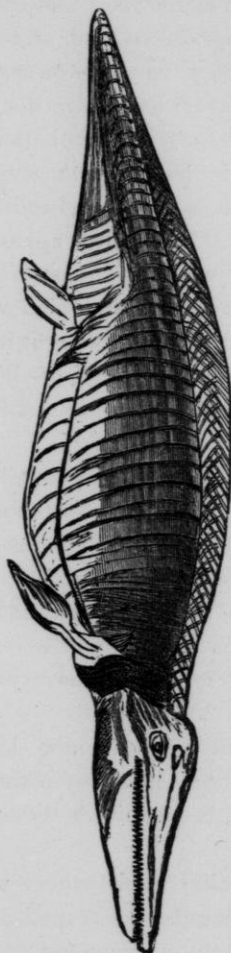


PLATE 7.

pressed skull, with long, conical teeth implanted in distinct sockets, and some of the anterior developed into formidable tusks. In all other respects its organization was that of a batrachian.

Immediately above the New Red Sandstone, we are first introduced to the race of Saurians or lizards. The remains of these animals have excited great astonishment. They were genuine sea-serpents and not Silver Lake humbugs! One species, the fish lizard, is described as being sometimes more than thirty feet long, and as having the snout of a porpoise, the teeth of a crocodile, the head of a lizard, the vertebræ of a fish, and the paddles of a whale. (See Plate 7.)

Another of the Saurian tribe of this period was the *Pleisosauros*, described as exhibiting the head of a lizard, attached to a neck whose length was three times, and in some instances more than four times that of the head. The body appended to this head and neck was comparatively small and fish-like. The extremities were large paddles, and the tail like that of the crocodile. (See Plate 6, Fig. 1.)

But the most singular animal of the Saurian tribe, and perhaps the strongest of all creatures, whether extinct or living, was the Flying Lizard. It is described as having the head and neck of a bird, the mouth of a reptile, the wings of a bat, and the body and tail of a mammal. Fingers, with claws, projected from the outer and anterior corners of its wings, which are thought to have enabled it to creep, climb and cling to the rocks. It is also thought that the animal could walk on two feet when its wings were folded, and that it could probably swim. When it was first discovered, some anatomists pronounced it a bird, some a reptile, and some a bat. But Cuvier at last developed its true character, and gave it a place among the Saurians. (See Plate 10, Fig. 1.)

Here is a handsome fellow of the same genus, named *Ramphoricus*. (See Plate 10, Fig. 2.)

Whenever I think of him I am reminded of the Dutchman's argument for the existence of the devil. He said there must be a devil, else how could they make a picture so much like him.

This drawing (Plate 9) represents a gigantic reptile, called the Hadrosaurus, the skeleton of which, as here drawn, is set up in the museum of the Philadelphia Academy of Sciences. (See Plate 9.)

The length is not far from thirty feet. Evidently it could not



PLATE 6.

swim, therefore lived entirely upon the dry land. Its locomotion, judging from the great length of the hind limbs, and its enormous tail, must have been quite like that of the kangaroo of modern times.

During the deposition of the entire series of rocks composing the Secondary system, from immediately above the Coal to the top of the Chalk formation—the estimated thickness of which is from five to six hundred feet—various forms of reptiles, with birds, were the only terrestrial beings in existence, with a single exception. This exception was a small quadruped, analagous to the opossum, the fossil remains of which are found in England beneath the Chalk formation.

It was undoubtedly the first really *warm blooded* animal brought into existence. Throughout all the formations thus far noticed, the prevailing animal remains are of the families of mollusks, fishes, or reptiles, whose respiratory organs were imperfect, and whose blood consequently was nearly the temperature of the element in which they moved. Even the terrestrial animals of this period were comparatively indifferent to the purity of the elements, or lived and flourished under conditions that would have been fatal to any warm blooded animals.

The Tertiary epoch, marking another step in the progressive work of the creation, was evidently one of great and remarkable changes, not only with regard to the earth's surface, and the surrounding condition of things, but also with regard to the character of organic life. At the commencement of this period, warm blooded and viviparous animals began to prevail. In the old Tertiary strata on which the city of Paris stands, Cuvier brought to light more than forty kinds of extinct quadrupeds, many of them most remarkable as to form and size. To a few of these your attention is invited:

The *Paleotherium* (Plate 3, Fig. 1) and *Anaplotherium* (Plate 3, Fig. 2), the figures of which are here represented in outline. These were closely allied species, as is apparent, resembling somewhat the tapir of the present day both in appearance and habits. The last named, it is thought, lived chiefly in the water, and the first in the marshy grounds bordering lagoons and rivers. The *Paleotherium magnum*, which the drawing is intended to represent, was about the height of a horse, but a little stouter. The *Anaplotherium*



Fig. 1

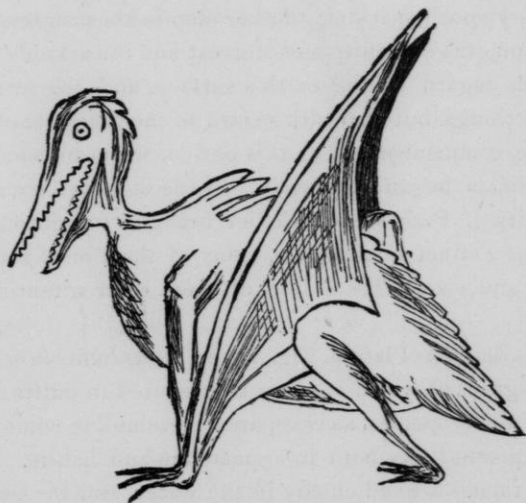


Fig 2

PLATE 10.

gracile was somewhat less in size, and without the elongated snout.

Another animal, resembling the tapir, and the largest of the terrestrial mammalia of whose existence we have any positive knowledge, was the *Dinotherium giganteum*. (See Plate 4.)

Like those we have just described, it was probably aquatic in its habits, but differed from them, and from all others of its tribe, in possessing two heavy tusks curving downward from the extremity of the lower jaw. The probable length of the animal was 18 or 20 feet, and its girth in proportion. It had a trunk like an elephant.

An enormous animal called the *Megatherium* is next introduced to your notice. (See Plate 8.)

It is supposed to have its representatives in the Sloth family of modern times. Its skeleton, as you will perceive, does not make a very pretty picture. What a powerful frame! The thigh bone is nearly three times as great as that of the largest elephant; the bones of the instep and of those of the foot are correspondingly large; the heel bone projects nearly 18 inches, and the small bones at the front are as much advanced. The third toe is provided with a socket to receive a claw, the sheath of which measures 13 inches in circumference, and the core on which the nail was attached is 10 inches in length. The fore limbs were also of great size, and its hand was decidedly immense.

To the animals we have been describing succeeded, at intervals, the rhinoceros, the mastodon, the elephant, and the horse. As we ascend in the series of formations, we find the remains of the ox, the deer, the hyena, the bear, the monkey, etc.; and the higher we ascend, the more nearly do the remains, both of terrestrial and marine animals, assimilate to existing species.

Thus, there has been a gradual introduction, from the first habitable condition of things, of higher and still higher forms of life. Each successive creation has been an improvement, as it were, on a preceding one. From the commencement of the Paleozoic epoch and the Potsdam sandstone formation, through all the immense periods of time during which the succeeding rocks were gradually deposited, and series upon series piled to the height of many miles, there has been very like an uninterrupted progression, step by step, both in the animal and vegetable creations, until at last there was



PLATE 9.

what some one has called an actual shading off into existing species.

As yet we have found no trace of the remains of man, nor of any of his works; and the legitimate conclusion is, that he did not exist. Only after the proper condition had been reached, or his home had been prepared for him, was he created and set in his appointed place as heir of all things.

There are those who hold that man is simply a progressive or metamorphosed form of the first cell-like animal; or that he was originally a shell-fish; and that by certain off-takings and on-takings, as the Germans say, the shell-fish became a lizard, the lizard a quadruped, the quadruped a monkey, and the monkey dropping his tail became a man. A very plausible theory as wrought out and presented to us by Dr. Darwin and Prof. Huxley; and one is tempted at times to adopt it. But it all goes into smoke when we consider, that, if ever there was a law by which one species of animal was transmuted into another, it must have operated alike upon every individual of that species, and in its operation have left no trace of the transmigrated forms. That is, if it converted one polyp into a mollusk, and one mollusk into a trilobite, and one trilobite into a turtle, and one turtle into a lizard, and so on throughout the whole ascending series until man was reached, then it must also have transmuted every other polyp, and every other mollusk, and every other trilobite, and every other turtle, and every other lizard, etc., into the next higher form, and at last have compounded all other forms in that of man; thus entirely blotting out all preceding transmutations, leaving no trace of polyp, or trilobite, or lizard, or bird, or mammal, in any of the rocks from the Potsdam sandstone up to the most recent formation.

I grant you, that in occasional instances, it would seem as if man might have sprung from the polyp, or from the monkey, and that he is fast receding to his original condition. But geology, as we have seen, is silent with regard to such a transmutation. Rather, it asserts with the positiveness of actual demonstration, that the shell-fish was always shell-fish, the reptile always reptile, the bird always bird, the quadruped always quadruped, and man always man. If now there are any who think they once existed in the form of a monkey or a clam! we can only congratulate them on their brilliant achievement in discovering their true parentage, and leave

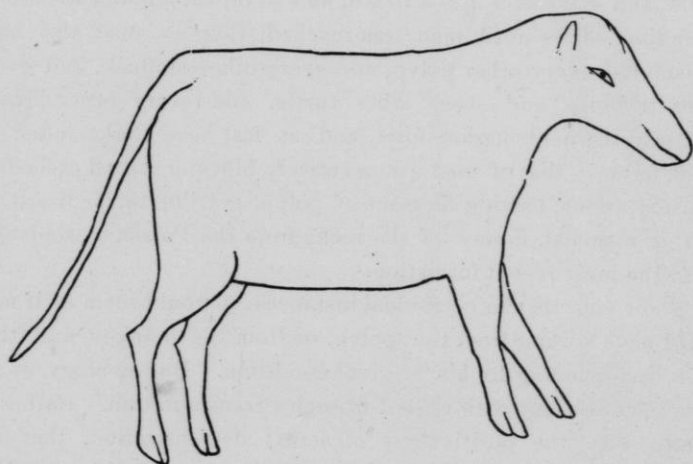
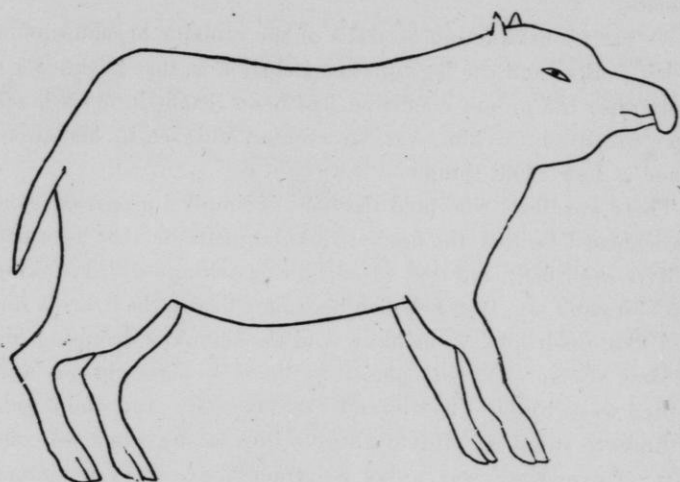


PLATE 3.

them to fight out their controversy with the eternal rocks, on which God has written the history of His creation.

And yet I am quite willing to concede that it is far from being an easy matter to decide, in very many cases, where the mere animal type ends and the human type begins. Take the lowest class of men and the highest class of animals, and how nearly they approach each other, even if they do not take hold of hands. When we consider this near approach of man-like animals to animal-like men, it is not so much of a wonder, after all, that Mr. Darwin should see in man only a highly developed form of the first living thing, which was but the merest speck of animated jelly; the process of natural selection, involving the survival of the fittest, working from the earliest dawn of life, through all intermediate periods and stages, until finally the Orang, or the Gorilla, was reached, from one of whom a low type or species of the human being issued or evolved.

You have read of the Dacoes of Southern Africa—a tribe of dwarfed humanity, and so low down in the human scale as scarcely to be distinguished from the superior animals among whom they live. They are very like the Digger Indians of the Sierras, in our own country; having no name, no raiment, no fire, no laws, and no mechanical arts. “They wander about in herds; subsist on such roots, fruits, insects and reptiles as come in their way; and indiscriminately lie down together at night in the open air.” And yet they have a language, which, like that of the Digger, is little more than a grunt. They are also teachable, and susceptible of considerable improvement.

Now it would seem that these creatures, so like their California congeners, cannot be more than a single remove from the Gorilla. Whether their present status is that of their creation, or the result of degeneracy, it is impossible to say. They are not much inferior, after all, to the bushmen of Africa and the aborigines of Van Dieman’s Land, save with respect of size; for these are the dullest and stupidest of fellows, and in point of intelligence are about as low down in the scale of humanity as they well can be.

Looking on the other side of the line of separation, which would seem to be not very broad, we have in the foreground of view the Gorilla and the Orang Outang, with an anatomical structure not unlike our own, and possessing something like human attributes,



PLATE 4.

and many of the possibilities of men. No doubt they are more intelligent than the Dacoës, or even the Bushmen, and are inferior to them only in that they cannot talk. There is some ground here, it must be confessed, upon which to build the development theory.

And yet, between man and the highest of the animals below him, there is a difference in structure that separates him broadly from them.

You will see this at once as you look at the figures on this chart. Here in the Ourang (Plate 11, Fig. 2) you notice, to start with, the disproportionate length of the arms, quite unlike man in this regard (Plate 12). A further and greater unlikeness is seen when you turn your attention to the skull. You see that the cranial area and that of the face are about equal. This is better seen in these diagrams (Plate 1), representing what is termed the facial angle of the dog (Plate 1, Fig. 1); the gorilla (Plate 1, Fig. 2); the Australian (Plate 1, Fig. 3); and the European (Plate 1, Fig. 4). If a line be drawn from what is known by anatomists as the *occipital condyle* along the floor of the nostrils, and be intersected by a second line touching the most prominent parts of the forehead and upper jaw, we get the facial angle, and this angle, in a general way, gives us the proportions of the cranial cavity, and the grade of intelligence. In the dog, this angle is twenty degrees; in the gorilla, it is forty degrees; in the Australian, it is eighty-five degrees; and in the European, it is ninety-five degrees.

Thus you will notice that there is quite a difference in the cranial area between the savage and the civilized man. But this is small, indeed, as compared with the contrast in this respect presented by the lowest form of the human head and the highest of the brute species. In the Gorilla the area of the cranium and face are about equal. (Plate 1, Fig. 1.) In man, the cranial area vastly surpasses that of the face; and it is his large brain, and therefore great intellectual superiority, that places him at the head of all terrestrial beings. But not only is he thus set apart as a distinct genus and species, but because in structure, in erectness (Plate 11, Fig. 2, and Plate 12), in locomotion, in the use of his hands, in his susceptibility of perpetual improvement, in his possession of religious powers, he stands alone, in rank only a little lower than the angels.

I am aware that while these considerations, inferentially, are a testimony against the Development Hypothesis, or the theory that

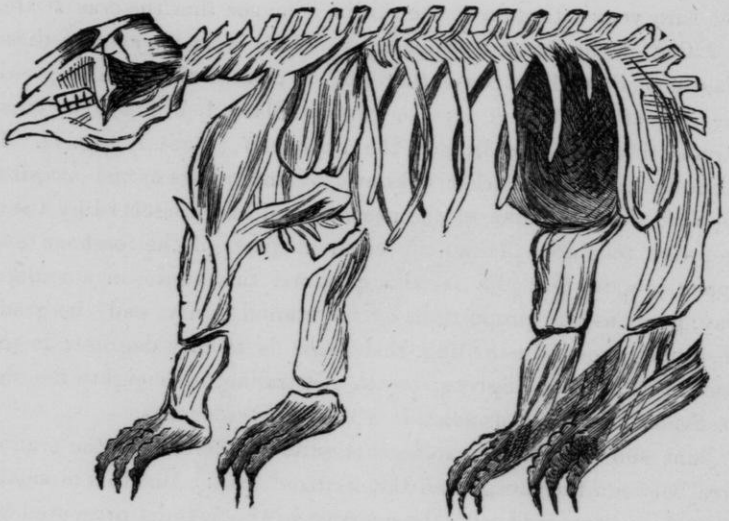


PLATE 8.

man is only a metamorphosed form of the infusoria, they do not absolutely overthrow it. For we must conceive that God could, if He chose, impart to the first cell-like animal that which should develop through thousands of intermediate forms, and in myriads of years, into man. This, we believe, is substantially the view held by Dr. Darwin. He does not himself attempt to deify inert matter, nor to deny that man is the offspring of an intelligent Father. His theory is that God took this particular way to bring man into existence, and to sustain such theory he marshals a mighty array of facts. But while we accept his facts, we hold his theory to be untrue. He has not produced an instance, and it is impossible that he ever can, to show that a new genus of animals has been produced by or from an old one. It is a law of nature now, and always has been a law of nature, that each genus shall produce only its own kind, and thus remain perpetually distinct and separate from all others. It is safe, therefore, to assert, in view of the facts and considerations submitted, that more consistent and satisfactory than any hypothesis or theory, more in harmony with the well-established revelations of science, is the Biblical history of man, written in these few words: "So God created man in His own image, in the image of God created he him; male and female created He them. And God blessed them, and said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."

But here we are met by a question that is a little troublesome: "If," it is said, "all human beings are the descendants of one pair, as the history just read would seem to assert, how do you account for all these varieties of the race—the white men, red men, black men and brown men; the men with crisp, curly hair, and the man with straight hair? How do you account for all these varieties of mankind, if they all originally had but one father and mother—Adam and Eve." The common answer has been, and now is, that climate, food and habits have resulted in the production of these numerous varieties of the human species. Nearly all ethnologists say this, but they do not fully prove what they say. They give us some facts, but they are not conclusive. Now, while it may be conceded that climate, food and habits will work great changes in regard to size, complexion, features, etc., it is true,



Fig 1



Fig 2

nevertheless, that they can never convert a white man into a black man, nor a black man into a red man, nor a red man into an olive-colored man; and it never has been shown that they can. If it be said that the people who inhabit tropical countries generally have black skins and woolly hair, it is granted. It is also granted that white people living there become tawny, or dark colored. But white men have never been known to be converted into black men with woolly hair by living in tropical countries, and the Ethiopian has never been known to change his skin, go where he would, save by the process of miscegenation.

And then here is another fact, which ethnologists have strangely overlooked, or have been disposed to keep out of sight — the fact that the varieties of the human race, said to be the result of climate, food and habits, “existed at the very dawn of the historic era.” It has also been determined, from an examination of the skulls of different tribes of people, both of modern and of the most ancient times, that the same difference in cranial development, or in the shape of the head, that now exists, existed always.

Now, when we take these facts into consideration, and also these other facts: 1. “That no geographical centre has been found from which we can prove that the race radiated and degenerated; and, 2, that no primitive language has been discovered from which we can demonstrate that earth’s many thousand dialects were all derived, we are almost compelled to conclude,” says a recent writer on this subject, “either that the race is immensely old, thus giving ample time for the introduction of varieties, or that at a comparatively recent period, say six thousand years ago, God created several dissimilar pairs of human beings, placed them in different parts of the world, and either taught each a different language, or left them all to invent a dialect in their own way.” The latter conclusion was the one reached by Agassiz, who held that in the beginning there were several original centres of creation, and that each variety of the race had its first parents or progenitors; so that the Negroes are the descendants of a black Adam and Eve, and the Indians the descendants of a red Adam and Eve, and so on through the list of the races.

When he announced this conclusion, Christian ministers, and editors of religious journals, opened on him with a terrible volley of words. They did not examine the grounds of this grand man’s



PLATE 12.

belief — they did not attempt to fault his conclusion by an appeal to science, nor to show that he had not walked by logical steps to where he stood; but they said that he was undermining faith in the Bible — that he was furnishing arguments for the infidel. It made no difference that he expressed himself a sincere believer in the divine authenticity of the sacred records, and his profound reverence, not only for their religious but their historical contents, maintaining that they even confirmed his theory; he was denounced as a man teaching dangerous errors, and warned that he had better let such subjects alone; that he was no theologian, and biblical exposition was not in his line. All of which, I submit, was like barking of little dogs at the moon!

Now what is there in this theory that the human race is descended from several pairs, to contradict any declaration of the Bible, or to arraign its credibility as a divine revelation? I cannot see anything. But I can see this: that the story of Cain almost necessarily implies the existence of human beings not of his father's family. And it is far from unreasonable to suppose, nor is it in the least inconsistent with the highest grounds that may be taken as to the verbal inspiration of the Mosaic record, that its author, in his account of the first pair of their descendants, designed simply to give the history of that portion of the race from which his nation derived their origin.

Do not understand that I am committed to the theory that the Hebrews are the descendants of a Hebrew Adam and Eve; and that the Saxons are the descendants of a Saxon Adam and Eve; and that the Africans are the descendants of an African Adam and Eve.

My mind is not fully made up. Still it would seem that we must adopt one of the two theories — either the one just under consideration, or else the one which asserts a high antiquity for the race. In either case we shall be obliged to amend our interpretation of the Mosaic record, that so the revelations of the Bible and those of Science may be agreed. Most likely we shall come to the conclusion that God did not wait for the children of one pair, slowly and by incest, to people all the earth; but at once made many pairs, adapted to different climates and modes of life, and placed each kind in its appropriate house — some in the desert, some in the woods, and some beside the ocean.

Now let us for a few moments talk about something else that

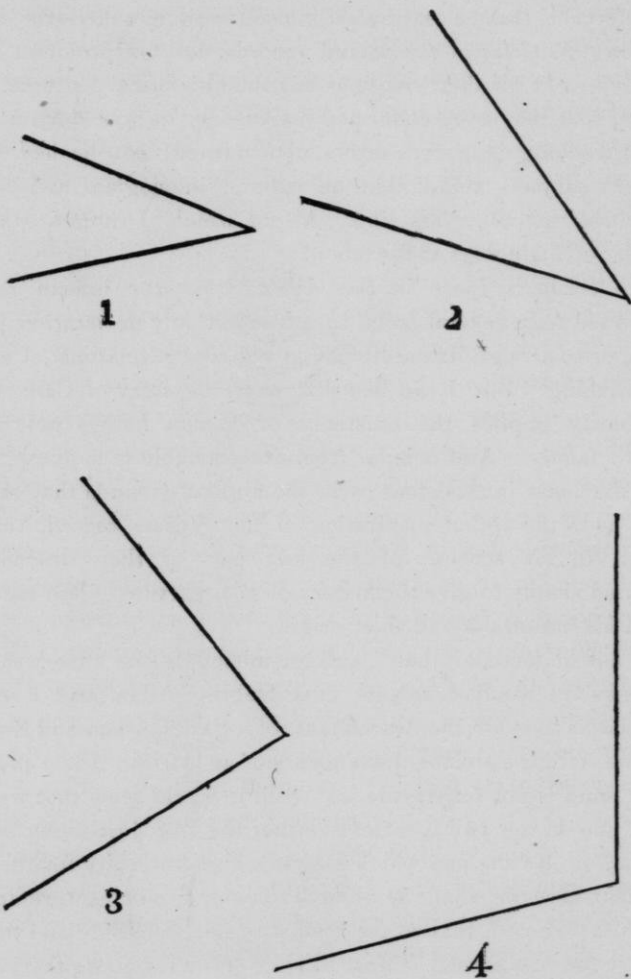


PLATE 1.

relates to man. In whatever way God chose to bring him into existence, and whether he has lived on the earth six thousand or six hundred thousand years, let us see what he is here for — what is the work given him to do, and the destiny he is to achieve.

I said in an address delivered here one year ago, that man very likely commenced life somewhat as a savage or barbarian. That is, he had no house, no fire, no clothing, no tools, no books, no culture, no knowledge of science. If we go far enough back in the history of any people — whether Greek, Roman, Saxon, Teuton or Celt — we will find in their remote ancestors only savages or barbarians, half-naked, half-starved, and ignorant. We are told of a remote past, of pre-historic times, in which man was only a slight remove from the ape; his habits much like those of the animals among whom he lived, and to whom he was so closely allied. In peat bogs, in bone caverns, in Swiss lakes, in the drift, in Nile mud, evidences are found in great plenty, and of the most positive kind, it is claimed, that man has existed for nobody knows how long, and that at first his condition was rude and uncultivated; that he was ignorant of the arts and sciences; that he subsisted for the most part upon the flesh of animals, and was clothed with their skins.

These evidences, as you know, consist of stone implements and other remains of primeval man, which associate themselves with garments of fig-leaves or of the skins of wild beasts; with life in caves and tents; with wild and pastoral pursuits. They even accompany the race as it enters upon its second stage of progress, and we find them in company with the implements and ornaments of the Bronze Age, when men were better clothed and housed, and cultivated the soil, and established trade, and had their temples of worship. They are found among the remains of Celtic and Aztec civilization, and tell their story of man in his first thousand years. Never, indeed, have they ceased to tell their story of a Stone Age for scattered groups and tribes of men — for those who have fallen out in the grand march, and retraced the steps of progress.

Something of the Stone Age remains in this Age of Iron. Even yet man is in his childhood, and has scarcely entered upon the work before him. After thousands of years of growth, of discovery, of mental, moral and material achievement, the alphabet of knowledge has scarcely been learned, and the work of redeeming the earth has only just commenced. While in all merely human

respects we are one with the fathers and mothers of our race, and one with the men and women of the middle ages, yet in point of culture, and with respect of all that makes life true, and fashioned it after a higher ideal, no doubt we are immensely beyond these people. Still, there is a large measure of the savage and barbarous mingling with our civilization. We talk a great deal about the heathenism in Africa and Asia, but, bless you! look at the heathenism in America, and the heathenism in civilized and christian Europe. It is awful to think of the wickedness in high places, of the frauds committed, of the wrongs perpetrated, of the terrible abuse of power, of the corruption among rulers, of crimes so fiendish as well-nigh to prove the doctrine of total depravity. And yet we are slowly improving, without doubt. The art of printing, the scientific discoveries, and the many improvements in machinery, are great steps, and show that man is getting upon higher ground. Give us one or two hundred thousand years, and we shall rise into a very respectable race.

In the meantime, how many inferior tribes and nations of men, now living and to live in the remote future, will die out, or become extinct? It may come to pass, it undoubtedly will, that the American people in their turn shall give way to a superior race who shall come in to dispossess them. This would seem to be the law in regard to the progress of man on the earth. We can trace its operation from the beginning. The weaker peoples have given way to the stronger. Little brained people have disappeared before the coming of large brained people. On this continent, and in this great Mississippi Valley, perhaps a thousand years ago, the stalwart Red Man displaced the feeble Aztec, and nothing remains to tell us he once existed save a few small ape-like skulls, flint implements, pieces of sun-dried pottery, and earthen mounds. The Red Man, in his turn, is disappearing before the growth and ascendancy of a superior race. He is wild and cannot easily be tamed. From the far east he has been swept by the advancing wave of civilization, until there remains to him only a narrow strip of his ancient possessions. It cannot be long before the fire in the last wigwam will be extinguished, and the race of Red Men will be no more. Then, it may be, after a few centuries, the new race, to create which God has mingled the blood of so many peoples, will give place to a dominant race from Africa — a race of black

men. And thus, as weak tribes and races fade and die out, and the tardy are overtaken by the car of progress and crushed out, man shall go up higher; or, in other words, by the operation of the law of natural selection on a grand scale, the human species shall be improved, and there shall not only be a new heaven and a new earth, but new men.

A single word, now, in conclusion: While it is true that man hardly yet comprehends his own life—hardly yet knows how to live, who of us does not bless God for the privilege of living in an age like this! an age of wonderful discoveries; of grandest triumphs of the human intellect; of bold and expansive plans for making the world light with knowledge. And what men and women ought we to be who live in this grand age of material, intellectual and moral progress! Not, surely, with eye, and ear, and heart and soul closed to the unveiled glory and the revealed wonders all around us; not content with being no more to-morrow than we are to-day; but men and women who, glad and grateful for the beautiful brightness of this new day, are praying and laboring for a more glorious coming of the Kingdom of Truth and Love.

THURSDAY, Feb. 27, 1879.

Convention met at the Council Room at 9 o'clock A. M. Mr. Hutchinson in the chair.

Mr. Loper, of Oshkosh, then read a paper about

FERTILIZERS:

In the *Scientific American* dated March 1, 1879, just at hand, under the heading "The Farmer's Best Friend," in which the point is made that inventions and manufactures benefit the farmer, occurs the following quotation from the *Chicago Inter-Ocean*: "Nature is a bountiful giver, but she requires that what is taken from the ground by the process of vegetation shall be repaid with equivalents in the shape of manures. For lack of paying that debt, she furnishes the farmer with increasing sterility of the soil. We, therefore, have seen the richest wheat fields retire from the state of New York, and take position in Ohio, Illinois, Indiana, and Michigan, then leave these localities for Wisconsin, Iowa, and Min-

nesota, whence they are making ready to take their flight to Nebraska, Kansas, and Colorado. In many places of the west the yield of wheat has permanently fallen from thirty-five, thirty, or twenty-five bushels an acre down to twelve, ten, or seven bushels. This is the penalty which the agriculturist pays for exporting the vegetative constituents of his land. Only where the produce of his fields is consumed in their neighborhood, can the waste of consumption be applied to maintain fertility; otherwise the loss is constant and sure. The waste of consumption is always in proximity to the fields where manufacturing industry, widely diversified and developed, is in proximity also. It is for this reason that the thorough establishment of manufactures always precedes a scientific agriculture and a highly prosperous condition of the farming classes. Poor lands will make farmers poor." This leads us to ask:

Are fertilizers needed? If they are, from what source can they be most readily and economically obtained? There is no agriculturist who is not vitally concerned in the answer to these questions.

It is apparent to every one that lands, however rich when first opened by the plow, show, after repeated croppings, the drain to which they have been subjected; and, unless careful attention is paid to manuring, they cease to repay the labor and expense of cultivation. What, then, must be returned to the soil?

Animal and vegetable life are supported either directly or indirectly from the soil. Vegetables derive their sustenance directly from the earth, and animals grow upon vegetables, or on vegetable-eating animals. Consequently, the chemical constituents of animals and plants are what must be replaced in the soil.

Science has shown that it is the office of plant life to take the simple materials of the earth and combine them in new forms fitted for animal food, and of animal life to consume these, and reduce them to such shape that they are most readily decomposed again into their elements. Animal organisms, therefore, are much better for fertilizers than vegetable, for the valuable elements are much more concentrated and much more readily taken up as plant food. While, therefore, vegetable matter is valuable as manure, it is plant food in its crudest state. Animal excrement is better, but consists mostly of the *waste* material that cannot be used in building up the animal organism. The material of the animal itself is far the

best of all. This may be readily seen by observing the extraordinary fertility of the soil where a dead animal has been left to decay. This material is obtained from bones and the refuse meat of slaughter-houses.

How essential the elements of which *bones* are composed, are to the soil, may be seen by the perusal of the following, which we quote from an article written by Prof. E. Barton Wood, of Oshkosh:

BONE-DUST.

Bones consist of about sixty per cent. of phosphates of lime and magnesia, over thirty per cent. of gelatine, and small proportions of carbonate of lime, etc. Below is the chemical analysis of a dry ox-bone.

Phosphate of lime.....	57.35 parts.
Phosphate of magnesia	2.05 "
Carbonate of lime.....	3.85 "
Soda and common salt.....	3.45 "
Gelatine (animal matter).....	33.30 "
Total.....	100.00

Gelatine contains nearly all the elements essential to vegetable and animal growth, viz: hydrogen, carbon, oxygen, nitrogen and sulphur. Lime, in almost all its forms, is of great value to land, not so much as food for plants as because it loosens tenacious soils, decomposes clay, and liberates the alkalies. It also decomposes vegetable matters and converts their nitrogen into ammonia. It destroys many noxious substances, neutralizes acids in the soil, and thus improves nearly all land. But it is more especially the phosphoric acid contained in bones that renders them of such great value to land. About 35 or 40 per cent. of the entire weight of bone is phosphoric acid, and therefore about 12 per cent. of their entire weight is pure phosphorus.

Phosphorus is very needful to all animals, for, as we have seen, it exists largely in their bones; and it occurs very freely in all the animal fluids, and in the brain and nervous system. Animals obtain it from vegetables, and they from the soil. But it is a fact that phosphorus is very sparingly distributed in nearly all soils; and how needful, then, to supply it, especially to those lands where the crops are removed and not returned in any shape to the earth.

The value of guano consists almost wholly in its ammonia and phosphates. The phosphates are in an exceedingly soluble condition, are therefore very speedily taken up by the plants, and guano, is, consequently, a very stimulating and powerful, but not very lasting, manure. Bone-dust, on the other hand, has its phosphates in a less soluble state, so that, although its effects are not so quick and active, they are much more permanent, and one good dressing will last for several years.

If sulphuric acid be mixed with the bone-dust, and the heap be allowed to lie a few months, the phosphate of lime becomes converted into super-phosphate and plaster. Where thus treated, its action is more like that of guano, *i. e.*, more quick and less permanent. The following extract is from Chambers' Encyclopedia, an excellent authority: "The productiveness in many districts of Britain had become much impaired by the diminution of phosphoric acid in the soil, owing to the quantity taken off in corn, cheese, and the bones of animals which were annually raised and exported. The fine red sandstone loams of Cheshire were comparatively sterile in the end of the last century, entirely owing to the deficiency of phosphoric acid in the soil, no doubt partly to be attributed to the quantity abstracted by the dairy produce yearly sent to market. So much was this the case, that a liberal dressing of common or burnt bones had the effect of at once doubling the value of the worn-out-pastures." It goes on to say that, though phosphoric acid is just as essential to one crop as to another, yet those crops that have a small seed, or that must grow in a short time, as the turnip, for instance, need a larger *artificial* supply than those that are growing year after year, as the grasses. Late-sown spring wheat, or oats, or corn, are very much hastened in their maturing by liberal use of bone-dust.

The quotations just made will show, however, its admirable effects upon grass lands also. In this connection may be quoted a case told by Mr. J. M. Smith, of Green Bay, a gentleman well known to the farmers of Wisconsin. He says that in his youth he knew of a farm on a mountain side, of a poor, yellow, gravelly loam, with a hard, stony sub-soil. It had been so utterly exhausted by constant skimming as to be considered utterly worthless. The owner offered it to one of his sons, on condition of his removing upon it, and trying to improve it. For a few years he had hard

times, but afterwards began to apply the bone-dust, giving about 1,200 lbs. to the acre. The first year that he was on the place he cut about one ton of hay. Two years ago (1876), he cut sixty acres that averaged two tons to the acre, and on twenty acres of it, this was the seventh or eighth crop since it was seeded. When seeded it had about 1,200 lbs. of bone dust to the acre, and nothing since. The bone-dust has brought up the old worn-out farm to a high state of fertility, enabling its owner to purchase the adjoining farm for cash. He has raised very little stock, and has been unable to get barn-yard manure, but claims that when he can get good bone-dust at from \$30 to \$35 per ton, he would not haul barn-yard manure two miles as a gift.

These facts show some of the beneficial results of the application of bones as a manure. Multitudes of witnesses could be brought to testify to its value. If farmers desire to keep up the fertility of their land, they cannot do better than to investigate its merits and apply it on their farms.

PREPARED TANKAGE.

The chief objection to the use of the refuse of the slaughter-house has been its intolerable odor. But this has been brought under control, and is to be had in a merchantable shape. It consists of the residue from rendering tallow and all kinds of bones and meat, reduced to a dry, granulated powder; the animal material has been brought to an inoffensive and economical shape. It is very similar in quality to the celebrated "Ammoniated super-phosphate of lime," so highly prized by farmers in the east. It can be applied to the land the same as bone-dust, by broad-cast sowing, or by dropping in the hill. It furnishes a manure which rapidly assimilates with the soil, and is therefore a most valuable fertilizer for hastening the growth of annuals, such as the cereals, grasses, and roots, which, not descending deep, must derive their nourishment from near the surface, and must have it in a shape that can be rapidly and easily absorbed.

The following table, prepared by Prof. B. P. Wilson, the well-known analytical chemist, of Baltimore, Md., shows the number of pounds of phosphoric acid taken by the various cereals, etc.:

	<i>Bushels to acre.</i>	<i>Lbs. Phos. acid.</i>
Wheat, straw and grain.....	25	26
Indian corn, stalk and grain.....	25	20
Oats, straw and grain.....	25	15
Rye, " ".....	25	18.1
Barley, " ".....	25	13.5
Potatoes.....	25	13
Clover hay.....	One ton to acre.	10

The table shows the importance of using such manures as most readily replace the waste to which these crops subject land. These quantities, to a superficial observer, may seem small, but when we take into account the fact elsewhere stated, of the small amount of this essential part of plant food that exists in the soil, and that this drain is repeated every year, we all see sufficient reason for the rapid deterioration of land, and the imperative need of animal fertilizers.

These facts have been recognized in Europe and the east, and the need has been met by the use of animal manures; but our western lands are being rapidly exhausted of their great fertility by constant cropping and sending away the produce to be consumed elsewhere, so that little is returned to the land. The only way to repair this loss is by the use of concentrated manures. These have heretofore been manufactured in the eastern states, the materials being to a great extent transported from the west at large cost; and the freight both ways has made them so expensive as to seem beyond the reach of most of our farmers. Now that arrangements have been perfected so that these most valuable vegetable fertilizers may be made and obtained near home, we trust the farmers of this vicinity will appreciate their advantages, and govern themselves accordingly.

ANALYSIS OF THE ASHES OF WHEAT BRAN.

[From the *Scientific American*, January 5, 1878.]

A substance having the appearance of a vesicular limestone and stated to be the ash of wheat bran that had been placed under a boiler, was analyzed by Miss Cora I. Brown, in the University laboratory. It was of a uniform gray color, appeared to be completely fused, and had a density of 2.34 and a hardness of $3\frac{1}{2}$ -4. Its composition was found to be:

Potassium chloride	K Cl	1.2887	per cent.
“ silicate.....	K4 Si O4	2.5936	“
“ phosphate.....	K3 PO4	5.8237	“
Sodium “	Na3 PO4	11.7370	“
Hydrogen “	H3 PO4	9.3721	“
Calcium “	Ca3 P2 O8	18.3842	“
Magnesium “	Mg3 P2 O8	41.4600	“
Ferric “	Fe2 P2 O8	3.8058	“
Calcium sulphate.....	Ca SO4	1.9567	“
Water (hygroscopic).....	H2 O	.4379	“
Sand and insoluble residue....		3.1700	“
		<hr/>	
		99.8897	

The professor bestowed the highest praise upon the above determination by Miss Brown, as having been performed by the most accurate and skillful manipulator he ever had under his instruction.

WHEAT ANALYSIS.

[From the *Scientific American*, April 13, 1878.]

The following is an analysis by Boussingault, the celebrated French chemist, on the ashes of wheat.

Fifteen hundred pounds of wheat having been reduced to ashes, and subsequently weighed, there was found to be thirty-three pounds of ashes, which on analysis yielded the following substances:

Phosphoric acid.....	15.51	pounds.
Sulphuric acid.....	.33	“
Chlorine.....	trace	
Lime .....	.95	“
Magnesia.....	5.25	“
Potash.....	9.73	“
Soda.....	trace	
Silica.....	.44	“
Moisture and loss.....	.79	“
	<hr/>	
Total.....	33.00.	

The question may arise as to the proper quantity that should be used. This depends, no doubt, largely upon the condition of the land. If it is completely worn out, as was the case with the farm mentioned by Mr. Smith, it of course needs a liberal quantity all at once (in that case 1,200 lbs. were used); but if land is in first rate condition, and is capable of doing its full duty, yielding say forty

bushels of wheat per acre, then it needs only as much as will replace the drain made upon the land by the present crop. Let us take the tables already given, and see if we can tell about how much that is. Prof. Wood tells us that 35 to 40 per cent. of the entire weight of the bone is phosphoric acid; the average of this is $37\frac{1}{2}$; so that three pounds of pure bone meal contains one pound of phosphoric acid. Boussingault, in his table, shows that a bushel of wheat grain contains one-half pound of phosphoric acid; but this is not all the data we want. We want the straw also; so we take Prof. Wilson's table, as in his analysis the straw is included, and we see that a bushel of wheat, including the straw, contains one pound of phosphoric acid.

Now if three pounds of bone contains the same amount of phosphoric acid as does a bushel of wheat, including the straw, that is one pound, a yield of 40 bushels to the acre would call for 120 pounds of bone to replace the drain. But the land that yields only 20 bushels to the acre may possibly require several times this quantity for a year or two, if it is desired to get up to its full duty — perhaps 200 to 400. This can be better known, however, by actual experience, which some of you may have had.

I know of no better way to impress the importance of this subject upon your minds, than by relating part of a conversation had with a manufacturer of fertilizers, about two years ago. I asked him if he had much trade with the farmers in this part of the country for his fertilizers. His reply was, "None at all, and I don't want any." He being the first manufacturer I had ever met who did not want to sell his goods, I asked him to explain. His reply may be worthy of your notice; it was this: "This part of the country, including Wisconsin and Minnesota, is our best field for obtaining our raw material. The farmers seem not to care about the value of bones, and therefore we are able to obtain them in large quantities, cheaply. And since there is no limit to the demand for the manufactured article in the east and south, our only concern is about getting sufficient quantities of the most important ingredient, viz., bones; so that the longer these farmers go without using bone-dust on their land the better we like it."

There are a number of valuable fertilizers in addition to bone and stable manure, among which are lime, salt, plaster, and ashes; the last by no means the least in importance.

Mr. J. P. Roe — I can say that this is one of the most important papers we have had bearing on the immediate and future interests, the actual wealth and future prosperity of the farming interests of this portion of the west. We have been going on blindly in this depleting process of extracting the wheat and sending the wealth of the soil from us. We have been mortgaging the future, and it is high time that we shut down the brakes. I have tested the bone-dust, not of my friend Loper, but of Mr. Baugh, a Chicago man, and I believe it to be a valuable fertilizer; but at the time I tested it, it was so exceedingly expensive that I did not feel able to go on with it. In addition to that, there was a heavy tax in the shape of transportation, the cost of freightage to this point; and at the time, if you recollect, some five years ago, manure in this city was to be had for the asking, and it was a personal favor to carry it off. Now it is becoming valuable and difficult to obtain. You have to obtain it mainly by purchasing straw, or taking the straw off of your own premises and receiving a slightly colored article of straw in return as manure. Times have materially changed in that regard, and the relative difference between the manure furnished by the city and the cost of bone-dust is materially changed to-day from what it was at the date of my experiment. Now it is a well known fact that with this abominable adulteration which is going on in everything, what are known as commercial manures and fertilizers are extensively adulterated. It is a difficult matter to procure the genuine article. We pay a high price for it, and then it is doubtful whether we have the real article. Here, in the first place, we are assured, from the character of the manufacturer, from the fact that the article is manufactured under our eyes, and for that matter under our noses, that we have the genuine article.

In the second place, we have the genuine article as cheaply as it can be produced with a fair living profit to the manufacturer. We have it, also, without the freight charges added, as is necessarily the case when it is obtained from a distance; and, furthermore, we have an important branch of industry, of manufacture, bearing upon our own personal home interests, right at our doors, a branch of industry which we feel in honor bound to encourage, that we ought to aid if we undertake to do anything of the kind in any direction. I believe in a protective tariff so far as protecting home industry. Here is a home industry where a good work is being

done, a grand work, an initial work. By that I mean that it is yet in its infancy. It is yet to be seen and known whether this community, whether the agriculturists of the northwest, whether the farmers of Wisconsin will take hold of this enterprise and patronize it, and thus be beneficial to the manufacturer, and yet receive benefit themselves. I hope this matter will receive further attention and discussion.

Mr. J. M. Smith—What has become of the manure that you can not get it now?

Mr. J. P. Roe—Where there was one applying for it, there are ten now. And the farmers six or eight miles back in the country, and I say it to their credit, are carrying out manure from the city. A recent writer says that the Japanese farmer never returns from market without carrying out the refuse of the city. The average country farmers, not the agriculturists or horticulturists, but the average farmers, are beginning to learn the value of manure, and the demand, as compared with a few years ago, is ten times as large.

Mr. J. M. Smith—I will relate what happened to me some eight or ten years ago. Our home paper discussed the subject of manures, and urged their use. A friend said to me one day: "Smith, you are a leather-head." I said, "What is the matter?" "Don't you know in less than ten years you will have the farmers picking up the manure, and that will put the price up, and you can't get it at all. You used, sometimes, to get pay for hauling it away; now you are paying fifty cents a load for manure and can't get it for that." It shows that the farmers are improving. By the way, I want to say a word in regard to one portion of that paper. I see that my name is referred to. I don't know but there is a mistake. I made a statement that a man put on 1,200 pounds of bone-dust to the acre.

The statement there is as I made it, and as I received it from the farmer himself. The stories that were told about the improvement of that farm were so extravagant and so wild that I could not believe them, and finally I told my brother I wanted him to hitch up a horse to his carriage and take me up to the farmer's; that I wanted to know the secret and the whole truth; and the statement there is virtually as he made it and is correct, but he only used the bone-dust occasionally. He put on 1,200 pounds at a time, or about that. He had been on the farm about thirty years, and he

had found by experimenting that he got the best results from putting it on in large quantities, and not so often. He put on about 1,200 pounds to the acre, and only put it on once in from six to eight or ten years. I think once he went as long as ten years. He showed me one field where he had mowed it eight times in succession. A part of it had been manured heavily with barn-yard manure. He keeps a small amount of stock and uses what manure he makes. A part of his field had been manured with barn-yard manure pretty well when it was seeded down.

The other part had been manured with bone dust, about 1,200 lbs. to the acre. The yield was about equal. The portion of the field on which the barn-yard manure was used began to fail rapidly. The crop decreased very rapidly, while that portion on which the bone dust had been used kept up its yield until the year I was there, and when he mowed it he said he wanted to make a little experiment as to the weight he actually did get; and he measured off an acre from that portion where the bone dust had been, a piece that he thought was about the average. He cut that piece and weighed the hay and found that he had 5,750 lbs., almost three tons, and that was the eighth crop of hay in succession. I knew that land when it would not raise 200 lbs. to the acre.

Mr. Huntley — What is hay worth a pound there?

Mr. J. M. Smith — He had not sold any for the last fifteen years for less than twenty dollars a ton. It was about twenty miles to the city of Newark.

Mr. Huntley — Do you know what he had to pay a ton for bone dust?

Mr. Smith — The bone dust cost him thirty dollars at the depot. He was about four or five miles from the depot. He said he had not bought it for less than thirty dollars. You might call the bone dust thirty-five dollars, delivered on his farm. He stated that he wouldn't get manure when he could have got it for nothing in town. He said, "If you give me the stable manure, and I had to haul it two miles, I would not take it as a gift, if I could get bone dust at thirty to thirty-five dollars a ton." It is very possible that that land was in such a condition that the bone dust was just what it needed, and our farms here might not be affected to so great an extent. I made a little experiment myself, last summer, with regard to bone dust, some that I obtained from friend Loper, and the

result was very satisfactory indeed. The bone dust I used formerly was finer. He had ground it finer than the sample he has here on exhibition. That was ground to what was called flour of bone; this is what we call bone meal. The experiments that I made last summer were very satisfactory to me, and I propose to continue them this season; and I have no doubt but that our farmers will find the use of bone dust beneficial. I made some experiments with Mr. Baugh's, and they were not as satisfactory to me. In the American manures samples that are there analyzed are put down at less than one-half of the actual value, taking ammonia at a shilling a pound. For instance, when Baugh was selling at thirty dollars a ton, it was only worth fifteen. It is stated that, as a general thing, the fertilizers that are in use in the country are adulterated, with the exception of those manufactured in Connecticut.

Two years ago Connecticut took steps that are going to be worth, and are worth already, millions of dollars to that little state, by having an agricultural chemist and insisting that all artificial fertilizers be analyzed. It is done free of cost to the parties. If a party suspects he has been humbugged, he can send a sample of his fertilizer to the chemist and it is analyzed free of cost to him, and then he knows just what he has got. The result is that they are having pure artificial fertilizers there. Massachusetts has followed in the same track, although more recently. In North Carolina, where they were far behind us, they have stepped into the same route. In North Carolina, that we supposed was one of the poorest agricultural states in the Union, and that we supposed was poorer than any other state in the Union, they are going to be ahead of us in Wisconsin. Every state ought to have such a chemist. It would be a saving of millions and millions to our farmers, and they ought to insist upon some such provision in this state.

Secretary Torrey then read a paper by Mr. Hart, as follows:

Mr. President, Ladies and Gentlemen of the Convention: At a very late hour before the meeting, I was requested to prepare a paper to read before you on something pertaining to the raising of bees and the production of honey. I was in hopes that I could have induced some bee man better qualified to interest you than I shall be able to do; but as it is, I will give you some general ideas pertaining to that branch of industry that perhaps you have not

thought of before. Probably most of you present are aware that, within a few years last past, very large advances have been made from the old straw or gum hive, and the guess work plan of working, up to the present scientific plan of operating. We need not go further than thirty years back, for the starting point to begin to enumerate the advantages gained. At that time, Mr. Quimby, one of the best operators of the day, estimated that the average product of a well managed apiary would not exceed over eleven pounds surplus honey, and one swarm increase. Now it is not an overestimate to calculate the same amount of increase and ten times that amount of surplus. Now I will briefly enumerate some of the means made use of to accomplish this result.

First, it is necessary for the operator to study well the nature and power of the bee and the power they possess to produce. *Second*, he wants to know the appliances necessary to husband all the power they are able to exercise, in order to produce the best results for his labor and skill, and the industry of his pets. To do this he will be under the necessity, according to my experience, to use the movable frame, manipulating hive, mal-extractor, vessels for ripening his honey, fumigator, comb foundations, queen cages, wax extractor; also the appliance for producing either comb or extracted honey; the Italian bee, and a good field for forage, besides minor fixtures too numerous to mention; and now, when his labor in connection with his little industrious pets has stored up his summer yield, and it is ripe and fit for market, *then what?* Well, suppose, if you please, that I try to find a home market. I come to Oshkosh, or any other prominent town, and offer my honey for sale, not expecting high prices; the reply is, We have a large supply of commercial syrups at so low figures that our customers prefer to paying the prices for honey; besides we have some California pot-honey put up by Parine, in Chicago, in very nice, small jars, and that help to sell it.

Disappointed in my expectation, I send specimens to Parine, of Chicago. The reply comes back, "We will buy your comb, but your extracted honey we do not wish, as we are producing a cheaper article ourselves." *How a cheaper article?* A chemist will tell that it is one-eighth honey in the comb, and seven-eighths glucose. I sent specimens of the very best quality of basswood and clover honey to Thurber & Co., New York. The reply was,

"We can give you eight cents, five per cent. commission and transportation out." Now how much will be left? We have worried our way through difficulties and disadvantages for the last thirty years, and from sources where we had reason to expect assistance and encouragement have found a sort of go-by, and been considered a sort of "twitch behind" branch of industry to be run by fanatics. We, as bee-keepers, are a very patient class of persons, and have borne ourselves up with hope that a brighter day was dawning, when, lo and behold! Now I want to read a little to you from our cousin across the big water:

HONEY.— A correspondent writes to the *Pacific Rural Press* as follows, and it would be well if bee-keepers would adopt some of his general recommendations, and it would be to the interest of all if dealers would. He says:

While the bee-keepers of California are just on the eve of making their purchases of lumber and getting ready to make hives for the increase of the coming season, they are greeted with the news from their representative in New York that "there is nothing to be done in honey here at this time, as there has been so much adulteration in this article that buyers are alarmed." And from our English correspondent comes gloomy reports of a small lot of California honey having been offered at auction on two different occasions without being sold. Then comes another, that a large shipment of California honey from New York by a large dealer there, and that the custom authorities had seized and destroyed it in accordance with English laws, on account of its being largely adulterated with glucose.

I, as a producer, will venture to offer a suggestion or two to those educated blockheads, that may be of service to them in the future if they will act on the suggestion. If you have cause to suspect adulteration in honey with glucose, proceed as follows: Take a quantity of honey and add one part water, dissolving the honey thoroughly by stirring. Then add alcohol of 80° until a turbidness is formed which does not disappear on shaking. If glucose syrup is present in the honey, soon a heavy deposit of a gummy, milky mass, will form, while with pure honey there will be only a very slight milky appearance observed. This test is so simple, and at the same time so true, that any dealer who fails to become acquainted with the simplest test used for detecting frauds in the

article in which he deals, is unworthy of the calling he has accepted.

GLUCOSE. — I am glad you have taken notice in our journal of this article. From the discussion going on in the American bee journals, it is evident that glucose is a regular article of trade in that country for increasing the bulk of their enormous consignments of honey. In America there are large factories for manufacturing this stuff, and it appears that there are also vast establishments having special arrangements for mixing and adulterating honey with it. Their bee journals admit that it is largely used by beekeepers, and that it makes nice comb honey. Seeing that our unscrupulous cousins are exporting to this country honey adulterated with glucose, it may interest your readers to know what this vile compound really consists of. You will see that it is a much more deleterious substance than wooden nutmegs.

Chemically speaking, glucose belongs to a group of carbo-hydrates, a class of compounds very widely distributed in the vegetable kingdom. The glucose of commerce is obtained from starch, by boiling with dilute sulphuric acid, or oil of vitriol. It can be, and is, also obtained by the same process from sawdust (lignin) or any vegetable matter containing cellulose. Dirty linen or cotton rags, for example, thus treated, give considerably more than their own weight of glucose. The great bulk of the sulphuric acid of commerce is manufactured from iron pyrites (disulphide of iron), a yellow, brassy-looking mineral abundantly found in nature. The acid contains many impurities in larger or smaller quantities. Chief among these are sulphate of lead (plumbic sulphate), formed by the slow action of the acid on the lead pans in which it is evaporated; various nitrogen compounds dissolved in the acid and derived from the nitric acid employed in its manufacture; and always arsenic when prepared from pyrites. There is a sulphide of iron closely allied to pyrites which furnishes the bulk of arsenic of commerce.

Now the question is, What are the ingredients that form or may be found in this compound known as "glucose?" *First*, there is a crystallizable substance called grape sugar or dextrose. *Second*, an uncrystallizable, gummy substance called dextrine, similar to what is used on adhesive labels. *Third*, sulphate of lime (calcic

sulphate),* a valuable material for furnishing the interior of houses, under the name of "plaster of Paris," and also useful as a manure. *Fourth*, sulphate of lead, an insidious poison, which cannot be eradicated from the human system. *Fifth*, various compounds of nitrogen, all valuable as fertilizers. *Sixth*, arsenic (the troxide of arsenic, or white arsenic), a well-known deadly poison. Besides these non-volatile mineral matters, there may also be injurious organic substances derived from the sort of raw material used for its manufacture. Is not this a mess of abominations to give our bees, or to be used as food for ourselves? Do you not think that the British Bee-keepers' Association should appoint a practical analytical chemist to help them to expose adulterations of honey, and to convict and punish those offering it for sale?—*J. S. Arbroath.*

Now, after giving a kind of an expose of the adulteration of honey sent abroad, let us see what the probable facts in the case are by the admission of Thurber & Co. They say, in the *American Bee Journal*, February number, 1879, page 50: "We have no desire to discuss the question, which bee-keepers are a great deal better able to decide than we are, as to whether glucose ought to be utilized for feeding bees. We ourselves, as well as other dealers in honey, have put up broken combs in glass jars, filling the spaces around the comb with a mixture of honey and glucose, which will not candy or congeal, as will pure honey, this result being demanded both by the retail dealer and the consumer." I have read to you the analysis of D. Clark, of Glasgow, showing Thurber's mixture, that the retail dealer and consumer demand. Now, will you allow me to read a little more to you, to show you how much the interests of the retail dealer and consumer demands, for another mixture, feeling it our privilege to follow up this choice article of food, that bee men have to come into competition with?

The following is the full report of the Michigan State Board of Health, on a special investigation concerning impurities and adulterations in table syrups. At this time this report will be read with special interest:

Many weeks ago a can of syrup was placed in my hands by Prof. Beal, which has the following history: A family by the name of Doty, of Hudson, Michigan, purchased some syrup of a grocer in

*Lime is added in the course of manufacture, to neutralize the excess of sulphuric acid; hence the sulphate.

that village. Members of the family ate freely of the syrup and were all made very sick by its use. They became alarmed and sent the can of syrup to the Agricultural College for analysis, supposing it to contain poison. Other families in the vicinity became so alarmed by the singular sickness in the Doty family that they returned the syrup to the grocer. The grocer had purchased the syrup from a very respectable wholesale dealer in Toledo, Ohio, who claimed to have obtained it from the manufacturers for pure cane syrup. The syrup was of a light-yellowish brown color, and looked like a very respectable syrup. It had a decided acid reaction with blue litmus paper; turned black when sulphate of ammonium was added to it, and gave a heavy precipitate with oxalate of ammonia. The analysis is, I found, that the body of the syrup was starch sugar, or glucose, instead of cane sugar.

The amount of foreign impurities will be given in the results of the examination by No. 9, in that series. The free sulphuric acid, yellow vitriol, the sulphate of iron, copperas, and sulpho-saccharate of lime, were probably the cause of the sickness of the Doty family. The results of the analysis of this syrup induced me to examine a number of table syrups to ascertain whether a similar adulteration existed in other varieties of table syrups. Dr. Letherby, in his admirable work "On Food," states that the Anglo-Saxon population of England and America consume 41.4 pounds of sugar per head. The Latin race, including the inhabitants of France, Italy, Spain, Belgium, Portugal and Switzerland, consume 12.34 pounds per head. The Teutonic race of the Zollverein, Austria, Holland and Denmark, consume 7.3 per head. While the poor of Russia, Poland, Turkey and Greece, consume only 3.3 pounds per head. The Anglo-Saxons are pre-eminently a sugar consuming race. There are few luxuries so prized by mechanics, for whom the chief articles of table luxury have sugar as an important element. The large consumption of sugar is not confined to the wealthy, but is almost as common with those of limited means. To defraud the poor of his sweet is to cheat him out of the cheap table comfort which his poverty can afford.

Before giving the results of my examination of table syrups, I will remind my readers of certain facts regarding sugar. There is a large class of substances included in the general term sugar. Only two are of sufficient commercial importance to demand our

attention at present. One is termed by the chemists *sucrose*, and includes cane sugar, beet sugar, and maple syrup. These sugars are chemically identical, and possess the same amount of sweetening power. *Sucrose* exists in the sap of a great variety of plants, and has never been manufactured from any other material.

The second class is called *glucose*, or grape sugar. The white lumps of sugar in raisins is *glucose*. This kind of sugar may be manufactured from other materials, *e. g.*, from starch, woody fiber, etc. While it is possible to make this kind of sugar out of old cotton and linen rags, paper, sawdust, etc., yet it is not profitable to do so, because of the time required to make the change, and the difficulty in purifying and decolorizing the sugar when it is made; but this sugar can be very rapidly and economically made out of starch, and the manufacture has been carried on in France for a long time, and seems to have been introduced into this country.

The chemical composition of cane sugar differs from that of starch only by one molecule of water, while grape sugar differs from starch by two molecules of water. If we get a chemical combination of one molecule of water with one of starch, we could make cane sugar. Chemists have attempted this by boiling the starch with dilute sulphuric acid, but they always overdo the matter, adding two molecules of water, thereby getting grape sugar instead of cane sugar.

If chemistry shall ever enable us to readily and cheaply combine one molecule of water with starch, then the millennium of the sugar lovers will have come, for a bushel of corn will then make about twenty-five pounds of cane sugar. But chemists have not yet solved this problem, only to tax their ingenuity; only to tantalize their endeavor. But while chemists have been baffled in their attempts to convert starch into cane sugar, they have found it very easy to convert starch into grape sugar. I will briefly describe the process, as given by Payee, because we shall then more fully comprehend the results reached in the examination of certain syrups. The saccharification of the starch in France is carried on in large wooden vats, capable of heating 2,800 gallons. The contents of the vat may be heated by forcing in steam, through a coiled pipe at the bottom. The steam pipe is perforated, to permit the steam to escape at many points in the vat. In France the steam pipe is lead. In this country, I suspect they use iron pipes.

When two tons of starch are to be converted into sugar, thirty-two barrels of water and about eighty pounds of sulphuric acid are placed in the vat, and the whole heated to 212 degrees by forcing in steam. Two tons of starch are then mixed with twenty-two gallons of water and stirred up, and four or five gallons of this mixture are run into the vat; the temperature is kept up to the boiling point all the while and successive charges of starch are run in, until the whole amount is converted into sugar. The steam is then shut off, and chalk is added in sufficient quantity to neutralize the sulphuric acid; but if too little chalk is used, free sulphuric acid will be left in the contents of the vat. The sparingly soluble sulphate of lime is free, and much of it settles to the bottom of the liquid. The clear liquid is drawn out and evaporated by steam heat, until the proper density of syrup is secured, or until it will crystallize on cooling and standing several days, according as they seek to make syrup or sugar. This brief description will assist us to understand why certain impurities are found in these starch syrups. If iron pipes are used to convey the steam for heating the contents of the vat, the sulphuric acid will attack and dissolve some of the iron, and then sulphate of iron (copperas) will appear in the syrup.

If too little chalk is used free sulphuric acid will remain in the syrup. The chalk being carbonate of lime, its use will explain why lime may be found in large quantities in the syrup. As chalk is insoluble in water, and sulphate of lime is sparingly soluble, many persons would suppose that little or no lime would remain in these syrups, but we must bear in mind that sugar itself acts the part of an acid with many substances. Thus there are two well known salts formed by a combination of lime and sugar. One containing one equivalent of lime to one of sugar, the other containing three equivalents of lime to one of sugar. These *sucrose* of lime have lost entirely the sweet taste characteristic of sugar, and have a bitterish taste instead. Last spring some of the students of this college brought me a small quantity of a whitish granular mass which deposited from maple syrup in settling to make maple sugar. The sugar boilers called it sand, as it was hard and gritty, insoluble in water and destitute of any sweet taste. On analysis, I found the material to be nearly pure *sucro* of lime, containing in addition a small amount of phosphates of magnesia. Here was the natural

formation of sucro of lime from the elements of plant food contained in the sap. Not only will sugar combine with lime, oxide of lead, oxide of iron, etc., but it will associate with itself sulphuric acid and form a compound acid which comports itself very differently from simple sulphuric acid. This sucro-sulphuric acid forms a pretty large class of salts which are soluble in water, but especially soluble in solutions of sugar, re-agents which will readily precipitate the sulphates: *e. g.*, chloride of barium will not precipitate the sucro-sulphates. Glucose has the same power as an acid substance as sucrose, forming a class of soluble glucosates. It will also associate with itself sulphuric acid and form a class of gluco-sulphates. Undoubtedly a large part of the lime found in these starch sugar syrups exists in the form of gluco-sulphates of lime. A sparingly soluble sulphate of lime in water is no guarantee that these syrups will not contain a large amount, because it may exist in the form of the soluble gluco-sulphate of lime.

One evil connected with the presence of lime in syrups is the destruction of a portion of the sweetening power in the syrup. One part of lime will destroy more than six times its weight of sugar so far as any sweetness is concerned, and the compound of lime and sugar is bitter. In making my selections for examination, I obtained specimens only from those who are regarded as first class tradesmen. If syrups bought at such places are adulterated, we may well suppose that the inferior class of dealers will have no better articles. Some have said that undoubtedly poor people, who trade at small groceries, are swindled in these syrups, but that the respectable class of citizens, who patronize first class grocers, need not apprehend any such imposition.

I determined to follow up the respectable citizen and see what syrups he obtained from first class grocers. Part of the specimens were obtained near home but most from abroad. I have examined seventeen specimens in all, with the general result that two were made of cane sugar and fifteen of starch sugar or glucose.

SPECIFIC RESULTS OF THE EXAMINATION OF TABLE SIRUPS.

- No. 1. Pure cane sugar sirup.
- No. 2. Starch sugar sirup; contains some sulphate of iron copperas, and contains in each gallon 107.35 grains of lime.
- No. 3. The grocer called it poor stuff. I have seldom seen an

article that better sustained its recommendation. Made of starch sugar, contains plenty of copperas, and 297 grains of lime in the gallon.

No. 4. Nearly pure cane sugar sirup.

No. 5. Starch sugar sirup; contains copperas and 100 grains of lime in the gallon.

Nos. 6, 7 and 8. All made of starch sugar, containing sulphate of iron and plenty of lime.

No. 9. This is the specimen from Hudson which caused the sickness of the Doty family. A starch sugar sirup; contains in the gallon 71.83 grains of free sulphuric acid; 28 grains of sulphate of iron; 363 grains of lime.

No. 10. Contains starch sugar, copperas and lime. Amount not estimated.

No. 11. A starch sugar sirup; contains in the gallon 141.9 grains of free sulphuric acid; 25 grains sulphate of iron; and 724.83 grains of lime.

No. 12. Contains starch sugar seasoned with sulphate of iron and lime.

No. 13. Starch sugar; contains in the gallon 58.48 grains of sulphate of iron; 83.14 grains of free sulphuric acid; 440.12 grains of lime.

No. 14. Starch sugar; contains in the gallon 80 grains of free sulphuric acid, 38 grains of iron, and 262.84 grains of lime.

Nos. 15 and 16 contain starch sugar, sulphate of iron and lime.

No. 17. Starch sugar; sulphate of iron; 202.33 grains of lime.

A very important element in this discussion is the great disparity in the sweetening power between cane sugar and starch sugar or glucose. One pound of cane sugar is of the same sweetening power as $2\frac{1}{2}$ pounds of glucose. In these starch sugar syrups the public is not only treated with compounds, loaded with foreign injurious materials, but they are enormously cheated in the very thing they seek to buy, viz: the sweetness. Sugars and syrups are bought not as articles of food solely, but entirely for their sweetness, and thus the buyer is largely defrauded out of the very thing for which alone he makes the purchase. The thought of using such mixtures as a relish for our food is not very appetizing. Some of these drips seem to be made up of about equal parts of fraud and dirt. A facetious friend has quoted in this connection the old say-

ing: "A man must eat his peck of dirt before he dies." If any one feels uneasy lest he be defrauded of his peck of dirt, let him eat a few gallons of No. 11, and he may rest on his laurels the balance of his days.

WHOSE FAULT?—The public will naturally ask who is to blame that such disgusting and fraudulent mixtures are sold in the shops. I don't think that the retail dealers are sinners above all that dwell in Michigan, in this respect. Most of them honestly suppose that they are selling a good article of cane sugar sirup, and are themselves surprised that so good looking sirups can be sold at so low a price compared with that of sugar, a price often less than that of the dark colored and strong flavored molasses which remains from the manufacture of cane sugar. The manufacturers are chiefly to blame in this matter, for they cannot be ignorant of the fraud in selling glucose for cane sugar; but even they will probably be surprised to learn how large a quantity of the foreign materials is left in these sirups.

TESTS.—It is popularly supposed that an infusion of tea leaves will certainly detect the presence of starch sugar by the dark coloration it imparts to the sirup. Strong tea will give a reaction of this kind with a salt of iron, the same reaction which makes black ink; hence strong tea may be used to detect the presence of copperas in sirup, but it will give no reaction with grape sugar containing no iron. In most of the sirups, lime is the largest adulterant, aside from the starch sugar itself. Lime may easily be recognized in sirup by a solution of oxalic acid. Dissolve one ounce of oxalic acid in a pint of rain water. If the solution is not clear, let it stand for a few hours, till it settles; then pour off the clear solution into a clear bottle, and label it oxalic acid, poison. To test a sirup, place a tablespoonful in a tumbler half full of rain water; stir it up, and add a tablespoonful of the oxalic acid solution. If there is much lime in the sirup, it will show itself by a white precipitate, the amount of which will give some measure of the amount of lime present.

R. C. KEDZIE.

AGRICULTURAL COLLEGE, *Lansing, June 30, 1874.*

Many of the New York papers have published articles on the question of adulteration. The reports of the custom house show that the importation of glucose was in 1875, 2,352 lbs.; in 1876

65,789 lbs., and in 1877, 233,366 lbs. Manufactories of this article have been constructed of late years and are now in full operation. It is estimated that the production of glucose in the United States surpasses that of starch. There is an establishment in the city of Buffalo that works up five hundred bushels of corn per day; another at Davenport, Iowa, doing about the same amount. I was told by a gentleman, a few days ago, that there was shipped from Terra Haute, Indiana, eleven car loads per day, of white corn, grown for a sugar refinery in the state of Maryland. I think I have occupied your time sufficiently; and will close by simply requesting this convention to take some action by way of memorializing the legislature on the subject of adulterations of food, etc.

Mr. Torrey — In connection with this, I desire to state, by request of Mr. Hart, that there is a bill now pending in the Assembly of Wisconsin, No. 383, introduced by Mr. Webster, and referred to a select committee of one, Mr. Webster, and not printed on February 4th; February 10th reported back with a recommendation that it be referred to the committee on Medical Societies and ordered printed. It is a bill to prevent adulteration and fraud in food, drugs and liquors.

Mr. Hart — I have conversed with the secretary of the State Board, and he thought it was doubtful whether the bill would find its way back to the legislature. Now it appears to me that is very essential under the present circumstances that our health be looked to as well as many other things. This adulteration affects the sale of pure honey, and of course we bee-keepers feel solicitous on the subject.

Secretary Torrey then read the following resolution offered by Mr. Hart:

WHEREAS, The production and exportation of honey is an honest and honorable industry of respectable and fast growing importance in the United States, the proceeds of which is clear gain in the country; and

WHEREAS, The business of the producer and the health of the consumer are being jeopardized and damaged by the wholesale and retail adulteration of honey, and the manufacture of deleterious compounds sold at home and exported abroad as "pure American honey," now, therefore, be it

Resolved by the Thirtieth Assembly of the State of Wisconsin,

That our honorable senators be instructed and our members of congress requested to introduce and have enacted into laws, measures for the protection of said interest by the suppression of the evils herein complained of.

Mr. Loper— I would like to amend the resolution so as to include everything that is manufactured. I would like to have a chemist paid by the state, whose duty it would be to analyze everything that is manufactured that is presented to him. I would be willing to pay my full share of the tax to support such a chemist.

Mr. J. P. Roe— In my view it would not be advisable to load down this matter of the adulteration of food and beverages with the adulteration of other manufactured articles. While both are a gross wrong, and both should receive thorough attention, yet they are distinct, one from the other. Alluding briefly to the remarks of Mr. Smith, in regard to the action taken by Connecticut, and also the state of North Carolina, and the decidedly profitable results to those states, it seems everywhere advisable in the interest of the purchaser, and of the honorable, upright manufacturer, that we should have a public servant, a chemist, appointed by the state, whose duty it should be to analyze any sample of commercial manure that should be sent to him, and report the analysis, and there should be some legal action taken and some penalty attached to all adulterations of commercial manure. Let that be a distinct issue by itself.

I appreciate the feeling of our old friend Hart, that he should resent the sneering and derisive term applied to the industry of bee keeping, and those who are engaged in this great business, for such it is. We have no idea of the extent of this business in the country. Take it right around us. In the village of Winneconne, one old gentleman, comparatively rendered unfit for active life, for daily labor, from his limited means produced nearly two tons of honey from twenty-four swarms of bees. I refer to Mr. Webster of Winneconne. Another gentleman close by had about the same amount of honey. Another gentleman in Omro had 8,500 weight of honey. How many more there are, I don't know; this was from bees placed right on a city lot. The ground was very closely tilled, and if that amount of honey is made so near to us by so few individuals, in such a limited area, what may be going on throughout our own state and over the country. One firm shipped in pure comb, to

Europe, eighty tons at one shipment. That same firm proposes to make another shipment of one hundred tons of honey. Where the adulterated article is thrown out of the market, justly seized and confiscated as a sanitary precaution, the pure article, where known, is in great demand. This is becoming a great industry. In sending honey abroad we are not sending away the wealth of our country as we send away wheat. Every bushel of wheat we send from Wisconsin is so much actual wealth of the soil. There is an absolute loss. There is so much taken out of the soil which must in some way be replaced.

One writer, Wm. Allen, says: It is the "blessed bees" that gather this wealth from all substances; wealth otherwise unappreciated. This that we consider a common weed, growing by the roadside, the Golden Rod, we see it waiving in the autumn breeze and look at it as a worthless weed; and yet honey of the best quality and in a large amount is now made from the Golden Rod by the bees, and has been made from times of old. Thus from blossom to blossom, especially the grape blossom, from the varied flowers of the country, this work of gathering wealth untold, unappreciable, is going on where there is no subtraction from the soil, but every pound of it may be considered as net gain to the country. In relation to this analysis made at Ann Harbor, Michigan, the samples were obtained at random over the city; taken from the principal groceries, from the most respectable men in that large town; and what are the results? Of seventeen samples, but two of them are comparatively pure. It is a fair statement to make here this day, that of every ten gallons of sirup sold in the city of Oshkosh, at least nine of them are adulterated, and adulterated in the proportion there mentioned. Our merchants are unquestionably honorable men, but they are no more honorable we have no reason to judge than the merchants of Ann Arbor. Here it is going on under our eyes, and to which we are exposed with our families.

The resolution was adopted.

Mr. Torrey introduced the following resolution:

Resolved, That we recognize in bill No. 383 A., now pending in the Legislature of Wisconsin, a move in the right direction;

Also,

Resolved, That the importance of the provisions of the bill are apparent to all; therefore we request of our legislators the passage

of No. 383 A. as a necessary protection against the evils of adulteration of food, etc.

The resolution was adopted.

Mr. Huntley then read a paper as follows:

THE AYRSHIRE COW.

That the Ayrshire cow has more good qualities and fewer objectionable ones than any other breed, I firmly believe; and that these qualities, as they become more widely and generally known, will recommend her not only to the dairyman but to the general farmer.

The Ayrshire is not as large as the Short-Horn, or the Holstein, but is larger than the Jersey, and will average with the Devon and the native. It has been found that the medium sized cow is much more profitable for the dairy than the large one. There is no doubt that occasionally a large cow is a good milker, but they are the exception.

Mr. Singerly, a correspondent of the *New York Tribune*, who owns a herd of sixty dairy cows, says: My best and most profitable cow is a small Ayrshire. If a farmer is breeding and feeding for beef exclusively, then the large breeds may be the most profitable for him. But a very small percentage are engaged in beef raising as a specialty. The Ayrshires fatten very easily when not in milk. Some eight years ago, a few farmers of Outagamie county purchased three full-blooded Ayrshire bulls with which to improve their stock, and they have not only found the grades superior milkers, but excellent for beef. Yearlings at eighteen months old, dressing 400 pounds, fed on grass only, and two year olds selling to the butcher as high as fifty dollars; but still no one claims that their greatest excellence is for beef. *But it is claimed* that there is no other breed that will compare with them for the quantity and quality of their milk, and for a constant flow, being in many cases very difficult to dry them off at all. I know the Jerseys give milk from which a large per cent. of butter can be made, but they do not give near so large a quantity, neither is it so rich in nutritive qualities, in caseine, as the Ayrshire; not so good to consume as milk; will not bear transportation as well; parts with its cream sooner; and when the cream is removed the milk is blue and watery,

while that of the Ayrshire is still white and rich. Occasionally an admirer of the Short-Horns will claim that they are equal to any other breed for the dairy; and in the past no doubt there were many good milkers, but they have been bred exclusively for beef so long that the dairy qualities have nearly been lost sight of. In a letter recently received from M. H. Cochrane, Compton, Canada, who is an extensive and noted breeder and importer, both of Short-Horns and Ayrshires, he says: "I can give you no statistics in regard to yield of milk, as I use my Ayrshires for nurses for my Short-Horns;" a fact which is certainly suggestive, to say the least. when we find a cow that can not only bring up her own offspring, but act as wet nurse to her less favored sister.

The Ayrshires have long been bred for dairy purposes. They are a well defined and established breed, and are distinguished for the quantity of milk they give, in proportion to the size of the animal and the quantity of food consumed. The form of the cow indicates that she possesses qualities which adapt her in an eminent degree to the purposes of the dairy. Her head is small, with a long, narrow muzzle; her eyes sparkling and lively; her horns usually small, clear, and crooked, and set well apart at the roots; her neck is long and slender, small towards the head, and free from the dewlap; her shoulders are thin; her fore quarters light; and her hind quarters large and well developed, giving her often a wedge-shaped appearance. This may not add to her beauty, but it is universally regarded among dairymen as a sign of a great milker. The back is straight and broad behind; the dorsal joints loose and open; the carcass deep. She will consume and convert a large quantity of food into milk — nearly a perfect machine for that purpose. The tail is long, slim and slender; the legs short with firm joints; the udder is large, square and broad, extending well forward, not over fleshy, too low hung, nor too loose; the milk veins are large and prominent; the teats pointing outwards, and set well apart; her skin is thin, hair soft, her whole figure compact and well proportioned, having no objectionable amount of offal. I could give many well authenticated statements of very large yields of milk and butter from Ayrshire cows, larger than from any other breed; many such have been given, and many more might be. I will give a few of more recent date:

The following is from Isaac S. Parris, of Fairfax, Vermont. He

says: I have 15 cows and 9 heifers, 8 of which are with their first calves, and one farrow. I made and sold an average of $161\frac{1}{2}$ lbs. of butter from each cow, besides what we used of milk, cream and butter in the family. I have a three years old heifer that gave last June 40 lbs. of milk a day, and made 5 lbs. and 12 ozs. of butter in three days (her first calf). My cow Beauty made in September, third week after calving, 14 lbs. per week, or 2 lbs. per day. Curtis Wheeler, of this town, has an Ayrshire cow that gave $46\frac{1}{2}$ lbs. of milk per day, and made $16\frac{1}{2}$ lbs. of butter a week; another that gave 44 lbs. of milk per day, and made 16 lbs. of butter a week.

In a letter received during the present month from J. F. Converse, breeder and importer of Ayrshire cattle, Jefferson Co., New York, the following yields of milk were given. Cow Rosa, bred and owned by J. F. Converse, gave 62 lbs. of milk daily for 10 consecutive days, on grass only. Dolly Varden, bred by same and owned by R. P. Williams, Bellville, N. Y., gave 45 lbs. of milk per day at two years old. Cow Jane Pender, bred by Converse, gave in January, her live weight in milk in 24 days. The cow Ayrshire Lass, owned by Brodie & Converse, 78 lbs. daily, and Red Rose, owned by same, gave 84 lbs. daily; the two last named cows were milked for the state fair trial. Mr. Converse says "we send our milk to the factory and do not make butter, so we have never tested butter yields," etc. The cow Maggie, American Herd Book, No. 1524, owned by James Dow, of Lachine, gave 70 lbs. of milk per day, and made 23 lbs. of butter per week.

Ayrshire cow, Flora Temple, No. 402, bred by J. F. Converse and sold to J. F. Brown, Providence, R. I., who owned her when the following results were obtained. Weight of cow 1,035 pounds; dropping calf April 25.

She gave in the month of	An average qts. per day.	Greatest daily yield.	Least daily yield	Total quarts during the month.	Total lbs. during the mon.
May	24	$29\frac{1}{4}$	23	$744\frac{3}{8}$	1,582
June	29	$30\frac{3}{8}$	28	870	$1,848\frac{3}{4}$
July	26	29	$20\frac{1}{2}$	806	1,714
August.....	$24\frac{1}{3}$	26	22	$753\frac{1}{2}$	1,601
				$3,173\frac{3}{8}$	$6,745\frac{1}{4}$

Six times her live weight in four months, and 535 pounds over.

Mr. Lawrence, of Massachusetts, owned a cow that made 240 pounds of butter in twelve weeks, an average of 20 pounds per week. These yields can be substantiated by the best of proof. J. M. Smith, of Green Bay, former president of this Association, made 355 pounds of butter from his cow Jennie in eleven months. It is estimated that the consumption of milk and its products is four times as much in value as that of beef, and that the product of a good dairy cow is equal in value to a four year old bullock sold for beef, and when consumed in the form of cheese twice as valuable for food. This shows the much greater value of the dairy cow and stock over those bred for beef. The proof of this fact has been given before and printed in previous transactions of this society; but as the coming volume will be read by many who never saw the previous ones, I will give it in another form.

The cost of raising a four year old steer, at a very low estimate would be forty-five or fifty dollars; if stall fed for the last three months, this would bring, sold to the butcher, sixty dollars, or fifteen dollars profit; three of these would bring a net profit of forty-five dollars. Take a dairy cow coming in at two years old, giving milk till twelve years of age, which would be the same as three four year old steers. Professor Wickson, of New York, gave results of ninety cheese factories and creameries, located in different parts of that state, giving the average net returns per cow to the patrons. The figures are drawn from the actual records of more than 3,600 cows. The average yield per cow in these factories was \$39.57; this for ten years would be \$395.70; deduct cost at ten per cent. per season for the twelve years, and it will leave \$275.70, or \$230.70 more than on the three steers at four years old, and the cow left for beef yet. But, says the objector, there is a great deal more labor attending the dairy. I admit it, but I have said nothing about the whey or sour milk, and the estimate is only during the cheese-making season. There are still three or four months left, one-half of which time you could make butter. Mr. Hazen estimates the products of each cow, in milk, cream and butter, at sixty dollars each season. So, we see the dairy business far exceeds in profits the raising of beef. Of course, when the dairy cow becomes old or useless, from any cause, she can be fattened for beef.

The fact that the making of butter and cheese means work, is an argument in its favor. I think the Ayrshire is in danger of losing

some of her best points by a desire of some breeders to combine both the beef and milking qualities in one animal; and the action of judges at the fairs tends in the same direction, the prizes almost universally being given to the largest and fattest animal. As an illustration of this fact, I exhibited, both at the county and the northwestern fairs, two heifer calves; one a round, smooth animal in good flesh for a calf, the other with much better Ayrshire points, full as large, but not as fleshy. The fat, smooth one took the first premium at both fairs, but the other will in all probability make much the best milker; and I would be willing to pay from 30 to 50 per cent. more for the one drawing no premium than for the other, if I was going to purchase. J. L. Gibb, of Canada, an importer and breeder of Ayrshires, says: "I have paid particular attention to retaining the old type of Ayrshires, which I find is so often departed from by many breeders. A desire to force the Ayrshire to an excessive size, and seeking to combine a beef animal with a milking one, is tending to destroy their milking qualities. I contend that it is almost impossible to have a large flow of milk, and keep an Ayrshire in a fat condition."

We sometimes hear it said: "It is feed more than breed that makes the superior cow." Dr. E. L. Sturdevant, of South Farmingham, Mass., makes the following summary of conclusions at which he has arrived on this subject after many years of study and practical experiment:

1st. The production of butter is largely dependent on breed.

2d. There is a structural limit to the production of butter to each cow.

3d. That when a cow is fed to this limit, increase of food cannot increase the product.

4th. That the superior cow has this structural limit at a greater distance from ordinary feed and more ready to respond to stimulants than the inferior cow.

5th. That consequently the superior cow is seldom fed to her limit, and, as a practical conclusion, increased feed with a superior lot of cows will increase the product; but if fed to an inferior lot of cows, waste can but be the result.

6th. That the character of the food has some influence on the character of the butter; but even here breed influences more than food.

7th. That there is no constant relation between the butter product and the cheese product.

8th. That the caseine retains a constant percentage, and that this percentage does not appear to respond to increase of food.

9th. That the caseine appears to remain constant without regard to the season.

10th. That increase in the quantity of milk is followed by an increase in the total amount of caseine.

11th. That insufficient feed acts directly to check the proportion of butter and has a tendency to decrease the caseine of the milk and substitute albumen.

12th. The best practice of feeding is to regulate the character of the food by the character of the animal fed; feeding superior cows nearer to the limit of their production than inferior cows; feeding, if for butter more concentrated and nutritious food than for cheese; feeding for cheese product succulent material, which will increase the quantity of the milk yield.

And right here is the superiority of the Ayrshire over other breeds; she responds so readily and constantly to an increase of food in the flow of milk. Hence arises some of the almost fabulous and otherwise unaccountable yields of milk. Forty pounds per day is a very large quantity for a cow to give, and we have no record of any dairy averaging that for any length of time, but some Ayrshires have given seventy, eighty, ninety, and even one hundred pounds daily, and over three pounds of butter per day. The great mission of the Ayrshire is to grade up the native stock of the country. The total valuation of milch cows in the United States is over \$1,000,000,000, or very nearly 20,000,000 head, in round numbers. Could an infusion of Ayrshire blood be given to this stock, the production would be increased certainly five dollars per cow, annually, or a sum of eighty or one hundred million dollars each year. In conclusion, let the Ayrshire breeder remember that dairying is fast becoming, if not already, the leading industry of the state; and that breeding dairy stock is of vital importance, to both the producer and the consumer; that it is for milk and not for beef, or for show, that the dairy cow is bred.

Mr. J. P. Roe—I would say that my own experience coincides exactly with that paper. Some few years ago, I bought a three-quarters Ayrshire of Mr. Paul, of Algoma. This

Ayrshire calved about the middle of April, 1877. In the middle of June, 1878, this cow was then giving, by actual measurement, a trifle over sixteen quarts per day. I have that cow still, and wouldn't part with her at any price. Her "points" are very similar to the points described. The description is very accurate of the Ayrshire. There are a few facts I would briefly call the attention of the convention to, in regard to dairying as compared with beef making:

Gentlemen — We cannot compete with the trans-Mississippi beef growers. Their land, across the Mississippi, will average five dollars an acre, as a fair average, from land obtained at government price, from land obtained from tree claims and land warrants and homesteads. The average price of land, also, purchased at the usual rates from the railroads west of the Mississippi, is but five dollars an acre to-day. We will say the average value of land in this portion of the state is fifty dollars an acre.

A Voice — That is too much; about twenty-five dollars.

Mr. J. P. Roe — It was fifty dollars an acre. We are grading down very rapidly; we are compelled to do so, but we will say twenty-five dollars an acre, and then can we do it. They can place their beef, live weight, at two cents a pound in Chicago, at a profit. What is the result? Good steers have been sold on Ball Prairie this winter for twenty to twenty-five dollars a head. That is like selling your property at fifty cents on the dollar.

Mr. Smith — Butter was sold last summer at eight cents a pound.

Mr. J. P. Roe — I am speaking of what is true of beef to-day, and what is positively true of the future. No less than four millions of acres of land were taken up east of the Mississippi by the first of November last. How much has been taken up since, I don't know. Everywhere the rush is westward; the westward going trains are crowded to suffocation, and the majority are going into stock growing, for the reason that south of a certain line, wheat is not as profitable a crop as corn. You can get in many sections of Kansas or Nebraska, one or two good crops of wheat, they tell us, but after that there is a great falling off, while the corn crops seem to be a success continually; consequently, they can put that corn into beef and pork, and thus realize upon it in a much better way than they can in any other; and of course there is the other consideration of keeping up the fertility of the soil. The main

question with them is, how to get their produce to market in the cheapest and most economical way; they can do it in that way. We have got to consult in our future what will pay us, and for the life of me I cannot see how we can figure on beef grown in this section of country, and compete with the west.

Mr. Huntley—I would like to hear this question discussed. There is Mr. Stilson and other gentlemen here that have experience. There are two sides to the question. I want to hear the other side.

Mr. E. Stilson—I did not understand your paper as speaking of the difference between dairying and beef raising. I understood you paid it back to the Short-horns, in order to build up the Ayrshires. I will endeavor to answer in a few words.

Mr. Huntley—You are mistaken. I simply quoted a large Short-horn breeder as authority.

Mr. Stilson—Will you give the name of the person to whom the letter was written?

Mr. Huntley—The letter of Mr. Conklin was written to me, on request that he would send me some statistics in regard to the milk yield of both the Short-horns and the Ayrshires; and the statement was, that he couldn't give the milk yield of the Ayrshires.

Mr. Stilson—*Mr. President:* I must have a different breed of Short-horns from all other men, if there is not anything held back in that letter, or else something intended to flatter in the letter itself. In the first place, I do not seek to build up the Short-horns except by their merits; I never have. I never seek to build up anything by pulling down something else. The world is wide; there is field enough for us all. There is more industry to be developed than will be developed in the next hundred years, without any such course. Such discussion only provokes inquiry, and results in getting at the other side of the question.

The Short-horn is a native of England, as is the Ayrshire of the English realm. They have both had their local places, and to this day the graded Short-horn is the dairy cow of London. The Ayrshire has certain districts to which it is adapted. There are certain districts in the world, no doubt, in which the Devon is one of the most profitable, owing to their smaller size, and good qualities otherwise. No one class of cattle is adapted to all localities and all circumstances. There is no question but that the Ayrshire has

her sphere of usefulness. As she gave originally the poorest quality of milk that was produced by any known breed, and as that quality was improved by the Short-horn cross, it would ill become me, or any other Short-horn breeder, to attack the Ayrshire, for they owe to the Short-horn their entire value as a milch cow; before that cross, they were worthless as a butter cow.

Mr. Huntley — Give the authority of that.

Mr. Stilson — That is the history of Youatt, the standard English authority.

Mr. President, and Gentlemen of the Convention: The object of this discussion is not, if I understand it aright, to be free advertising for anybody. It is for drawing out that which will benefit the mass of farmers. This question that is before you to-day is a question, or should be a question, of vital importance. Remember that, in the last four years of our exports, in 1875, agriculture furnished seventy-five per cent.; in 1876, it furnished eighty per cent.; in 1877, it furnished seventy-seven per cent.; and in 1878, agriculture furnished eighty-two per cent. of those vast exports.

Mr. Smith — Was not it eighty-seven?

Mr. Stilson — Eighty-seven ending June, 1878. The year ends the 30th of June, 1878.

Mr. Smith — The increase was still larger.

Mr. Stilson — I am not sure without the figures before me, whether it was June or January. At all events, it is eighty-two per cent. Now, what we want is to force those figures still higher; produce larger crops; provoke inquiry; attack the Short-horns, if you wish; the more the better, because it will provoke inquiry, and result in a better development of stock. The Short-horn, of course, is the average cow for all circumstances. It is not so with the Jersey, for instance. The Jersey is, perhaps, the best butter cow in the world, but her sphere is limited. She cannot be the cow of the average farmer, because when she goes to the shambles she is not a fit beef cow; she will not buy another; but in certain places she is the best village man's cow, under certain circumstances, that you can find; and it is just so with all other classes of stock. They have a sphere of usefulness, and a location and circumstances under which they are useful; and there is no doubt but that in the economy of the farmer the Ayrshire is a good cow, in certain localities and under certain circumstances. Last Novem-

ber, I saw two hundred and thirty steers, on their way to England, being unloaded from the cars at the stock yards in Chicago, of which I think there was not a single steer which would weigh as light as twenty hundred, and they were all forwarded by one man from Bloomington, Ill., and raised by Mr. Gillett, the best feeder in the United States, and they were either graded, or, in many instances, thoroughbred Short-horns. I do not believe they were raised on the milk of Ayrshire cows, for I do not think he has any on his farm.

Again, I say, I am in favor of this discussion because it provokes inquiry, and the best sale I have had for Short-horn stock is right in the neighborhood where Ayrshires are kept. That man commences to improve and it provokes the neighborhood to inquiry and it is contagious, and it aids and assists in the sale of Short-horns. I recollect in one neighborhood of having sold several Short-horns, and the man says: "Mr. So and So has just carried off the premiums at the Northern Fair for the best Ayrshires. He has ten Ayrshire cows; his feed is poor and mine is poor; he carries two pails of milk to the cheese factory daily from ten cows, while I carry five from ten graded Short-horns, and I want another Short-horn."

Mr. Huntley — I was in hopes that it would provoke discussion, but I did not intend to in my paper, nor did I throw any odium upon the Short-horn. Of course, in arguing in regard to the Ayrshire as a milch cow, I had to compare here with some other breeds, the Jersey and the Short-horn, as the Devon and others are not being bred either for beef or milk to any extent. I believe now, just as our friend Stilson does, that there are certain places where the Short-horns are the best. I did some farming in Kansas, and if I was going to advise him under the circumstances to go into any kind of stock in that large corn district, some distance from market and buyers, I would advise him to raise beef. In thick settled countries, as it is here, and where land is high, I think that the milk and dairy business, butter and cheese, would be much more profitable than beef.

Mr. Conklin has bred some very valuable stock. A man cannot afford to give a calf milk from a cow that is worth from one to fifty thousand dollars. The less milk she gives, as I understand it, the better for beef raising. As Mr. Stilson says, for beef they are a superior cow. I suppose if they were bred on the milk strain, as

they have been before, that they would be good milk cows. There are some in every breed. What I wish to say is, that the Ayrshire is pre-eminently bred for milk and for nothing else. I presume from Mr. Stilson's remarks, that he would like to have it inferred, perhaps, that I was the man that sent two pails of milk to the factory. Whoever made that statement, it was not a true one.

Mr. Stilson — It couldn't have been Mr. Huntley, for he did not carry any.

Mr. J. M. Smith — I wish to say in regard to Mr. Huntley's reference to my own cow, that she was fed the same as a native cow that stood in a stall right by her, and a Devon, and one that I supposed to be a full blood when I bought her. She ate the same feed that either one of those did, and she made very much more butter than either of them from the same amount of feed. That was tested repeatedly, week after week, and month after month.

Mr. Huntley — Somebody said something about butter being only eight cents a pound. We do not have any of that kind of butter from Ayrshire cows.

Mr. Stilson — We don't have any two dollar and a half beef from Short-horn cattle, either.

Mr. J. P. Roe — I would inquire of Mr. Stilson, what has been the average price of beef in this region, say for the last ninety days. I know men who have sold a good grade of young cattle for from twenty to thirty dollars per head, and I know that there are a good many buyers that have beef in this vicinity, and have bought a very fair article of grade cattle in good order, at a price ranging from twenty to thirty dollars per head.

Mr. Stilson — I can't answer that question, not having been here for the last ninety days; I have been here only a few days; during that time I made one inquiry, and the reply was \$3.75.

Mr. J. P. Roe — I would like to ask when the inquiry was made?

Mr. E. Stilson — Last week.

Mr. J. P. Roe — That corresponds with my experience. Within the past fifteen days beef has taken an upward tendency. I think within the past ninety days, and I think this convention will sustain me in the statement that I made, that the prices have ranged, as I said, from two to two cents and a half, not certainly over three, live weight.

Mr. Huntley — It is not as high as that at our place.

Mr. J. P. Roe — That price has been determined by the price in Chicago. Butchers have made the statement to me, that overland cattle, cattle from west of the Mississippi, have been put down and are being put down at those rates. This is not theorizing or speculating, or taking the optimist view or pessimist, looking at the bright or the dark side, but taking the facts simply as they are at present, and the prospective future as indicated by the present.

Mr. Hart — I would like to inquire whether the report that American cattle being condemned on account of being diseased, has not had an effect upon the price of beef.

Mr. J. P. Roe — You are all familiar with the recent action of our authorities in Washington, and also in New York, and also the action of the English authorities. The whole of this action, from its inception to the present, is subsequent to the fall of prices. This action has been taken, if I am rightly informed, within the last thirty days.

Our markets, if they have felt it at all, have felt the full depression; the bear influence, as they say in Wall street, of this cattle disease, pleuro-pneumonia, within the last thirty days, not prior to that. The bee grower has the same reason to dread the adulteration of honey by glucose as affecting the foreign market, as the cattle grower has to dread this wolf, pleuro-pneumonia, as affecting the price of beef. The effect of this question of pneumonia does not go back more than thirty days, and the ruling price as obtained this winter has been, as I have stated, from two and a half to three cents, and that before any action had been taken at home or abroad upon the pleuro-pneumonia question, or it had been agitated by our authorities at Washington.

Mr. Stilson — Least others might be led to misjudge the effect of the action of the English authorities upon the beef market, I would say that the shipment of slaughtered beef is being largely increased. Steps are being taken to show that this was an isolated case, and that it was not a common thing for the cattle of this country to be subject to that disease, and the probability is that the order will be revoked, but if not revoked, it will be supplemented by dressed beef shipped in refrigerator ships, and the effect thereby be slight, no doubt, upon the American market.

The following resolution was then introduced:

WHEREAS, There is, as we now understand, a vacancy in the

Board of Regents in this the Fifth Congressional District, occasioned by the removal of the present member, Mr. Chynoweth, from the district, and as the agricultural interest has but one member upon said board, therefore

Resolved, That we earnestly request the governor of Wisconsin, in case the vacancy is filled, that it may be filled by some good man of our district who is thoroughly devoted to practical agriculture; and

WHEREAS, The permanent improvement of our system of agriculture is of the greatest importance, not only to the farmers themselves, but to the entire population of our own state; therefore

Resolved, That we request the said Board of Regents to use said sum of money, or so much thereof as may be necessary, to institute and carry on a series of agricultural meetings or conventions throughout the state, to be devoted to the improvement of agricultural science, and also to use such other methods as their best judgment may dictate.

Mr. Plumb— I would say that this subject was brought up at Madison, and a resolution of the same nature was adopted there, looking towards the interests of agriculture and not to any private interests, and especially with reference to the operation of agricultural conventions similar to this, and instead of having them necessarily under the auspices of some large society like this, or the state society, to have them conducted by some competent man whom this Board of Regents might designate; not one man, but more, who takes charge and sees to the getting up of the convention. Other states do so, and they find it to be very much to the interest of the state at large and really helping on the societies.

Mr. Torrey— Can you explain to the convention the source from which the money is derived that is now on hand ?

Mr. J. M. Smith— You remember a number of years ago congress passed a law granting to each of the states a certain amount of land to be devoted to agricultural colleges in the different states. I do not know the amount that was given to this state, but whatever it was, it was accepted by the state, and the proceeds of that land have never yet been used for agricultural purposes. Hon. Hiram Smith, who is now the only agricultural member of the board, told me, as I understood him, that there was from six to eight thousand dollars a year belonging to agriculture and that

should be devoted to agricultural purposes. He said he thought the Board of Regents were willing to do the fair thing, but as there had been no agricultural member upon the board previous to his going upon it, of course it had remained dormant.

Mr. Stilson — Some portions of it must have been heretofore used on the experimental farm.

Mr. J. M. Smith — As I understand, the expense of the experimental farm is raised by tax. There is a tax amounting to about thirty-three or thirty-four thousand dollars a year raised.

Mr. Stilson — If they have not charged up the expense of these experiments on the experimental farm to this fund, they are more liberal than they have been.

Mr. Plumb — I think it is the duty of this convention to designate some person in this district, and I will suggest here our ex-president, J. M. Smith, as a suitable person to fill the vacancy.

Resolution adopted as amended.

On motion, the convention adjourned until half-past one P. M.

FEBRUARY 27, 1879 — 1:30 P. M.

Convention convened. Mr. Huntley in the chair.

Mr. Plumb — I would like to offer a resolution before the discussions come up.

Mr. President: — This resolution follows the action of this society which was taken just before dinner. I will read the preamble and resolution:

WHEREAS, Recognizing horticulture as a kindred art of vital importance to the farmers of central Wisconsin and one worthy of the fostering care of the state; therefore,

Resolved, That this convention of the Northern Wisconsin Agricultural and Mechanical Industrial Association, assembled in the city of Oshkosh, this 27th day of February, 1879, do hereby express our unanimous belief that the Wisconsin State Horticultural Society should be recognized as one of the most important associations this state, organized, and doing a much needed work not done by any other society, in the collection and dissemination of valuable information on the subject of fruit growing in the several regions of our great state; and,

Resolved, That we hereby respectfully ask of our state legislature the favorable consideration of the plan for the further recognition and support which the State Horticultural Society asks at the present time.

I offer this resolution, and will state that I offer it because I received this morning a letter from Senator Anderson, who is treasurer of our state society, saying that the measure which we instituted when there at our annual meeting for the reorganization of the society and looking for some little help from the state, had failed for want of support. It was left in the lurch, and I bring this resolution because we, in behalf of the state society, would like to have an expression from this convention as to the legitimate work of that society known as the Wisconsin State Horticultural Society. I need not explain it, for you all know what it is.

Mr. J. M. Smith—I want to second the motion and make a short amendment, and that is, that the secretary of the convention be instructed to forward the resolutions to Speaker Kelly, of the assembly, to-night, by the mail.

Mr. Plumb—I accept the amendment.

Mr. Torrey—I want to say a few words before the vote is taken. It may not be known to the people in this part of the state what the State Horticultural Society is accomplishing, and what sacrifices the members of that society are making to promote the horticultural interests of the state and to build up that branch of industry. I know from observation, for the last six or eight winters that I have had the privilege of attending more or less of their meetings at Madison, that there are men engaged in horticulture in this state that are studying to produce fruits that shall stand the Wisconsin climate; that shall be as suitable to this climate and as sure a crop as wheat or any of the other products of the farm. I know, too, that those same men are not making any money. They are experimenting on this variety and on that variety, and by patient, earnest toil and effort are trying to develop what is called in one of our questions this afternoon "iron-clad" fruit, so that we of Wisconsin shall enjoy fruit of our own raising. I claim that of all societies in this state, the State Horticultural Society has had the least recognition and deserves the most. It is looked upon as a sort of a side-show to the agricultural societies. But we are all interested in it whether we are members or not. I was saying that the men

that composed this society are every year meeting in convention and debating and studying and comparing notes to try and raise us fruit, or to establish some varieties of fruit that shall stand our climate. I could refer to a great many. I need only refer to a few. I will refer to Mr. Plumb who has made that a lifelong study. You may say he has done it for profit. Granted; and shouldn't he have profit? He has not got it yet. I do not know anything about his financial standing, but if he has followed that pursuit as long as some men, he is poorer than he was when he began, in money. He and our Baraboo friend, Mr. Tuttle, and the former president of the society, Mr. Stickney, A. Pfeffer, and others I might mention, are bringing all their energies to bear in one direction, and that is, to get a fruit to stand the climate, and then to get remedies for these terrible insects that kill off our fruits. If I were a member of the legislature I should have voted for that bill without an argument upon it. I should not have asked a man to say a word in its favor after the observation I have had. Somebody is going to enjoy the fruit of their labor; if not we, our children.

That Wisconsin can be made a fruit growing state, I have no doubt. It is going to take years of patient toil, and these men are putting their brains into the work. By this bill they only ask to be recognized, and they only ask at the hands of the legislature the small pittance of six hundred dollars to assist in that reorganization.

I resigned my position here after having been elected president of that society. The secretary gets one hundred dollars a year for compiling the volume and keeping all the records. It does not pay him. I am ashamed to ask him to do another hour's work, as I am compelled to do sometimes. He is the only officer that gets a cent. They all do the work for nothing and pay their own expenses, and we do not expect to get anything out of this appropriation. We do not ask for it ourselves. We merely ask it to assist in paying some necessary expenses we incur every year, to get along. I want to indorse what friend Torrey says in regard to the nurserymen in this state. Coming as they did from the east, they supposed that apples that did well in the same latitude in the eastern states would do well here, and they set them out extensively and commenced cultivating. After spending year after year in that work, they found to their dismay, that they have got to lose almost the entire work of years gone; and then they took something else,

gradually working into other varieties. Finally in the year 1870, they thought they had got something they could call "iron-clad," and put them down in the books as "iron-clad." The fearful winters of 1873 and 1874 just about wiped out the entire nurseries, and they have been tugging on from that time to this trying to find an iron-clad apple. They are spending their own time and their own money, and thus far they have but little to show for it. I say it is unjust. I cannot bear to go to the legislature and ask for it. I feel like saying to them, we want this, and you must and shall give it to us. It is only another argument in favor of what I was saying yesterday. We need another class of men to make our laws.

Mr. Plumb — I certainly feel grateful for the voluntary remarks of the secretary of this association, Mr. Torrey, and no doubt it springs from disinterested motives. He knows the difficulties which we are under attending the state organization, and the doing of a large amount of gratuitous work for the benefit of the state, and yet receiving comparatively little or nothing from the state for the work done. There is another point not mentioned, and that is the work this society is doing for the state at large. Some get the impression that the Wisconsin Horticultural Society is a sort of a southern movement. It holds its meetings at Madison. The house is there and that is our field; but, gentlemen, our field is the whole state. We have the state divided into twelve districts which cover the whole state. We have a man in each district to make examinations as to the condition of the soil, climate and so forth, and report at our annual meeting. These reports are incomplete. They are published in our volume. These volumes, with the condensed experience and wisdom we can get together, are distributed among the various societies of the state. Wherever there is an agricultural society, or a horticultural society in this state that reports to this society, they are entitled to a certain number of copies of this report, and I think I may safely say that there is not one of those societies but will say those reports are invaluable. A year ago last winter I was present when the Brown county society was receiving these reports. I saw there the eagerness with which the reports were sought for, and I am in receipt of letters continually, not only from within the state, but from all over the northwest, saying, we want your reports. We believe the reports of the Wisconsin State Horticultural Society are invaluable. We want a

larger number of copies. This little fund that we ask for, of six hundred dollars, is for the purpose of carrying into effect a resolution that we adopted at our last annual meeting, providing that we tender a certain sum of money to local societies to help them to get up a premium list; and to carry out that plan, about all of this six hundred dollars will be divided up among the societies of the state. We agreed upon this basis, that if we tendered a sum of fifty dollars, they shall add to it fifty more, and make up a premium list, and then they would feel as though they were receiving definite assistance from the parent society.

Mr. Huntley — I am not engaged in the nursery business, but I am a farmer, and have set out fruit trees and have raised some fruit. I remember well setting some trees, before I ever saw a volume of the transactions; not a single tree of those is left; that was some fifteen or sixteen years ago. I fell in with one of the early copies in which were placed the names of some apples, their description, their hardiness, their season, etc., and I told my family then, that if I could have seen that volume before I bought those eastern trees, it would have been worth a good many dollars to me, and so it would have been. I studied the volume. The next trees I purchased, I purchased in reference to those that were recommended. I very well remember seeing Mr. Plumb's name, and a description there and a statement of what they were doing; and it was classed into Iron-clads, Hardy and Half Hardy, etc., and I was very anxious to get more knowledge on that subject, before setting any more trees. I set a few; some of those trees that I set next after reading this volume, I have now, and they are bearing. As an educator, this volume spread broadcast throughout the country, has done and is doing a great and noble work. We have a horticultural society at our place, and it is true, as Mr. Plumb said, that these volumes are eagerly sought for. There is a committee appointed by the state society, whose business it is to get all the information possible in regard to soils, etc., and that committee reports each year. Mr. Case, the secretary of the society, stopped with me over night, a few weeks ago. He stated there that the volume had to be cut down to 200 pages, whereas they had much more matter, if they could only get an appropriation so that they could have a larger volume. I recollect, fifteen or sixteen years ago, at the first state horticultural convention I ever attended at

Janesville, that the question of the hardiness of fruits was brought up. One of the members, I think a nurseryman, rose in his place and offered one hundred dollars out of his own pocket, if any man would bring forward a variety of apples that was hardy and could be grown here, that was equal in quality to the Rhode Island Greening. He said he would let that remain as a standing offer. In our vicinity, I hear the question asked, "What have you for a winter apple that is up to quality and will stand our winters?" I refer them, of course, to the volume of the transactions of the society; there you will get more information. There are men whose whole business it is to study, to experiment; and what conclusion they have arrived at in regard to the varieties, you will get there. They are read; but still there are a great many people who never see them; there are not enough printed. We see men passing through our place, selling apple trees and recommending them on their own words. They are strangers, and they sell them at fabulous prices to those who never see these volumes. The farmers are not educated in regard to what they want, and the reason is, they have not had these volumes. It seems to me that this work is one of the greatest and best, and one of the first importance to all farmers. Who is there that does not like good fruit? Even one poor apple that will live is better than a dozen trees that are of better quality and that will not live. It seems to me that there can be no good reason why this small sum asked should not be given to the society.

The resolution was adopted as follows:

Mr. Plumb — Our State Horticultural Society passed the following resolution at our last annual meeting:

Resolved, That nurserymen who send out agents, should in all cases expect to be strictly and fully responsible for all their representations, and fully meet all the contracts made by such agents. That tree planters should, as a means of some protection, demand of all who may solicit their orders for trees, unquestionable proof that they are the authorized agent of some reliable nurseryman, and that the nurseryman will hold himself strictly responsible for all such representations of such agent. That tree planters may reasonably look for all new things that are really valuable in this climate in the leading nurseries of this country, rather than in the hands of irresponsible traveling canvassers, and that it may be

taken as *prima facie* evidence of fraud when scarcity or extraordinary qualities or excellencies are claimed for them, or exorbitant prices are asked.

Resolved, That the newspapers throughout the west will protect their readers from swindlers, and advance the cause of horticulture by publishing these resolutions.

This is trying to head off these fellows who are selling at high prices. I move the adoption of that resolution at this convention. There is a certain class of utterly irresponsible, worthless scamps, that are injuring the business and cheating the farmers by selling stock that has no practical value.

If a man offers to sell you a quince tree or a pear tree that will stand any kind of a winter, because it came from France or from Russia, there is a steal in it somewhere. If he ask you three or four prices for the tree, claiming for it extraordinary qualities, you may be assured that there is a steal in it because, as this resolution states, all those good, reliable things are in the hands of nurserymen within this state at reasonable rates. Now putting those two things together, extraordinary qualities and double extraordinary prices, are enough to condemn any man, from any source whatever, who is offering for sale products of the nursery. I say this as a nurseryman. As tree growers, we heartily adopted this resolution.

Mr. Huntley — Mr. Plumb has stated the truth. In our place there are trees sold for four or five dollars apiece, as being something that will stand all winters, and hardier than anything we have. It is only a pretense.

Mr. Torrey — There has been a question handed to me since adjournment by one who is a practical farmer, and he said he didn't ask it as a matter of curiosity. He wanted it explained as a fact. "What does a soil need to make wheat stand up till harvest?"

Mr. Plumb — I studied agriculture before. I studied horticulture. I have studied the English system of farming. That question has been asked me a great many times. I answered it in this way:

The wheat fails to stand up in consequence of a want of proper proportion of silica in its composition. The silica, silicious matter, is a character in the soil where humus predominates in excess of the mineral matter in the soil. You must have a large proportion of mineral elements in proportion to the amount of humus or vege-

table matter in the soil. That is the short answer to the question. To illustrate, the wheat which grows in Colorado has a stalk which is very strong.

I cannot give you the constituents of the soil. There is a strong proportion of mineral elements in the soil. They have not been washed out with excessive rains, as they have with us. The result is, they have a very stiff straw. It is as stiff as a weed and carries a great amount of grain. That straw is worthless. It can only be used for bedding.

Mr. Huntley — Give us the remedy. That is what we want.

Mr. Plumb — The vegetable matter in the soil, the *humus*, as it is technically called, lies near the surface, and the first process of culture, all through this country, is to skim the surface to take the cream. The remedy for the falling of wheat is to subsoil; to go deeper. In England, where they raise such enormous crops of wheat, there are two causes. In the first place, they subsoil to the depth of from sixteen to twenty inches. The roots of their wheat plants extend down freely, and draw their sustenance largely from that mineral element below, which has never been washed out by the elements, and a large proportion of the mineral element is raised to the surface. In the next place, they have a cool climate, which makes a slow growth; but the practical remedy here is deep tillage. I believe in many prairie countries, trench plowing or subsoiling is a good thing. The plant would find a source of nourishment that would give it stamina and stiffness, and more silica in the straw.

Mr. Torrey — I desire to refer to a discussion last year, touching upon this question, that occurred after the lecture of Dr. Barry upon the soils of Wisconsin. You will remember that Dr. Barry had seven or eight samples of soils, with their analyses, and I am very glad to state to the convention that they are now the property of this society, forming a nucleus for a larger gathering of the same kind. I will read an extract from last year's report on this question.

The following is soil No. 1, that is referred to in Mr. Hazen's question:

No. 1. CALCAREOUS SOIL.	
Water of absorption.....	12.00
Humus.....	17.50
Salts of lime.....	15.00
Alumina.....	37.50
Silicious sand.....	18.00
Vegetable fibre.....	00.00
	<hr/>
	100.00

Mr. Chester Hazen — I would like to ask one question in regard to soil No. 1. What application should be made to that land to produce a crop of small grain in a condition so that we can harvest it; so that it will not lodge down?

Dr. Barry — It is lacking in silicious sand. There is not silica enough in the straw. The analysis would seem to indicate that there was sufficient silica. It may lack potash. Potash dissolves silica so that the growing grain may take it up. Where there is not sufficient, of course, the straw is thin, and is liable, as you say, to break and fall down. It has not sufficient strength, so that I do not think that the lack is in the sand; but I guess if you put leached ashes upon it, something that contains potash, the difficulty of which you speak would be remedied very much.

Mr. Chester Hazen — You don't think it needs salt?

Dr. Barry — Salt would be a help. I would like to say that I have a collection of the soils of the state, and am disposed to make you a present of them. I have only a few of them here, and will leave those with you, with their analyses, and the balance I will send to you.

Mr. Merriman — For the sake of a little more instruction upon this subject, I will state that I have a soil which was called a marsh before it was drained. I have got some portions of it under-drained. It is a heavy black muck, with a stiff red clay subsoil. There does not seem to be any sand about it. I have raised wheat on some portions of it. It was very stout, very heavy growth, but unfortunately, just before harvest, it would fall. Our friend here, perhaps, could give us some instruction how to get out of our trouble.

Mr. Plumb — Where is it located?

Mr. Merriman — It is located at Neenah, just west of our city, and there is a high ridge just before you come to the lake. There is a ridge of clay, and this is back of that ridge, forming a basin. This basin was formerly called a marsh, and we have managed to get the water off from it, so there is now a heavy black mucky soil, mixed with a heavy stiff clay at the bottom, if you only go deep enough. It does not look like a quality of soil that would give us a stiff straw. In some portions of it, the clay comes to within six or eight inches of the surface, but the top soil is black muck.

Mr. Plumb — I have no doubt that but trench plowing will rem-

edy that at once. It should be done in the fall of the year. If it is done in the spring, it will hardly be permeable the first year.

Mr. Merriman — My experience is such that I only plow in the fall.

Mr. Plumb — There two ways of trench plowing. We have the Michigan plow, or following one plow with the other, turning over four inches, and then throwing six inches on top of that. The result of that is, that we get what would be called rather a poor sort of surface, but if we do that in the fall we are never troubled at all. In the winter this disintegrates, and is in fine condition for the crops the next spring. If you can get clay on top of that black mucky soil, you will assist it very much; but it may be that if the very land should grow grass for a series of years, and mowed, and pastured, and fed off, it will get rid of a little of that humus. French plowing is the only remedy that I know of.

Mr. Merriman — The land is first rate for grass.

The secretary then read the following question:

“Are farmers’ wives less intelligent than the wives of other classes?”

The question was assigned to Mr. J. P. Roe.

Mr. J. P. Roe — I will speak very briefly for the reason that there are so many questions of interest that are yet unheard. We say of our farmers’ wives that as a class they are as intelligent as any other class in the community, with certain limits and qualifications. Of course, what obtains of our masculine friends would also be true of our lady acquaintances. It is true of woman as of man. There are certain conditions in which the woman has peculiar advantages, social, educational; and again, conditions in which she has peculiar disadvantages. The one will tell for and the other will tell against. Of course this is true in relation to the farmers’ wives. The unavoidable isolation which obtains in most instances whereby the latent talent is not developed as it ought to be. There the circumstances are against her. Where our lady friends are brought together in our town life, or village life, or city life, we have that attrition and that provocative influence whereby they stimulate one another, and bring out the better elements of character whereby we incite and suggest and rouse the intellect to activity. In the isolation of the farm, this is not the case to the extent desired.

If history speaks truly, if the record of the successful men of our cities is correct, as we trace them back, who were they? Who are the men to day in New York, in Boston, in Philadelphia, in Chicago and our great metropolitan cities, that are our successful men? They are the children, the sons of farmers' wives. Their mothers were on the farm. They may not have brought originally that amount of culture, that amount of finish and polish which is obtained in the city by the city grown man, but they bring that stalwart energy, integrity, and also that moral and physical stamina which is brought from the country, which is called the fresh blood which our cities need, and without which our cities go under. Our successful men to-day have come from the farm, and we owe it to the farmers' wives that they are such. This is true in every profession and every business. It is true in merchandising. It is true in all the professions. I saw an estimate made of the successful men in the city of New York, and as many as nine-tenths of them came from the farm. I merely make these remarks as a suggestion telling its own story, which we may consider at its relative worth. The true, able, successful men of our cities, as a rule, come from the country. They are the steady contribution from the rural districts which steadily keep up the vitality and purity of our cities.

Mr. Merriman — I hardly feel competent to supplement the remarks of our worthy friend, but there is one little point he left out. He told where the successful business men of our large cities came from, but that was not telling much about farmers' wives, except that indirectly they owed their education and success to the farmer's wife. I think the real point is, whether as a class the farmers' wives are less intelligent. That depends a good deal upon the coming farmer. The wife that the young farmer gets is a farmer's wife, and if he is wise in the selection, he will select an intelligent woman. It depends a great deal upon the young man whether he gets an intelligent wife. It is said that the farmer, the man, has a wider field of study. The farmer's wife may also have the same advantage. If that farmer is intelligent, he will have about his house the means that will furnish the requisite information; and if he is a good husband, he will read to his wife when she is busy, or they will take turns in reading, and they will read in the family. They are a kind of a home society that will disseminate information. I don't think the isolation of the farmer's wife fol-

lows as a necessity. There are meetings in the little towns. We have one in our town, and it is the grange; and I have been certainly much edified by listening to remarks of the ladies, and they were farmers' wives; and I doubt whether you could go into the town and pick out ladies who would discuss the subject with more intelligence than they. I feel proud of our farmers' wives.

Mr. J. P. Roe — I think the answer is in the words of scripture: "Her husband is known in the gates." "Her children arise up and call her blessed."

Mr. Huntley — I think my friend on the left (Mr. Merriman), left out one point that he might have spoken of. The choice of the coming farmer is greatly dependent upon the mother that is bringing up that young man, and also upon the father. We were blessed with boys at our house the first thing. We didn't have much help in the house. Mrs. Huntley thought best to teach every one of the boys, not only politeness, etc., but how to make bread, biscuit, pie; how to wash, mop and help their mother in every case where it was necessary. If the girl left, or mother was sick at any time, one of the boys staid in the house and the work went right along; and that same farmer's boy, I believe, would make a better choice of a wife than he would if he had not had that kind of discipline and instruction. The same rule would apply to girls also. I do not suppose that it detracts from a girl to go out in the field and assist her father when there is not help enough. In fact, I know a refined young lady, not married yet, who has taught school a number of seasons, a fine scholar, and who has done this from day to day; and I think it is the duty of fathers and mothers to teach their children that work itself, no matter what kind, out doors or in, does not detract from the gentleman or lady. [Loud applause.]

Mr. Torrey — The next question is: "What is requisite to the securing of a larger representation from the agricultural class in congress?" Assigned to Mr. J. M. Smith.

Mr. J. M. Smith — Since this question was assigned to me, I have had so little time to think about it that I really cannot do it justice. Mr. Roe, in his kindness, dragged me home with him last night, and kept me so well that I couldn't do much thinking. I had to do some talking and I had a little sleep. It has occurred to me since I have been here, that one reason why farmers do not

succeed better as politicians is, that they are too much afraid to trust each other. I hold that farmers are as honest as other people. I don't know why a farmer should be afraid to trust a brother farmer. He will trust him with his cattle; he will trust him to do any home matters for him; but when somebody is to go to Madison, when some one is to go to congress, he selects some one besides a farmer to go. Why not select our best farmers, our best agricultural men? I think we ought to do this. Another reason why so many farmers are left at home is, that while no people in the world are so fond of oratory as the American people, it is known that farmers, as a class, are not particularly brilliant speakers. But few of them have any experience in public speaking, and the result is a glib tongued lawyer comes in as county clerk, or some other office. He can make a good speech, and can talk very well, and that is about all there is to him. The farmer goes and listens to him and he thinks within himself: "I could not make such a speech as that;" and the neighbors say: "He made a splendid speech; he is just the man for us," and he goes to congress or the legislature when he is unfit for it in every respect. A dozen men could be picked out from the farmers that would be better in every respect except as a speaker. It is a well known fact that our great speakers are very rarely our best business men in congress, or in the public halls. I recollect in this connection an anecdote of Patrick Henry, who was noted the world over for his wonderful power as a speaker. In the first Colonial Congress, of which he was a member, the Lees, of Maryland, were also members, and they were the most accomplished, polished speakers on this continent. They went to Philadelphia. Among the first things that occurred, a question came up. Patrick Henry made one of his speeches; a perfect outburst of eloquence that carried everybody with him like wildfire. The resolution was passed and Patrick Henry was appointed a committee to draw some papers. The Lees went home utterly disgusted. Their eloquence was as nothing when compared with Patrick Henry. They said: "We might as well go home, Patrick Henry will carry every thing his own way." When it came to committee work Patrick Henry was a perfect failure. The Lees were called upon. In the course of two or three days one of them said: "Patrick Henry is nothing but a man and we will stay." It is known that Patrick Henry was an

utter failure as a committee man. When you wanted a speech, Patrick Henry was the man, and there his power ended. That is the case with three-fourths of our great speakers.

We have an example in our congressional district. We know our friend Sawyer never made a speech in his life, and if his holding public office depended on his making speeches, he never would have got one; and yet I have been told there never was a man on the floor of congress that had the personal influence that Philetus Sawyer had. He did it by steady hard work, just as every farmer would if he was in congress; just as a dozen farmers that we could pick out in this district, would go to work. They would do precisely as Philetus Sawyer did. It is possible that they might not all be as successful as he was, but they would have a good influence. They would have a better influence, a more permanent influence, than if they could make great speeches without being able to do committee work. Another thing we fail in is the primary meetings. The farmers fail sadly; I know it is the case in Brown county; I know it is the case in other places. I have known something about political matters; I know delegates, county and congressional, are men having no moral power; they have simply the power to vote, and get together in some corner grocery and elect delegates. The delegates are as unfit as the others; they are the same wire-pulling demagogues. They force some man upon the party or upon the community who is as unfit as he can be, and yet we all submit to it. Sometimes we take the best one and vote for him under protest; sometimes we stick to our party because we think, that, all things considered, we cannot do any better, and we will let it go. This is wrong; we ought not to do so. I have often refused to do so, for a number of years past. In our place, the nomination was going a begging; we simply gave a man the nomination because he wanted it, not dreaming he would be elected; we found to our utter disgust and dismay that he was elected by a handsome majority. I told my friends from that time forward I was done voting for a man simply because he wanted the nomination. When unfit men are brought up for office, we ought to vote against them, and I propose to do so hereafter. I have no hesitancy in saying I am a republican, yet I will vote against republicans when I know they are unfit for the place; I will use my influence against others voting for them. As a general thing, we are too much bound by party

ties. There are no questions before the public to-day, but what we may safely trust to our best farmers, and in my estimation, we may trust them much more safely to them than to the men we are now trusting. It is nonsense to say our public matters are safer in the hands of the men who are now in congress, three-fourths of whom are lawyers, and of that number not more than half of them second rate lawyers. And yet, the lawyers are controlling and dictating all of our legislation. Eli Stilson would not trust such a man on his farm. If he was going to put a man on his farm, instead of going to an outside man, he would go to some good farmer and instruct him what he wanted of him, and say to him: "Go on my farm and do so and so, and unless you do it I will send you off." If that is necessary in such a case as Eli Stilson on his farm, how much greater is it necessary for the vital interests of the farmers of the country, that we should send enough men so that our interests will be fairly represented, not only in congress but in every other body. In my native state, some thirty years ago, the supreme court of the state was reorganized, and upon the supreme bench there were two men placed who were not lawyers; they were selected without any regard to their legal knowledge; in fact, they had no legal knowledge except what they had picked up in their ordinary business transactions. They were selected on account of their strict integrity, sterling ability, good common sense and business capacity. I happened to be well acquainted with one of those judges; he was a farmer. They have maintained that position for thirty years, and I, only a few days ago, read the opinion of those two judges upon a very important public question, one of the most important that has been decided in that state for a good many years. This shows that farmers can be put in other places. We cannot do it in this state for a great many years. Of course it shows that we should not be so dependent upon other people; we should be dependent upon each other and trust each other, and work for each other.

Mr. J. Osborne — In connection with this subject and the paper Mr. Smith read yesterday, I think it would be proper to call some attention to a resolution passed by the National Grange. With the permission of this convention, I will read an extract; it is germane to the whole subject, and perhaps may interest some of the members here. This is a new declaration of principles by the National Grange; a good many grangers here will understand it.

NEW DECLARATION OF PRINCIPLES.

Adopted by the national grange at its late session:

"We, the members of the National Grange, desiring to define the precise objects of the order of Patrons of Husbandry, and place them before the membership of the order throughout the Union, do hereby set forth the following propositions, with our distinct declaration of purposes relating thereto:

"The industry upon which our order is based is agriculture, the most important of all industries, the foundation and support of all others, the true basis of all our national prosperity. We have observed the condition of our people, and viewed with alarm the encroachment upon their natural rights. While agriculture is the chief source of all wealth, and, therefore, deserving of at least equal recognition with other vocations, it is deprived of its just rewards, and oppressed by methods of law. It is made to bear grievous burdens not its own; it is compelled to pay taxes which an equitable distribution would place elsewhere; it is forced by wicked combinations to submit to hurtful discriminations against its products, both in transportation and in the marts of sale; its votaries have been and are now denied that consideration in public affairs to which the magnitude and the importance of their calling entitle them. The laws of the nation and of the several states are so framed as to divert from our great industry the rewards which are the great incentives to toil, and an earnest remonstrance against their injustice spurned.

"In view of these truths, we are bound in defense of our manhood to assert our rights, and we therefore declare our unalterable purpose to emancipate agriculture from the burdens unjustly heaped upon it, and the means by which we shall seek to secure the desirable ends.

"1. We shall strive earnestly, within and without our order, to extend the benefits of education, which shall comprise knowledge of public affairs and the methods of self government.

"2. We shall demand admission in the legislatures of the several states, and in both houses of the national congress, for representatives of agriculture chosen directly from its votaries, as the only means of relief.

"3. We shall accord to other industries all the rights, privileges and immunities which we claim for our own, and join with their

representatives in earnest endeavors to impress upon the governments of states and nations habits of wise economy and frugality as essential to the thrift and prosperity of all the people.

"4. We shall give constant care and attention to the public schools, in which the youth of the nation are deeply interested, limiting expenditures therefor only by their usefulness, striving always for that higher and practicable enlightenment which should become the distinguishing feature of a free people."

After the above had been adopted, the following was also presented and passed:

"In accordance with the above objects of our organization, and the methods by which they are to be obtained, we pledge our unyielding devotion to the work marked out. We believe the principles enunciated in our declaration are in full accord with the highest welfare of our country, and that they deserve support, especially by all farmers. The history of agriculture on this continent shows that no organization in its behalf has ever been attempted without direct effort on the part of those who prey upon its products to neutralize the work, and the lessons of the past establish the conviction that our only hope is in the full and cordial cooperation of farmers, wherever located, to insure that success which is within their grasp.

"We appeal, therefore, to good men and women, whose interests are our own, to join their efforts with ours, confident that with their support we shall not wait long for [the consummation of our hopes. We appeal to the agricultural journals of the land, asking their great influence in aid of the above objects as a potent means for the attainment of the great object. To these forces and to the intelligence of our people, we present the purposes which animate many thousands of farmers in every state of our Union, and reverently trust in the direction of the wise Providence by whose decree we were made tillers of the soil, that our efforts may be rewarded by the full accomplishment of the measures which justice demands in the relief of an oppressed industry, and the higher enlightenment of its votaries."

This declaration was passed by a congress of all the bodies in the United States. They represent probably, at this time, not less than half a million of people in the order. At one time it was much stronger; however, you will observe that there are some

points made here, directly in cognizance with the remarks of Mr. Smith, and some points which have not yet been brought out. One particularly, is in reference to the oppression of that class of people. Some remarks were made yesterday in regard to class legislation.

The president, when he first mentioned the question submitted yesterday, stated that it looked like politics. So it is politics. I think the farmer should take a hand in politics now, and I think the grange noted themselves that way too. There are reasons for it.

Mr. Smith — I am not a granger, but I always supposed the grange ought to take a hand in politics.

Mr. Osborne — It was one of the cardinal principles that they should not do so; but that resolution points strongly in that direction.

Go back to the old political economists; go back to Andrew Smith, if you please; then come down to Prof. — —, of Oxford college, whose book is in our colleges to-day, and they all agree that the primary source of all the wealth of the world, in the first place, is the land. Some modern authorities, Frenchmen particularly, include the work shops. However, it all comes from labor, and the most of it from the land. Now I want to call attention to one other point in connection with this subject, and that is, that the public debts are bearing interest, that the public debts are increasing. There is no other source from which interest can be paid, except the new wealth that is created from year to year. Now I ask the farmers, as sensible men, to look at this point and see where that wealth is to come from. Who is to pay the taxes? Who is to support the government? Who is to pay the interest on the public debt? It has got to be paid out of the new wealth that comes from year to year out of the land, produced by farmers, or out of the work shops. In that light, it looks to me that it will not be long before it will be an absolute necessity that the farmer must have his representative in congress. His material interest will demand it. I saw a statement in a speech made in England, not long since, that the actual new wealth that was created in Great Britain, from year to year, amounts to about eight hundred millions sterling. Out of that, it took five hundred millions to pay the interest on income, on capital. Now they are able to get at it in

that country, because incomes there pay a tax. We have no income tax in this country. In other words, out of eight dollars that was created by labor, five went to pay taxes. Figure up how long that state of things is going to last. Horace Greeley, some forty years ago, wrote an essay upon that very subject, and he pointed out clearly what was going to be the result of this great accumulation of public debts, not only public, but private, because all the interest has to come out of new wealth, mostly out of the land; mostly out of this class of farmers. Talk about class legislation. You have got to look out for your own interests, or you will go to the wall; and it is quite fitting that a class should have its representative in a case like that. I recollect, years ago, when that prize fighter Morrissey was elected to congress in New York, that the New York Evening Post, William Cullen Bryant's paper, came out and said: it was quite fitting that Morrissey should be elected to congress, because this was a representative government, and all classes of people should be represented there.

Now, if the class of prize fighters should be represented, and it was necessary that one prize fighter should be in congress, take the proportion and say how many farmers ought to be there. If farmers have to pay the interest on the public debt out of the new wealth from year to year, I would like to know why they should not have representatives in congress. The next point is, how are you going to get them there? Horace Greeley pointed out in that paper, as I was saying, what would be the inevitable result of this state of things; that the public debts and private debts were increasing so rapidly that it was only a question of time when the interest was going to absorb all the new wealth that labor created. You have all seen the statement in the journals that if Manhattan Island, on which New York city is built, had been bought for one dollar and the interest allowed to accumulate, it would amount to more now than the value of the whole wealth of the city. It is only a question of time when interest will eat up all that labor creates. As Horace Greeley said, there will be a few rich and all very poor, and the rich will have to build poorhouses all over the country to support the poor. The poor will have nothing to take care of themselves with. There is another point that comes home in these times, and that is, that the farmer earns but very little in proportion to the so-called professions—the proportion in which

the farmer is paid to other vocations. You recollect that Mr. Bradlaugh, who was the great advocate of the workingman's interest, came over to this country. There was a delegation of workingmen called upon him in New York, and among other things, they said to him, "Mr. Bradlaugh, what would you advise us to do, to elevate our interest and our class?" He says, "Men, you have the right of suffrage in this country. Put in men of your own calling. You have got the right to elect them. Elect men of your own calling, having your own interest at heart." Figs do not grow upon thistles. In other words, if you elect lawyers to go to congress, who are feed by railroad corporations, you must expect they will make laws in behalf of their best clients. They will not look after your interest, because you don't pay them very well. They will look after the interests of their best clients. I know that to be the fact. When the great contest came on between the state of Wisconsin and the railroad companies, there was scarcely a lawyer in the state of Wisconsin that Gov. Taylor could get to prosecute for the state. He thought of going out of the state, and Chief Justice Dixon came down off the Supreme Bench to take that matter in hand. He had not been off the bench an hour before Gov. Taylor had a fee in his hand to retain him, because he would have been snapped up by the railroad dignitaries. Those are the men to go to congress. They work and vote for their clients. Our men who go to congress should work and vote for our interests. Unless you vote to get them there, you never will get them there.

Mr. J. P. Roe — Please give us again the relative members of the lawyers and other professions in congress.

Mr. J. M. Smith — I have no paper with me, but my recollection is, that there are three hundred and thirty-six members in the two houses. Two hundred and thirty-nine of the whole number are lawyers. About twenty are merchants, and some fifteen or twenty are bankers, and twelve of the number are farmers, and that number includes some planters from the south. In the senate, there is only one farmer, and his time expires the 4th of March, next week. Twelve of the whole number are farmers, while almost three-fourths of the whole number are lawyers.

Mr. J. P. Roe — Here is an illustration which will go down in history as the legislation of our lawyer congress; it is the arrearage pension bill. It is a fact that the returned soldiers, the boys in

blue, have not asked for this back pay; the press of the country is not demanding it; the people of the country are not demanding it. The bill was passed, whereby it was thought, at the time, that fifty millions would be sufficient. After it was passed, it was soon ascertained that it would be eighty millions. The estimate is now placed at one hundred and twenty millions of dollars.

Mr. J. M. Smith — I saw one estimate of one hundred and fifty millions.

Mr. J. P. Roe — I wish to keep within bounds. It is purely for buncombe; it is purely for electioneering purposes; it is purely to affect the presidential election. With this demand on the treasury, our lawyer friends, who are an oppressed class, would remit the tax on tobacco. They can enjoy that, and smoke it and chew it. With the statement of the secretary of the treasury of an actual deficit to-day, and with this further demand on the treasury, they have stricken out the very means by which that deficit could be made up. Now, we come with the interest of the country at heart, and we ask from this congress a paltry appropriation of four millions of dollars to finish this great national highway, the great waterway of the nation, that flows by our doors, from the Mississippi to the lakes. The interests of all the states westward demand it; the interests of the states eastward demand it; and yet this four millions of dollars cannot be had. They would give enough to keep a few old dredges going; they would give enough to pay a few salaries; and I presume that lawyers are the parties that are on the list of salaried men, but as to carrying out this great national want, oh! it is unconstitutional! [Applause and laughter.]

Mr. Huntley — Farmers must step up to a higher level.

We will now listen to Mr. Plumb on the pear question.

Mr. Plumb — The prevailing idea is, that the pear is tender. I heard a man say twenty years ago, I can raise pears easier than I can raise apples. We have pear trees sufficiently hardy for all climatic severity, for all cold. The trouble is the blight. We must put our pears on poor land — what is called poor land. You have not got any poor land in this part of the world unless you have got the Potsdam sandstone. That is poor land, but all these timbered clay soils are rich land; they have not all of them the black muck on top of them but they are brimful of tree growth. A poor soil must be a firm clay soil or concrete. By concrete I mean a mixture of

clay and gravel. On the highest part of the island at Menasha, there is a good deal of that and what we call boulder drift in our part of the state — a clay and stone mixed together. It is the best soil we have for fruit. It makes a strong limestone soil. The only real successful pear orchard that I mentioned yesterday was on these poor hills, miserable, poor soil, and the grass had grown for twelve years or thereabouts, so it was the toughest grass sod I ever saw; yet the pears were good. It was the neglect, as some would call it, that saved those trees. They were upon a dry hill exposed to the air that came from every quarter. So far as the soil and cultivation are concerned the ultimatum is, they must grow slowly, and they will grow fast enough to produce good fruit. I said to a man at Jefferson, "do you know a first rate successful pear tree in this county?" They have raised pears in that county for years. He thought a moment, and said "there is a man up there about four miles from the village of Jefferson. He has an old pear tree. It has been in his garden half covered with shade trees and one thing and another, for twelve years, and it bears fine crops." It was sort of stunted and starved, and that saved it. The most successful varieties are Flemish Beauty, Summer Belle, etc., for summer pears, and the Winter Nelis for a winter pear. The Seckle is also successful. There are five varieties. I could put in five more, but what is the use. Some say, why don't you put in the Bartlett? If the Bartlett succeeds, it is very fine. The remedy for blight, as I said yesterday, is to grow slowly. The question was asked here, if we have any iron-clad apples — any variety of apples that is iron-clad, that will keep until June, and of good quality. The term iron-clad is a comparative term, used to express extreme hardiness. We have but one long keeping, iron-clad apple, that I am sure of, that is doing well in this part of the state. That is what is called the "May Seek-No-Further." It was exhibited here two years ago. It is very successful all around here. It is very hardy and a very good apple, especially for a baking apple in the spring of the year. The "Walbridge" and "Golden Russet" are good keeping apples, and will be successful in any location in this country. The apples that are best in this latitude and north of here for general purposes, will be the "Fameuse" and "Plumb's Cider." Fall Orange, if you pick them early enough, before they fully mature, you can keep them all winter. The third question I have here, says, you

have no faith in any external application for blight. Is there any external application by way of specific fertilizers? The purport of that question perhaps is, whether there is anything that can be added to the soil which will stop blight. I don't know whether there is. Clay or stone, or something very poor around and under the tree, will stop the blight because the blight is caused by excessive richness of the soil in combination with extreme changes. It has been supposed by some that a tree could be washed with certain caustic compounds and destroy fungoid growths, on the same principle that mildew is destroyed by sulphur. I do not believe it. Others say, inoculate your trees. I have got a compound that is a specific. If you will bore a hole in your tree, put in a little of my compound and plug it up, and it is a sure specific against blight, insects and every other trouble. I don't know whether you have been troubled with that sort of humbuggery in this part of the state. This is the worst kind of a humbug. A man told me there came along a man a year ago. Says he, your trees are covered with bark lice. If you will take my specific it will cure them. He tried it and after the year had gone by the man came along. Well, says he, how about bark lice. Says he, I don't know. Let us go and see. They went out, and behold they were all gone. He paid him five dollars and he went off, and a short time after that I was along there, and he was telling me about it. He got the recipe. He could kill all the lice. Says I, let us see about this matter. I went out and I went to scraping out the shells from seven to ten years old. There had not been a living thing in those shells for five years. He never knew it. There is no process of inoculation by which insects can be destroyed. You cannot cause a tree to absorb anything that will destroy insects without injuring the tree and ruining it.

Mr. Merriman — I would like to know how you manage your orchard; whether you allow the grass to grow or cultivate it?

Mr. Plumb — I would say to Mr. Merriman that I know the location of his orchard. After he gets his orchard fairly started in, plow it in again; plow it once a week, or more or less, just as is convenient. If you think it needs grass, let it have it. The only safe way on his land is to let the grass grow; it affords mulch; in cases of excessive moisture, it acts as a sort of an outlet for the surplus heat, and it will check the extreme growth of the tree.

Mr. Merriman — My orchard is on the ridge; it is not on the mucky land I spoke of, but it is on the ridge.

Mr. Simpson — How do you class the Walbridge apple. Do you class it as hardy?

Mr. Plumb — Yes, sir. So far as I know, the Walbridge has been tried in La Crosse county and some portions of Minnesota.

Mr. Simpson — Mr. Tuttle tells us in the state transactions that the Walbridge was a failure.

Mr. Plumb — When was that?

Mr. Huntley — In the volume of the state transactions. I don't know how it came there; it is not in the volume of the transactions of this society.

Mr. Plumb — It was a mistake of the reporter. It was only two days ago that I had a talk with him about the Walbridge and he talked strongly in favor of it.

Mr. Simpson — That was the statement he made there, that it was a failure.

Mr. Plumb — I wish to say to every farmer who is going to plant: Ascertain what is doing well on your own soil, or on soil corresponding to yours close by; ascertain what is doing well under similar conditions, under such conditions as you are likely to have.

Mr. Simpson — What do you think of the Wealthy?

Mr. Plumb — The Wealthy is about as hardy as any we have.

Mr. Simpson — A fall apple?

Mr. Plumb — Yes, sir.

Mr. Simpson — According to your idea, it would be a winter apple.

Mr. Huntley — Not the Wealthy?

Mr. Plumb — Yes, sir.

Mr. Huntley — Those they had at the fair were rotting.

Mr. Plumb — They let them hang too long. In our portion of the state, when the apple is hanging too long and is going to fall to the ground and rot, it should be taken to the cider mill. I have seen farmers pick these apples when they were just about half ripe, barrel them up, put them in a shed and keep them right along. You can have abundant winter fruit if you will do so, but you have got to handle them carefully and put them in a clean place in your cellar.

Mr. Torrey — I would say in reply to Mr. Simpson, that I have

no doubt that the reply credited to Mr. Tuttle was the fault of the reporter.

[The book was not reported by the reporter of this volume but by a Chicago firm.]

Mr. Smith — I want to say, that with me and our portion of the state, the Walbridge is a complete success. I was astonished at the remarks of Mr. Tuttle, and I have no doubt it was a mistake.

Mr. Simpson — I advised one of my neighbors to set out the Walbridge. He didn't buy but two or three, and he had a copy of the transactions of the State Agricultural Society, and he read it to me the other day and said: "I have lost my trees, for Tuttle says so and so."

Mr. Huntley — I have set out the Walbridge two or three different times, and I must say that they do not come up to my expectations; they have not fruited; I have lost several, and I know of two or three orchards around our place where they have not been successful as yet.

Mr. Fisk — Have they winter-killed?

Mr. Huntley — Yes, sir, more or less; something is the matter all the while with them.

Mr. Fisk — I have some and they are perfect; I have not lost a twig of them.

Mr. Plumb — I have been to Mr. Huntley's, and he grows trees too fast.

Mr. Torrey — The next question is, "What is the best variety of wheat and corn for this climate?"

Mr. Weyerhorst — That depends on the soil and the location. On our higher lands, in this county, Club wheat will yield from four to five bushels more than Fyfe wheat, and I consider it at the present time the most profitable crop in this locality, notwithstanding it brings from three to five, and even ten cents, less per bushel in the market; but in the openings and on the prairies, the Club wheat is entirely a failure. They raise Fyfe wheat with tolerable success. It brings in the market the highest price and makes the finest and best flour. I raised it for many years. Some farmers in our neighborhood, last year, raised a new kind called the Lost Nation or Russian Fyfe, which was prized very highly on account of the yield; but the last crop was altogether a failure, so we cannot judge what it will do in the future. This Russian wheat was not

desired in the market and does not bring as high a price as the other. I find that Fyfe wheat is the most profitable I can raise here.

Mr. Plumb — I heard yesterday that Mr. Weyerhorst raised wheat that took one of the first prizes at Paris.

Mr. Torrey — He took the first prize at the Paris Exposition.

Mr. Plumb — I would like to know what variety it was.

Mr. Weyerhorst — It was the Club.

Mr. Plumb — For what quality was the award given.

Mr. Weyerhorst — It was the finest berry and finest spring wheat on exhibition.

Mr. Plumb — Was it in competition with wheat of other nations?

Mr. Weyerhorst — Yes sir. All nations.

Mr. Plumb — Was there Russian wheat there?

Mr. Weyerhorst — Russian wheat and all kinds of wheat, as I understood.

Mr. Plumb — California wheat too?

Mr. Weyerhorst — California wheat and all kinds of wheat.

Mr. Lane — I suppose the award only had reference to spring wheat. California don't raise spring wheat.

Mr. Torrey — This was spring wheat.

Mr. Huntley — This is an important question. I have raised some Lost Nation. I supposed it was a better yield. It did yield a little better on my place. It does not bring as high a price in the market as some other wheat.

Mr. Weyerhorst — The wheat is not known well enough. Some ten or twelve years ago they did not like Fyfe wheat in the market. They always paid more for Club than for Fyfe. After they understood how to grind it, they paid as much for it as for the other.

Mr. Plumb — I would like to have the question of a change of seed discussed. Farmers ask me where they can get a change of seed. I recommend a change from an entirely different soil. A farmer came to me a few years ago and wanted a change of seed. I advised him to get the seed about a hundred miles north, up in the sandstone region.

Mr. Weyerhorst — I have changed seed a good many times with Ripon Prairie. It is a lighter soil. The seed looks shrunken and poor. I get the finest wheat after the change. My soil on the lake shore is a clay soil and is very good for wheat. I have brought you

some samples of Club and Fyfe wheat. Last year our wheat did not break down and lodge at all.

Mr. J. P. Roe — I would like to ask Mr. Weyerhorst in regard to corn growing.

Mr. Weyerhorst — The common variety of corn is Early Dent. I don't call it anything extra. It breaks off easily. It is not quite so early as Flint.

Mr. Huntley — It gets ripe here.

Mr. Weyerhorst — There is pretty nearly a week's difference in the ripening. It gets ripe here; I don't know of a year it has not ripened. I think Flint corn very profitable to raise on account of the fodder. It is more difficult to harvest.

Mr. Jewett — In the Farmers' Club, at Rosendale, last Saturday, the question was asked, What kind of wheat shall we sow? Last season the Lost Nation was sowed for the first time, except it might be some little patches of about a rod square, or something of that kind. Some farmers sowed from five to ten acres; some sowing twenty acres. They have the wheat on hand, and it is not worth within five to ten cents of the price of Fyfe wheat, of the same grade. The question with us is, will it yield enough better so that we can stand the discount in the price.

Mr. Huntley — I don't think that you can tell with one year's trial. I should recommend you to try it again.

Mr. Jewett — The question was put to a vote, shall we try it another year? I suggested to them that we try from three to five acres apiece. There is one mill near Waupun. There is one mill for the accommodation of the neighborhood, not for the purpose of shipping flour, and they will take the wheat and grind it for the regular toll. It is the only mill I know of that will do so. I suppose it is the same toll. They take your wheat, and give you so many pounds of flour, and it is the general impression that instead of taking one-eighth or one-tenth, they take a quarter.

Mr. Huntley — They take the grist and leave you the toll.

Mr. Jewett — They give only forty-five pounds from sixty. The suggestion of the club is that we try this Lost Nation wheat another year. If it will not sell in the market, we must take it to some mill where we can get it ground, and use it for our family bread. It makes an article of flour equal to what we get where they take out the best portion for the extra flour for themselves.

The White Russian is another variety of wheat that was raised there some.

Mr. Huntley — I supposed the White Russian and the Lost Nation were identical.

Mr. Jewett — That is a question that we want some light upon. One man that raised White Russian got better wheat. It stood up better than Fyfe, although the land where the White Russian was sowed was plowed four inches deeper than it ever had been plowed before. The other was shallow plowing. It was pronounced by the miller at Eldorado to be equal to Fyfe wheat, whereas he won't buy the Lost Nation, or take it in for a grist, if he knows it. The question is, will the Lost Nation yield enough more so that we can stand the discount in the market price? Can we compel the dealers to take it? Can we force it upon the market, and compel the dealers to take it? It is generally understood that the mills are run by an association. The farmer must submit to whatever rules and regulations they may make. The laws of the country, as Mr. Smith says, are made by the lawyers. Is there any way that we can release ourselves?

Mr. Simpson — Do you know the reason why you cannot sell the Lost Nation wheat?

Mr. Jewett — It is a soft wheat.

Mr. Simpson — The millers cannot make patent flour from it. If they could make patent flour, they would buy the wheat.

Mr. Green — I claim that if we were all to raise Lost Nation wheat, we could make them take it. We could sell it and make them make the old grade of flour. If they are going to run our farms, of course we must sow what they say we shall sow. It is getting now that we cannot sow winter wheat.

Mr. Huntley — I would recommend that you give the Lost Nation another year's trial.

Mr. Jewett — I would like to ask if there is anything definitely known in regard to the Lost Nation, White Russian, and Judkin's wheat; whether they are three distinct varieties, or only one? I would say that they are two kinds of wheat, from the fact that one is bald and the other bearded.

Mr. Weyerhorst — Twelve years ago I had sent to me from Washington some Russian White, as they called it, and I sowed it, and the first year I raised two bushels, and afterwards I sowed

the two bushels, and I raised thirty bushels. This wheat was a very hard wheat, and made very good flour. The mill couldn't do anything with it, because they couldn't grind it very well. It is more flinty than Fyfe wheat, and it was just as good as the best winter wheat, but the straw grows so high and weak, that I have given up raising it.

Mr. Jewett — The manner of milling is so changed now, that the harder the wheat the better.

Mr. Huntley — The next question for discussion is, Are the farmers, as a class, richer and more independent than others? If not, why not? The next question is, If they are, are appropriations to agricultural and horticultural societies by the state right and proper?

Mr. Hart — I have been a farmer all my life, in connection with my other branch of business, and I have found that, as a class, farmers are not very well posted in regard to prices. I learn the prices. I learn what they are in New York. I learn what they are in Philadelphia, and I learn what they are in Pittsburg and New Orleans, and my arrangements are such, that I am able to send my produce to the market that will yield me the best price.

Mr. Smith — Provided they do not raise the freights on you so that you can not get there.

Mr. Hart — I am expecting that bye and bye I can manage the freight business. The main point is to know the price. They are buying wheat in Appleton. A little farther off are Neenah and Menasha. I was talking to a man not long since. He had been up to Neenah with a load of wheat. He said he was offered the highest price in Appleton. He didn't see fit to take it, and he went to Menasha and Neenah, and they gave him \$6.40 more for his load of wheat than they would give him in Appleton. Hundreds of men would have sold their wheat in Appleton, and lost \$6.00, because they didn't understand the best market. It is just so with everything. The secretary of our society knows the price of honey in every market in the United States, and any bee keeper who has honey to sell, can write to the secretary, and the secretary will tell him where the best market is, and he can make preparations to send his honey to the best market. To be sure, we don't know what Wm. Vanderbilt is going to do after we start our honey, before it gets to the market. The railroad men are handling the

freight business just as they have a mind to. Bee keepers can send honey from California to Liverpool for half a cent a pound. We can send our honey to New York for half a cent a pound. If farmers were posted in regard to the markets, it wouldn't be long before accommodations would be made. They are laboring under the disadvantage of not understanding the market price. There have been men selling pork this winter for two dollars a hundred, when perhaps, by taking it ten miles, they could have got three for the same pork. It is getting the highest price that makes the farmer better off. We don't make money enough to make us rich, but we don't want to pay the middlemen so much.

Mr. J. P. Roe — We have had a great deal of agitation upon the subject of the hours of labor; the number of hours that the mechanic considers, or the operative in the mill considers, a day's labor and the returns for it. The hours of labor actually put in by the farmer, who is compelled to work his own farm; not the gentleman farmer, but the one who works his farm, are longer on the average than that of any other working man, unless it is the horticulturist or market gardener; and then the question is, are his returns in proportion to the number of hours of labor. Of course, if a man has his farm clear of debt, well stocked with fair buildings, his is unquestionably the most independent life; but are the majority of farmers in that situation to-day? If they are not, then their position is a trying one; their road a hard one. The farmer incumbered with debt, as compared with other men, in a like situation, I think has a more hopeless prospect before him to extricate himself. He receives, virtually, less returns for his labor than other classes.

Mr. Simpson — The farmer is the hub, that the others turn around. They get their living out of him.

Mr. R. Crego — I have been a farmer all my days, and I have tried to be an honest man, and to deal with mankind as I would be dealt by; and I have studied this matter, until I am satisfied that the farmers, if they did take, and would take the right and proper course for their own interest, are the most independent class of people in the world. I started out bare handed and bought me a piece of land, and ran in debt, and I went on that land, having no experience, except what I had had at home, and the result was, that I remained in debt, until I was under the necessity of selling my

homestead for what I could get for it. If I had commenced upon the right platform, and had worked by days, worked until I had accumulated sufficient property to have bought me a small homestead, and paid for it, then I could have gone on it and been an independent man, and been self-supporting. That is the condition I find all over our country, with the farmers in the far west. We run ourselves into the ground by not starting upon the right platform, and hence it is, we are deprived of all the enjoyments and comforts for a great many years. A great many of us are oppressed by debts; paying interest upon money loaned by the money lenders. We are the most oppressed people upon the face of the earth. If we had commenced upon the true principle, we might be the most independent on the face of the earth. Then we could hold our crops until they would bring us enough to remunerate us for our labor.

Mr. J. P. Roe — How long, may I enquire, since the purchase of that farm?

Mr. Crego — Well, sir, it is forty years ago.

Mr. Roe — What was the price paid?

Mr. Crego — I paid five dollars an acre.

Mr. J. P. Roe — What was the amount of the indebtedness?

Mr. Crego — The amount of indebtedness on that farm, when I commenced on it, was about \$100. It was pretty nearly all timber land.

Mr. J. P. Roe — This is rather a strong illustration, possibly some will say an unfair one, but that is at the bottom of the whole thing. Here was a calling that a man was obliged to go into on borrowed capital. He put in his own labor. He put in his own time, and he had to meet the interest and principal of this borrowed capital. He has toiled this many a year. Now, what calling, under ordinary circumstances, with the like energy and fair average ability, and with close attention to business, would not have paid handsomely, principal and interest, and left a margin of profit long before?

Such are the conditions of farmers, that under ordinary circumstances, where we go in debt to obtain the farm; where we go in debt to start the farm; where we go in debt for implements; where we go in debt for improvements and buildings on the farm; we take a risk when the dice are loaded, and throw them as we will, they

turn up against us. Those are the facts, gentlemen, undisputed, and they come home to most of us.

Mr. Crego — All the farmers in the section where I lived, paid at the rate of five dollars an acre for their land, to the land owner in the city of Albany, and they worked and toiled in that land and cleared it up, and they were so involved with the interest and principal, that they never could pay it. The land holder came up and forgave the older parties all their past debt that had been settled upon them, and gave them a deed and set them where they were when they first commenced, and then after that, they made out to pay the interest and at last the principal. Some of them died before they got it paid.

Mr. Torrey — I would like to ask what rate of interest was paid?

Mr. Crego — Seven per cent.

Mr. Torrey — It seems to me that the question of interest comes in here. I believe it is a legitimate question. It seems to me that no man can buy a farm and give his obligation at ten per cent., and have any hope of paying for it. I do not believe it can be done with the income of the farm. I do not know a business in the world that will pay ten per cent. interest. The farmer is expected to dig out ten per cent. from his farm, and educate and clothe his family.

Mr. Crego — The land I was speaking about was in New York state, but then I am in about the same fix here.

Mr. Huntley — Everybody conducts business on borrowed capital. You cannot find any business in the whole realm of industry but trades on borrowed capital, and does business on borrowed capital. The farming business pays so small a per cent. for the labor invested, that it will not do to pay four per cent. You have got to live right down on the bottom. You have got to do your own work; teach your own children, and grub along without any comforts, but the poorest kind of food and clothes. Why? There is no profit in the business. If you start without paying any interest, how are you going to pay for your land? Why, by working in some other calling that will pay better than farming, and then you can start in farming. The last question for discussion is: "Are agricultural and horticultural societies of any practical benefit to the country?" That has been particularly spoken of by Mr. Plumb and others in regard to the horticultural clause, but there is room for further debate.

Mr. Smith — I want to say a word upon that question. It is a question that I have been forced to study, and I have taken pains to look it up. I think I can safely say, that in the history of agriculture throughout the world, no nation has been successful as an agricultural people, except where they have been fostered and cared for by the government, at least until they got fairly under way.

The earliest agricultural nation of the world, so far as the record show, was the Egyptian nation. There the government spent almost fabulous sums for the sake of fostering that one interest, agriculture. It has been estimated that a lake that was dug by one of the kings for the purpose of saving water for irrigation in drougths, cost more than all the pyramids combined. The result was, Egypt was the garden of the world. It was Paradise, so far as raising crops was concerned. I think that after they became a Roman province, they made their boast, that although they were a conquered people, their conquerors were obliged to come to them for bread. It taunted the Romans, and they passed a law prohibiting the importing of Egyptian grain, and went into Italy for their grain, and then used the same method, fostering their own agricultural interests.

The Greeks paid but little attention to agriculture. Coming down to modern times, and where the agricultural industry has been successful and prosperous, it has had to have the fostering care of the government. One of the greatest things Napoleon ever did in the world, was to almost force the French people to grant a subsidy for the growing of beet sugar. It was known that sugar could be made from beets, but it had never been done to any extent so as to make it at all practical. His attention was called to it. I forget the precise course that he pursued, but he remitted all taxes upon it; he granted premiums and awards for machinery and for crops and for methods of manufacturing sugar, until it became a thorough, complete success. What is the result? France to-day is almost supplying our people with sugar. If Napoleon had given hundreds of millions of dollars to that interest for four or five years, it would have been the best and cheapest investment France ever made. It is the same with the British government. They have paid immense sums for fostering agricultural interests. It is so in Germany. It is so in our own country. Take Massachusetts to-day. You all know that the soil of Massachusetts is one of the poorest, hardest,

rockiest, hillside soils to be found in the whole country. In that little commonwealth, they are now paying some thirty-five or forty thousand dollars a year for the benefit of agriculture and horticulture combined. What is the result? Poor as her soil is, the aggregate crops in Massachusetts are larger than in Wisconsin.

Mr. Torrey— You stated that they paid thirty-five thousand dollars for this purpose. Can you state in detail in what way?

Mr. Smith— I can't give the details, but they have a Board of Agriculture and a Board of Horticulture, and the money is distributed around in different portions of the state to the different societies. It is not paid out in a lump to any one society. The result is, that they are making Massachusetts a very garden spot, poor and rocky as it is. Here we ask two thousand dollars for the benefit of the State Agricultural Society, and one thousand dollars for the Northern Wisconsin Agricultural Society, and we beg and plead and coax year after year. The State Horticultural Society has been working from year to year for nothing and with nothing, and it is very doubtful now whether we will get anything, but we are going to keep on working in the future as we have done in the past. These things are discouraging; our interest is so much greater than any other interest, and on which the prosperity, not only of ourselves, but the prosperity of all the rest combined, depends. They are all dependent upon our prosperity, and yet it is so strange that our legislatures can not be made to see things as other people see them, and, as it seems to us, as everybody ought to see them. I do not believe that we shall ever become a truly prosperous agricultural people, until our government is made to understand that they must lend us at least a little care— do something to encourage the interest. We know sugar can be made from beets in this state, but it never has been done successfully. Suppose the state of Wisconsin should say, we will give a million dollars to any man who can make beet sugar, and demonstrate it to the community, for a series of ten or fifteen years, so that it shall become a common article, a common crop, and so that it can be made cheap enough, not only so that we can supply ourselves, but supply those around us. What would be the result? It would be the cheapest investment Wisconsin could ever make. If we were ever to ask for even one-fourth of that amount, they would look for a lunatic asylum for the whole crowd of us.

Mr. Torrey offered the following resolution:

Resolved, That in the sense of this convention, the bone-dust fertilizer prepared by J. R. Loper, of Oshkosh, is equal in all respects to that of the same quality prepared by eastern manufacturers, and we would recommend its general use.

The resolution was adopted.

Mr. J. M. Smith offered the following resolution:

WHEREAS, This having been an exceedingly pleasant and profitable convention, and that its success having been in a great measure due to the efforts of our friend and secretary, R. D. Torrey, we are unwilling to part without a word in his favor; therefore,

Resolved, That we thank him for his successful efforts in the past, and will second him in the future in every effort he makes for the elevation of the agricultural interest of our portion of the state.

The resolution was adopted.

Mr. J. P. Roe — Before we adjourn, I want to call the attention of the convention to the handsome picture of the new exposition building. That is something that we are looking forward to. I trust, not a castle in the air, but something we may expect to possess here; something we are to think about, and talk about, and work for.

Mr. Huntley — I am accidentally in the chair, the older vice-president not being present, but I can hardly adjourn this convention without returning thanks to the good people of Oshkosh for the kind treatment we have all received, and for the general good attention and attendance during the convention.

On motion, the convention adjourned without day.

RULES FOR MAKING GILT-EDGED BUTTER.

These rules were printed in the Rural New Yorker, and are so excellent and concise that we reprint them for the benefit of our readers.

FEEDING. — Select your cows with reference to the quantity and richness of the milk produced. The best cows are the cheapest for butter; so get the best you can of whatever breed you select. Give them good pasture in the summer, and plenty of pure water, with frequent access to salt. In winter feed sweet, early-cut hay, well-cured corn fodder, roots, cabbages, etc., and a ration of bran, corn-meal, ground oats, or middlings.

IMPLEMENTS. — Have the best implements and keep them scrupulously clean, well scalded, and often exposed to the sweetening influences of the sun. The milk pail and pans should be of the best quality of tin. A reliable thermometer is a necessity to every good dairyman.

MILKING. — The milking should be done quietly and at regular times, and the utmost cleanliness observed. Nothing is tainted quicker than milk by foul odors, and surely at times, with nearly all cows, there is enough animal odor to it, without adding any more.

SETTING. — Strain the milk slowly into the pans, four to six inches deep. It is an excellent plan to strain the milk into a large can set in cold water, and cool down to sixty degrees before putting into the small pans. The milk must be set in a pure atmosphere, at such a temperature as will permit the cream to rise in from thirty to thirty-six hours after setting. In order to do that, the room should be kept at about sixty to sixty-five degrees, and not allowed to vary much either above or below.

In hot weather keep a large piece of ice in a tub in the room. Cover it over with a thick blanket, and, if arranged so that the water will run off, it will keep a long time, and keep the room very uniform.

In cold weather some arrangement for warming the room should be adopted.

SKIMMING.—Skim as soon as the milk begins to turn sour. Do not neglect this rule, as it is impossible to make good butter from cream that has become old and sour. When you pour cream into the cream jar, splash as little as possible. Stir the cream every time you add more to it, and wipe the sides of the pot. Keep the temperature at about sixty degrees, and the cream pot in the coolest part of the house, covered with a fine gauze netting, strained on a hoop, not with a tight cover. If covered too tight, fermentation is often too rapid.

CHURNING.—Churn often, as there is nothing gained by long keeping. Bring the temperature of the cream in the churn to 58° , and not allow it to rise above 64° . Churn early in the morning, when it is cool. First scald the churn, turn the paddles a few times; then pour off, and pour in cold water, and turn the paddles; pour off, and pour in your cream. In churning, revolve the paddles with an easy regular motion, not too fast nor too slow. The butter should come in about forty minutes, a little more or a little less, if the temperature of the cream when put in was about 58° , ascertained by the thermometer.

COLORING.—When likely to be deficient in color, add a sufficient quantity of the perfected butter color (made by Wells, Richardson & Co., Burlington, Vt.) to keep it up to the June standard.

WORKING AND SALTING.—When it has “broken,” and there is a difficulty in making the butter gather, throw in some cold water and give the churn a few more turns. Some, and I think a majority, of the best butter makers of to-day wash their butter with cold water before removing from the churn. Gather your butter with the paddle and lift it out into the tray, press it gently and incline it, and let the buttermilk run off. Work it gently with the paddle, with a cutting, gentle pressure, but not to mash it; or, better, put into the butter-worker. Salt it about an ounce to the pound, or to

the taste of good customers; only with the best salt, and free from lumps and coarseness. Work the butter only so much as to expel the buttermilk, but not to work it too dry. This can be done by the use of a weak brine prepared for the purpose. Put the bowl away in a cool place. After standing twelve or twenty-four hours, gently press out with a ladle or machine, the remaining buttermilk, and any brine that may flow out with it, care being used not to work it too much. If this is done, the butter has lost its grain and becomes salvey, and its keeping qualities are greatly injured.

PACKING.—Pack in a vessel which will impart no impurities to the butter. Fill within half an inch of the top. Place a thin cloth wholly over the butter. Over that pour cold brine as strong as can be made of hot water and the purest salt, or cover with a layer of fine salt. The whole process of making the butter, from drawing the milk to the placing of the butter in packages, should be hurried, as milk, cream and butter are going to decay every moment when exposed to the air, however pure it may be. Such butter is ready to keep or to sell. If it be kept long before selling, surround every package with coarse salt, by placing them in boxes prepared for the purpose. This process keeps the butter cool and hard, and free from sudden changes of air. When all these things are attended to promptly, and with as much uniformity as is under the power of man to control, there will be a near approach to uniformity in color, richness and purity. If the new beginner follows these rules, and keeps doing so, he will soon command the highest figures. Cleanliness and common sense applied from the beginning to the end, are absolutely necessary to insure good butter that will bring the highest price in the market.

HE DIDN'T SELL.

"I guess I'll sell this farm, Jane Ann, and buy a house in town;
 Jones made an offer yesterday -- he'll pay the money down.
 He said he wasn't anxious but he had the cash to spare,
 And reminded me that always cash sales are very rare.
 The farm ain't worth much, anyway, the soil is very thin;
 And the crops it yields is hardly worth the puttin' of them in;
 Besides that pesky railroad they're puttin' thro' this way
 Will cut the old place slap in two -- Jones told me so to-day.

I ain't afraid to work, you know -- my daddy always said,
 "There ain't a single lazy hair in Nehemiah's head."
 There wasn't no lazy hairs, I know, in that old head of his,
 For he did the work of three hired men in spite of the rheumatiz!
 No, no, I'm not afraid to work -- of that I don't complain --
 I've tried to work with willin' hands in sunshine and in rain;
 And I've always wore a cheerful face, except at times, mayb',
 When them giddy, headstrong steers of mine would 'haw' when I yelled 'gee!'

Perhaps it may be sinful for a mortal to find fault,
 With toiling hard both day and night, if he only makes his salt.
 But I've thought while cradlin' rain-lodged oats on the hillside over there,
 That my cross was almost too hefty for a small boned man to bear.
 It's always been my custom, when plowin' in stumpy soil
 To hum some good old-fashioned hymn -- it sorter eased my toil;
 But I tell you what, 'twas pretty hard to smother the words of sin
 Whene'er a springy root would break and whack me on the shin.

I mention these 'ere things, Jane Ann, because I'd like to lead
 A peaceful, blameless kind of life, from all temptation freed;
 But as long as Hessian flies exist and tater bugs abound,
 There'll be some tall profanity at times afloatin' round.

So now, if you're agreed, Jane Ann, I'll sell the farm to Jones --
 He'll find what it lacks in soil is well made up in stones;
 And we'll move to town next week -- what's that your saying, wife?
 You'll never leave the good old place as long as you have life?
 Well there it goes again, I vum! Go on, and have your way,
 You're bound to wear the breeches -- in a figgerative way;
 But you'll find I'll have my way this time, old girl, as well as you,
 So, if you're bound to stay right here, by gracious -- I'll stay too!"

METEOROLOGICAL.

*Condition of the Thermometer at Oshkosh, Wisconsin, for the
Year 1878.*

By K. M. HUTCHINSON.

RECORD FOR JANUARY.

DATE.	7 A. M.	12 M.	5 P. M.	State of weather.
January 1	27	28	28	Cloudy.
January 2	11	16	14	Clear.
January 3	15	26	25	Cloudy.
January 4	20	15	6	Light snow.
January 5	- 2	9	4	Light snow.
January 6	- 2	5	2	Clear.
January 7	- 15	9	6	Light snow.
January 8	21	33	30	Clear.
January 9	30	34	34	Cloudy.
January 10	32	38	35	Cloudy.
January 11	36	34	26	Clear.
January 12	30	38	32	Clear.
January 13	30	37	33	Cloudy.
January 14	32	37	32	Clear.
January 15	22	32	30	Cloudy.
January 16	24	34	31	Cloudy.
January 17	29	32	30	Cloudy.
January 18	31	38	31	Cloudy.
January 19	31	38	34	Fog y.
January 20	33	36	34	Cloudy.
January 21	30	34	32	Cloudy.
January 22	28	34	20	Cloudy.
January 23	- 1	11	18	Clear.
January 24	26	42	32	Clear.
January 25	26	30	28	Light snow.
January 26	27	42	32	Cloudy.
January 27	10	28	24	Clear.
January 28	8	20	13	Clear.
January 29	9	22	21	Clear.
January 30	17	32	27	Clear.
January 31	25	31	26	Light snow.

Two inches snow on the 10th.

Two inches snow on the 25th.

The probable weather for February is judged to be cloudy and threatening, heavy snow storms, violent winds, and temperature much lower than January.

RECORD FOR FEBRUARY.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
Feb. 1.....	24	32	32	Clear.
Feb. 2.....	20	34	30	Clear.
Feb. 3.....	15	32	30	Clear.
Feb. 4.....	18	36	32	Clear.
Feb. 5.....	28	45	48	Clear.
Feb. 6.....	33	46	46	Clear.
Feb. 7.....	39	48	43	Clear.
Feb. 8.....	31	30	29	Cloudy.
Feb. 9.....	19	22	20	Cloudy.*
Feb 10.....	14	26	26	Fair.
Feb. 11.....	10	36	32	Fair.
Feb. 12. ...	24	34	30	Fair.
Feb. 13.....	16	35	32	Fair.
Feb. 14.....	22	38	33	Fair.
Feb 15. ...	29	36	34	Cloudy.
Feb. 16.....	32	42	36	Cloudy.
Feb. 17.....	27	34	28	Snow.
Feb. 18.....	11	32	24	Fair.
Feb. 19.....	31	47	38	Fair.
Feb. 20.....	32	48	45	Fair.
Feb. 21.....	33	36	32	Rain.
Feb. 22.....	32	36	34	Snow.
Feb. 23.....	31	44	34	Fair.
Feb. 24.....	28	40	32	Fair.
Feb. 25.....	21	31	34	Fair.
Feb. 26. ...	18	40	38	Clear.
Feb 27.....	23	42	41	Clear.
Feb. 28.....	30	48	38	Fair.

* High wind.

Robins seen on the 5th.

Four inches of snow on the 16th, which disappeared next day.

No indications of the weather for March ventured upon.

RECORD FOR MARCH.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
March 1...	32	46	42	Cloudy.
March 2...	35	40	38	Rain.
March 3...	38	39	32	Cloudy.
March 4...	23	38	39	Clear.
March 5...	32	49	52	Cloudy.
March 6...	32	50	50	Fair.
March 7...	38	50	50	Fair.
March 8...	41	44	50	Rain.
March 9...	49	61	60	Fair.
March 10...	51	54	49	Rain.
March 11...	38	60	54	Fair.
March 12...	33	49	44	Fair.
March 13...	36	44	44	Cloudy.
March 14...	38	50	48	Fair.
March 15...	36	63	58	Clear.
March 16...	45	48	42	Rain.
March 17...	33	40	41	Cloudy.
March 18...	30	50	47	Clear.
March 19...	43	56	54	Clear.
March 20...	32	42	46	Clear.
March 21...	38	47	51	Clear.
March 22...	37	58	61	Clear.
March 23...	46	66	50	Hazy.
March 24...	22	25	29	Cloudy.
March 25...	19	40	46	Clear.
March 26...	41	54	58	Cloudy.
March 27...	40	49	50	Cloudy.
March 28...	28	40	40	Clear.
March 29...	29	44	46	Clear.
March 30...	38	40	40	Cloudy.
March 31...	40	58	50	Cloudy.

RECORD FOR APRIL.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
April 1....	36	58	56	Clear.
April 2....	40	56	54	Clear.
April 3....	40	55	54	Clear.
April 4....	33	56	56	Fair.
April 5....	46	58	55	Fair.
April 6....	38	52	60	Clear.
April 7....	46	59	54	Cloudy.
April 8....	45	52	54	Lightrain.
April 9....	50	53	56	Rain.
April 10....	44	48	50	High wind.
April 11....	45	58	58	Clear.
April 12....	49	59	59	Clear.
April 13....	44	54	60	Fair.
April 14....	48	55	44	Rain.
April 15....	43	54	58	Cloudy.
April 16....	46	59	60	Clear.
April 17....	54	66	63	Clear.
April 18....	54	60	62	Fair.
April 19....	58	77	65	Hail storm.
April 20....	56	66	68	Fair.
April 21....	56	58	54	Cloudy.
April 22....	54	60	68	Rain.
April 23....	54	60	66	Rain.
April 24....	54	54	54	Rain.
April 25....	54	60	55	Rain.
April 26....	41	50	49	Cloudy.
April 27....	49	54	62	Rain.
April 28....	52	64	64	Clear.
April 29....	58	70	70	Clear.
April 30....	64	80	74	Fair.

RECORD FOR MAY.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
May 1.....	56	56	59	Rain.
May 2.....	51	52	54	Rain.
May 3.....	48	56	54	Cloudy.
May 4.....	46	54	50	Cloudy.
May 5.....	50	62	62	Fair.
May 6.....	56	66	63	Rain.
May 7.....	55	69	68	Clear.
May 8.....	59	70	68	Fair.
May 9.....	53	61	58	Fair.
May 10.....	44	52	54	Cloudy.
May 11.....	44	54	50	Cloudy.
May 12.....	44	55	56	Fair.
May 13.....	46	56	60	Fair.
May 14.....	50	62	60	Fair.
May 15.....	53	68	64	Clear.
May 16.....	56	73	69	Fair.
May 17.....	57	64	64	Fair.
May 18.....	54	54	54	Rain.
May 19.....	58	64	63	Rain.
May 20.....	53	66	63	Rain.
May 21.....	50	64	63	Fair.
May 22.....	57	68	60	Fair.
May 23.....	56	66	67	Rain.
May 24.....	66	78	77	Clear.
May 25.....	70	76	74	Clear.
May 26.....	60	70	65	Fair.
May 27.....	60	67	68	Cloudy.
May 28.....	54	70	69	Fair.
May 29.....	50	54	58	Rain.
May 30.....	53	66	64	Clear.
May 31.....	57	76	70	Fair.

Prevailing winds easterly with much cloudy weather and light rains.

RECORD FOR JUNE.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
June 1.....	66	76	72	Rain.
June 2.....	71	82	80	Rain.
June 3.....	74	80	76	Fair.
June 4.....	58	66	70	Fair.
June 5.....	56	66	64	Fair.
June 6.....	59	62	63	Rain.
June 7.....	53	56	56	Cloudy.
June 8.....	53	64	65	Fair.
June 9.....	60	70	70	Clear.
June 10.....	59	69	66	Fair.
June 11.....	54	70	65	Rain.
June 12.....	57	71	70	Fair.
June 13.....	60	76	76	Clear.
June 14.....	63	76	76	Clear.
June 15.....	66	77	75	Rain.
June 16.....	66	77	73	Fair.
June 17.....	62	74	72	Fair.
June 18.....	63	76	76	Clear.
June 19.....	66	75	72	Cloudy.
June 20.....	65	72	60	Rain.
June 21.....	54	69	72	Fair.
June 22.....	52	71	76	Clear.
June 23.....	62	77	76	Clear.
June 24.....	65	84	77	Clear.
June 25.....	71	85	82	Cloudy.
June 26.....	68	76	79	Cloudy.
June 27.....	66	81	84	Clear.
June 28.....	72	86	86	Clear.
June 29.....	76	84	81	Rain.
June 30.....	78	90	81	Fair.

RECORD FOR JULY.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
July 1.....	70	68	72	Rain.
July 2.....	60	76	78	Clear.
July 3.....	66	82	80	Clear.
July 4.....	64	84	82	Clear.
July 5.....	71	86	88	Clear.
July 6.....	72	88	88	Clear.
July 7.....	78	90	88	Clear.
July 8.....	74	84	88	Clear.
July 9.....	74	88	72	Light rain.
July 10.....	67	82	83	Fair.
July 11.....	69	78	72	Rain.
July 12.....	72	82	82	Cloudy.
July 13.....	72	82	90	Clear.
July 14....	78	94	88	Clear.
July 15.....	78	92	92	Clear.
July 16.....	84	95	97	Clear.
July 17.....	80	90	80	Rain.
July 18.....	73	84	88	Clear.
July 19.....	78	84	74	Light rain.
July 20.....	74	87	89	Fair.
July 21.....	71	80	79	Fair.
July 22.....	63	80	78	Fair.
July 23.....	66	81	82	Fair.
July 24.....	65	80	80	Fair.
July 25.....	70	69	70	Rain.
July 26.....	69	74	80	Cloudy.
July 27.....	66	78	80	Clear.
July 28.....	70	83	80	Clear.
July 29.....	73	82	76	Cloudy.
July 30.....	70	76	78	Fair.
July 31.....	70	82	83	Clear.

The highest temperature was on the 7th, 14th and 15th, it being at 3 P. M. 94.96 and 99 respectively.

Action of the barometer before and during the 23d, 24th, 25th and 26th: At 2 P. M., July 23, the barometer stood at 30 or above. This was thirty-one hours before the rain came.

From this date the fall, it will be seen by the table below, was steady and gradual:

	9 A. M.	2 P. M.	5 P. M.	8 P. M.		
23d.....	.....	30	29.96	29.96		
	7 A. M.	9 P. M.	12 M.	2 P. M.	5 P. M.	8 P. M.
24th.....	29.97	29.94	29.91	29.87	29.70	29.65
25th.....	29.64	29.63	29.61	29.60	29.57	29.53
27th.....	29.46	.....	.....	.....	.....	.....

From this point the barometer went up rapidly and the storm was over. The rain commenced at 9 o'clock on the 24th, and continued through the night.

RECORD FOR AUGUST.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
August 1...	72	84	86	Clear.
August 2...	69	86	86	Clear.
August 3...	72	86	86	Cloudy.
August 4...	72	86	84	Fair.
August 5...	72	86	86	Fair.
August 6...	70	86	86	Fair.
August 7...	72	80	86	Fair.
August 8...	74	88	86	Fair.
August 9...	70	82	83	Fair.
August 10...	64	82	82	Fair.
August 11...	98	82	80	Fair.
August 12...	65	82	83	Fair.
August 13...	70	85	82	Shower.
August 14...	66	80	82	Fair.
August 15...	66	73	75	Fair.
August 16...	60	73	75	Fair.
August 17...	60	75	76	Fair.
August 18...	72	78	78	Cloudy.
August 19...	73	85	85	Fair.
August 20...	70	82	84	Fair.
August 21...	70	84	84	Fair.
August 22...	68	81	86	Fair.
August 23...	70	80	86	Rain.
August 24...	74	80	76	Cloudy.
August 25...	60	76	72	Clear.
August 26...	58	76	78	Clear.
August 27...	66	80	78	Rain.
August 28...	66	76	78	Fair.
August 29...	64	79	80	Fair.
August 30...	62	82	81	Fair.
August 31...	64	82	82	Fair.

Observe the extraordinary uniformity of temperature, and preponderance of clear weather for August.

RECORD FOR SEPTEMBER.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
Sept. 1	70	88	84	Fair.
Sept. 2	64	78	74	Fair.
Sept. 3	62	72	71	Fair.
Sept. 4	58	76	78	Fair.
Sept. 5	66	80	89	Fair.
Sept. 6	72	87	86	
Sept. 7	69	83	84	
Sept. 8	72	88	84	
Sept. 9	72	77	70	
Sept. 10	52	76	64	Clear.
Sept. 11	46	59	60	Clear.
Sept. 12	43	66	64	Clear.
Sept. 13	43	67	64	Clear.
Sept. 14	48	73	71	Clear.
Sept. 15	53	77	72	Clear.
Sept. 16	67	78	71	Cloudy.
Sept. 17	60	72	74	Cloudy.
Sept. 18	55	77	75	Cloudy.
Sept. 19	72	73	71	Rain.
Sept. 20	65	54	53	Rain.
Sept. 21	45	53	57	Clear.
Sept. 22	52	72	66	Clear.
Sept. 23	58	70	63	Rain.
Sept. 24	48	65	62	Fair.
Sept. 25	57	64	56	Fair.
Sept. 26	48	61	62	Fair.
Sept. 27	48	62	62	Fair.
Sept. 28	54	63	62	Fair.
Sept. 29	62	68	65	Fair.
Sept. 30	70	76	78	Cloudy.

RECORD FOR OCTOBER.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
October 1	71	76	70	Rain.
October 2	64	74	73	Clear.
October 3	52	70	70	Clear.
October 4	47	68	69	Clear.
October 5	48	60	62	Clear.
October 6	48	65	61	Fair.
October 7	52	62	60	Fair.
October 8	56	57	62	Rain.
October 9	46	60	61	Fair.
October 10	50	56	60	Cloudy.
October 11	45	66	65	Clear.
October 12	50	69	66	Fair.
October 13	52	60	61	Fair.
October 14	54	76	75	Cloudy.
October 15	58	56	56	Cloudy.
October 16	79	76	65	Rain.
October 17	42	44	42	Cloudy.
October 18	40	47	44	Clear.
October 19	30	53	46	Cloudy.
October 20	46	69	64	Clear.
October 21	48	63	55	Cloudy.
October 22	34	44	40	Cloudy.
October 23	34	53	52	Cloudy.
October 24	34	48	43	Cloudy.
October 25	38	44	54	Cloudy.
October 26	30	39	36	Cloudy.
October 27	30	36	30	Cloudy.
October 28	26	36	32	Snow.
October 29	32	46	40	Cloudy.
October 30	40	39	37	Rain.
October 31	22	28	28	Clear.

One inch of snow on the 28th.

RECORD FOR NOVEMBER.

DATE.	7 A. M.	12 M.	6 P. M.	State of weather.
Nov. 1.....	30	46	44	Clear.
Nov. 2.....	36	44	40	Fair.
Nov. 3.....	29	46	42	Fair.
Nov. 4.....	30	40	40	Fair.
Nov. 5.....	36	45	50	Fair.
Nov. 6.....	42	39	36	Misty.
Nov. 7.....	20	40	41	Clear.
Nov. 8.....	33	44	44	Clear.
Nov. 9.....	28	50	46	Clear.
Nov. 10.....	38	52	48	Fair.
Nov. 11.....	44	43	44	Rain.
Nov. 12.....	30	51	49	Fair.
Nov. 13.....	30	40	40	Clear.
Nov. 14.....	21	41	38	Clear.
Nov. 15.....	30	54	44	Clear.
Nov. 16.....	39	41	43	Rain.
Nov. 17.....	43	52	44	Cloudy.
Nov. 18.....	39	48	45	Cloudy.
Nov. 19.....	36	44	43	Cloudy.
Nov. 20.....	30	45	42	Cloudy.
Nov. 21.....	34	43	40	Fair.
Nov. 22.....	32	43	36	Fair.
Nov. 23.....	24	38	38	Fair.
Nov. 24.....	35	38	37	Cloudy.
Nov. 25.....	28	32	30	Fair.
Nov. 26.....	17	34	29	Clear.
Nov. 27.....	24	28	30	Cloudy.
Nov. 28.....	24	42	36	Clear.
Nov. 29.....	28	38	33	Clear.
Nov. 30.....	22	32	34	Clear.

RECORD FOR DECEMBER.

DATE.	7. A. M.	12 M.	6 P. M.	State of weather.
Dec. 1.....	32	40	35	Cloudy.
Dec. 2.....	33	34	36	Cloudy.
Dec. 3.....	34	38	34	Sleet.
Dec. 4.....	31	36	32	Cloudy.
Dec. 5.....	29	36	32	Cloudy.
Dec. 6.....	28	30	26	Cloudy.
Dec. 7.....	17	22	18	Cloudy.
Dec. 8.....	12	34	32	Cloudy.
Dec. 9.....	28	36	32	Cloudy.
Dec. 10.....	21	37	32	Cloudy.
Dec. 11.....	20	26	24	Clear.
Dec. 12.....	20	27	22	Clear.
Dec. 13.....	12	32	20	Clear.
Dec. 14.....	21	32	26	Fair.
Dec. 15.....	19	30	22	Fair.
Dec. 16.....	16	28	22	Fair.
Dec. 17.....	20	30	23	Snow.
Dec. 18.....	16	24	16	Fair.
Dec. 19.....	6	18	10	Cloudy.
Dec. 20.....	7	22	19	Fair.
Dec. 21.....	16	26	22	Light snow.
Dec. 22.....	6	16	7	Cloudy.
Dec. 23.....	-12	2	4	Cloudy.
Dec. 24.....	-6	8	8	Fair.
Dec. 25.....	-4	10	7	Fair.
Dec. 26.....	0	10	12	Cloudy.
Dec. 27.....	12	18	10	Clear.
Dec. 28.....	-5	12	10	Clear.
Dec. 29.....	-2	20	12	Fair.
Dec. 30.....	0	10	8	Fair.
Dec. 31.....	6	25	18	Fair.

9th, two inches of snow.

14th, two inches of snow.

Four inches of snow during the month and a high barometer.

NOTE FROM R. D. TORREY, SECRETARY.

The purpose and object of this society is for the promotion of agricultural, mechanical and household arts, as declared by the constitution of the association. In doing this, the society includes the building up of the great manufacturing interests of the whole state.

It is believed by the secretary of the society, that the following pages, published by the Post Publishing Co., of the city of Appleton, should have the widest possible circulation, showing as it does the extensive water power and immense manufactories of one of our Wisconsin cities, as also the growth and development of the great Fox River Valley. Hence, by the kind consent of the editor, Mr. Reid, of that city, we reproduce the part of greater interest in this volume.

It is desired that other cities of the state, and especially of this part of the state, shall furnish similar historic items and manufacturing data, for publication in future volumes of this society.

OLD AND NEW.

JANUARY 1ST, 1879.

Out-worn at last, with all his race the old year goes to rest;
 His hands are folded wearily across his gallant breast.
 No friend could wish him back again, of all who loved him best

He heard the storm of battle rave beyond that storied main,
 Whose calm tides beat the shore that owned the haughty Cæsar's reign;
 And saw, along the Eastern sky, the fiery Crescent wane.

Yet not from Plevna's fortress walls, where cannon-thunders beat;
 And not from pass or dim defile, where Turk and Northmen met;
 Nor crimson field where, heart to heart, their bayonets were set; —

Nor yet from bloodless strife of courts, where hostile powers arrayed
 Of subtle wit and eloquence, unsheathed the glittering blade,
 And turn of phrase or stroke of pen, an empire marred or made;

But where, above our native land death's shadow settled down,
 And wave on wave of anguish rolled from smitten town to town,
 He called his peerless heroes forth to wear a martyr-crown —

Oh! on the field where Freedom's flag is waving proud and high,
 And thunder-peals of victory rend all the lurid sky,
 With fame's elixir at the lip, men may not fear to die!

But these, with kiss of wife and child yet clinging warm and sweet,
 From happy doors of Northern homes, went forth with steady feet
 To face the fever-death that walked, unstayed, the Southern street.
 Fearless they breathed the tainted air from poison fountains fed,
 And saw, like Moloch carved in bronze, the sun glare hot and red
 Above the dying side by side with yet unburied dead.

Through midnight-watches dread and deep, in many a noisome room,
 They grappled with the spectral hands that clutched them in the gloom
 Unbroken by one dawning ray across the skies of doom.

The hands that spared not brother's blood, at Liberty's behest,
 Grew tender as a mother's now, above her darling's rest,
 Till hearts, the sword could ne'er compel, love's mastery confest.

Ah! dearer than to pilgrim feet is holy Mecca's shrine,
 Shall be the graves of those who fell in service so divine!
 Their children's children's lips shall boast a more than royal line!

So, from the foulest reeks of death, hope's snowy lilies grew;
 And love, though late, the pearl of peace from deeps of suffering drew;
 And on the ruined Old arose the temple of the New!

Why does the New Year come in winter time,
 And wrapped in mantle white of fleecy snow?
 His greeting song alone the stormy rhyme
 Of gales that through the leafless branches blow?

Can streamlets sing when all the flowers are dead?
 Or skies be glad whence birds have flown away?
 The sunbeam for the rose be comforted?
 Or lonely hearts keep winter holiday?

Ah! my heart, with all thy learning, art thou still so slow discerning
 Joy of hope than joy of having more complete?
 Better first are tears than laughter, for the comfort waiting after,
 And the song that ends the sighing is more sweet!

So the New Year in his bosom hides all springtime, bud and blossom —
 Summer lights asleep on land and sea —
 Autumn's misty, purple splendor — moons of harvest, large and tender,
 Climbing slowly up the skies to be.

All the birds shall pipe before him, and a cloudless heaven shine o'er him,
 And the earth be strewn with blossoms in his way;
 All the little brooks run swifter, and the crested laurel lift her
 Purple banners to the glad, triumphal day!

Many a grave the brown leaves cover, will the New Year sprinkle over
 With hope's tender garlands white as snow;
 For the bitter herbs of sorrow, in the sunshine of to-morrow
 We may see love's perfect roses blow.

And when, at length, adown life's sunset sky,
 Its cares and hopes may fade, and Memory shine,
 A lonely star, with tender, mournful eye,
 Still point us gently, O, thou Hand divine!

Beyond the world where all our years grow old,
 And gathering mists obscure the crystal sphere,
 To where the jasper walls and streets of gold
 Reflect the light of Heaven's eternal year!

— MARY A. P. STANSBURY.

EARLY TIMES IN FOX RIVER VALLEY.

The Aborigines, their Habits and Customs—The Ceremonies of Marriages and Deaths—The Butte Des Morts Massacre—“Lo’s” Method of Conveying Real Estate—The French Settlers and their Peculiarities—Their Early Laws and Customs—The First American Settlers—Their Experience, Adventures and Tribulations—Judge Doty as a Champion of Civilization—Gen. Ellis and his Work—the Settlement of Appleton and how it came about—The First Doings of the Pioneers, etc., etc.

History is among the most pleasing and entertaining of human studies. By it we become familiar with men and things in ages long past, and live, as it were, from the beginning of time to the present hour. It embraces the biography of men and nations; their ups and downs; their rise and fall; detailing the incidents and events which have been, the changes which have occurred and the improvements which have taken place. And while those who are accustomed to study history are familiar with the past in foreign lands, but comparatively few are well informed on the early events and history of the locality in which they reside. Ancient history is chiefly made up of wars and sieges, battles and fights between nations and individuals; but modern history is, in great part, composed of the peaceful events of human progress—the onward march of discovery, intelligence, commerce, the arts and sciences, as applied to the general well being of the human family.

THE ABORIGINES.

In other lands, the ingenuity of man evolved from nature the means of putting their traditions and history in tangible form and transmitting them to posterity. In this land, the untutored savage not only failed to record the traditions and history of his race, but almost deemed it disrespect to talk of the dead. In the numerous *tumuli*, and earthmarks, scattered all over the land, nothing has been discovered but human bones and arrow heads, indicating

beyond doubt the existence of a numerous and warlike people, and of that people the present race of Indians know nothing whatever. Even this latter race has almost entirely disappeared, and no record of them will remain except that which the white man preserves. They have withered and wilted before the march of civilization. They have drunk to the very dregs its vices, while they have shunned and resented its virtues. They are now a degraded and wretched people, a burden to themselves and the nation. Not so were they at the first coming of the white man. Then they were the brave warrior, the keen hunter, swift of foot and strong of limb — the relentless enemy, the unflinching friend, the guileless and untutored children of the forest.

When the white man first visited Wisconsin, about the middle of the seventeenth century, the present limits of the state were principally occupied by two great tribes, the Menomonees and the Winnebagoes. The former occupied and held all the territory on the east side of Lake Winnebago and the Fox and Wolf rivers, including Green Bay and the west shore of Lake Michigan; and the latter held all west of Lake Winnebago and the upper Fox and Wisconsin rivers. Both of these tribes were then powerful, and for many years afterwards held in great awe the few white inhabitants who then inhabited the country. The Winnebagoes, in 1824, numbered perhaps about six thousand, the Menomonees between three and four thousand. Their characters and habits differed very essentially. The Winnebagoes were cruel and treacherous, and would rather dispatch an enemy in secure ambush than face him in a fair and equal combat. The late Henry S. Baird, writing of this tribe as they were in 1824, says:

They were friendly to the British and for many years were their pensioners, going openly every year to Canada to receive their presents from the British government. They hated the Americans, and in the war of 1812, they espoused the cause of the former and proved the most sanguinary foes of the United States in the massacres of Mackinaw, Chicago and other places. Even in later years they viewed the citizens with suspicion and kept them in constant fear; and it is well known that they not only instigated the Sacs and Foxes in the Black Hawk war to commence hostilities, but participated in their battles. But these were not the worst features in the character of this tribe. They united the art

of stealing to that of lying. If they could catch the traveler's horse or lay hands upon any of his luggage or property, it was appropriated at once to their own use. Far different were the characters and habits of the Menomonees. As a tribe, they practiced neither of the low vices of thieving or lying. Unlike their neighbors, whose character I have just portrayed, they were neither treacherous nor belligerent. Always friendly to the whites, they gained the friendship of the latter. It is true, that during the war of 1812, this tribe, together with all the northern and western tribes, joined the British, and fought under their standard; but this must be attributed to the fact that the whole of this portion of the northwest was, at that period, in subjection to that power. British fur traders then monopolized nearly the entire fur trade of this region, and British gold was lavishly expended by active and efficient agents, scattered over the whole country, to influence the Indian tribes, and enlist them in the cause of their former invaders, the English. On the other hand, the government of the United States had but a nominal possession of the country; but few forts or places of defense, and these but feebly manned or defended, and the whole population left to their own resources. It was but natural that the Indians should take sides with the most powerful party, and with those who promised them that the Americans should be entirely expelled and driven from the country and the original inhabitants restored to their former homes. But this was not universally the case with the Menomonees, for although they generally united under the British flag, there were many exceptions. The descendants of some of the old American settlers well know that their families were not only rescued from the scalping knife, but subsequently protected by different individuals of the Menomonee tribe. In the Black Hawk war, they assembled *en masse*, and showed themselves efficient allies of the whites in bringing to a close what, at one time, threatened to be a renewal of those savage and sanguinary scenes, which at earlier periods devastated and laid waste many settlements of this northwest.

CUSTOMS.

From the late Judge Lockwood's observations of the habits and customs of the Indians, in about the years 1816 to 1820, we abstract the following:

Marriages.—When a young Indian desires to marry, he invites his relatives who are near or in camp, to a feast, and informs them that he wishes a certain girl for his wife. If they are in favor of the match, they immediately collect goods and suitable articles for a present to the relatives of the desired one. One gives a gun, another a blanket, another a kettle or a horse, as he may happen to possess at the time. When the collection is completed, some of the relatives carry the presents to the lodge of the father of the young woman. One of them expresses in song the object for which they are intended, and leaving the things at the door, retires. If the father is favorably disposed to the match, he invites all his relatives that are near to a feast, and when assembled, if they conclude to give the girl in marriage, each takes of the articles such as he can return in kind, and with such presents, together with the bride, they march to the lodge of the young man, where she is given up to him with many minute ceremonies. After which, she returns again to her father's lodge, where they usually reside, the son-in-law hunting for the father-in-law until about the time the oldest child can walk, after which he generally gets a lodge for himself. A small apartment is petitioned off in the lodge of the father-in-law for the young couple. The young man generally during the day is out hunting and seldom visits the lodge of his bride until all the others have gone to sleep, when he crawls into the lodge. There is no familiarity between the parents of the bride and their son-in-law. If he is ever in their presence, he appears ashamed and seldom speaks to them. If he wants to communicate to them, it is done through his wife.

Deaths and Burials.—When a person dies, the body is decorated in all of his or their finery, and four forks or crotches are cut and stuck in the ground, upon which a scaffold is made, and the deceased, wrapped in a newly painted buffalo skin or a new blanket, is laid thereon with some ceremony. If the death takes place at a trader's house in the fall before they go to their hunt, an old woman, a relative of the deceased, is left there to feed and cry over the dead during the absence of the others. She usually goes about dark in the evening with a dish of provisions and sits down under the scaffold and commences crying and howling, with loud lamentation, calling upon the Great Spirit to have mercy upon the deceased, etc. After continuing this doleful noise for about an hour,

she leaves the dish of food under the scaffold and returns to the lodge, and the dogs or wolves eat the provisions when the Indians suppose the dead ate them. The corpse is left in this manner until nothing remains but the bones, when they are collected and carried to their village.

INDIAN VILLAGES.

The principal trading posts up to about the year 1830 were located at Milwaukee, Sheboygan, and Manitowoc on Lake Michigan; Menomonee river, Peshtigo and Oconto on Green Bay; Fond du Lac river, Lake Shawano and the portage of the Fox and Wisconsin. And one of the most populous villages was located on what is now known as Doty island. This latter was ruled over for many years by a woman, but this was previous to the advent of the white man. She must have been a person of extraordinary parts and influence, for the traditions of the Indians endow her with great talents and powers. This was then a lovely spot, a favorite meeting place of all the Indian tribes. Here they assembled for their periodical councils and pow-wows, and the large elm tree on the opposite point was always designated by them as

"THE COUNCIL TREE."

Twenty years ago this tree was in the full maturity of its beauty and grandeur. Its form and outline were exceedingly graceful and beautiful, and its immense size and peaceful surroundings rendered it a great object of attraction. Then it was in a great part surrounded with a dense underbrush thickly matted with creepers and vines, forming a beautiful setting to the giant forest king that towered over them. Beneath its branches a thousand men could find shelter from storm, and refreshing shade from the summer sun. But now, alas! how changed; the underbrush is all cut away, the march of modern improvement has encroached upon its very shadows; it looks lonely and forsaken, and like the children of the forest whom it so often sheltered, it seems "a stranger in its own land and a foreigner on its own soil."

LA BUTTE DES MORTS MASSACRE.

The points of land at the confluence of the Fox and Wolf rivers in Winnebago county is known as *butte des morts*, the French for "hill of the dead." It gained its name from the following events

which happened in the year 1725: For many years the Indians in possession of this point were in the habit of stopping and demanding tribute for liberty to pass. This had to be submitted to, but in the autumn of 1724, a hot-headed young Canadian refused to pay the customary tribute, and in the tussle he severely wounded the Indian who attempted to take it forcibly. He was thereupon instantly shot dead and scalped, and his boat pillaged. When the news of this outrage reached Quebec, the Senor Moran, a man of decided and energetic character, was dispatched with a considerable force to punish the perpetrators. In October of the following year, he arrived in the Fox river and immediately sent a messenger to the hillock of the dead to demand the instant surrender of all persons concerned in the murder of the Canadian trader last year. This message the Indians treated with scorn. Moran thereupon resolved to administer to them a chastisement they should never forget. He succeeded in enlisting in his expedition a large band of Menomonee Indians, the hereditary enemies of the Sacs, who were then in possession of the coveted point. These with a number of his soldiers, he landed on a small creek about a mile below and ordered them to gain the woods in the rear of the village and there await until the firing commenced. When sufficient time had elapsed for his orders to be obeyed, the remaining troops crouched in the bottom of the boats with their arms ready, and hidden by the canvas used by the traders to cover their wares. This done he put off, and the crew, disguised like boatmen, rowed up the river singing this ditty:

“Tous les printemps
Tant de nouvelles
Tous les amants
Changent de maitresses
Le bon vin m'endort
L'amour me revielle.

“Tous les aments
Changent de maitresses
Qu'ils changent qui voudront
Pour me garde le mienne
Le bon vin m'endort
L'amour me revielle.”

This charming little love song has been admirably rendered into English by Mrs. Krum, of Madison, as follows:

“ Each returning springtime
Brings so much that's new,
All the fickle lovers
Changing sweethearts too;
The good wine soothes and gives me rest,
While love inspires and fills my breast.

“ All the fickle lovers
Changing sweethearts still;
I'll keep mine forever;
Those may change who will;
The good wine soothes and gives me rest,
While love inspires and fills my breast.”

They were soon within sight of the village. The Indians little dreamed of the terrible fate that was soon to befall them. They were drunk, or at least suffering from the effects of intoxication; and when they saw the boats approaching, they cried out: “Here come the traders with fire-water and blankets; let us make haste to the spoil.” As the foremost boat came opposite, a dozen balls were fired athwart her course. M. Moran rose, and commanded the interpreter to ask what they wanted. *Skootay warbo! skootay warbo!* (fire-water), shouted five hundred voices. “Shore,” said Moran; and as the other boats were now alongside, they all touched the ground together. Then the Indians laid hands on them and commenced dragging them farther aground. “Help! help! thieves! thieves!” cried Moran in full, deep tones. At once the coverings were thrown off, and a hundred and fifty soldiers were brought to sight, as if by the spell of an enchanter. “Fire!” cried Moran. The muskets flashed, and twenty Sacs fell dead where they stood. To the poor misguided savages, the number of their enemies seemed treble the reality. They fled precipitately to the village to prepare for defense. Two minutes sufficed for the troops to form and pursue.

The Sacs found at their lodges another and more terrible enemy than the French. A Menomonee had entered the place unsuspected, and set it on fire on the windward side. The wind was high, and in a few moments the frail bark dwellings were wrapped

in a sheet of flame. The Sacs then retreated towards the woods; but there Moran's reserve met them, and they were placed between two fires. Then burst forth one heartrending, agonizing shriek, and the devoted Sacs prepared to defend themselves with the courage of despair. Ball and bayonet now began their bloody work. The victims were hemmed in on every side. The Menomonees precluded the possibility of escape on the flanks; and the knife and glittering tomahawk cut off what the sword had spared. The inhabitants of the village fought with unshrinking courage. Few asked quarter, and none received it. They perished, man, woman and child. A heap of smoking ruins and a few houseless dogs, howling after the dead bodies of their masters, were the only objects the sad hillock presented.

But five families that had been absent at the time survived the slaughter. These gathered the remains of the dead, and piled a friendly mound of earth upon them; then left their country and emigrated towards the Mississippi, where they incorporated themselves with the Foxes.

THE FIRST SETTLERS.

Of the early French Canadian traders and settlers, the late Henry S. Baird truly and appropriately remarks: "The character of the people was a compound of civilization and primitive simplicity—exhibiting the polite and lowly characteristics of the French, and the thoughtlessness and improvidence of the aborigines. Possessing the virtues of hospitality, and the warmth of heart unknown to residents of cities, untrammled by the etiquette and conventional rules of modern 'high life,' they were ever ready to receive and entertain their friends, and more intent upon the enjoyment of the present than to lay up a store, or make provision for the future. With few wants and contented and happy hearts, they found enjoyment in the merry dance, the sleigh ride, and the exciting horse race, and doubtless experienced more true happiness and contentment than the plodding, calculating and money seeking people of the present day. This was the character of the settlers who occupied this country before the arrival of the Yankees—a class now entirely extinct or lost sight of by the present population; but it is one which unites the present with the past and for whom the 'old settlers' entertain feelings of veneration and respect. They de-

serve to be remembered and placed on the pages of history as the first real pioneers of Wisconsin. Several of these persons have left descendants who still survive them, and the names of Lawe, Grignon, Juneau, Polier and others of that class will survive and serve as memorials of this old race of settlers, long after the last of the present generation shall have been 'gathered to their fathers.'

JOSEPH ROLETTE.

The most noted of these old Canadian settlers was Joseph Rolette. He traded between Green Bay, the Upper Mississippi and Prairie du Chien. He was a Canadian by birth, of French extraction. He was educated for the Roman Catholic Church, but not liking the profession he quit it, and in 1804 came to Prairie du Chien. Although he was active in business and used every exertion to make money, it was not with the miserly disposition of hoarding it, for he was equally liberal in scattering it. He was hospitable and generous and liberal to the poor. He was the first to introduce swine and sheep into the country. He died at Prairie du Chien in 1841.

Mrs. Kinzie relates, in her *Wau Bun*, the following capital story of Mr. Rolette. The scene was on Lake Winnebago, where Rolette was engaged with a trading boat, when he met another boat on which were his employees directly from Prairie du Chien. Of course, after an absence of some weeks from home, the meeting on these lonely waters and the exchanging of news was an occasion of great excitement. The boat stopped, earnest greetings interchanged, question followed question:

"*Eh bien,*" enquired M. Rolette, "have they finished the new house?"

"*Oui Monsieur.*"

"*Et la cheminee fum-t-elle?*" (Does the chimney smoke?)

"*Non Monsieur.*"

"And the harvest, how is that?"

"Very fine indeed."

"Is the mill at work?"

"Yes, plenty of water."

"How is Whip?" (His favorite horse.)

"Oh! Whip is first rate."

Everything, in short, about the store, the farm, the business of

various descriptions being satisfactorily gone over, there was no occasion for further delay. It was time to proceed.

"*Eh bien — adieu! bon voyage!*"

"*Arraches mes gens.*" (Go ahead now!)

Then suddenly — *Arretz — arretz.* (Stop! stop!)

"*Comment portent Madame Rolette et les enfants?*" (How are Mrs. Rolette and the children?)

Mrs. Kinzie also gives another glimpse of M. Rolette's character. The Indians, she says, called him Ah-kay-zaup-ee-tah, or Five More, because as they said, let them offer him what number of skins they might, in bartering for an article, his terms were invariably "five more."

Upon one occasion a lady remarked to him: "Oh, Mr. Rolette, I would not be engaged in the Indian trade, it seems to be a system of cheating the poor Indians." "Let me tell you, Madam," replied he with great *naïvete*, "it is not so easy a thing to cheat the Indians as you imagine; I have tried it these twenty years and have never succeeded."

EARLY LAWS AND CUSTOMS.

Up to about the year 1823, in the social and business relations, the French laws, "*Coutume de Paris*," controlled the transactions of the settlers. And the few judicial officers then in the country, knew but little and cared less about legal codes and jurisdictional limits. The customs and habits of the people among which they lived were to them the supreme law of the land. They decided disputes and settled differences. They solemnized marriages and granted divorces, and in the performance of this latter official duty they generally charged double the fee for granting a divorce that they would charge for marrying, wisely — concluding that when people wanted to get unmarried *they would willingly give double what they would in the first instance to form the matrimonial contract.*

The *Coutume de Paris* so far prevailed in this country generally, that a part of the ceremony of marriage was the entering into a contract in writing, generally giving, if no issue, the property to the survivor; and if they desired to be divorced, they went together before the magistrate and made known their wishes, and he, in their presence, tore up the marriage contract. According to the

custom of the country, they were then divorced. The late Judge Lockwood, of Prairie du Chien, said he was once present at Judge Abbot's, at Mackinaw, when a couple presented themselves before him and were divorced in this manner. If an American judge would thus act in this manner under American law, why should we be astonished at the vagaries of the noted Justice Reaume, when he donned his scarlet coat and cap and delivered judgment in the matter in litigation before him, *that the plaintiff should fetch him a load of hay, and the defendant should chop for him a cord of wood, and the constable should pay the costs?* But *tempora mutantur*, the old *regime* has passed away forever; and we merely recount these incidents for the pleasure and instruction of a subsequent generation.

INDIAN DEEDS.

In order to show in what manner and for what consideration Indian titles and claims to land were sometimes procured by the French traders, the following is a copy of a deed now on record in the office of the register of deeds of this county. It purports to convey to the grantee a tract of land on both sides of the river Kaukauna, then called Kaklin, and pronounced Kauklo.

“En mille sept cent quatre vingt trieze, trouvent present Wabisipine et le Tabac noir, lesquels ont volontairement abandonez et cedez a Monsieur Domineque Ducharme, de puis le haut de portage du Kakalin jusque du bout de le Prairie d'en bas, sur quarante arpens de profondeur; et sur l'autre cote' vis a vis de lit portage quatre arpens de large, sur trentc de profondeur. Lesquels vendeurs se sont trouves contens et satisfaits pour deux barrils de rum. Enfois de quois, ils ont faits leur marques, le vieux Wabisipine etant avengle les Temvons ont fait sa marque pour lui.

MARK DE WABISIPINE.

DE L'ATRIBUTE L'AIGLE.

MARQUE DE TABAC NOIR.

LAMBERT MACAULEY,	} <i>Temoins.</i>
J. HARRISON.	

TRANSLATION.

In one thousand, seven hundred and ninety-three are found present. Wabisipine and the Black Tobacco who have voluntarily given up and ceded to Mr. Domenick Ducharme from the head of

the portage of Kakalin to the end of the prairie below by forty arpens in depth; and on the other side opposite the said portage, four arpens wide by thirty in depth. The said vendors are contented and satisfied for two barrels of rum. In faith of which they have made their marks; the old Wabisipine being blind, the witnesses have made his mark for him.

MARK OF WABISIPINE,
of the attribute of the Eagle.
MARK OF THE BLACK TOBACCO.

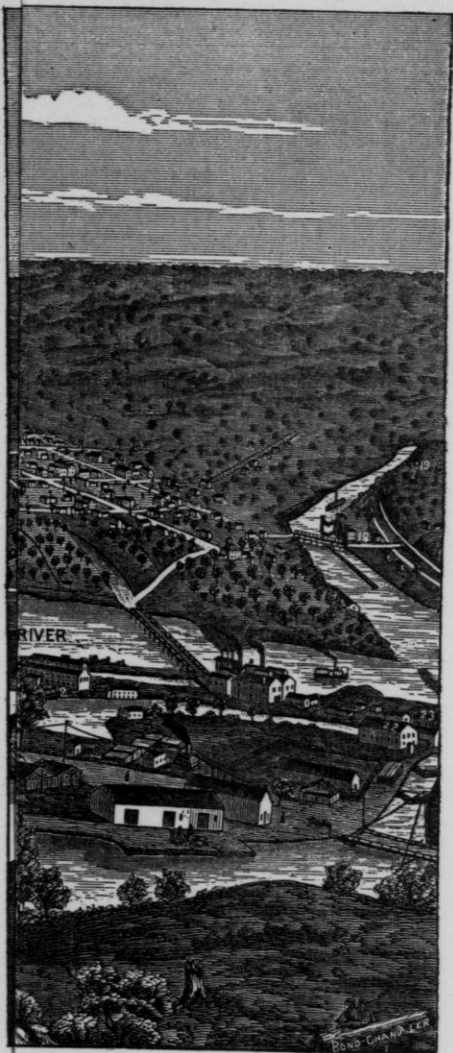
Witness: J. HARRISON,
LAMBERT MACAULEY.

Congress in 1820 repudiated this deed, and denied the claims.

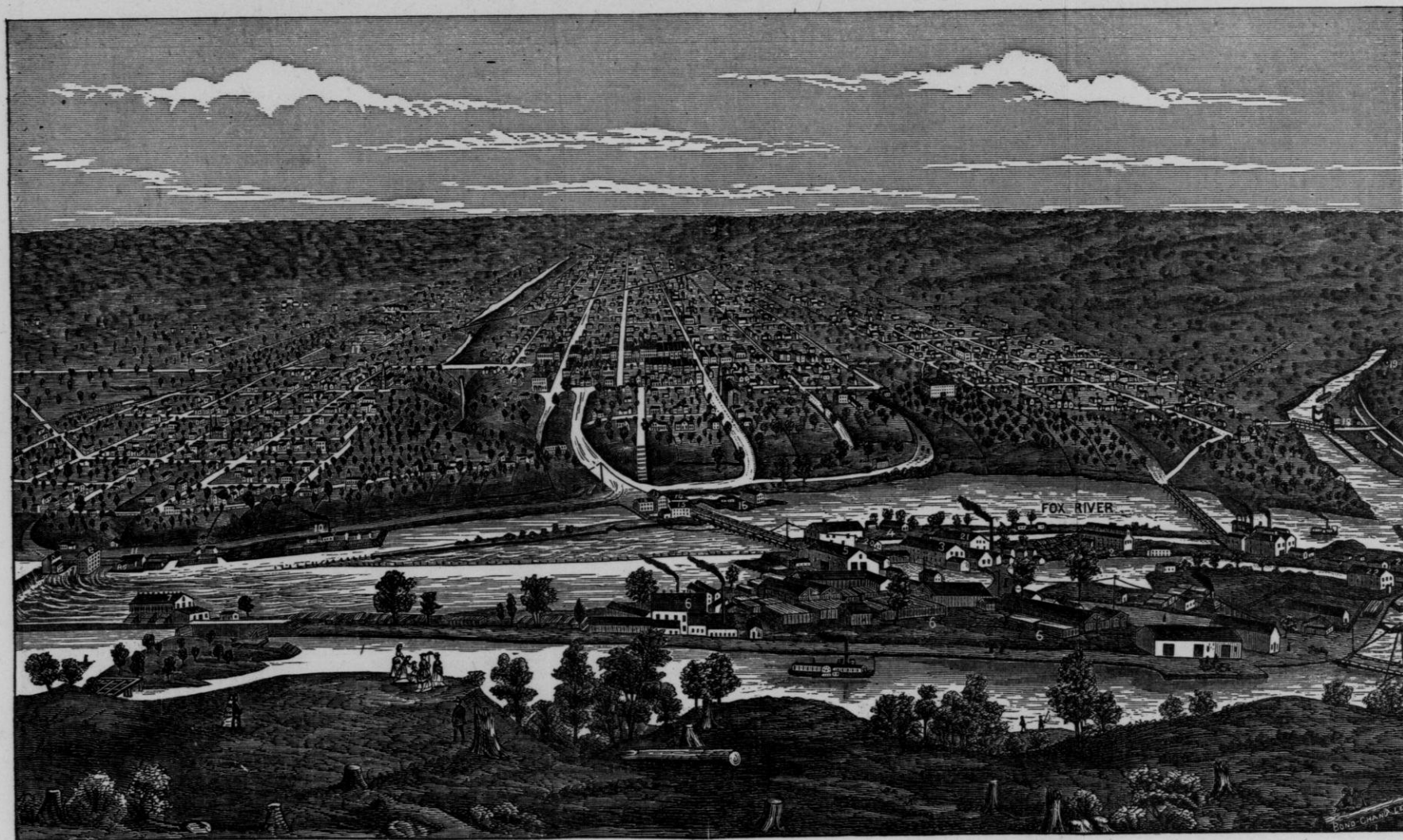
FIRST AMERICAN SETTLERS.

It was about the year 1824 that Americans commenced to come to Wisconsin. At that time there were but two settlements within the limits of the present state, namely, Green Bay and Prairie du Chien. There were no roads or public highways, save the navigable waters or the blind Indian trail. The trader had no choice in his mode of transit from place to place; no public means of conveyance from which he might select the most expeditious or agreeable. His only alternative was to travel on foot through the forest or pursue his voyage in the frail bark canoe. Then the United States mails were conveyed, during the season of navigation, by irregular and tardy conveyance of sail vessels, and in winter they were carried on a man's back, through the trackless wilderness between Green Bay and Chicago, a distance of about two hundred miles, once a month.

Wisconsin was then a part of the territory of Michigan. The laws then in force were crude and ill devised, some of which were really disgraceful to those who enacted them — such, for instance, as *public whipping and selling the offender into servitude for a period not exceeding three months*, simply for the commission of mere petty offenses. These laws were enacted by a Legislative Board, consisting of the governor and judges of the territory, who received their appointment from the general government, and were in no way amenable to the people who were to be governed by their enactment. In the session of 1822-23, congress passed a law organizing the then counties of Mackinaw, Brown and Crawford,




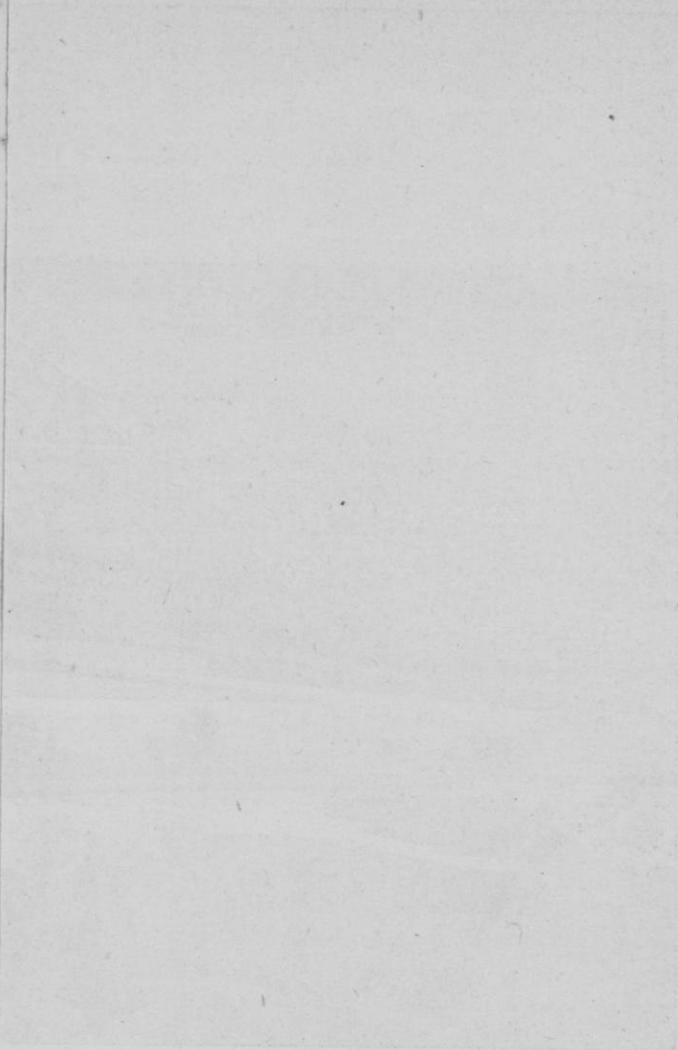
1. Nature Factory.
 2. Mill, G. N. Richmond & Bro.
 3. Mineral Springs, Hyde & Harriman.
 4. Factory, Billings & Morrison.
 5. Ston Woolen Mills.
 6. ury.
 7. and Spoke Factory, Geo. Kreiss.
 8. Mill, Rose & Heath.
 9. e mentioned elsewhere.



Bird's-Eye View of Appleton, Wisconsin.

- | | | |
|---------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------|
| 1. Appleton Iron Company's Works. | 9. Genesee Flouring Mills, Theodore Conkey. | 17. Furniture Factory. |
| 2. Appleton Chair and Bedstead Factory. | 10. Appleton Manufacturing Co.'s Works. | 18. Paper Mill, G. N. Richmond & Bro. |
| 3. Foundry and Machine Shop, Ketchum & Morgan. | 11. Atlas Paper Co.'s Mills. | 19. Telulah Mineral Springs, Hyde & Harriman. |
| 4. Appleton Hub and Spoke Factory, Marston & Beveridge. | 12. Flouring Mills, S. R. Willy. | 20. Spoke Factory, Billings & Morrison. |
| 5. Champion Steel Horse Nail Works. | 13. Flouring Mills, Hauert & Weiland. | 21. Appleton Woolen Mills. |
| 6. Flour Barrel Stave Factory, G. W. Spaulding & Co. | 14. Flouring Mills, Cross & Willy. | 22. Tannery. |
| 7. Western Wood Pulp Mills, J. Bradner Smith & Co. | 15. Sash, Door and Blind Factory, Briggs & Beveridge. | 23. Hub and Spoke Factory, Geo. Kreiss. |
| 8. Appleton Paper and Pulp Co.'s Mills. | 16. Pump Factory, T. W. Brown. | 24. Saw Mill, Rose & Heath. |

 NOTE.— Since the above cut was engraved, several new establishments have been erected on the river which are mentioned elsewhere.



1845
The following is a list of the names of the persons who were present at the meeting of the Board of Directors of the Bank of the City of New York, held on the 15th day of January, 1845.

and made them a separate judicial district, and the Hon. James Duane Doty was appointed judge. The establishment of regularly organized courts may be considered a new era in the history of the territory, for it was then for the first time that the citizen regarded himself as really under the protecting arm of the law, and in full enjoyment of his liberty and property.

On the 4th day of October, 1824, Judge Doty opened and organized the first court of general jurisdiction ever held in Wisconsin. The difficulties he had to overcome were almost insuperable. He had no court house, no officers. There were only about a half a dozen American families at Green Bay, and all the rest of the population were not only unfriendly, but viewed with jealousy and suspicion the introduction of American courts and institutions, as a serious interference with their peculiar customs and relations. One of the greatest difficulties was to find a sufficient number of English speaking citizens to summon as jurors; after this difficulty was overcome, court was formally opened in the late Col. Irwin's log tavern, in a room about twenty feet square. This house was then situated near the then village of Shanty-town, but all traces of it have disappeared many years since.

JAMES DUANE DOTY.

Judge Doty was then but twenty-five years of age — tall and large of frame, a splendid specimen of physical manhood. To natural ease and dignity of deportment, he added a pleasing address and winning manners. His address to the grand jury was informal and in a manner conversational. He impressed upon them the necessity of preserving order and peace and good government, to the end that every man, be he poor or rich, strong or weak, should feel perfectly secure in his person and property; and the only certain way of attaining this object was to bring the violators of law to speedy trial and punishment. He further impressed upon them the necessity of enforcing the statutes enacted for the prevention of immorality and vice. He charged them that if they knew or were informed of persons living together as husband and wife who had not been legally married, that they were guilty of a crime under the law and should be brought to trial; that the well-being of the community demanded it. This address created a deep impression, and was the cause of immense excitement in Green Bay,

for a large portion of the population had never been married but lived with women whom they called their wives. The grand jury, after due deliberation, returned into court with forty-four indictments: one for murder, several for lesser offenses, and *thirty-eight for illicit cohabitation*. The indignation of the old settlers knew no bounds. They raved and swore and openly rebelled, but the close proximity of Fort Howard soon brought them to their senses. Nearly all the offenders in a short time adopted the intimation of the judge and got married, and thereby escaped the penalty of the law. The man indicted for murder was tried at the next term of court, found guilty and sentenced to be hanged. The then sheriff disliking the job, Ebenezer Childs was appointed by the judge to perform that duty, and the records show that he did it "with neatness and dispatch."

From Green Bay Judge Doty proceeded to Prairie du Chien, then called Fort Crawford. His young wife accompanied him. They made the whole journey in a birch bark canoe, paddled by four Canadian *voyageurs*. It took eight days to accomplish the journey. There was only one house (that of Mr. Grignon at Kaukauna) along the whole route of three hundred miles. At night they would camp on the bank of the river, catch fish and shoot game, and cook and eat their meals and sleep with a zest and gratification that was a pleasant memory during all their lives. At Fort Crawford, the difficulties to be overcome were greater than those at Green Bay. The American settlers were fewer, and the opposition manifested by the other settlers to American manners and laws was more determined and annoying. Here Judge Doty calculated to make his home, as being the most central point in his circuit. His first work was to procure a mail route to Fort Crawford, and he was appointed and acted as postmaster. After a short time he concluded to return to Green Bay, and there the following year Ebenezer Childs erected for him the first frame house ever built in Wisconsin. For nine years he filled the office of judge, and performed his official duties with a degree of promptitude and ability that is astonishing to us of a later period. Often alone and unattended, riding on an Indian pony, he traversed the length and breadth of the state, then a trackless and uninhabited wilderness, save by a few bands of nomadic Indians, whose friendship he always courted and never failed to win. He learned their language, and always treated them with candor and respect.

In 1830, congress made an appropriation for surveying and locating a military road from Green Bay to Chicago, and thence to Prairie du Chien. Judge Doty and Lieut. Center, of the U. S. army, were appointed commissioners, and surveyed and located these roads in 1831 and 1832.

In 1834 he was elected to the legislative council of the territory of Michigan, the seat of government being then at Detroit. It was while he was a member of that body the question of a state government was agitated, and he introduced the bill which finally prevailed.

In 1836 the territory of Wisconsin was organized. General Dodge received the appointment of governor, and assembled the first legislature in the village of Belmont, now in Lafayette county. Judge Doty appeared there as a lobby member, having in his pocket a beautifully executed map of the Four Lakes country, where he had laid out in lots and blocks a city of magnificent proportions, and in its center a ten acre square which he designated "Capitol Park," and in his pocket he had also a deed granting said park to the territory for capitol buildings. He worked quietly and effectively with the members, and when the matter came to a vote the seat of government was fixed at Madison, to the great disgust and astonishment of Gov. Dodge and the representatives of the lead region, then the most populous part of the territory.

In 1838 Judge Doty was elected delegate to congress and served till 1841, when he was appointed governor of Wisconsin by President Tyler. While governor and superintendent of Indian affairs, the Indians in Minnesota began to be troublesome. The war department appointed Gov. Doty as commissioner to treat with them. He soon assembled the sachems and had a council. They listened with profound attention, difficulties were allayed, and he made two highly important treaties, which the senate afterwards failed to confirm. In 1846 he was elected a member of the first constitutional convention, and in 1848 he was elected to congress and re-elected in 1851. In 1853 he retired to his "Loggery" on Doty Island, and lived there uninterruptedly for the succeeding eight years. His wonted energies were now devoted to beautifying his home and its surroundings. He enjoyed and maintained a very extensive correspondence. His library was a most interesting and unique museum, lined on all sides with books, public doc-

uments, Indian implements of war, pipes, accoutrements, etc.; and here, with his most estimable and noble wife, he dispensed a genial and generous hospitality that made his home famous in other lands.

In the year 1861, President Lincoln appointed Governor Doty superintendent of Indian affairs for the territory of Utah, and in the year following he was appointed governor, which office he held up to the time of his death, which took place at Salt Lake City on the 13th day of June, 1865. He was interred at Camp Douglass cemetery, about four miles from the city, and there shortly afterwards his son, Major Charles Doty, erected a massive granite monument to mark the last resting place of his honored remains. No man in his day exercised a more potent influence in moulding the destinies of the state and shaping its course than Gov. Doty, and his name will ever remain impressed upon the state as a memento of his useful, honorable and distinguished life.

EFFORTS TO CIVILIZE THE INDIANS.

The Menomonee Indians, having been always kindly disposed towards the whites, the general government, in deference to a widely diffused sentiment of philanthropy, resolved to make an effort to lead them gently into the ways of civilized life. To that end, in the year 1835, a settlement was started at Winnebago Rapids, now the site of the city of Neenah. A saw mill and a grist mill, as well as a large number of small, neat dwelling houses were erected by the agents of the government. A good blacksmith shop and carpenter shop were completely furnished, and an immense number of farming tools and implements were on hand; and all the able-bodied Indians were requested to turn in and do an honest day's work, and earn their bread. A few complied, but the great body lounged around in listless idleness; and even those who were permitted to occupy the houses, instead of using chairs and tables and stoves, like the white people, secretly tore up the flooring and built fires in the center, and then sat and slept around them as they were wont to do in their own bark wigwams. In the morning many of them would start in and work with energy and alacrity, but before noon three-fourths of them would have thrown up their hoes and spades, and retired to the shade, disheartened in their efforts to imitate the white man, and sighing for their ancient freedom and the peaceful gloom of the forest. They would beg that

the great Father in Washington would pay them for the lands in this locality, and move them back into the forest on a reservation far away from the track and presence of the white man.

In 1833, the Indians, by treaty, surrendered all their right to all the land lying east of Fox river and Lake Winnebago, and these lands were soon afterwards surveyed and put up for public sale at the land office in Green Bay. Money was plenty then. It was previous to the great panic of 1837, when the country was flooded with paper money, and the people were infatuated with a mania for speculation, and every person desired to secure for a small sum the site of a great future metropolis. Some choice sections, such as part of Doty Island, sold as high as ten dollars an acre.

When the Indians got heartily sick of their experiments of civilization at Winnebago Rapids, they sent a messenger to Washington to negotiate for a new location, and their abandonment of the Fox River Valley forever. Gov. Dodge was appointed a commissioner to treat with them, and in due time he met them in a grand council at a point where the city of Appleton is now located. It is said that Gov. Dodge, at the appointed moment, with much ceremony and in full dress, as a general of volunteers, and surrounded by a numerous suite, approached the dusky sachems and squaws, as if they were diplomatic courtiers from foreign lands. He made several long speeches to them, through his interpreter, and at intervals the Indians would give a grunt of satisfaction. And as the governor expatiated upon the power and grandeur of the United States government, and the great number and immense wealth of the white men, and how the great Father at Washington appointed him to speak to them in his stead, "And tell them," said he to his interpreter, "*that I am as great a man as Julius Cæsar!*" The treaty made at this time resulted in the removal of the Menomonee Indians to their present reservation in Shawano county, and the extinguishment of the last remnant of the Indian title in this part of the state. This was in 1836, and the surveyors were immediately ordered to survey all the lands west of the Fox river and Lake Winnebago so that the same could be brought into market.

Gen. A. G. Ellis was then surveyor general, and the lands in this neighborhood were surveyed by Garret Vliet, under his supervision, in the year 1839. Gen. Ellis is now the only one of the pioneers of 1824 living. He is indeed the patriarch of Wisconsin — still

active and useful, full of years and honors, he has served his generation to good purpose, and his name will live forever in the early annals of the state, as one of its most useful and honorable citizens. In his surveys in this section of the country, Gen. Ellis was assisted by Col. Conkey, now a resident of this city.

After the Indians had abandoned the new settlement at Neenah, the government advertised the property for sale, together with several hundred acres of land. And Harrison Reid, who was then a printer on the *Milwaukee Sentinel*, without a dollar of capital at his command, made a tender of three thousand dollars for all the property, both real and personal. This offer was accepted and Mr. Reid came on and took possession. Now his great object was to find some person with money enough to pay the government and share with him in the speculation. After a time he found out Harvey Jones, in Gloverville, N. Y., who furnished the funds and came out west to enter upon the enterprise of starting a new town in the then wilderness. The name was now changed to Neenah, a Menominee word, meaning *clear water*.

APPLETON.

Up to the year 1847, the site of the present city of Appleton reposed in all its primitive peace and beauty, unmarred by the woodman's axe, and untenanted by savage or citizen. The great river rolled and tumbled over chute and rock, and swept on in its resistless course unfettered by dam or mill, and the high banks on either side were clothed with a luxuriant and varied vegetation. Here and there an opening studded with huge oak and graceful elms, while in many places the thick underbrush, matted with vines and creepers, shut out the noonday sun, and completed a landscape as rare as it was beautiful.

The year previous, the late Hon. Amos A. Lawrence made an offer to the Methodist church of a donation of ten thousand dollars, provided a like amount would be raised by contribution, for the purpose of establishing an educational institution on or near a tract of land he then owned near Depere. This land was low and uninviting, and being deemed unsuitable for that purpose, his offer was not accepted. But the following year he renewed his offer, with liberty to locate the college on any part of the lower Fox river deemed most suitable. This offer was accepted, and a committee

consisting of Reeder Smith, G. E. H. Day and H. L. Blood, was appointed to select a site. After thorough search and examination, they decided to locate the institution here. In 1849, work was commenced on the first institute building. It was a frame structure and was raised on the 3d day of July in that year, and on the following day, the Fourth was celebrated in and around it. John S. Stephens read the declaration and Rev. A. B. Randall delivered the oration, and the institute was opened the following winter with thirty-five pupils. This building was burned down about the year 1853, and the present large and substantial structure was soon afterwards completed and occupied. The site of the present building was chosen by a lady in 1848, and she still lives here, noting with no small degree of interest the growth and progress of this great manufacturing city which clusters around it, and to the population of which it has always imparted a moral and intellectual repute. Nearly all of the first comers are still in the land of the living, and the story of their trials and struggles and triumphs, remains for some future historian, after they shall have been called hence, and the places that know them now shall know them no more forever.

FOX RIVER VALLEY.

APPLETON AS THE CENTRAL POINT.

Transportation Facilities — Improvements — The Place to Manufacture Woolen Goods, Iron, Copper and Lead — Timber Resources — Cotton Industry — Appleton as a Summer Resort — Parks, Drives, Sporting, etc. — Schools, Churches, etc.

Appleton, a city of about eight thousand inhabitants, is situated on the Fox river, five miles from Lake Winnebago, and twenty-nine miles from Green Bay. Its site is the most favorable, considering all things, in the lower Fox River Valley, being for the most part situated on high table land, which affords a commanding view of the river and its delightful scenery.

This valley embraces an area of about 1,280,000 acres, — a tract of country lying between Lake Winnebago and Green Bay, and including Winnebago, Outagamie, Calumet and Brown counties. The whole of the territory included in this valley is excellent agricultural land, as fertile as that of any other equal portion of the state. The surface is gently undulating, and the soil of rich loam, capable of producing all kinds of cereals, vegetables and fruits, adapted to the forty-fourth parallel of latitude. At present, about three-fifths of this valley is under good cultivation, and the remainder is covered with a heavy growth of hard wood.

The river flows in a northeasterly course from Lake Winnebago to Green Bay, where it finds an outlet. At various points in this portion of the river are natural falls and rapids, which can be made available for gigantic manufacturing purposes. Nearly the whole length of the lower Fox can be utilized by man for driving the wheels of machinery, and at a cost that prevents successful competition by factories run with artificial appliances.

That the reader may be better able to appreciate the advantages Appleton possesses for a manufacturing center, we subjoin a brief

discussion of some of the prominent ones, and earnestly request a perusal of the same by all who are considering the advisability of engaging in manufacturing.

TRANSPORTATION.

As to transportation, its facilities are not surpassed by any manufacturing city in the west. The extensive farming districts of southern Wisconsin, Illinois, and Minnesota, the lumbering and mining regions of Wisconsin and upper Michigan, are connected by a net-work of railroads, and the Mississippi valley and the great lakes are accessible through the instrumentality of the government canal which connects the Mississippi and Green Bay. Thus the whole northwest becomes a market for all articles which can be manufactured here, through these various means of communication.

ADVANTAGES.

The advantages which Appleton possesses over other localities for the investment of capital, are of a pre-eminently superior character. Of the available points, Appleton is the only one which contains improved water-powers, with the many appliances and advantages which this necessarily implies. It does not require a large outlay of capital to build canals, dams, races, etc., to control the water before it can be used, for these, with bridges, streets, accessible and convenient depots for shipment, have all been provided, leaving nothing of this kind to be done by those who locate here. All that remains to be done is to select a suitable mill site (which can be purchased at a nominal price), and at once begin the construction of buildings. Those acquainted with the necessary improvements of a new locality, will at once recognize the desirability of locating where this work has been performed.

At present, the manufacturing interests include woolen goods, pig iron, wood pulp, paper, flour, barrel material, furniture, wagon material, sash and blinds, etc., etc.; but none of these is overdone, and there remains ample room for new factories of the same kind.

WOOL.

Those interested in the manufacture of woolen goods will at once recognize the superior advantages offered at Appleton. The manufacturers of the east labor under the disadvantage of double

freight, the cost of transportation of wool to the east and of transportation of the manufactured goods to the west. Here, this is obviated by bringing the consumer and producer into close proximity. The wool can be made into fabrics as cheaply here as in the most favored localities of the east, and as fine a quality of goods can be manufactured here as there. So far as the quantity of wool may enter into the feasibility, there is no question whatever. The best qualities of wool are grown in all the northwestern states, and in quantities sufficient to stock factories of the largest capacity. Considerable attention has been given to wool growing in the Fox River Valley, during the past ten years, with great success, proving beyond a doubt that the best grades of wool can be grown here. With the increase of factories, the wool growers will become multiplied sufficiently to supply all demands of the manufacturer.

IRON.

By reference to a map, it will be seen at a glance that this is a favorable point for the manufacture of iron. The inexhaustible deposits of iron ore in the Lake Superior region are sufficient to supply the world for ages. The quality of the ore is nowhere surpassed, either on this or any other continent. It yields from 50 to 70 per cent. of that grade of iron which produces the best quality of steel. The Menomonee Iron Range, which is acknowledged by competent judges to furnish the richest beds of ore, and the Penokee Iron Range are both favorably situated to Appleton, and each range is connected with it by railroads, and the former by water communication. An able writer, in speaking of the manufacture of iron in the west, has said: In the matter of fuel we have only to say that our forests of hard wood have hardly been touched, and peat beds, in embryo, promise everything asked of them for the future; and when it becomes necessary, in the course of the next decade, to make a balance of lake freights heavier from the east to the west, we can load the lake crafts with coal to smelt our ores at home. If we bear in mind that charcoal iron is worth from five to ten dollars more per ton than that made with mineral coal, and also that the supply of timber, which can be easily converted into coal, is almost limitless, it will at once become apparent that the west is the proper place to manufacture these ores. During the great depression in business for the past five

years, the Appleton blast furnace has been running constantly, while other furnaces, which used mineral coal, have been compelled to cease work. This can be accounted for only on the basis of a large saving in the manufacture of charcoal iron and the higher price it commands in the market. There is a wide field for capitalists to engage in the production of all kinds of articles, machinery, etc., for which iron is or may be used. The operations of foundries, machine shops, car works, rolling mills, cutlery factories, agricultural works, and various other kinds of establishments for the utilization of this material, may be carried on with greater profit here than elsewhere. Many arguments might be put forth to show why this city is superior to any other in the northwest for iron industries, but the following in addition to the above must suffice, viz.: all kind of supplies used by operatives can be obtained here at a nominal price. These can be furnished at the very thresholds of factories at a much less cost than they can at points situated in a country poor in agricultural resources. In the iron districts, scarcely any kind of food except vegetables can be raised profitably, and the cost of transporting supplies thither is a heavy drain on the manufacturer.

COPPER AND LEAD.

Copper and lead, which are both found in this and adjoining states, can easily be obtained and manufactured here to advantage. Either or both of these industries would net a handsome return to those engaged in the business for the capital invested. There are no localities more favored than this for the manufacture of copper and lead, and hence there is no danger of being undersold by those engaged in the business elsewhere.

TIMBER.

Reference has already been made to the timber resources at our command. For the immediate present there is no business enterprise, perhaps, that can be engaged in here more profitably than that of utilizing the products of the forest. The belt of timbered country stretches away from Lake Michigan westward to the prairies of Minnesota, and from the great prairies of northern Illinois and southern Wisconsin to Lake Superior on the north. A large portion of this richly timbered country is now the haunt of wild beasts or the home of Indian trappers. In this, as in the mineral

resources of the Lake Superior region, nature has been lavish in her gifts, furnishing for the vast prairie country south and west a supply of timber for generations to come. Appleton lies within this timber belt, and all parts of this extensive forest have become accessible by rail and water communication. Thus it can be brought here easily and cheaply, and with the facilities of manufacturing converted into various wares at a price which would challenge competition, and leave a large profit on the capital invested.

COTTON.

It now remains to present one other industry for which this city is pre-eminently fitted, but which has not, up to the present time, been introduced. That to which we now allude is the manufacture of cotton. Above, attention has been called to the facilities of transportation, the supply of wood, the quantity of provisions and the extensive territory that is available for a market, and we desire to call the attention of the reader to these in connection with this topic that he may more fully comprehend the relation this city holds as a manufacturing center to the whole northwest. The feasibility of engaging in the manufacture of cotton will at once appear to those who are familiar with the advantage to be gained by bringing the consumer and producer together. This we claim for this city. There is no uncertainty about the supply of water or factory sites, as will be demonstrated in the next article. The cotton raised in at least one-half of the southern states can be brought to the Fox River Valley at a much less cost than it can be transported to the eastern states. A large portion of the cotton crop in the Mississippi valley is shipped around the coast to various points convenient to the manufacturing towns, and at certain seasons of the year at great risk. Scarcely a season passes without the loss or damage of several cargoes, and the expense is again increased by extra insurance during the stormy weather of the fall and winter. The communication of this valley with the south is much shorter, more direct, and less expensive, owing to the comparative safety of inland over those of oceanic appliances of communication. At certain seasons of the year cotton can be placed upon barges at favorable points along the Mississippi river, and without a transfer landed at the doors of the factories in Appleton. Aside from this, the railway routes are direct, penetrating the most favored cotton growing regions of the south.

The following gives approximately, the saving on the transportation of a ton of cotton, in favor of Appleton over Lowell, Mass., with Chicago as the distributing point:

From New Orleans to Boston, 2,000 miles ocean, at \$.0025 per ton, per mile.....	\$5.00
Boston to Lowell, 26 miles, rail, at \$.03 per ton, per mile.....	.78
Lowell to Boston.....	.78
Boston to New York, 390 miles, ocean, at \$.0025 per ton, per mile..	.975
New York to Buffalo, 350 miles, canal, at \$.006 per ton, per mile....	2.100
Buffalo to Chicago, 1,070 miles, lake, \$.004 per ton, per mile.....	4.280
Total to Chicago.....	\$13.915
New Orleans to Prairie du Chien, 1,786 miles, river, at \$.0029 per ton, per mile.....	\$5.1794
Prairie du Chien to Appleton, 240 miles, canal, at \$.007 per ton, per mile	1.6800
Appleton to Green Bay, 35 miles, canal, at \$.007 per ton, per mile...	.2450
Green Bay to Chicago, 310 miles, lake, at \$.004 per ton, per mile....	1.2400
Total to Chicago.....	\$8.3440
Amount per ton in favor of Appleton.....	\$5.571

The rates of transportation may vary somewhat from the above, but the distances are practically correct, so that the difference of transportation would remain approximately as given above, and in favor of Appleton. If railroad routes are compared, it will be found that Appleton is a more favorable point than Lowell. The distance by rail, from New Orleans to Lowell, is 1710 miles, and from Lowell to Chicago 994 miles, making an aggregate of 2704 miles. Again, the distance from New Orleans to Appleton, by rail, is 1091 miles, and from Appleton to Chicago, 200 miles, making a total of 1291 miles, or a difference in favor of Appleton of 1413 miles. Allowing that the rates of transportation from New Orleans to Lowell, and from the former to Appleton, are the same, it is evident that the latter takes precedence over Lowell. But cotton, to be manufactured here, can be obtained at points much nearer than New Orleans; for instance, at Memphis, Tenn., which is still more favorable to this city, and in favor of this industry being conducted here.

It is a logical conclusion, therefore, from the above facts, that the manufacture of cotton fabrics with which to supply the west can be

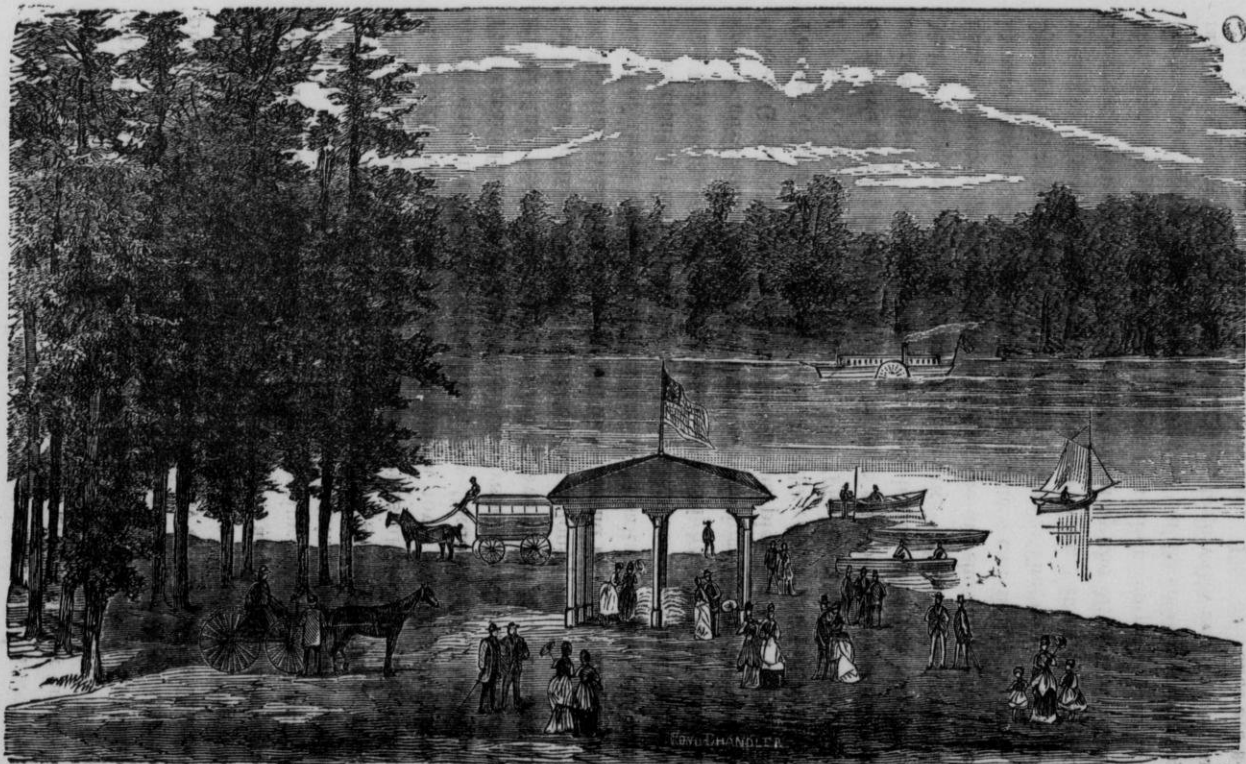
furnished here much cheaper than at the most favored localities of the east. It has been demonstrated by the Janesville cotton mills, that this industry furnishes a safe investment and returns a large profit to the manufacturer. In view of the foregoing, it must appear to every candid mind that the manufacture of cotton goods in this valley is not only feasible and practicable, but that it is an enterprise which affords a safe and productive field of operation.

THE WEST.

In the west, during the past, manufacturing has not kept pace with the growth of agriculture. It is obvious to all why this should be so. From nearly all parts of the civilized globe, people have come to seek a home, being attracted by the liberality of the government and the fertility of the soil. Upon arriving here, they soon discover that the tilling of the soil is the most profitable investment that can be made of their limited means. Hence, while the west is fast becoming the agricultural district of the world, the natural facilities for manufacturing are lying idle. From this standpoint, it will be seen at a glance that there is every inducement for the investment of capital in the west, and at present no more favorable point than Appleton. With the lavish facilities nature has furnished us and the improvements man has added, this will eventually become the manufacturing center of the great northwest.

SUMMER RESORT, ETC.

But Appleton possesses other attractions than those of a manufacturing town. The Fox River Valley is noted for its health giving qualities. The climate is all that could be desired, being free from epidemic and miasmatic diseases. The hot seasons are tempered with cool winds from the large bodies of lake water lying east and south; the winters are invigorating, being gently stimulating to the nerves, and bracing to the whole organization. The activity and enterprise of the inhabitants are sufficient in themselves to demonstrate the healthy state of the climate. As a summer resort, Appleton is one of the most favored in the state. The scenery along the river is picturesque and constantly varying. The sloping banks of the river, covered with a beautiful carpet of green or native forest trees; the ravines and glens at short intervals, full of nature's



TELULAH MINERAL SPRINGS.

See page 310.

beauties; the woodland slopes and shady bowers with their never wearying surprises; the parks, with their groves of oak or maple and beach, all unite and blend in perfect harmony to make this city an attractive place to live. It is not surpassed for its many delightful drives in the country, or points of interest to visit by pleasure parties. At the western extremity of the city is Pierce's park, which is situated on an elevated plateau overlooking the river. It has been kept in its natural state, and is quite a favorite resort for picnic parties and lovers of boating. At the eastern extremity is Telulah park. This park contains about twenty-five acres in all, and is covered with a natural growth of hard wood. The principal entrance into the park runs along the river bank, close to the water's edge, thus forming a novel and pleasant drive. At the end of this drive is situated the well known Telulah springs. The water of these springs, which is crystal clear, pours from the hillside into reservoirs about ten feet above the river. The capacity of the springs is nearly six thousand gallons per day. Gustave Bode, analytical chemist of Milwaukee, found by analysis that the water of these springs contains the same salts in about the same proportion as that of the Bethesda springs at Waukesha, and like that has wonderful curative efficiency in Bright's disease, diabetes, kidney affections, dropsy, etc., etc. The springs lie just beyond the foot of Grand Chute rapids, and its site is pleasant and delightful. Terrace drives lead from the springs to the top of the hill, where a fine race course has been constructed. This is situated in a grove of native maple, and has already become a favorite resort of lovers of the turf. No more charming spot can be found in the Fox River Valley for a summer house than this park. The river abounds in fish, the woods in small game, and the rice marshes along the river in wild duck. It is here that the sportsman can find a home—a field in which to pursue his wonted pastime. The educational advantages are nowhere surpassed in the west. It is the seat of Lawrence University, a college conducted by the M. E. Church for the education of both sexes. It has an excellent corps of instructors who are devoted to their work. The public schools are being rapidly improved, and to-day they rank high with similar institutions of larger and more pretentious cities. The churches are all in a flourishing condition, and hence the morality of the town ranks high. The people are intelligent and cultivated. Its homes are

pleasant and cheerful. The hospitality of the citizens has become proverbial, and every attention that could be wished by those who visit here will be extended to them.

FOX AND WISCONSIN RIVER IMPROVEMENT.

The Importance of the Great Natural Route Connecting the West with the Seaboard — Brief History of the Enterprise from its Inception down to the Present Time — The Various Administrations which have had Charge of the Work — What has been Accomplished and the Present Condition of the Route — Hints as to what it will Accomplish for the Industrial Classes of the Country.

This is the connecting link of a great international highway. Commencing in the Gulf of St. Lawrence, it traverses the eastern boundary of the dominion of Canada; thence making a circuit of the great lakes, it enters the Fox river at Green Bay; thence into the Wisconsin and down to the Mississippi; and, after traversing four thousand miles through the interior of the continent, it finds its exit in the Gulf of Mexico. A more important water highway does not exist on the face of the globe. From beginning to end, all along every mile of the route, the country is luxuriant and fruitful, and inhabited by an industrious, intelligent and prosperous people. The commerce of the lakes of late years has assumed immense proportions. The money invested in vessels and steamers is counted by the hundreds of thousands, and the commerce of the lakes every year adds greatly to the wealth of the nation. The floating commerce of the Mississippi is also extensive, and would be much [increased could its steamers and vessels ascend into the great lakes, laden with the fruits and valuable productions of the south, and there exchange them for the rich minerals and productions of the north, thus helping to bind with the peaceful bands of commerce the extreme sections of the nation. But the improvement of the "connecting link" to such an extent is considered by many impracticable, if not impossible. This may or may not be the

correct view of the subject. With that, we have nothing to do in this connection. In any event, however, the streams connecting the Mississippi with the lakes can be improved to an extent which will prove of great and permanent advantage to the nation. The great importance of this highway has been heretofore underestimated. It has been looked upon as a local enterprise, benefiting only the immediate locality in which money was to be expended. This was the spirit that led to its abandonment by the state, and the surrender of the valuable land grant of the government to the Fox and Wisconsin Improvement Company, in the year 1853. The few individuals who carried the burdens of this latter company, acted with great energy and enterprise; and, in the summer of 1856, the improvement was opened, and vessels drawing two or three feet of water could pass through from the lakes to the Mississippi. This was a great triumph for the Fox and Wisconsin River Improvement Company, and also for the people of the state. The original grant to the state for this improvement embraced 318,720 acres of land; but the state, during the years it carried on the improvement, received only 131,600 acres.

The lands remaining unsold in 1853, and which were granted to the Fox and Wisconsin River Improvement Company by the terms of its charter, amounted to about 168,000 acres, which were valued at about \$800,000.

In 1854, an act of congress was passed, authorizing the governor to select the balance of the grant of 1846, to which the state was entitled, and provided how the quantity of land should be ascertained.

After the passage of this resolution, the commissioner of the general land office issued a certificate to the governor of the state, authorizing the selection of 415,134 acres. In 1856, the state granted to the company these lands, on the conditions mentioned in chapter 112, general laws of 1856.

Thus it will be seen that the general government granted to the state of Wisconsin more than seven hundred thousand acres of land, worth at least \$2,000,000, to help towards the opening of this great highway.

In 1866, the Fox and Wisconsin Improvement Company, its franchises, grants and effects, were sold out under a decree of the circuit court of Fond du Lac county. The sale took place in the

city of Appleton, and the "Improvement" became the property of the Green Bay and Mississippi Canal Company.

This corporation owned this great water route and continued to operate it till 1872. For some time previous to this date, however, the leading men of Wisconsin, Minnesota, Iowa and other western states, appreciating the great service which this water-way was adapted to perform for the industrial and agricultural interests of the great west, and indirectly for the whole country, had been advocating the policy and wisdom of the government taking hold of the enterprise. They argued wisely and well that the grand results accomplished by the Erie canal, to wit: the saving in freight to the people of the country during a single decade, reaching from 1855 to 1864, of \$123,000,000, could again be repeated, in our day, by opening up this route to the internal commerce of the nation. And they further argued, that in order to secure to the people the full benefits in the way of cheap transportation which would be sure to follow the consummation of the improvement, the government should take hold of the matter: first, because of the magnitude of the undertaking; and secondly, because that, in order to secure the results mentioned to the people, it should be made simply a self-sustaining route rather than a money-making enterprise. The effort thus put forth was brought to a successful issue, and at the time stated, this great water route, together with all of the navigable franchises, was transferred to the government.

The work of improving the rivers was then inaugurated by the government and on a scale commensurate with their great importance. Liberal appropriations have been made thus far and will probably be continued until the work is accomplished. The following are the amounts expended by the government:

Purchase price.....	\$145,000
1873 appropriation.....	300,000
1874 ".....	300,000
1875 ".....	500,000
1876 ".....	270,000
Total.....	\$1,515,000

We believe the appropriations, thus far, have been utilized to the best possible advantage. Of course a considerable amount of repairs was necessary, but it has been the policy of the engineers in charge to invest the public funds in new and permanent work.

But little has been expended upon the Wisconsin river as yet, first, because the plan of permanently improving it is, as yet, immature; and secondly, because it is impracticable to prosecute the work of improvement upon such a great extent of route at the same time.

Upon the upper and lower Fox, however, a fine work has been accomplished. And it is in order here to detail somewhat the improvements made. Upon the former section of the river, stone locks and dams have been built at Eureka, Berlin, Grand river, Princeton and White river. This work is all of the most permanent character and will never have to be rebuilt.

On the Lower river, a very large amount of work has been done. We particularize the new work accomplished up to and during the year 1877: a stone dam at Appleton, a combined stone lock at Little Chute; a stone lock at Appleton; another combined stone lock at Little Chute; two stone locks at Kaukauna — known as the 3d and 5th; dams have also been constructed at Cedars, Little Chute, Kaukauna, Rapid Crosche and Little Kaukauna.

During the past year, this section of the river has been the scene of active and extensive operations. The most important undertaking was the construction of a new crib dam at Depere, 1,400 feet in length. The banks of the canal have also been raised at Menasha, Appleton, Kaukauna and Depere. And sections of the river that required it, between the points first and last mentioned, have been thoroughly dredged. Some of the work of previous years has this season been completed — principally the surmounting of various locks along the stream with stone coping. The lower dam, in this city, has been thoroughly repaired and placed in a condition to perform good service for quite a number of years. A number of old locks have likewise been overhauled. New miter sills and gates have been put in, and a variety of other necessary work has been performed. A large force of hands has been employed, and their operations will be continued through the winter, quarrying and cutting stone for new locks to be constructed hereafter.

The various operations first inaugurated necessitated the closing of the river to navigation until the commencement of the season of 1877. But during the past two years the route has been opened the entire length and will continue to remain so hereafter during

the season of navigation. And the extent to which it has been utilized in the period mentioned, indicates the importance of the route and augurs well for the future.

The present condition of the channel is most satisfactory. A uniform depth of 5 feet and 4 inches has been secured the entire length, and at no time during the past year, even at the lowest stage of water, was its capacity less than this.

While it is true that the importance of this route to Appleton and adjacent towns is manifest and very great, it is also of the utmost consequence to the producing classes of the great west and to the consumers of the east as well. It has been computed by high congressional authority, that the improvement of the great water-way between the Mississippi and the Lakes, to an extent which is entirely practicable, and the subsequent utilizing of it as a line of transportation, would save to the people of this country \$60,000,000 every year. These figures may appear extravagant, but it is not for us to dispute the estimate which was submitted by the transportation committee, after a thorough investigation of the facts. The statement certainly has some justification in the well known results secured by the construction and operation of the Erie canal — the aggregate saving, as submitted by good authority, being over \$300,000,000. The improvement of the Fox and Wisconsin rivers is simply an extension of the Erie canal, only on a grander scale, to the Mississippi river. And the country which the former route is to serve, is vastly greater in extent and more productive than the territory tributary to the latter, when that famous channel was constructed.

But it is needless for us to dwell further upon the importance of this great enterprise. That is generally admitted, and, as has been seen in the foregoing, a considerable start has already been made in the way of improving these rivers, enough at least to fully commit the government to the undertaking and to secure the completion of the work in the near future. But even if large investments had not already been made for this purpose, there is enough of merit in this water-way to secure for it the preference over all other similar lines. It is by far the shortest of any of the water routes connecting the great west with the seaboard, and as the result of careful investigation and comparative estimates, it has been ascertained that its improvement can be accomplished at much less

expense. There is nothing, therefore, to stand in the way of the opening up of these rivers, on an extensive scale, to the commerce of the nation.

THE LOWER FOX RIVER.

One of the Greatest Sources of Natural Power on the Continent—Indeed, All Things Considered, there is Nothing of the Kind which Compares with it—Some of its most Salient Features Reviewed in this Connection—Particular Allusion to its Natural Superiority and the Improvements which have Served to Increase its Availability.

THE FOX RIVER WATER POWER.

There is not another stream in the western hemisphere which affords as great power within a given space, and which is so reliable, thoroughly available and easily controlled, as the lower Fox river. Before, however, proceeding to treat the details of our subject, as regards Appleton, with which we have especially to do, we may as well submit, for the consideration of the reader who may be a stranger to this section, the figures, showing the extent of power which the lower Fox river affords in this valley, in its course of less than forty miles. Competent engineers have placed them as follows, and they have been amply verified by subsequent calculations. The height and power of water falls, on the lower Fox, between the points first and last mentioned, a distance of less than forty miles, is as follows:

<i>Names of places.</i>	<i>Feet fall.</i>	<i>Horse-power.</i>
Neenah and Menasha.....	10	3,000
Appleton	38	11,500
Cedars	10	3,000
Little Chute.....	38	11,500
Kaukauna	40	14,500
Rapid Crosche.....	8	2,300
Little Kaukauna.....	8	2,300
Depere	8	2,300
Total.....	150	50,405

But it is pertinent to remark that this statement of facts does not represent the power afforded by the greatest flowage. They express the quantity of power created by the flowage of water, at its very lowest stage. Hence, as all calculations are made upon this basis, there need be no fear, even when its fullest capacity is utilized, that the requirements of any industry need be restrained on account of the inadequate supply.

While it is a fact, as will be seen by consulting the above figures, that other contiguous points are highly favored, it is nevertheless true that at Appleton are combined more advantages than are possessed at any other point. At Neenah, Menasha and Depere, the available power is almost entirely utilized; or, at least, there is not enough left to attract any very important industries. The aggregate, as will be seen, is much less at either or all of these places, than the river at Appleton affords. And at other points, where the natural power is even greater, but few if any improvements have been made to add to its availability. At Appleton, as will be seen in what follows, the situation is quite different. Here everything has been done, in the way of material improvements, which labor could perform or money secure, to make the natural power afforded by the river highly serviceable. The manufacturer who locates here now, therefore, is relieved from the burdens which would be placed upon him in more primitive localities, and which his predecessors here also had to bear.

But we must dismiss these considerations for the more important work in hand, viz., that of submitting such facts and figures as that the wonderful power at Appleton may be comprehended and appreciated by those who are not familiar with it from personal observation.

CAPACITY.

As indicated in the general table above submitted, the water power at Appleton is equivalent to that exerted by 11,500 horses. A passing glance bestowed upon these figures will not meet the expectation of the writer hereof. And to have their importance fully understood, they should receive careful consideration by the reader. If the same power were invested in perishable bone and muscle, the fortune of the town possessing it would be the source of general envy. But in that form, the exerting of so much power would imply a large annual consumption. In the case of Appleton

it is different. All that is required is the harness to secure from this wonderful agent the vast power which it is competent to exert. Notwithstanding the considerable amount which is already employed, there is yet water enough running to waste through Appleton to drive all the machinery in the largest New England town.

RELIABILITY.

This is the strong point that we never fail to urge in connection with the Appleton water power. The supply of water in the Fox river is not drawn from mountain torrents, but is primarily made up from numberless tributaries, ramifying a vast expanse of slightly undulating territory. In addition to this, at the head of the Lower Fox, and upon some of its confluent streams, are numerous lakes or natural reservoirs which, combined, have an immense area. For example, Lake Winnebago alone is 40 miles long and has an average width of at least 12 miles. These lakes receive the discharges from the upper streams and have sufficient capacity to contain the accumulations for months together. The result is, that the water powers on the lower stream are absolutely independent of both droughts and freshets. The flowage is very uniform, and the difference between high and low water mark is never greater than 30 inches. We need not suggest the benefit of this natural arrangement to manufacturers less favorably located, many of whom have had the accumulations of a life time swept away in a single night, and others who are obliged to limit or entirely suspend their operations two or three months in every year for the want of adequate power.

We have before us an elaborate and handsomely executed publication, devoted to the city of Holyoke, Mass., and its great water power on the Connecticut river. The supply of this river, like that of most of the New England streams, proceeds from a mountainous country, and the fluctuations are therefore wonderful in extent — indeed, sufficient to destroy all the property located upon it were it not for the ingeniously artificial means employed to regulate it. In one of the illustrations which has arrested our attention, we notice that the machinery required for this purpose is great in extent, complicated and expensive. Moreover, men are employed day and night, year in and year out, to manipulate it and regulate the flow of water, thus guarding against the dangers arising from sudden and great fluctuations. Upon the Lower Fox, nature performs all

of this labor, and with a care and precision which are nowhere equalled. And it is by reason of these natural characteristics that Appleton is superior to that at other points, and with the same demand can be afforded so much cheaper, because the cost of controlling and maintaining it is vastly less than upon any other stream.

ANOTHER POINT OF IMPORTANCE.

It is worthy of remark in this connection, that the extreme rigor of our northern climate, during the whole winter season, in no way interferes with the driving of machinery. Block ice is never created in such quantity as to cause disturbance or create irregularity in the activity of industrial enterprises. For how few water powers in the same latitude of Appleton can this claim truthfully be made?

AVAILABILITY.

That this is a feature of great consequence will be so received without argument. Indeed, a great power would be of little value, if the advantages did not exist to control and utilize it. Steam had as great a power previous to as after its discovery, and even after its usefulness was known, it would have been of little consequence unless devices had been constructed to make it serviceable. So with water. It would be difficult to comprehend the power of Niagara, but still it is of little account to human industry. The reason, of course, is that it, lacks in the essential feature of availability. But that is what the power at Appleton possesses in a pre-eminent degree.

For the purpose of enabling the reader to comprehend more readily what we have to say, we herewith submit the accompanying map. (Since this map was executed, a new dam has been constructed above the upper bridge, which will be noticed hereafter; also the proposed route of the W. C. R. R. has been somewhat changed, and the M. L. S. & W. R. R. has been extended across the river, touching the bank near the upper flouring mills.)

In his tracing of the map, the reader is invited to assume, as the initial point of the examination, that section of the river which is divided by the upper or stone dam. This magnificent structure is the work of the government for the improvement of navigation upon the lower Fox. It was built in the summer of 1874, at a total

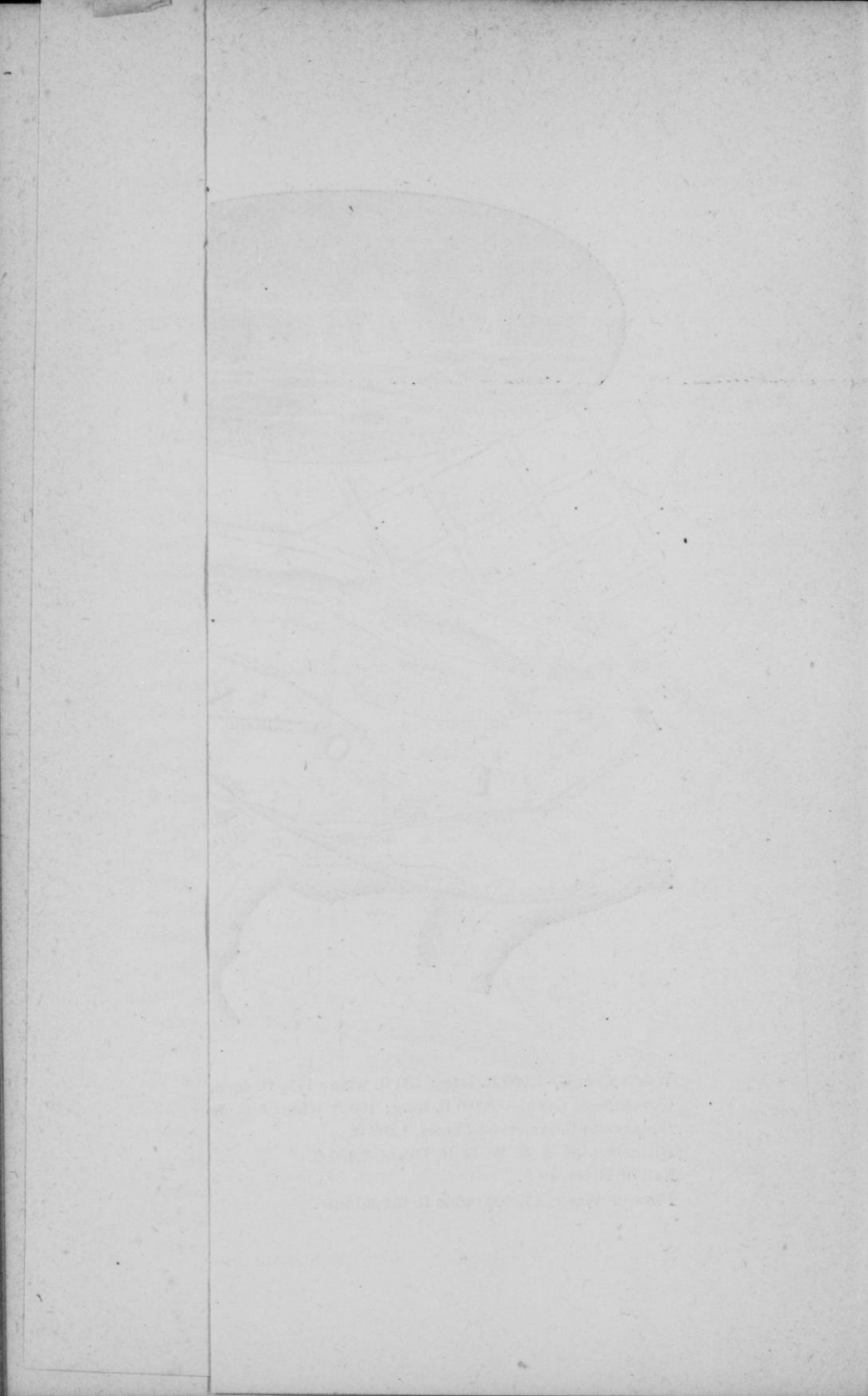
cost of \$50,000. It is seven hundred feet long, twelve feet high, and is built of solid stone masonry. It is by far the most enduring structure of the kind on the line of the river, and in fact, no better or more substantial one could be built. Besides answering the purpose of the government, it will also serve as a permanent improvement to the water power facilities of this place. As will be seen, a considerable portion of the waters flowing in the main channel is directed, by means of the stone dam and the adjacent pier on the south side, into the canal originally the property of the Green Bay and Mississippi Canal Company, but afterwards purchased by the government. The primary object of this artificial channel is to subserve the purposes of navigation, but the supply of water is so abundant that the demands of commerce may be met, besides leaving a residue of ample magnitude to be utilized in driving machinery of various kinds. Accordingly, this canal may be tapped on either side, at any point, and any amount of water may be drawn therefrom that may be desired. It will be noticed that the length of the upper level is 1,800 feet; that of the middle level 1,700 feet; and that of the lower level 2,600 feet. The reader will observe that a series of water-powers can be furnished by this channel for a distance of over one mile, with an average head of not less than thirteen feet. A canal may also be extended several hundred feet below the point where the lower lock is situated, and a series of magnificent water-powers thus be created. The owners of the land in this vicinity already have such an improvement in contemplation.

On either side of the government canal are spacious accommodations for factory sites, the greater part of the distance. The water-power franchises created by this canal are still in the possession and at the disposal of the Green Bay and Mississippi Canal Company, by which they were retained when the balance of the property was disposed of to the government. The depth of this canal is seven feet, and the average width one hundred and thirty feet.

There are contained in this Annual Review of the *Post*, cuts appropriately illustrating the upper and lower levels of this canal, and to which the attention of the reader is invited for more definite information on the subject. Therein are represented certain contemplated improvements which will be made as the utilization of other powers proceeds and the rapidly growing demands of the

SKETCH AND DATA
OF THE
PPLETON WATER POWER.





place warrants them. The most excellent water-power privileges have been and can now be leased from the Green Bay and Mississippi Canal Company, at rates that are simply nominal, compared with the prevailing rates elsewhere. Indeed, we may as well submit the astonishing figures in this connection, to wit: from one to five dollars per horse power per year, for a long term of years. Parties locating upon the banks of this channel secure, with other advantages, the most convenient facilities for transportation by water to all of the principal markets of the east, as well as the more important intermediate points.

On the north side of the river, similar advantages exist, and indeed some of the best powers in the city are to be found on this side of the river contiguous to the stone dam. A very important work has been accomplished this year, in enlarging and improving these powers, and to which particular allusion is made a little farther on.

LATE IMPORTANT IMPROVEMENTS.

During the summer of 1877, a fine work was accomplished on the river at this point, viz.: the construction of a permanent dam across the river at a point corresponding with the central part of the city. The utility of such a work had long been recognized. Accordingly, a company was organized, under the state laws, to proceed with the undertaking. It is composed of manufacturers and property owners on the river, specially interested, and also of quite a large number of our business men who gave substantial aid to the undertaking. Plans were presented and adopted, and the work of construction was at once proceeded with, under the supervision of Capt. N. M. Edwards. The undertaking was accomplished early the same season, and at a cost of \$10,000. The dam is eight hundred feet long, and is so firmly and securely constructed as to be safe, durable and permanent. The plan adopted to regulate the flow of water at this point is ingenious and admirable, and the tests to which it has already been submitted have proved that it is also eminently practical. The water way is limited to four hundred and forty feet, and by the system of diminishing it and increasing it to this extent, has proved to be the very thing required. A uniform head is thus preserved and one that varies but a trifle the year through.

The great utility of this dam is that it makes permanent, in the

heart of our city, a magnificent series of powers, which had hitherto depended on treacherous and temporary structures. And, indeed, it was one of the few important undertakings required to render forever secure and make available to the fullest extent, the means with which nature has provided us to carry on great industrial operations.

THIS YEAR.

A very important work has been accomplished, during the summer of 1878, calculated to perfect our admirable system of powers, as well as to add to their great capacity. We may first allude to the improvements which have been made on the upper power, on the north side of the river, near the stone dam. This was the joint work of the Appleton Paper and Pulp Company, Col. Theo. Conkey, and the Atlas Paper Company. This channel has been broadened and deepened so that its capacity is fully three or four times as great as heretofore. Several sections of the structure, dividing this channel from the river have also been rebuilt this season, making the entire pier, reaching from the north end of the stone dam to the Atlas Paper Mills, of the most durable and permanent character. The series of water-powers in this vicinity are among the best to be found anywhere. The average head is fully sixteen feet, and the supply of water is limited only to the capacity of the river. That they are fully appreciated is seen from the large amount of capital now employed in manufacturing at that point.

The great bulk of the flowage of the river, however, passes over the stone dam and down the principal stream. At a distance of about 1,400 feet from this point, the current of the river is divided by Grand Chute Island. Through this island, several years ago, Mr. Edward West built a ship canal and created magnificent water privileges which are minutely described elsewhere.

THE LOWER POWER.

Below the eastern terminus of West's canal, is another dam, about ten feet in height, by means of which another series of magnificent water-powers can be created. Some of this power is already utilized, but the great bulk of it is still unappropriated. On the east side, a canal may be extended to any desired distance,

from which power may be drawn. This is one of the improvements which is already contemplated by the owners of the land adjoining, and will doubtless be undertaken and accomplished within a very few years.

On the west side of the river, a very important work has been accomplished this season, although it was not undertaken until quite late. We allude to the canal which has been constructed by Messrs. Heath & Brother, and which taps the main river a short distance above the lower dam. This channel, which has an average width of twenty-five feet, reaches down stream eight hundred and forty feet, and upon the river side has been created some fine water sites and privileges for manufacturing purposes. The Dickerson Shutter Works and the new grist mill, constructed this season, will derive their power directly from this source. But there is still room enough left for several other factories in this vicinity.

WHAT HAS ALREADY BEEN DONE.

It is with a good deal of pride that we refer briefly, in this connection, to what has already been accomplished in utilizing the water-powers of the lower Fox at this place. Indeed, the capital already invested upon the river is counted by the millions; and, during the past two years especially, a great deal has been accomplished, as is fully set forth upon other pages. This fact has a peculiar significance, when the point is kept in mind that most other towns have been retrograding. The only adequate explanation which can be offered is that the superior advantages which Appleton enjoys are becoming known and appreciated; and that men of means have wisely concluded that, by investing their capital here, it can be made to yield a much larger revenue than at other points, or than it can command in the way of interest.

WHAT OF THE FUTURE ?

This is a question which interests us most now. Of course, that the utilizing of these great advantages will proceed, is apparent, reasoning from the past; and, that this process will be a rapid one, is a rational conclusion, so long as men of wisdom and far-reaching vision exist. As we have shown, the places are few in this or any other country which possess the facilities which Appleton enjoys for manufacturing on an extensive scale; and, to say that these

will not, sooner or later, be utilized to the fullest extent, is to assume that human stagnation will overtake the race.

NOW!

No better time can exist than the present for men of means, not now actively engaged, to be casting about for a location. The time is not far distant when there will be a general revival in industrial operations; and when it comes, those who are prepared for it will be the winners. Appleton, as we have shown, possesses advantages that are unrivalled. The best of power can be leased or purchased at merely nominal rates, and the materials for manufacture are within easy reach and can be had in endless quantities; and, in a thousand other ways, Appleton, as in the past, extends an earnest and cordial invitation to come.

OUR MANUFACTURING INDUSTRIES.

Notwithstanding the "Hard Times," We are able to Present a very Gratifying Exhibit of the Operations for '78; by which it Appears that there has been a Considerable Increase in the Product—New and Mammoth Establishments Erected, and the Old Ones Enlarged and Improved—The Various Concerns now in Operation Somewhat Particularly Reviewed.

INTRODUCTORY COMMENTS.

As a manufacturing center the city of Appleton occupies an enviable rank among western towns. And the reader who is anxious to ascertain the reason why, will find ample facts and figures for his enlightenment upon these pages. That this city, with its wonderful and superior natural advantages, is calculated to achieve far greater distinction, in this respect, in the near future, is as certain as that effect follows cause. The past year has witnessed immense strides in the development of our manufacturing interests. And considering that this has been accomplished at a time before the business of the country has been released from the universal



PORTION OF THE LOWER WATER-POWER OF THE GREEN BAY & MISSISSIPPI CANAL CO.
WITH CONTEMPLATED IMPROVEMENTS. *See page 326.*

depression which has prevailed during the past five years, the progress made has a peculiar and telling significance. The adequate explanation may be briefly stated by submitting the potential fact that few, if any, towns in the whole country can present the inducements for the investment of large capital in manufacturing industries which the city of Appleton possesses.

PAPER AND PULP MILLS.

There are but few places in the whole country so thoroughly adapted to this important industry as the city of Appleton. But a very few years have elapsed since any considerable start was made in this direction, but even the intervening short period has sufficed to place the city a long way ahead of any town in the state in this respect, and we believe there are none in the west which surpass Appleton as a paper manufacturing center. The cause of this wonderful progress is obvious. Here there is plenty of pure water, so essential to the manufacture of this class of goods; ample and convenient facilities for transportation, and at the lowest rates, by land and water; and what is of the greatest importance of all, an abundance of natural power, which can be secured at prices that constitute but an inconsiderable item in the construction account of any establishment. As will be seen in the subsequent comments, the year 1878 has been a very important one for Appleton, so far as the development of the paper industry is concerned.

THE ATLAS PAPER MILLS.

This is the largest establishment of the kind in the west, and there are none in the whole country having greater capacity. It has been in operation but a couple of months, having been constructed during the past season. The site occupied by these mills is one of the very best in the city, it being the same as that on which Whorton Bros.' saw mill was formerly situated. There is all the yard room required, and the power is unvarying and absolutely unlimited. One of the franchises secured by the company calls for 500 horse power — probably one-third more than this mammoth concern will ever require. The buildings are immense. The upright part is 75x140 feet, and the machine room is 90x120 feet. The latter is two, and the former three stories high. The buildings are of the most substantial and desirable character. The founda-

tion is of stone and the superstructure is brick. The whole is covered with an iron roof, making the establishment practically fire proof, at least, so far as outside exposures are concerned. The machinery of this concern is of the very best and highly improved kind that could be procured for that purpose, and throughout is the product of the Merrill & Houston Iron Co., of Beloit. The principal items under this head are one large 78-inch Fourdrinier, with 36 feet of wire, one 68-inch treble cylinder, and one 68-inch double cylinder and twelve 600 pound beating engines. In addition there are, of course, all of the appliances necessary for the manufacture of paper on an extensive scale and economical basis. To make the Atlas Paper Mills the complete establishment which they are today, has involved an outlay of \$125,000. But in the hands of the energetic and experienced corporation which owns and controls it, there is no doubt that it will prove a paying and highly satisfactory investment.

Although the machinery is adapted to the manufacture of any grade of paper, the product is at present, and will probably continue to be, exclusively manilla wrapping paper, and manilla goods in general. The material used to secure this result is pulp made from pine wood, in a manner to be hereafter noticed, and jute, a vegetable matter imported from the East Indies. Of the former, from fifty to seventy-five per cent. is used, according to the particular grade required. The quality of these goods is most excellent, and will compare favorably with the best of the kind in the market. The fact that they have found easy, swift and general introduction to the paper trade, is the best proof that can be offered on this point. The capacity of this establishment is from ten to twelve tons per day. Reckoning the price at five cents per pound, which is probably as low as it will ever be, we find that the value of the daily product would be from \$1,000 to \$1,200 per day, or about \$325,000 annually.

To do this labor requires a force of sixty hands; many of whom are workmen of skill and experience. From the above figures, an accurate idea may be had of the magnitude of this industry.

The Atlas Paper Company is a stock corporation, organized under the general laws of the state. The incorporators are Messrs. Kimberly, Clark, Shattuck and Babcock of Neenah, and Gen. Averill, Col. Stowell, H. M. Carpenter and Mr. Wilder of Minnesota. The company is officered as follows:

330 NORTHERN WISCONSIN AGRICULTURAL, ETC., ASSOCIATION.

President — Gen. Averill.

Vice Presidents — Messrs. Kimberly and Carpenter.

Secretary and Treasurer — Col. Stowell.

General Manager — C. B. Clark.

The company is one of the strongest, financially, in the west; and the men who compose it have large experience in the paper business and are leaders in this particular industry. That this magnificent enterprise in Appleton will prove even more profitable than any other of their important undertakings, neither we nor they have any doubt.

THE ATLAS CO.'S PULP MILLS.

As already intimated, this establishment is operated in conjunction with the paper mills, above mentioned, and is also the property of the company named. It was erected during the season of 1877, and is one of the most complete pulp mills in the country. It is located near the government pier, in the Fourth ward, and is connected with the company's paper mills, by a bridge, on the opposite side of the river. The wood which this establishment converts into pulp is pine exclusively. The process of grinding is the same as that used in the other mills, but before this is done, the wood is thoroughly cooked or steamed. This gives a better and stronger fiber than can otherwise be obtained. This plan is a new one, but it has already been thoroughly tested and with results which leave no doubt as to its permanent success. The pulp product, thus obtained, is the very best as well as being the most economical material that can be utilized in the manufacture of wrapping paper. The establishment employs a force of thirty-five hands, and the sales for the year 1878 aggregate \$60,000.

THE APPLETON PAPER AND PULP MILLS.

The business of manufacturing wood pulp, by this company, was commenced about five years ago, but the establishment of to-day possesses scarcely a single feature of what distinguished it in its earlier history. First, the old method of making pulp was discarded on account of its not proving entirely satisfactory to the proprietors. Accordingly, this machinery was removed and the necessary facilities introduced for the manufacture of print paper. The building was more than doubled in size and a complete outfit of new machinery put in.

Since then, this branch of the business has been conducted on a large scale. The paper manufactured cannot be excelled in quality. It is now being used by many of the largest newspapers in the west, and that it fully meets the wants of consumers is seen in the fact that the full capacity of the mills is tested in filling orders which are constantly being received. In the manufacture of this paper the best class of machinery is used, which gives to the sheet greater strength and uniformity than can be secured from inferior facilities.

During the year 1877, a pulp manufacturing department was added. The building was again enlarged and new and superior facilities for grinding wood were introduced. Of course, as our readers know, the pulp thus obtained constitutes one of the ingredients used in the manufacture of paper. When combined with rag pulp, in proportions varying from ten to forty per cent., an excellent quality of paper is obtained, and at a less cost than otherwise attends its production.

During the past season this company has made numerous important improvements, and indeed these are still in progress. It has aided materially in improving the water power in that vicinity, and on its own account has rebuilt portions of the dam or pier in a more permanent and substantial manner. The channel, in front of the mills, has been planked over and a great deal of valuable room has thus been acquired. This platform has been extended to some extent above the mill, so as to create fine dock privileges which will prove of great importance. The older boiler house and contents have been entirely removed, and a fire proof structure has been erected and new and larger boilers have been put in. A warehouse has also been erected, at a convenient distance from the mill, of ample dimensions to accommodate manufactured goods and the raw materials always required. This is situated alongside the railroad track, and is therefore as convenient as could be desired. But the most important improvement is now in progress, by which the capacity of the mills will be doubled. An addition is now being put up at the east side of the main building, and when completed another first-class paper machine will be put in. Probably, also, additional beating engines will be introduced, as well as other facilities which will serve to double the capacity. When this project is carried out, this establishment will be one of

the largest of the kind in the west. It enjoys advantages possessed by few paper mills, and which enables it to do a prosperous business almost regardless of the condition of the market. We have dealt with this company for a considerable time and can highly recommend it to the fraternity elsewhere, as well as to paper dealers, as being a very desirable concern with which to hold business relations. The product of the Appleton paper mills for the year 1878 aggregates \$200,000. Mr. H. J. Rogers is the secretary and treasurer of this company, and has entire charge of the business here.

RICHMOND BROS.' PAPER MILL.

The past year has been a very prosperous one for this industry. It began the present year under very favorable conditions, numerous important enlargements and improvements having been made the previous year, by which its capacity was fully doubled. It was provided with a new and complete outfit of the best machinery, and the character of the product this year has been, as might be expected, among the best to be found in the market. As evidence of this fact, it is quite worthy of remark that, notwithstanding the general depression in the paper industry, as well as otherwise, this mill has been kept busy, night and day, to fill its orders. Its products are exclusively wrapping paper or both straw and manilla grades. The books of Richmond Bros. show that their receipts during the year aggregate \$150,000. Of course, the success of this firm is largely due to the fact that it is composed of practical and experienced paper makers. They are conversant with the demands of the market and know how to meet them.

THE WESTERN WOOD PULP MILLS.

This is one of the most solid and successful of the numerous manufacturing establishments in this city. It is also one of the "pioneer" pulp mills in the country, having been built here seven years ago. During the succeeding time, with rare exceptions, the machinery has been constantly in motion, day and night. This has been necessary to meet the demands for the product by the various paper mills throughout the western states. The pulp is utilized in the manufacture of print paper and is of a very superior quality. It is made wholly out of poplar wood—the latter being ground

while green upon large and rapidly revolving stones designed for this purpose.

This concern has been of great benefit to the city and county. It furnishes employment to thirty hands and creates a demand for a kind of timber which in most places is, and in Appleton had hitherto been, worthless. Mr. O. W. Clark has had charge of these mills ever since they started, and the fact that their constant operation is attended with little or no friction is thus explained.

This establishment is the property of Bradner, Smith & Co., of Chicago, one of the largest paper firms in the west, and is only one of the numerous and important enterprises in which they are engaged. They have several large mills at other points, and do a heavy manufacturing business. The firm has a very extensive warehouse in Chicago, which is their central distributing point. They deal in all kinds of paper, from the coarsest to the finest grades, and have an immense trade throughout the great west. We know of no better firm nor one that offers as many advantages to their patrons. They are courteous and obliging and are satisfied with small margins. After an experience in dealing with them of upwards of ten years, we can heartily and cheerfully commend the firm to the craft everywhere, as well as to all other paper consumers. They are eminently deserving of their success and prominence.

FLOURING MILLS.

Few if any points in the whole country are better adapted to merchant milling than Appleton. Here we have an abundance of power, and that of the right sort for enterprises of this kind. Then the country immediately surrounding and tributary to Appleton is one of the finest wheat growing sections of the northwest. The grade of our wheat stands high in the best markets in the country, and indeed, it is not surpassed by the similar products of any locality. The product of the contiguous territory is already quite extensive, but it will continue to increase every year as the development of the country proceeds. In addition to this, our relations by rail and water with wheat growing sections in the interior and western portions of the state, as well as with Minnesota, Dakota and the country bordering upon the Mississippi, are such that unlimited supplies of this cereal can be had. Most of our mills

are already provided with side tracks at their very doors, and those hereafter to be established can have the same advantages. These considerations, together with the fact that the rates of transportation on lines reaching out into the agricultural districts on one hand and to the leading markets of the country on the other, are as low in Appleton as are enjoyed by the manufacturers of any other interior town in the country.

THE APPLETON MILLS

Is one of the oldest establishments on our water, having been in continuous operation since 1852. Mr. Willy has been the proprietor for a number of years, and in this direction as well as in other important undertakings, he has been eminently successful. But the Appleton Mills of to-day would scarcely be recognized as the original concern. The building itself has been frequently enlarged, its capacity many times increased, and a great quantity of new and improved machinery has been added. Something has been done in this direction every season, and the past year, especially, Mr. Willy has expended a considerable sum in making improvements. A new set of crushers has been put in and the number of purifiers has also been increased. These mills are now thoroughly equipped in every department, and are turning out a very superior grade of products, of which ample evidence is afforded by the ready sale with which they meet in the best markets in the country. Some idea of the magnitude of Mr. Willy's business will be had when we state that his sales for the year 1878 will aggregate \$150,000. Of course the greater part of this immense product is shipped to eastern ports, but Mr. Willy also has a large local trade.

THE GENESEE MILLS.

This is one of the largest institutions of the kind in the state, and there are but few in the west that have greater capacity. It is located in the Third ward, and is provided with one of the best water powers in the city. The building is a mammoth affair, being 75 feet square and five or six stories high. But large as it is, it is none too great to accommodate the vast system of machinery which is in operation. Not a year has passed since Col. Conkey became the proprietor, but that he has made extensive and important improvements. Indeed, it is enough to say, under this head,

that he has kept steady pace with the progress which has been made in the milling industry of late years. Of course, those who know anything about the matter understand that it has been attended with immense strides. The evidence of it is seen in the superior [brands of flour which are now used in nearly every household. Important improvements have also been made in the Genesee Mills during the past season, considerable new machinery having been introduced. Col. Conkey has also expended a considerable amount this year upon his fine water power, adding largely to the capacity thereof and to the permanence of the work by which it is maintained. The improvements made have involved an outlay of upwards of \$3,000. The products of this establishment have a reputation in the leading flour markets at the east which but few mills in the country enjoy. The Genesee Mills contain eight run of stone, and the amount of its product for the year aggregates in value \$180,000.

THE OUTAGAMIE MILLS.

This is one of the oldest manufacturing establishments in the city. The present proprietors, however, did not engage in operating it until about two years ago. Since that time they have thoroughly overhauled it and have made some very important improvements. During the past year they have increased its capacity to a considerable extent, by putting in another run of stone — thus enabling them not only to do more work but to carry on their business to much better advantage. The mill is now in excellent working order and the character of its products will compare favorably with the best. The proprietors, Messrs. Cross & Willy, are energetic and enterprising men and have devoted themselves with great industry to their trade. The result is, that they have already built up a fine business. They do a large amount of merchant work, and in addition to this they have a large custom trade — their mill having a superior location for this purpose. The farmers are well pleased with the result of patronizing this establishment, and the number is very large. The business of the firm, during the past year, shows a most gratifying increase — their receipts for the twelve months now closed aggregating \$40,000.

THE LAWRENCE MILLS.

This is now one of the leading establishments of the kind in

northern Wisconsin. In 1877 it was rebuilt from bottom to top, and supplied with a large amount of new and improved machinery. Its capacity was also, at the same time, more than doubled. During the past season, two sets of large crushers have also been put in, besides considerable other machinery of a minor character. The Lawrence mills are now as complete in every respect as experienced skill and money could make them. Notwithstanding the year 1878 has been rather unfavorable for the milling industry, Messrs. Hauert & Weiland have done a large business — their sales for the year footing up \$158,000.

MAXWELL AND BEARD'S MILL.

This establishment was erected on its present site, near the third lock, on the government canal, during the season of 1877. It has been operated to a considerable extent during the past year, but a great portion of the time has been spent in preparing more thoroughly for the better times which, it is hoped, the near future has in store. Another run of stone has been added this season, and important improvements have otherwise been made. We expect to hear of the best reports from this concern by the close of another year.

BAUM AND HUHNS MILLS.

The past season has witnessed the erection of this mill on the lower water power. The work of putting in the machinery has been in progress for some time, and probably as soon as this number of the *Post* is in the hands of the reader, the establishment will be in complete operation. So far as the exterior is concerned, the mill is a modest looking affair; but we are assured that the machinery will be first-class, and that its facilities in general will be such as to admit of first-class work being done. The proprietors are young men, but they are energetic and industrious, and we have no doubt they will make their enterprise a fine success.

APPLETON FOUNDRY AND MACHINE SHOP.

The importance of having a first-class foundry and machine shop in our midst, is something which our manufacturers have frequently had occasion to appreciate. Indeed, it can meet their wants so perfectly and at short notice, that they could not well get along

without it. It has facilities for doing a very wide range of work, from the turning out of the simplest casting to the manufacture of the heaviest kind of machinery.

During the past year the firm lost one of its members — Mr. Ketchum having died several months ago. His place, however, has been supplied by Mr. Henry Bergman, a very skillful mechanic, to whom his interest has been leased. Mr. Morgan, the other member of the firm, still abides with us and devotes his time and superior talents to the business. Some time since he invented a paper cutter, which we desire to especially commend to printers. We have had one of his machines in use for upwards of a year, and we take pleasure in stating that we have never used or seen anything of the kind which can compare with it in efficiency in performing the work for which it is designed. It is simple, easy to operate, never gets out of repair, and can be relied upon for the most perfect work at all times.

Printers will consult their interest by examining it carefully, and if they have need of a paper cutter, by ordering one at once. The *Post*, having learned its usefulness, could not keep house without a Morgan cutter.

Notwithstanding the general depression in business, Ketchum & Morgan have done a prosperous business the past year — their receipts amounting to \$25,000.

AGRICULTURAL IMPLEMENTS.

The success of the Appleton Manufacturing Company, during the few brief years of its existence, is somewhat remarkable. When they commenced, they had almost everything to contend against. In the first place, their factory was not supplied with any permanent or reliable means of power, and to secure this required a new and important undertaking, and one involving considerable outlay. The energetic firm addressed themselves to the situation, and in a short time, by the construction of several hundred feet of trunk, they secured a splendid power and of ample magnitude to answer their purpose. Again, in introducing their famous seeder and other implements, they were met by wealthy concerns, prepared and determined to contest every inch of advancement by the new firm.

But the magnitude of the latter's business to-day is the best evidence as to how well they have succeeded. But their success was only accomplished by hard work, night and day. The members of the firm are all practical men, and thoroughly understand the needs of the farmer in the way of machinery. Their best energies were utilized in perfecting their seeder, and making it an indispensable implement to the thorough farmer. That they have succeeded, there is now no question among those competent to judge. It has surpassed all rivals in popular favor, and is to-day the favorite machine where it is thoroughly known. Both as a seeder and cultivator, the Badger is complete, and can be relied upon to do a great variety of work in a perfect manner.

The company also manufactures the Peerless horse-hoe cultivator, which has had such a large sale among the farmers throughout the west for several past. It is adapted to a wide range of work, and all who have used it find it quite indispensable to thorough farming. The company manufactures various other implements, which we have not space to notice, and deals in farm machinery of all kinds. In fact, their establishment is headquarters for northern Wisconsin for obtaining supplies of this description. We can commend the company most heartily to retail dealers and to the farmers also, and with it business transactions will always be found profitable and satisfactory. The past year has been one of the most prosperous in their history, their sales having amounted to upwards of \$65,000.

APPLETON STAVE FACTORY.

This is one of the pioneer manufacturing establishments of Appleton, and there is none which has been of greater importance to the city and the surrounding country. It has always furnished employment to a large force of hands, all of whom receive cash for the work performed. The institution has also provided an excellent market for timber, and its disbursements for this purpose every winter among the farmers of the adjacent towns have proved of great advantage to them. The products of the establishment consist entirely of flour barrel stock. The proprietors also have another factory at Kaukauna, which is operated on an extensive

scale. Their stock enjoys a splendid reputation wherever it is known, and while they have a large local trade among our millers, the principal part of their sales are made elsewhere in Wisconsin and throughout other western states.

Considerable improvements have been made in and about this factory the past season, and it is now thoroughly equipped for the demands of a busy year.

Messrs. G. W. Spaulding & Co., which is one of the best firms on our river, inform us that their sales for 1878 amount to \$50,000. They have a regular force of 40 hands employed.

APPLETON CHAIR AND BEDSTEAD FACTORY.

There is scarcely an establishment in this city which is of greater importance, nor one which is doing more to spread our reputation as a manufacturing center, than the Appleton Chair and Bedstead Factory. Until a comparatively recent date, the products of this institution consisted wholly of the more common articles of furniture, but latterly, a new and important departure has been made, viz.: the manufacture of the finest class of furniture, adapted to use in counting room, the private residence, the public hall, and, in fact, every place where a superior article is required. To enable the company the better to carry out its plans, the services of a most skillful designer and worker in wood were employed, in the person of Mr. Thos. Hill. Other competent workmen were also engaged, specially adapted to certain departments and to perform the most excellent kind of work. New machinery was also introduced and other improvements made to enable the company to fully carry out its designs. The experience of the company in introducing the products of this branch of their business has been most satisfactory. Numerous stores and society halls, here and elsewhere, have been supplied with most elaborate outfits of furniture, and it is not too much to say, that in originality and elegance of design, as well as in the beauty and perfection of workmanship displayed, the work which this establishment has turned out is nowhere excelled. The company is prepared to turn out the very best work in the line of walnut, oak and ash chamber suits, in the most popular designs, and secretaries, mantels, side-boards, etc. We can assure our

readers who contemplate purchasing any of this class of articles, that they can be better satisfied, with less money, at this factory, than at any other establishment in the country.

Of course, the manufacture of more ordinary furniture, including cane and wood-seat chairs, is continued by the company, and on a large scale. It is needless to commend these goods, for they are generally known throughout the west as being the best products of their class now manufactured. Retail dealers have found by experience that they can handle these goods with advantage and profit.

This company, of which Mr. Jas. F. Atkinson is the secretary, treasurer and business manager, employs a force of eighty hands, and the receipts of its business for the year 1878 amount to \$45,000.

PUMPS.

The Appleton Pump Factory is located on the second ward water power, and has been in operation since 1863. Mr. T. W. Brown is the proprietor, and is one of our solid business men, financially and otherwise. He manufactures various styles and sizes of pumps, and they are known to be the very best in use. His factory is thoroughly equipped with machinery, and his business is in a prosperous condition. He has a large local trade, and elsewhere in northwestern Wisconsin as well. During the past year, he has introduced some new machinery which adds considerably to his manufacturing facilities. Mr. Brown also deals quite extensively in lightning rods, and handles the very best products in the market. His factory is located on the second ward water power.

SASH, DOOR AND BLINDS.

The factory of which Messrs. Briggs & Beveridge are now the proprietors was established many years ago. Numerous important changes, however, have been made. The present spacious and substantial building was erected, in the spring of 1873, by Mr. Briggs. Somewhat later, a partnership was formed between him and Mr. Wambold. During the season of 1877, the latter gentleman retired, disposing of his interest to Mr. Beveridge. During the

same year, numerous and important improvements were made which added largely to the facilities of the firm for doing business. Although trade has been generally depressed during the year which has now just closed, this firm has had quite a prosperous trade. They have not only met all demands upon them, but have shipped largely of their products to various other outside points. Their goods are very superior in quality, and we can commend them heartily to retail dealers and dealers generally. The firm employ a force of twenty hands, and do an annual business of \$50,000.

BRICK, LIME, ETC.

J. H. MARSTON & CO.

This firm is successor to C. E. Fisher & Co., having bought out the old firm last month. They propose to continue in the manufacture of lime at this point, and to handle building material generally. The new company is now even better prepared than their predecessors to meet the public demands. They have put up another kiln this fall which will double the capacity of their works. The most skilled and experienced help that could be procured is in the employ of the new firm, and no pains or expense will be spared to meet all demands in a prompt and satisfactory manner. Marston & Co. will also deal in stone and mason's building materials in general. They have an excellent quarry at Clifton, the products of which are unsurpassed. It will be the aim of this firm to offer such inducements to the public as they cannot afford to overlook. And it will be for the advantage of all to patronize them when in need of anything in their line.

H. W. CARTER

has had a busy season at his brick yards, just outside of the city, on the banks of Lake Buttes Morts. He makes the best quality of brick ever used in this city. They are perfectly formed, have a uniform and regular surface, and are very durable. Mr. Carter has had long experience in this line and is a skilled and practical brick-maker. The product of his yards, during the past season, amount to 700,000 brick, most of which have been utilized in this locality.

TANNERIES.

PFEIFER & CO.

The tannery now owned by this firm is one of the oldest establishments on our water power. Not until August, 1877, however, did the present proprietor come into the possession of it. But since then, it has been operated as it never had been before — to the full extent of its capacity and with an energy which characterizes an experienced and practical firm. During the past year and a half, while a very large business has been done, the proprietors have devoted a good share of their time to overhauling the establishment. So thorough has been their work, that there now remains but little to be done. The tannery is now in excellent shape for doing business. The buildings have been largely repaired, and a quantity of new and improved machinery has been put in by which the facilities have been improved and the capacity enlarged. Accordingly, the business performed the past season is much greater than during any previous year of its history. The firm, Messrs. Pfeifer & Co., have a large leather house in Chicago, where the product of their Appleton factory is marketed.

KAMPS & FRIEUND'S TANNERY

is located on the government canal, near the third lock. It is somewhat limited in its capacity, but is doing considerable work, notwithstanding. It is very well provided with machinery and other facilities for manufacturing, and the quality of its products commands for them a ready market.

IRON MAKING.

THE APPLETON FURNACE.

The fact that the iron furnace in this city is one of the few out of the whole number in the United States now in operation, is good evidence (1) that the establishment is being well managed, and (2) that this point has advantages which few others enjoy. The cost of power is a mere nothing, and the fact that the enormous freights

are taken and delivered at the very yards of the establishment is a consideration involving great economy. Indeed, these are probably the secrets which enable it to operate while others are obliged to close. This furnace turns out the very best grade of charcoal pig iron, and when there is any demand at all, it meets with a ready sale.

The company has a large force of hands in its constant employ, and the receipts of its business for the year 1878 will amount to \$120,000.

H. D. Smith, an experienced iron manufacturer, is the secretary and treasurer of the company.

LUMBER.

During the early part of the past year, Messrs. Whorton Bros., one of our heaviest lumber firms, having become largely interested elsewhere, disposed of the site on which their saw mill was located, and it is now occupied by a more important enterprise. They also sold out their stock on hand with their good will, etc., to

MESSRS. RAMSAY & JONES,

a firm of enterprising young men, who are now supplying and will hereafter meet all demands for lumber in this locality, which amounts to a very extensive trade. They have most excellent facilities for this purpose. They have a large tract of land in the "Menominee district," covered with the very best of pine. They also have mills of great capacity, so situated that they can be reached from this place by both rail and water, and the products of which can be delivered here at the least possible expense. Their yards are located on the flat, just south of Grand Chute Island, and between the railroad and the government canal. They have been very busy the past season putting in a stock of lumber so extensive as to be fully up to the demands of the city and surrounding country. They engaged in business here last June and since then they have had a very handsome trade. The demands upon them are growing and will no doubt continue to increase. They carry a stock which enables them to fill any order, and the people appreciate the fact that their facilities are such as to enable them to undersell dealers less favorably circumstanced.

ROSE & HEATH.

This is one of the old, as it is also one of the solid firms engaged in manufacturing on the river. They have always commanded a liberal share of the local trade and have also exported largely to other points. Their mill is located on the lower water power. The past year, however, has been a most unfavorable one for them, and they have done but a limited business compared to that of previous years. On account of the entire absence of snow last winter they were unable to get in any stock, and the consequence was that their operations were very much abridged. However, with a favorable winter this year, they will doubtless do a large business the coming season. They manufacture hard and soft lumber, a variety of wagon stock and broom handles.

HUBS AND SPOKES.

There is no better place for the manufacture of wagon stock on a large scale than Appleton. The forests immediately surrounding abound in the very best grade of timber, and the experience of our manufacturers during the past season also demonstrates the fact that, by means of accessible railway lines and water courses, a large section of the country can be drawn upon at any time for the necessary supplies. Moreover, the advantage of cheap transportation, for manufactured stock as well as raw material, here obtains, and of course the best of water privileges can be had.

THE APPLETON HUB AND SPOKE FACTORY.

This is one of the oldest industries of the kind in the state and it has also been one of the most successful. But it has never had a more prosperous year than the last one has proved to be; and this, too, notwithstanding the indications at the beginning of the season were anything but encouraging. It is true that the market promised fairly, but the winter of '77-'78 was most unfavorable for securing a stock of timber. The entire season brought not a single day of sleighing, and to the ordinary observer the prospect appeared most gloomy. However, Messrs. Marston & Beveridge did not propose to succumb to circumstances. Accordingly, in-

stead of depending wholly upon the home supply, they arranged for stock at various outside points, touching the rail and water lines of transportation reaching out from this city. The result was that they secured a splendid stock of timber, fully equal to any they had ever purchased at their factory, and at no greater cost. Having decided this point in their favor, a vigorous season of manufacturing at once began. Orders commenced to come in thick and fast, and every part of their facilities had to be brought into requisition to meet these orders. And the demand upon them was no spasmodic affair. The year has continued to the close as it opened, and their establishment has been kept busy the entire year to meet the demands of the market upon them. And notwithstanding their stock was much larger than common, it was utilized much earlier than usual. Although the success of the year may be accounted for to some extent upon the improvement of the market in their line, yet this does not wholly explain the facts. The products of this establishment have an enviable reputation among the wagon manufacturers of the west, and if there is any demand at all, this firm is among the few who can take advantage of the opportunity. They make it a point to buy only the very best of stock, and their facilities for manufacturing are such as to enable them to show the best results obtainable. The sales of this firm during the past year amount to a very gratifying increase over those of the past year, footing up as they do to \$55,000. Messrs. Marston & Beveridge contemplate material enlargements another year, which will add considerably to their capacity.

BILLINGS & MORRISON'S FACTORY.

During the year which is now closed, this has been one of the busiest establishments on the whole river. Anticipating a liberal demand for their products early in the year, this firm, on account of the unfavorableness of the previous winter, abandoned all hopes of securing their yearly stock from the immediate locality, and made ample arrangements for an adequate supply of timber at various outside points. And their sagacity has proved of great advantage to them. Indeed, they have never before witnessed so prosperous a year as the past has proved to be. As the most gratifying evidence of this fact that can be introduced, we may state that their product of the previous year has more than trebled. They had

the advantage of beginning the year with a most excellent reputation for their products throughout the west, and the result has been that they could not possibly fill the orders which crowded in upon them from time to time. Their receipts for the year aggregate \$25,000. This as against \$8,000 for 1877, is surely as flattering an exhibit as could be expected. The prospects of the firm for the coming year are also very encouraging.

GEO. KREISS' HUB AND SPOKE FACTORY

is located on the government canal, and is one of the oldest institutions of the kind in this part of the state. Its products consist of wagon stock in general, including hubs, spokes, felloes, etc. The best of material is used to supply the factory, and, as the process of making it is thoroughly performed, the product finds ready sale in the best markets throughout the west. In common with others in his line, the past year has proved a very prosperous one to Mr. Kreiss.

GENERAL MACHINE WORK.

During the past year, Hart & Page have put up a small factory, and equipped it with suitable facilities for making all kinds of repairs and doing general machine work. A satisfactory success has attended their efforts thus far, and we have no doubt the firm will continue to prosper in the future.

APPLETON WOOLEN MILLS.

This has proved one of the most indispensable, as it has been one of the most prosperous, establishments on the line of Fox river. To the farmer in this community and neighboring counties as well, it has been of great value, and with whom it has always sustained intimate relations. It receives his wool product at the highest cash price, and furnishes him with goods adapted to his uses, upon which he can rely as being superior in every respect. The city also has occasion to appreciate its great importance. It furnishes employment to 118 operatives, and disburses in wages every year upwards of \$17,000. At these times, when the supply of all kinds of labor exceeds the demand to such an extent, the benefit of an

industry of this kind to the community which immediately surrounds it can hardly be overestimated.

It is a most gratifying fact that, notwithstanding the general depression which prevails in business, and the specially unfavorable time for the manufacture of woolen fabrics, the Appleton mills have seen but few idle days during any of the recent years. Of course, there is an adequate cause for this surprising activity. First, the superior business management of the concern has a great deal to do with its success. It is wholly in the hands of young men; but, during their brief career, they have shown remarkable enterprise, tempered with prudence and foresight, which is a rare business virtue even among men who are their seniors by many years. These young men have applied themselves to business with faithfulness and determination, and the result is that their efforts have been crowned with fine success. Their policy radically differs from that of most manufacturers in their line in the west. Rather than to depend upon retail dealers for their patronage, which is somewhat precarious at best, and is attended with more or less losses, this firm has disposed of its entire product to the leading jobbers in Chicago, Detroit, Cleveland, Toledo, Milwaukee, St. Paul and Minneapolis. Of course, their profits on a given amount of goods are much less on this account, but in the end they are the gainers, as there is but little or any losses to be charged up at the end of the year. Of course, this arrangement with the wholesale dealers could not obtain, unless the products of this factory were first class in every respect; but that such is the case, is evident from the fact that the jobbers who once secure their handling are always anxious to continue the arrangement. Indeed, woolen fabrics which present the brand "Standard" have the most ready passport to popular favor.

The products of the Appleton Woolen Mills consist of all woolen flannels, knitting yarns, balmorals — clouded, fancy colors and plain.

The books of Hutchinson & Co. show that they have consumed 200,000 pounds of wool during the year 1878, and that their receipts for this period foot up \$125,000. We feel like specially congratulating this firm on the success of the past year.

DICKERSON SHUTTER WORKS.

This is a new industry in Appleton, the works having been constructed during the past year. The product consists of a new kind of fixtures for outside window blinds, which are certain to have a widespread sale when their merits become known. The utility of the fixtures consists in affording to the occupants of a room perfect control of outside blinds, without raising the window. The blinds can be either wholly or partially opened or closed, and locked securely at any point. The slats can also be adjusted so as to admit of any volume of light desired, or it can be excluded entirely by closing them, all of which can be done by simple movements of the interior attachment. The resulting benefits are many, and need not here be enumerated. We feel certain that this device will meet a want long felt, and that ere long it will become immensely popular throughout the country.

HORSE NAIL WORKS.

The enterprise of manufacturing horse nails was started in this city about one year ago. While a very considerable amount of manufacturing has been done during the intervening period, a good deal of time, as might be expected, has been employed in laying the ground-work for extensive and permanent operations. We are very much pleased to be able to inform our readers that the enterprise is now thoroughly established and in operation to the full extent of its capacity. Indeed, we may say that this has been the case since August last, at which time the work of putting in new and improved machinery was completed. This company, here engaged, manufactures one of the very best nails in the market. If evidence of this statement is wanted, we may submit the fact that it meets with ready and rapid sale wherever introduced. This is an unusual thing with the products of any new establishment, and especially with horse nails. The consumers of these goods are usually prejudiced in favor of some well known article, having an established reputation; but a few months have sufficed for the Champion nail to force its way into conspicuous and popular favor. Indeed, the works have been running night and day, for the two or three months past, and at the present time are at least four weeks behind in filling their orders. On account of this most grat-

ifying demand for their products, the company will double the capacity of the works about the 10th of January, 1879, and are now making arrangements accordingly. The unmistakable evidences now are that this industry will soon develop into one of the most important in this valley. This company is composed of thorough, experienced, and practical business men. The officers thereof are as follows:

President—S. M. Dorr, Rutland, Vt.

Sec'y and Treasurer—Wm. H. Steele, Appleton, Wis.

Superintendent—E. F. Decker, Appleton, Wis.

General Agent—Wm. R. Dorr, Appleton, Wis.

FANNING MILLS, ETC.

John Clapper does a snug business in the manufacture of fanning mills and milk safes, both of which articles are highly thought of. His factory is located north of the depot, in the fifth ward.

RECAPITULATION.

To present in a succinct form, and as a matter in which we know very many of our readers will be interested, the business transacted by the Appleton manufacturers during the year of 1878, we herewith submit a recapitulation of the facts and figures above presented in detail. As will be seen, the result shows a most gratifying increase over the exhibit which we were able to make in our last annual review. The fact speaks louder than words of the steady progress which Appleton is making towards a distinction as a manufacturing center which few cities can hope to rival.

	<i>No. hands employed.</i>	<i>Product for the year.</i>
Farming implements.....	20	\$65,000
Furniture	80	45,000
Flour	43	548,000
Hubs and spokes	45	75,000
Iron	55	120,000
Lumber	17	63,000
Leather	22	31,000
Lime, brick, etc.....	10	15,000
Machinery	15	25,000
Pumps	3	8,000
Paper (print and wrap).....	185	410,000
Staves and heading	45	50,000
Sash, doors and blinds	20	50,000
Woolen goods	118	125,000
Wood pulp	65	150,000
Others	30	55,000
Total.....	743	\$1,835,000

SPEECH OF HON. A. S. PADDOCK,
OF NEBRASKA,

In the Senate of the United States, Monday, February 10, 1879.

[NOTE.—The following speech of Hon. A. S. Paddock, of Nebraska, contains so much of valuable information, and is so complete an answer to those who oppose measures in the national as well state legislatures that have for their object the advancement of agriculture, liberty is taken to publish it in full in this volume. It is hoped it will be carefully read.—SECRETARY.]

MR. PRESIDENT: If this resolution serves no better purpose than to bring the general subject of agriculture under discussion and investigation here, to the end that its great importance as a factor in our domestic economy may be better understood here and everywhere, the senator from West Virginia, my colleague on the committee on agriculture, will have accomplished a good result. Certainly, Mr. President, such an inquiry as that proposed cannot fail to prove beneficial, because the more intelligent congress and the people become in regard to this most important subject, the more surely will the demand for wiser and more liberal legislation for its advancement be favorably answered. The senator did not indicate in his very interesting and instructive speech upon the resolution, the particular methods whereby agriculture is to be exalted, but it is required that the proper committees of the two houses shall fully inquire into the whole subject and report by bill or otherwise.

I indorse all that the senator said for agriculture, and its great record — commencing, as such record does, with the smallest beginnings of things in the world; I fully indorse, too, and adopt as my own, his high estimate of the average character of the class agricultural everywhere. The valuable statistics presented by him showing what has been accomplished through that industry, leave

very little to be said on that score. I shall therefore content myself with a brief statement as to the contributions made by agriculture to the general wealth and prosperity; and this only by way of introduction for the propositions to which I desire particularly to call the attention of the senate and the country. The fact that more than one-half of our entire population who are engaged in the ordinary pursuits of life are directly employed in agriculture, is a sufficient evidence of its universality and importance.

While it is true that in the states of the west and the south a much larger percentage of populations than I have stated is engaged in agriculture, it is equally true that no state of the Union counts it out and ignores it wholly as an economical factor, however deeply the mass of the people thereof may be engrossed in other pursuits.

And now, Mr. President, before I pass to that branch of my subject relating to practical legislation on behalf of agriculture, I desire very briefly to call your attention to a few official statistics relating thereto of special interest to the state and section which I have the honor, in part, to represent here, and of general concern, as well, to all others.

Of the great cereals, corn, wheat, rye, oats, barley and buckwheat, there was produced in the year 1877 in the United States an aggregate of 2,178,934,646 bushels from 93,150,286 cultivated acres; and in 1878, from 100,476,000 acres, there was produced an aggregate of 2,284,902,000 bushels.

To be precise, I give the official classification in detail:

TOTAL NUMBER OF ACRES AND BUSHELS OF THE CEREAL CROPS OF THE UNITED STATES.

PRODUCTS.	1877.		1878.	
	Acres.	Bushels.	Acres.	Bushels.
Indian corn.....	50,369,113	1,342,558,000	51,008,000	1,371,000,000
Wheat.....	26,277,546	364,194,146	32,208,000	422,000,000
Rye.....	1,412,902	21,170,100	1,621,000	25,800,000
Oats.....	12,826,148	406,394,000	13,176,000	411,855,000
Barley.....	1,614,654	34,441,400	1,790,000	42,000,000
Buckwheat.....	649,922	10,177,000	673,000	12,247,000
Total.....	93,150,286	2,178,934,646	100,476,000	2,284,902,000

Of this enormous production the four states of Iowa, Minnesota, Kansas and Nebraska, the oldest of which was admitted into the Union at a date so recent that it is within the memory of the youngest senator in this chamber, furnished about one-quarter of the whole amount, and the youngest of these four, less than twelve years of age as a member of the Union—the state I have the honor in part to represent—contributed fully 80,000,000 bushels to the great aggregate before stated for the year 1878.

The figures are both interesting and instructive, and so I give them in detail:

ACREAGE AND PRODUCT OF THE CEREAL CROPS IN THE FOUR NORTHWESTERN STATES, MINNESOTA, IOWA, KANSAS AND NEBRASKA.

PRODUCTS.	1877.		1878.	
	Acres.	Bushels.	Acres.	Bushels.
Indian corn.....	8,977,000	306,600,000	8,882,000	328,148,000
Wheat.....	5,852,000	91,174,000	8,369,000	100,359,000
Rye.....	130,800	2,572,000	237,000	4,510,800
Oats.....	2,001,000	74,340,000	2,183,000	81,634,000
Barley.....	404,700	9,552,000	404,100	10,319,000
Buckwheat.....	12,050	161,000	22,280	333,800
Total.....	17,377,550	484,399,000	20,097,380	524,704,600

The increase of the total acreage of the cereal crops in Minnesota, Iowa, Kansas and Nebraska was:

	<i>Acres.</i>
In 1876.....	1,279,786
In 1877.....	833,299
In 1878.....	2,659,830

The increase in acreage for these states since 1875 is about twenty-four per cent. The average annual increase in acres is 1,590,972.

In my own state, Nebraska, there has been a remarkable increase, also, in the number of farm animals, our local statistics showing a surplus of 700,000 hogs, 550,000 horned cattle, and 150,000 sheep.

The total cereal productions of the United States from 1872 to 1878, both years inclusive, were as follows:

<i>Years.</i>	<i>Bushels.</i>
1872.....	1,664,331,600
1873.....	1,538,892,891
1874.....	1,454,180,200
1875.....	2,032,235,300
1876.....	1,962,821,600
1877.....	2,178,934,646
1878.....	2,284,902,300

Thus it will be seen that these cereals are steadily increasing their aggregates, while at the same time it may with equal exactness be stated that there is a corresponding increase in many other branches of agriculture. This is notably observable as to live stock, and animal products, among these latter butter and cheese, the value of which alone for the year 1878 was more than \$350,000,000. The increase in the exportation of agricultural productions of all kinds during the past few years has been equally encouraging. The exportation of live animals, which has enormously increased during the past year, is a particular assuring feature of our export trade. We shipped to foreign countries in the years 1877 and 1878 as follows:

	1877.	1878.
Hogs.....	\$219,792	\$337,533
Horned cattle.....	2,128,444	6,704,721
Horses.....	413,245	864,151
Mules.....	469,835	326,610
Sheep.....	323,381	427,273

This shows an increase in the value of the shipments of horned cattle alone from 1877 to 1878 of \$4,500,000 in round numbers. And I predict, if this interest is properly encouraged and protected, that before the end of another decade the shipment of beeves alone will rank second in importance to very few, if any, others on our whole list of exports. The myriads of buffalo that formerly grazed upon the nutritious grasses found upon the eastern slopes of the Rocky Mountains, and upon the great plains farther to the eastward, are disappearing, and vast herds of domestic cattle are taking their places in these almost limitless pasture-fields. From these fields, although this enterprise is in its infancy, there were shipped to the markets of the world over the Union Pacific Railroad alone during the past year more than 100,000 beeves. Before the end of the next decade I expect to see these shipments increased to 1,000,000 head annually.

The whole case, so far as the contributions of agriculture to our export trade are concerned, is summed up in the following official statement: of the entire aggregate value of all exports of every kind and description for the year 1878 — \$739,971,739 — agriculture contributed \$536,038,951.

Mr. President, I think I need go no further than this into the

statistics of our agriculture to satisfy every one that there is no interest more important to us, nor any for the advancement of which congress can afford to legislate more freely, more liberally. And now I come to speak of the particular subjects under the head of agriculture that I think ought to receive far greater attention from congress than has heretofore been accorded to them. Legislation looking to the improvement of the methods of practical agriculture by the application thereto of scientific knowledge is of the first importance. It is the imperative duty of congress to provide the means wherewith scientific investigations on behalf of this particular interest can be most intelligently, most thoroughly prosecuted. The ablest scientists whose services can be secured should be kept in constant employment by the government in this boundless field for useful inquiry and research. It is a fact well known to all, that every crop of every nature in all sections of our country, notably those of greatest value — all cereals and vegetables, all fruits grown in our orchards and gardens, of every name, variety and description — have their natural enemies, some of which are climatic or atmospheric, some dwelling in and upon the soil, while yet others are germinated by, in, or upon the very victims themselves of their hostile assaults. All domestic animals are subject to diseases, some of which under favorable conditions become epizootic and entail ruin upon farmers throughout vast sections of our great agricultural states. Next to good soil, good climate, good seed, and faithful farm husbandry, the chief essential for success in agriculture is the protection of the products of the farm (I use the term in its broadest sense) from those enemies and diseases that on every hand beset them; and our government can engage in no work more laudable or more useful to the whole country than by well directed investigations and research to reduce the annual loss from such causes. Take the case of injurious insects alone (not to speak of domestic pests, nor of those that prey upon our timber and cause ships to sink and buildings to fall); the damage inflicted on our agriculture by species that destroy our crops is perfectly appalling to him who, never having given the subject careful attention, enters for the first time upon its investigation. Horace Greeley, in "What I Know about Farming," wrote:

"If I were to estimate the average loss per annum to the farmers of this country from insects at \$100,000,000, I should doubtless be

far below the mark. The loss of fruit alone by the devastations of insects, within a radius of fifty miles of this city, must amount in value to millions. In my neighborhood the peach once flourished, but flourishes no more, and cherries have been all but annihilated. Apples were till lately our most profitable, and perhaps our most important product; but the worms have taken half our average crop, and sadly damage what they do not utterly destroy. Plums we have ceased to grow or expect; our pears are generally stung, and often blighted; even the currant has at last its fruit-destroying worm. We must fight our paltry adversaries more efficiently, or allow them to drive us wholly from the field."

Mr. President, the cotton worm in 1874 cost the cotton-growing states \$20,000,000 in a single week. The Colorado potato beetle almost vetoed the growing of potatoes in some of the western states, until we learned how to successfully manage it. The chinch bug every few years saps the life of our small grains and leaves them as chaff in the hands of the harvester. Its ravages in 1871 cost the farmers of the northwestern states, at the lowest estimate, \$30,000,000, and in 1874 double that sum would not have covered the loss sustained therefrom in the same territory. In 1874, the report of the state entomologist of Missouri shows that that state alone suffered a loss of more than \$19,000,000 from the depredations of this insect. Hessian flies often ruin our wheat fields over immense areas; and \$200,000,000 would not cover the country's direct and indirect loss from the Rocky Mountain locust plague in 1873, 1874 and 1875, to say nothing of the suffering it entailed upon the brave pioneers of the extreme west. The small grains and cultivated grasses every few years suffer terribly from the well known army worm. The fruit grower is beset on all sides with insect pests that diminish the profits of his business, and not infrequently oblige him to abandon it. And so the catalogue of insects injurious to agriculture might be lengthened indefinitely. Professor Riley, whose great services in economic entomology the west acknowledges and well remembers, the present able entomologist of the agricultural department, estimates that \$300,000,000 would not cover the loss that has been sometimes sustained by the United States in a single year from insects injurious to agriculture; and if we should add to the loss sustained from insects that suffered from fungi and other kindred diseases, very imperfectly understood, the

amount, even if approximately stated, would astonish the country. There is a close parallel between the ills that afflict a community in the way of disease and those which affect our crops. The first requisite in successfully combatting either is correct knowledge of their nature; and as the physician by long study and experience is enabled often to cure, so the economic entomologist, who has made the study of insects that affect our agriculture a specialty, is enabled in many cases to suggest a remedy. Without accurate knowledge, we grope in the dark; and undoubtedly, in applied entomology, as in every practical science, success or failure in the employment of remedial measures depends on the nicest discrimination. But the ability thus to discriminate is only acquired by arduous labor in the field and anxious study in the closet. There are also laws governing the movement and appearance of insect plagues, and the welfare of whole states may largely depend on knowledge of such laws. Professor Riley's predictions regarding the Rocky Mountain locust or grasshopper afford a satisfactory illustration of this. His prognostications more than once since 1873 in regard to the movements of this insect received full and most surprising verification from actual results. His confident assurances more than once satisfied the pioneer settlers, and saved whole districts in the new states of the west from depopulation.

In this connection, Mr. President, let me call your attention to a few facts and suggestions in regard to the losses sustained by the agricultural class from diseases to which farm animals are subject.

The increasing tendency of infectious and malignant diseases to find lodgment here, and to spread among farm animals, has within the past few years arrested the attention of the country. These diseases have inflicted enormous losses, and if not checked, may strike a serious blow at our stock-raising interests. Congress has done some service by causing to be specially investigated the origin, spread and mode of treatment of some of these diseases; but these inquiries have been exceptional and infrequent, when they should have been general and unremitting. The government must deal with these scourges, because it is beyond the power of individual effort to arrest them. The losses sustained from diseases among swine have aggregated from twenty to thirty millions per annum, while scarcely twenty years ago such maladies were nearly or quite unknown. The same may be said in reference to certain

other infectious and contagious diseases to which other classes of live stock are now subject. The fatality of these disorders would seem to increase in almost equal ratio with the increase of the animals in number, until they have caused a once profitable branch of farming to become a precarious and, in some instances, a most unremunerative business. Those who have not investigated this subject have but little idea of the immense sums actually lost by our farmers and stock growers from diseases prevalent among their flocks and herds.

During the past five years, it is computed that these losses will average from thirty-five to forty millions of dollars per annum, making a total aggregate loss for that period of nearly or quite two hundred millions of dollars. In the worst infected districts of the great corn growing states of Ohio, Indiana, Illinois, Kentucky, Missouri, Kansas, and Iowa, it is no very unusual occurrence for a farmer to lose from fifty to ninety per cent. of his entire herd of swine by a disorder of protean character universally known as "hog cholera." A lamentable ignorance seems to prevail in regard to the causes which produce most of the diseases which afflict farm stock; hence, treatment intended to be beneficial is often cruel, and in most cases, perhaps, fatal. Professor Law, of Cornell University, says that we have at the mercy of diseases which commonly affect our herds and flocks, ninety million head of farm animals of a money value of nearly \$2,000,000,000. But the money value of the whole of our live stock, he adds, furnishes only an imperfect idea of the losses that would be entailed upon us as a consequence of the general diffusion of contagious diseases. Some of the most deadly plagues, such as rinderpest, bovine lung fever, pleuro-pneumonia, sheep pox, and hog cholera, prove fatal to about one-half of the animals attacked; and as a new and susceptible generation is exposed every year, the momentary depletion in a generally infected country is to be estimated rather by the amount of yearly increase in numbers than by the losses of the first year. The results of such plagues are to be looked upon as a yearly tax of the most oppressive kind, with a tendency always to increase through the multiplication of flocks and herds and the widening of the area devoted to such husbandry.

As regards property at stake, we own incomparably more live stock than any nation of Europe, Russia alone excepted. In abso-

lute numbers, we exceed the nations of Europe, with the exception noted, by three, four, and even five times in all classes of farm animals excepting sheep, and yet in proportion to our territorial area the aggregate of our live stock is very limited in comparison with that of the countries to which I have referred. But with our herds approximately increased in numbers in relation to territorial areas with theirs, as we may some day expect they will be, we shall be exposed to dangers equal to those that have for centuries beset all Europe, if we shall continue to ignore the animal pestilence in our legislation. As illustrating the possibility of such losses, I may state that a single extension of such a disease as rinderpest has cost western Europe as much as thirty million head of cattle, worth, probably, \$1,500,000,000. In eighty years of the last century, it cost France alone ten million head of cattle. In the six years preceding 1862, lung fever and epizootic aphtha cost Great Britain over one million head of cattle, worth at least \$50,000,000. In eighteen months of the prevalence of the rinderpest, in 1865-'66, the same country lost about \$10,000,000. Happily, our own country at the present moment, notwithstanding certain damaging reports to the contrary, is exceptionally free from these devastating pestilences. There came recently a few sporadic cases of pleuro-pneumonia among small dairy herds, in comparatively isolated places — the result, probably, of an impure regimen; but steps were promptly taken by local authorities to stamp out the disease. This subject, however, is under investigation by the committee on agriculture, under instructions recently given by the senate, and full information in regard to it will soon be given to the country.

In the great grazing fields of the extreme west, whence is principally drawn the supply of horned cattle for the foreign markets, such diseases are wholly unknown as yet, and with proper national and state sanitary regulations, they will never reach them; besides, if by any means they should be accidentally transported thither, they could not successfully spread, because in that rare, dry atmosphere, where the ranges are so extensive, the conditions are most unfavorable to the epizootic spread of pestilential disorders. But this fact in no degree lessens the force of my argument in favor of the adoption of preventive methods that will not only protect our stock growers, everywhere, but at the same time strengthen our rapidly increasing commerce in this most important branch of

agriculture. For we have recently seen that an almost groundless rumor in Europe, that a pestilential disease prevailed among cattle in this country, caused the British government to seriously consider whether the importation of horned cattle from the United States should not be wholly prohibited. So it will be seen that the interests of commerce as well as of agriculture demand that the national government shall take jurisdiction and control of the whole subject.

There is another subject, Mr. President, not strictly agricultural, and yet so closely allied to that interest as to demand consideration always when agricultural questions are under discussion. I refer to the preservation of our forest lands from denudation. Those who have investigated and given much thought to the matter, declare that the wholesale destruction of the forests of a country, without providing for a new growth, not only seriously affects the material interests, but impairs the health and comfort of all the inhabitants thereof. Bitter experience long ago taught the people of the old world that they could not with safety wage indiscriminate war against their trees. Nature is, indeed, a kind mother to those who exercise an intelligent regard for her habits and her laws, but she is at times terrible in her wrath against those who blindly defy her decrees. The laying waste of the forests of a country, rudely disturbs that harmony between nature's forces which must be maintained if the earth is to be kept habitable for its teeming millions. We have ourselves, heretofore, sadly neglected these considerations, but our government cannot and must not longer refuse to give to them its most serious attention. If we may not with propriety restrain the individual from injuring his own property, we can and should at least furnish information and devise plans, through intelligent legislation, which shall incite him to co-operate with his neighbor to protect their common interests. Most European governments have elaborated methods whereby they exercise a supervisory control over the forests of their dominions, and one day the public welfare will demand that our government shall follow their example. The subject is a practical one; it is not a dream of the theorist; it concerns the pockets of the people, and their welfare in many ways.

At the last annual meeting of the agricultural society of the state I have the honor in part to represent here, in speaking to our own

people upon the importance of preserving and augmenting our forests, I said:

"I know very well that a great deal has been said upon this subject by far abler and wiser men than myself, and that I can hardly expect to say a word which has not already been better spoken. Nevertheless, I must preach my brief sermon on this text, otherwise I shall feel that the most important one of all the interests of the state will have been in some degree slighted by me, on an occasion when it deserves to be given greatest prominence. I formulate this proposition: Agriculture cannot prove enduringly successful, populations cannot be largely multiplied here, although the conditions, both of soil and climate, are exceptionally favorable to such results, unless the forest areas are increased proportionately, at least, with the increase of the area of agricultural cultivation. Trees are the dominating members of the vegetable kingdom. They are necessary factors in the sum total of those influences which constitute the environment of animal life. Trees, by absorbing carbonic acid gas and emitting oxygen, act as agents in rendering the atmosphere life-sustaining. By interposing their foliage between the sun and the earth, they serve a useful purpose in sheltering the soil from heat, and, as conductors of heat, in equalizing the temperature of the earth and the air. By covering the surface of the ground with a layer of leaves and mold, they greatly assist in preventing the escape of heat from the soil, this layer of dead matter being still more useful in absorbing the fructifying rains, and allowing the water to percolate steadily into the thirsty earth, instead of sweeping over its surface, disintegrating and washing it away. As a mechanical shelter, trees play an important part in protecting both the ground and human habitations from cold and destructive winds. By their power of absorption, the roots of trees take up from the soil and give off through their leaves an amount of moisture which, deducting therefrom the quantity absorbed in turn by the leaves from the air, is sufficient to exercise an important influence in increasing the general humidity of the atmosphere. As an agent in cooling the air about and above it, and thus increasing the frequency of rains and the amount of precipitation of both rain and dew, the forest subserves a most beneficent purpose.

"By the protection afforded the soil against the escape of moist-

ure, it preserves and tends to make regular and permanent the natural springs which are necessary to the maintenance of vegetable life. In protecting the surface of the ground from rapid evaporation of the rains which fall upon it, and providing a spongy covering which rapidly absorbs and distributes these rains, it prevents the disastrous inundations of rivers which too often occur when the surface of the ground offers no obstructions to the onward flow of the rivulets that suddenly feed the main stream with their accumulated waters. The forest, too, guards the soil against abrasion and displacement from torrents and overflows, and thus again exerts its conservative influence for man's good. Moreover, we need trees for the delight they afford as at once the most majestic, imposing and beautiful of nature's vegetable forms."

Mr. President, it is perhaps sufficient to say in respect of the demand made upon timber as an article of commerce, that it is accompanied by a short-sighted and improvident waste which will surely bring this country to grief in a very few years. It is a self-evident proposition, when we consider the enormous amount of timber consumed in manufactures, for building purposes, for fuel, fences, railroad ties, etc., that unless replanting is universally resorted to, our supply will in no great length of time become exhausted. Authentic statistics are at hand to show just how rapidly we are consuming our timber resources, and how long it will require to use up our native supply. I think it will require no elaboration of figures to prove to our honorable friends in this chamber from New York and Pennsylvania, Maine and Vermont, Wisconsin and Minnesota, that within their own life-time there has occurred in those states so great a denudation of their pine lands that exhaustion, even now, is spoken of by manufacturers as a not very remote contingency. The consumption of wood is going on in all parts of the country on an enormous scale. It is said that the region east of the Alleghanies was less than three centuries since nearly all dense forest, and we know what vast tracts of woodland have been stripped of their trees in the western, southwestern and northwestern sections of the Union. According to the census of 1870, nearly seven and a half million persons were employed in manufactories whose material was wood—the value of the wood so consumed being over five and a half millions of dollars. The increase in the value of logs sawed into lumber was from \$43,000,000 in 1860 to

\$103,000,000 in 1870. And the present decade will show a far greater increase. The receipts of lumber at Chicago alone for the year 1877 were 1,066,452,361 feet. With over eighty thousand miles of railroads, the demand for ties is very great; the number annually required being estimated at 150,000,000, which is said to require the cutting of eighty thousand acres of timber. It was estimated at the agricultural department a few years since, that the fences of this country cost \$1,700,000,000, and that new fencing cost annually \$198,800,000. An iron furnace where charcoal is used soon exhausts the timber for miles around it. Our telegraph lines are said to have used two million trees. Some years ago Professor George P. Marsh estimated that the lumber used in this country would require the destruction of twelve million acres of timber annually, and we know the area cut is constantly increasing, for besides an increased home demand the exportation of lumber and its manufactures is growing to be very large.

The great consumption of timber and the constantly diminishing area of woodland have called forth frequent appeals from both federal and state officials that something may be done to check the waste. The president, in his message to this congress at the opening of its first session, referred to the subject in a very emphatic manner. The secretary of the interior, in his report accompanying that message, says:

The rapidity with which this country is being stripped of its forests must alarm every thinking man.

Governor Hartranft, in one of his messages to the Pennsylvania legislature, urged that some law be framed to prevent the squandering of the state's timber resources. He says:

I especially invite your attention to an evil of considerable magnitude, which every year grows more aggravated, and in certain regions at times is the occasion of serious apprehension and loss. I refer to the wholesale destruction of our forests.

The governor of Ohio, at the last session of the legislature of that state, called its attention to the fact that out of a total area of 9,000,000 acres of woodland in that state three years ago, 4,000,000 acres had been consumed.

Concerning the consumption of timber in Europe, Professor Marsh states that France had, in 1750, 42,000,000 acres of woodland, which in 1860 had been reduced to about 20,000,000 acres.

Spain could not build her fleets for want of wood, and thus the Spanish dislike of trees lost to that country political supremacy. Italy and Russia have both suffered from a too rapid consumption of their forests, while Germany, by her more efficient forestry laws, has been able to preserve and renew her woodlands.

And now, sir, considering these facts, and mindful of the sad experience of older countries in this regard, who will say that this important subject should not receive immediate and thorough attention at our hands?

Mr. President, these to which I have already referred are among the most important, but they are not by any means all the subjects belonging to this class that demand special investigation, and on behalf of which careful legislation by congress is demanded. We have a department of agriculture to which these and kindred matters are assigned for consideration and investigation, but we so hamper it and hedge it about with our parsimony that very little can be accomplished through it for the great interest it has in charge.

After the grasshopper or the cotton-worm has come and actually destroyed our products to the value of hundreds of millions, or hog cholera or other epizootic disorder has decimated our herds and flocks, we make an appropriation of a few thousands of dollars for a special commission to inquire into it. A few weeks or months are spent in such investigations, a report is made, we order a few copies of the same to be printed, and then the subject is neglected and perhaps forgotten until another calamity of the same kind visits us, when we take the smallest auger we can find and again bore for information.

Now this is not only trifling with, it is a crime against an interest of greater value to the country than all others combined. This department ought to be constantly kept upon a war footing, with an abundance of means always at its command to enable it to employ every instrumentality that science may approve to break the force, if not to entirely prevent these destructive attacks upon our greatest industrial interest.

First of all, the sphere of action for the department of agriculture should be enlarged relatively with the importance of the interest it represents. The Signal Bureau, the different geological surveys, in fact all that relates to geology, meteorology, mineralogy,

the subject of fish and fisheries, perhaps of internal transportation, and probably some other cognate subjects, could properly be placed within its jurisdiction. In keeping with the custom of the most forward nations of the globe, the head of this department here should be the equal of the other chief counselors of state. He should be a cabinet officer, with all the powers and prerogatives of one; the divisional heads of the department should be among the most eminent and practical men in their specialties, and might together, under the secretary of agriculture, form a national tribunal to which the country would look with confidence for the solution of any trouble threatening the interests under its charge, so far as such solution might be within human power, and they should not only receive due compensation for their services, but there should be a full and adequate appropriation made annually to the department, as I have before indicated, based upon estimates from the different divisions, for original research in these several lines.

This department as at present organized is a disgrace to our agriculture and a reproach to the country. Hitherto, in the popular estimation, it has had no status except such as it has made for itself through its partial and unsatisfactory distribution of seeds in answer to demands based rather upon political considerations than the exact interests of agriculture. This is not the fault of those in charge, but is due mainly to a wrong sentiment among the people in regard to the proper mission of this department. Appropriations have been freely made for seeds, while scientific investigations in the interest of agriculture have as a rule been scoffed at, and, if not entirely ignored, they have been neglected by congress. The present commissioner has with commendable enthusiasm and energy sought to give to practical science its proper place in the department, but in this effort he has had very little support from congress. To illustrate: Much labor has been successfully expended under his direction by Professor Collier, the learned chemist of the department, in experimental analysis, with a view of discovering through the tests of economical chemistry processes whereby certain of our products, now almost valueless, may be utilized in the manufacture of sugar and other staple commodities now imported at a cost of millions of dollars annually to the country. And yet the salary of this chemist, whose whole

life has been given to study and research in his great specialty, is no more than that ordinarily paid to a book-keeper in a retail store, and the laboratory in which he conducts these experiments and investigations in its general appointments is inferior to that of the smallest institution of learning in any section of the country in which this science is taught. And so it is throughout. There are some able scientists connected with the department at the present time, but their salaries are beggarly and their opportunities for usefulness are poor indeed. This is all wrong and must be corrected if the government means to accomplish anything for agriculture through this instrumentality.

A very wise and useful thing to do would be the establishment of a national academy of agriculture, under an organization as to its general features similar to that of the Military Academy at West Point, where all the sciences, and particularly those relating directly or indirectly to practical agriculture, should be specially taught, the attendance to be provided for by the selection of one pupil from each congressional district, all to be paid and maintained by the government under rules and regulations similar to those that obtain at West Point. When graduated, some could be employed in scientific work at the department of agriculture, some could be detailed as teachers for the agricultural colleges of the several states, on application of the governors thereof, as officers of the army, under the present law authorizing the same, are sometimes detailed to teach military tactics at state universities. There should be a national agricultural agency or station in each state, under the control of the department of agriculture, through which scientific investigations could be carried on and statistics gathered in the interest of agriculture. Upon these agencies could also be imposed the duties of the signal service, and for this labor these scientists educated at the expense of the government could be detailed. I have only time to outline the general features of such a plan. I cannot here elaborate it. Suffice it now to say that I believe it to be entirely practical — a plan which, if energetically inaugurated and carried out, would do more for this country in thirty years than West Point and half the other educational institutions of the country combined have done during all the years of their existence. Thus should we surely “turn the sword into the pruning-hook.” The result would be to give to the country a

small army of educated men to direct, to conserve, to defend our chief interest through the great instrumentality of applied science, while West Point supplies us with officers educated to be most skillful and efficient in works of destruction. I do not mean to inveigh against West Point, but give us the academy of agriculture, and permit it also to become an academy of general sciences as well.

Mr. President, we have seen that the territorial area devoted to agricultural cultivation and use is every year expanding; that the productions therefrom are multiplying in variety and amount; that the exportations of these products, particularly during the past two or three years, have largely increased. But we must remember that during these years the war in eastern Europe contributed immensely to the foreign demand for our breadstuffs, meats, etc.; that that war is now ended, and many of our old competitors, whom the war had driven into the markets as buyers, have now returned to these same markets as sellers. Already the effect of this changed condition of things in Europe is seriously felt by the producers and shippers in this country in a diminishing demand and receding prices. Our crops of the last year were exceptionally bountiful; the promise for the crops of the coming year is more encouraging, perhaps, than at any time before in our history; but the outlook in respect of markets is discouraging in the extreme. Moreover, there are strong indications of a much larger transfer of populations from other industrial pursuits to agriculture in the coming year than has, perhaps, ever occurred in this country — a most hopeful sign, indeed, is this. And these facts bring to the front more strongly than ever before two or three questions of most vital concern, not only to those engaged directly in agriculture, but to everyone everywhere: What are we to do about markets? How, with the present ruinously low price of produce in the great agricultural districts of the west, and the heavy cost of transporting the same, are our farmers to send the products of their farms to the poor markets now open to them? At present prices, and with the present cost of shipment from the Mississippi and Missouri valleys to the seaboard, the farmer can barely raise a sufficient sum to pay the actual cost of production. Now this is a subject of greater importance to this country at the present moment than all others combined which have during the present session engaged the attention of congress.

The aggregate of our cereal productions for 1878 was, as I have before stated, about 2,285,000,000 bushels. Of this, 1,371,000,000 bushels, or more than one-half of all, was Indian corn; and of this, the four states of Iowa, Minnesota, Kansas and Nebraska alone produced nearly 330,000,000 bushels. At present prices, this product cannot be shipped at all from the farms in these states, and the market for cattle and hogs being correspondingly low, it cannot be profitably fed to them. And so it has happened in many parts of those states, that corn has during the present winter been burned as the cheapest fuel for the farmer. And now, while I am speaking of this particular product, I wish to say in parentheses that one of the most useful things we could do would be to authorize the government through our agricultural department, seconded by the efforts of our ministers and consuls in other countries, to make a special effort for its introduction into all foreign countries, with the view of bringing it into more general use, particularly in Europe. The effort made by Hon. Mr. Hewitt, of New York, in the other house, to provide for a universal advertisement of Indian corn through the last Paris exposition, was exactly the right action at the right time; and some day his wise suggestion in that behalf will be better appreciated than it has yet been by the American people. The aggregate value of the cereal crops of last year to the farmers themselves cannot be placed at more than forty cents per bushel, or about \$900,000,000; whereas, with transportation as cheap as it might be made, and markets improved, as I believe it is possible to improve them by wise, liberal, persistent efforts on the part of the national government to extend old and secure new ones, such an aggregate of cereal productions as I have stated for the year 1878 could be made to realize to the farmers of the country fully \$2,000,000,000, and correspondingly more as these productions should hereafter be increased; and with proper remuneration for agricultural labor, they would immeasurably increase. How are we to make transportation from the interior to the seaboard cheaper? I fear we shall not accomplish this by congressional legislation regulating tariffs on existing roads in the interest of the states lying nearest to the seaboard, at the expense of the great agricultural states further away. I look for no relief through such legislation, the constitutionality of which may be doubtful, the application of which, under a rule common to all, requiring transpor-

tation over short distances at the same relative rates as for long ones, would be impossible; and which, if enforced, would unduly favor those shipping over short lines, while at the same time operating as a discrimination against shippers over long lines, thus entailing absolute ruin upon the very interest we seek to advance. The surest measure of relief in the way of railroad transportation would be the construction by the government itself of an air line, double track, exclusively freight railroad from some one of the great ports on the Atlantic to some point on the Missouri river, to be operated by licensed common carriers under rigid police rules and regulations as to the use of the same, with payments therefor in the way of tolls on the same principle as that governing the use of canals like the Erie, of New York, owned and controlled by state authority.

Each state through which this great trunk line should pass could authorize lateral tributaries to it, so that the vast agricultural districts of the west and southwest could for the most part receive equal benefits from it, while the manufacturing states at the eastward, which are not only small producers of agricultural products, but are vast consumers, and the great commercial centers that are engaged in the delivery of these products to the foreign as well as the home consumers would be equally benefited; the first by the marked reduction of cost to them of these products that would surely result, and the second by the enormous increase in their commerce that would follow if our ability to sell our breadstuffs and meats in the markets of the world at lower prices could be increased by this saving in the cost of inland transportation. I know it will be said that such a scheme is wholly impracticable, and I admit there are serious objections to it, but I believe a satisfactory plan for relief in this direction might be devised; and it is beyond any doubt or question, whatever, that if it could be consummated, it would settle the question as to the absolute and permanent agriculture and commercial supremacy of this country for all time. There can be no question, of course, as to the ability of the government to carry through such a work. The government itself would own the property. Four per cent. one hundred year's bonds could be readily sold to provide means for its construction; light tolls upon the traffic over it would maintain it, pay the interest on the bonds, and provide a sinking fund for their redemption at maturity.

The government would, of course, have undisputed control in the matter of fixing the rates on all transportation, as well as over the police regulations for the operating of the road, all of which could easily be provided for under a carefully digested plan or system for its general management.

Such a work as this, or even the building of a ship canal from New York or Philadelphia or Baltimore, to connect with the great lakes and rivers of the west, through which steam propellers might pass to the seaboard from the vast grain growing regions beyond the Alleghanies without breaking bulk, would, with our present wealth and credit, be a mere trifle in comparison with the digging of the Erie canal at the time it was done. I am frank to say I believe it would have been infinitely better for the government and country if the Pacific railroads had been built by the government itself on some such plan as I have indicated.

The improvement of the great navigable rivers of the west — notably the Mississippi and its more important tributaries — in the interest of economical commerce has latterly received commendable attention and encouragement from congress. If this important work can be continued on a liberal plan so as to render their navigation always cheap, easy and expeditious, the results will be invaluable to the whole country. The farmers of the upper Mississippi and of the great Missouri Valley particularly, hope to be able very soon to float the products of their farms in barges down these rivers to meet at New Orleans ships of the largest register always ready to bear the same out to the markets of all the world. With such improvement of the navigation of these great streams as I have indicated, and with the establishment and rigid enforcement of national and state quarantine and sanitary regulations against that fearful scourge, the yellow fever, so as to exclude it from New Orleans and the other important ports of the Lower Mississippi, the benefits that would accrue to the west, and in fact to the whole country, would be incalculable.

In this connection, Mr. President, I am led to consider more fully the subject of markets to which I have incidently referred. And in speaking of the importance of securing new markets and extending old ones, I shall discuss the proposition as one that embraces within its scope and is applicable to all classes and kinds of products, because when we enter this field of inquiry we at once dis-

cover that whatever will benefit permanently any or all other interests will correspondingly advance the interests of agriculture; and on the other hand, whatever will benefit agriculture will benefit all other interests, because all others in our country have their bases in, and are dependent upon it. Improved methods of agriculture whereby increased protection of our growing crops, of our flocks and herds may be secured, cheaper transportation, the permanent maintenance of a sound currency of uniform standard with the fixed money of commerce, will enable us to extend our markets in Europe, but these alone will not securely open to us the markets of South America, Australia, etc. Some other things besides these are necessary. We must strengthen our merchant marine, and at the same time adopt a more liberal rule of reciprocity in trade with those countries.

Through the generous support accorded to their mail steamship lines by the chief producing nations of Europe, as well as by a more favorable rule of reciprocation on their part, they have very nearly monopolized the trade of the South American countries, so that our commerce in that direction is of very little account to us. Take the empire of Brazil for illustration. From 1870 to 1875, both years inclusive, the exports of that prosperous country were of the value of \$577,041,492. Of this large amount the United States purchased \$274,148,500, nearly one-half of all her exports. During the same period Brazil imported \$471,570,859 in value of the products of other countries, of which we sent of our products \$48,853,535, showing a balance against us from five years' trade with that country alone of more than \$220,000,000, all of which had to be paid in gold. During the year 1877 our importations from Brazil were in round numbers \$45,000,000, while our exports to them were in round numbers only \$7,000,000. And it is a fact full of significance to the farmers of the west that the shipments of flour and other breadstuffs, and of the various products common to their farms, aggregated in value a larger sum than that of all other exports to that country combined; and another interesting fact in connection with this Brazilian trade is that of coffee alone, an article used by almost every man, woman and child in this country; the average importation from Brazil into the United States is about \$36,000,000. If we could pay for this importation with our own products, we should do exactly the thing we ought and must be

permitted sooner or later to do. Our mails for Brazil have frequently been sent by steamships from New York to Liverpool and thence to Rio de Janeiro, because there was no other way to transmit them. Our products have often been shipped to Liverpool, there sold, and reshipped thence to the ports of Brazil.

The United States mails, even when transmitted direct from our ports to Brazil, have almost always until quite recently gone in British steamships, carrying the British flag. Now if there is any possible remedy for this condition of things — whatever it may be and however strongly condemned by previous conceived ideas as to its efficacy — it should, by the consent of all, be applied at once. I believe the exact remedy is to be found, first, in establishing the necessary lines of mail steamships between this country and Brazil, which in respect of capacity, speed, and elegance of construction shall be superior to the ships of the British, French and German lines, the service to be performed under contract requirements, with heavy forfeitures for the violation thereof, so as to secure absolute certainty as to exact regularity of trips and of transmission of the mails. Next in order, and perhaps even more important than this, is complete reciprocity of trade with Brazil. If such a policy could be adopted, we would very shortly turn the balance of trade against Brazil, instead of being compelled to make an annual payment, in gold, of \$36,000,000 or more on account of the balance due her as the result of our commerce. There is, indeed, hardly an article which Brazil imports that we cannot somewhere in our own country produce and successfully export to them, provided that the conditions of our trade and business intercourse with them are such as to enable us to compete with the other producing nations that now employ these very facilities to our practical exclusion from that commerce, because we possess them not.

What is true of our trade with Brazil is in a greater or less degree true of that with the Argentine Republic, with Venezuela, with Chili, with Peru. Let us look for a moment at one illustration presented by the commerce of Chili. Nearly everything produced by Chili for exportation is subject to a heavy import duty by our government; therefore they ship mainly to European markets which are free to them. Those markets are about as good to them as ours would be if our import duties were off, and so the Chilians save nearly or quite the whole amount of that tax, which thus operates

almost as an actual prohibition of imports into the United States from that country; besides, the rates of freights are lower to those European countries for the reason that, making with them a free and equal exchange of their products, ships in that trade have both outgoing and incoming cargoes. Where thus loaded both ways, much lower rates can be given than when the shipments are made only one way, as is often the case in our small trade with Chili. Moreover, the condition of the finances and the currency of Chili — they have an irredeemable currency, fiat money, there — are such that if we sell our products to them they must give us theirs in exchange therefor, and so it happened in a single year recently that England sold in that country fifty-five million yards of cotton cloth while we sold but five million, although all Chili admitted that our goods were greatly superior to those manufactured in England and the nominal price of both were the same. But the difference in the cost of exchange in their favor, from the causes indicated, operated to exclude ours and admit the poorer fabrics of England.

The great colonies of Australia and New Zealand, in the South Pacific, lying in the very path of our commerce, which imported in 1865 \$236,000,000 of foreign products — very largely of those classes and varieties which we produce in the greatest quantities and of superior excellence — took from us less than \$4,000,000. Now, I myself was educated in the political school of Henry Clay, and while I yet think that in some cases and under some circumstances protection through high revenue tariffs may answer a good purpose, I am forced to believe that for the states that are exclusively agricultural it may be on the whole an injurious policy. I speak now only of and to those states. Undoubtedly we would be immensely benefited if all raw materials used by the skilled labor of the country in the manufacture of articles absolutely necessary to the wardrobe of the farmer, the laboring man and their families, and all articles of food — not luxuries — could be admitted free of duty. This would give us almost entire reciprocation with all the countries I have named; which, together with favorable postal communication with them, would very shortly secure for us very nearly a monopoly of that immense trade.

On behalf of the great interest of agriculture particularly, for which I speak to-day, sir, I ask congress to give to this subject early and earnest consideration.

Mr. President, the area of arable lands in the United States prob-

ably exceeds fifteen hundred millions of square miles. The area at present under cultivation is estimated by the agricultural department to be only 174,901,000 acres. This must and will be increased correspondingly with the increase of population, unless our agriculture, because it shall become unremunerative, shall decline, and our cities and towns be occupied at the expense of the rural sections, to the ultimate destruction of the country; for without agriculture successfully maintained our republic cannot long endure. Verily, the day that witnesses the failure of agriculture will mark the date of the sure decadence of this people; and, sir, if a thousand millions of dollars are required to be expended, therefore, to encourage its advancement, in the employment of the various instrumentalities and methods to which I have called attention, and all others that may be useful, to the end that agriculture may be extended to the fullest extent our immense facilities may permit, and yet be fully and satisfactorily remunerative, the investment would be the wisest, the most prudent, the most conducive to the prosperity and welfare of the whole people that has ever yet been appropriated.

I hope, Mr. President, the day will sometime come when our congress will be made up more largely from the agricultural class; for the larger the percentage of representation here in the persons of those engaged in practical agriculture, the more liberal will be the policies of the government in respect of it.

I say this, Mr. President, with all due respect to the three hundred lawyers, more or less, who to-day occupy seats in the two houses of congress. It is true, however, that the record and all past experience do not greatly encourage this hope, for history discloses the fact that although those engaged in practical agriculture since the existence anywhere of organized society, have uniformly outnumbered those employed in all other avocations combined, they have as a rule had the smallest participation of either in the direction of the affairs of governments. Undoubtedly, farmers in our country occupy a higher plane, socially and politically, than actual tillers of the soil have heretofore held anywhere.

Here, sir, the tiller of the soil is sovereign. All things that are possible for any one are possible for him, and yet his class rarely has direct personal representation in the great executive and legislative offices of the government. This is a national misfortune. The farmers of our country who own and cultivate farms, are of all

others most patriotic, for ownership, occupation and use of the soil induce the growth of patriotism everywhere. None so slow as they to engage in civil strife, or to consent to needless foreign wars; none more conservative, more steadfast in their opposition to tyranny, to communism, to revolutionary movements of any kind against law and order, against the rights of life and property, and that protection resulting for all through a well organized society. Therefore it is especially needful in a country like this, where the government rests upon the consent and in the will of the people, that such a great, conservative, patriotic element should hold its full proportional representation in the personal direction of affairs. Why is it, in view of these facts, that as a rule farmers are set aside and the professional men of the country are generally assigned to high executive and legislative duties?

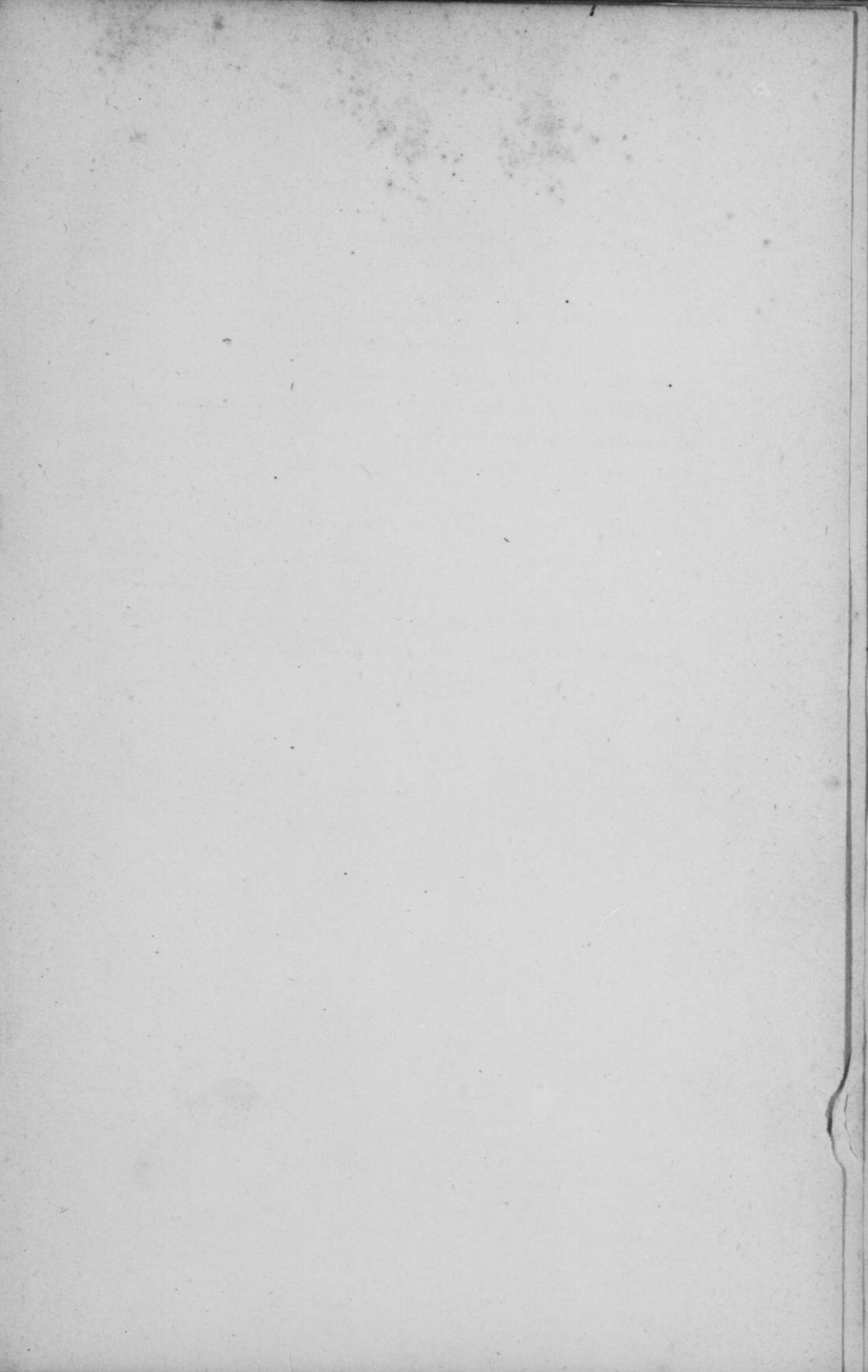
The answer is easy. It is because farmers are satisfied with giving to their children only inferior education, when it is apparent that of all the youths of the land they should receive the most careful training, the most thorough, the most general instruction. The practical agriculturist requires a knowledge of economical chemistry, of botany, of physiology, of entomology, of physics, of engineering, for all these may be brought into requisition in the farm management. He should be learned in political economy; in the rules and usages and requirements of commerce and of trade, of finance, of the currency, because the interests of his great calling are closely connected with them all, and by his own knowledge of the exact relationship of each to the other, he should be able to protect these interests when they may be imperiled by legislation having for its object the special protection and advancement of some other particular industry or avocation, without due regard for the effect thereof upon agriculture; he should be learned in the law, in order that he may be able to understand and defend his rights of property when threatened; he should give attention to literature, to philosophy; finally, he should be conspicuously cultured, mentally disciplined, enlightened and refined, because our civilization demands it; because his class, being the largest, the most interested in the prosperity of the country, therefore the safest of all, should lead in affairs; and this it cannot do until those who compose it are thus qualified to take the exalted place at the head of the column of progress, to which otherwise they would be entitled.

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